CRWMS/M&O

Design Analysis Cover Sheet

Complete only applicable items.

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Table of Contents:

Item **Page**

1. Purpose 4

2. Quality Assurance 4

3. Method 4

4. Design Inputs 4
   - 4.1 Design Parameters 5
   - 4.2 Criteria 8
   - 4.3 Assumptions 9
   - 4.4 Codes and Standards 11

5. References 11

6. Use of Computer Software 12
   - 6.1 Scientific and Engineering Software 12
   - 6.2 Computational Support Software 13

7. Design Analysis 13
   - 7.1 Background 13
   - 7.2 Evaluation Procedure 13
   - 7.3 Code Input Calculations 14
     - 7.3.1 SAS2H Data Block 5 Input 14
     - 7.3.2 Fuel Density and Composition Calculations 14
     - 7.3.3 Clad Temperature 15
     - 7.3.4 Moderator Density 15
     - 7.3.5 Boron Concentration 16
     - 7.3.6 SAS2H Data Block 8 Input 16
     - 7.3.7 Specific Power and Effective Full Power Days Calculations 18
     - 7.3.8 Decay Input 18
   - 7.4 Number Density Calculations Using ORIGEN-S Output 19
   - 7.5 Effects of Long Term Low Power Criticality in the Waste Package 19
     - 7.5.1 SAS2H Input Modifications 19
     - 7.5.2 ORIGEN-S Input Modifications 20

8. Conclusions 20

9. Attachments 25

1. Purpose

This analysis is prepared by the Mined Geologic Disposal System (MGDS) Waste Package Development Department (WPDD) to provide pressurized water reactor (PWR) isotopic composition data as a function of time for use in criticality analyses. The objectives of this evaluation are to generate burnup and decay dependant isotopic inventories and to provide these inventories in a form which can easily be utilized in subsequent criticality calculations.

2. Quality Assurance

The work performed for this analysis is covered by a Waste Package Development (WPD) QAP-2-0 work control Activity Evaluation entitled "Perform Criticality, Thermal, Structural, and Shielding Analyses" (Ref. 5.1). The QAP-2-0 evaluation determined that such activities are subject to Quality Assurance Requirements and Description (QARD) (Ref. 5.2) controls. Applicable procedural controls are listed in the activity evaluation. The waste package is on the Q-List (Ref. 5.3) by direct inclusion by the Department of Energy (DOE), as an item important to safety and waste isolation; because of the direct inclusion of the waste package on the Q-List, a QAP-2-3 evaluation is not required to be conducted.

The work reported in this document is part of the neutronic analysis for the preliminary design; thus, design inputs include unqualified data and unconfirmed assumptions. These design inputs will require subsequent qualification (or superseding inputs) as the waste package design proceeds. This document will not directly support any construction, fabrication, or procurement activity and, therefore, does not require initiation of a TBV (to be verified) number for tracking purposes. However, use of any data or output from this analysis for input into documents supporting procurement, fabrication, or construction is required to be controlled as TBV in accordance with appropriate procedures.

3. Method

The SAS2H sequence in SCALE 4.2 (Ref. 5.4) is used to calculate the isotopic composition, as a function of time, for the PWR criticality design basis fuel assembly. The prime module of this sequence is the ORIGEN-S code. This code does a point depletion of a selected fuel type with user specified irradiation conditions. At the completion of the depletion calculation, decay of the irradiated fuel with user specified time intervals is computed.

4. Design Inputs

The design inputs identified in this document are for preliminary design and shall be treated as unqualified data; the design inputs will require subsequent qualification (or superseding inputs) as the waste package design proceeds. This document will not support any construction, fabrication, or procurement activity and therefore is not required to be procedurally controlled as TBV.

The dimensions listed in this section and throughout this analysis are in the metric units used directly in the neutronics codes to facilitate checking and preclude errors in input.

4.1 Design Parameters

The fuel assembly upon which this calculation is based is the B&W 15 x 15 fuel assembly. The mechanical parameters and typical operating parameters for this assembly type are shown in the two tables below.

Table 4.1-1 Mechanical Parameters of B&W 15x15 Fuel Assembly

Parameter	Value	Units	Metric	Units	Radius (cm)	Ref
Fuel Rods	208	/assbly	208	/assbly		5.5
Fuel Rods on a Lattice Side	15	/side	15	/side		5.5
Guide Tubes	16	/assbly	16	/assbly		5.5
Instrumentation Tubes	1	/assbly	1	/assbly		5.5
Total Guide + Instrument Tubes	17	/assbly	17	/assbly		-
Clad/Tube Material	ZIRC-4		ZIRC-4			5.5
Fuel Pellet OD	0.3686	inches	0.936244	cm	0.468122	5.5
Fuel Stack Height	141.8	inches	360.172	cm		5.5
Mass of U	1023	lb	464	kg		5.6
Mass of UO_2	1160.64	lb	526.38	kg		5.5
Percent of Theoretical Density	95	%	95	%		5.5
Fuel Clad OD	0.430	inches	1.0922	cm	0.5461	5.5
Clad Thickness	0.0265	inches	0.06731	cm		5.5
Fuel Clad ID*	0.377	inches	0.95758	cm	0.47879	-
Fuel Rod Pitch	0.568	inches	1.44272	cm		5.5
Guide Tube OD	0.530	inches	1.3462	cm	0.6731	5.5
Guide Tube Thickness	0.016	inches	0.04064	cm		5.5
Guide Tube ID*	0.498	inches	1.26492	cm	0.63246	-
Instrumentation Tube OD	0.493	inches	1.25222	cm	0.62611	5.5
Fuel Assembly Envelope	8.536	inches	21.6814	cm		5.5

* The inner diameters (IDs) above are calculated by subtracting 2 × thickness from the outer diameter (OD).

The values listed in Table 4.1-2 are preliminary and were obtained through a phone conversation with Framatome Cogema Fuels (formerly B&W Fuel Company) personnel.

Table 4.1-2 Typical Assembly/Core Operating Parameters for a B&W 15x15 Fuel Assembly

Parameter	Value	Units	Metric	Units	Ref
Pellet Average Fuel Temperature	1200	°F	922	K	BWFC
Maximum (peaked) Pellet Average Fuel Temperature	1295	°F	975	K	BWFC
Clad Temperature	50-75 above moderator	°F	28-42 above moderator	K	BWFC
Average Core Exit Moderator Temperature	612	°F	595.4	K	BWFC
Peak Core Exit Moderator Temperature	634	°F	607.6	K	BWFC
Core Exit Moderator Density	-	-	0.6272	g/cm^3	Sat @ 607.6 K
Maximum Beginning of Cycle Boron Concentration	1050	ppm	-	-	BWFC
Number of Assemblies in the Core	177		177		BWFC
Total Core Thermal Power			2568	MWth	BWFC
Typical Power Peaking Across Core	1.2	-	-	-	BWFC
Capacity Factor (lowest expected)	0.6	-	-	-	-
Average Specific Power MW/MTU			31.27	MW/ MTU	BWFC

The theoretical density of UO_2 is 10.96 g/cm^3 as indicated in Table M8.2.1 of the SCALE 4.2 manual (Ref. 5.4).

The atomic weights of isotopes are listed in Table 4.1-3 below (Ref. 5.7).

Avogadro's Number $[N_A] = 0.602252\ (g\text{-}mol)^{-1} \times 10^{24}$ (Ref. 5.7 p. 933). A physical constant is taken to be established fact that requires no additional qualification.

Table 4.1-3 Atomic Weights (Ref 5.7)

Isotope	MCNP ID	Atomic Weight
O-16	8016.50C	15.994915
nat. Mo	42000.50C	95.94
Mo-95	42095.50C	94.905839
Tc-99	43099.50C	98.90627501
Ru-101	44101.50C	100.905576
Rh-103	45103.50C	102.905511
Ag-109	47109.50C	108.904756
nat. Cd	48000.50C	112.4
Cs-133	55133.50C	132.905355
Cs-135	55135.50C	134.90577
Nd-143	60143.50C	142.909779
Nd-145	60145.50C	144.912538
Sm-147	62147.50C	146.914867
Sm-149	62149.50C	148.91718
Sm-150	62150.50C	149.917276
Sm-151	62151.50C	150.919919
Sm-152	62152.50C	151.919756
Eu-151	63151.55C	150.919838
Eu-153	63153.55C	152.921242
Eu-154	63154.50C	153.923053
Gd-155	64155.50C	154.922664
Gd-157	64157.50C	156.924025
U-233	92233.50C	233.039522
U-234	92234.50C	234.040904
U-235	92235.50C	235.043915
U-236	92236.50C	236.045637
U-238	92238.50C	238.05077
Np-237	93237.55C	237.048056
Pu-238	94238.50C	238.049511
Pu-239	94239.55C	239.052146
Pu-240	94240.50C	240.053882
Pu-241	94241.50C	241.056737
Pu-242	94242.50C	242.058725
Pu-243	94243.35C	243.061972
Am-241	95241.50C	241.056714
Am-242m	95242.50C	242.059502
Am-243	95243.50C	243.061367
Cm-243	96243.35C	243.06137
Cm-245	96245.35C	245.065371

4.2 Criteria

This design analysis provides input for criticality analyses which evaluate whether waste package designs meet the repository criticality control design criteria from requirement documents. The *Mined Geological Disposal System Requirements Document* (Ref. 5.8) and the *Engineered Barrier Design Requirements Document* (Ref. 5.9) have criteria which pertain to criticality analyses. Reference 5.9 is the lower level document and contains all of the criteria listed in Reference 5.8. The criteria cited that have bearing on this analysis are the following:

EBDRD Requirements (Ref. 5.9)

"3.2.2.6 CRITICALITY PROTECTION

A. The Engineered Barrier Segment shall be designed to ensure that a nuclear criticality accident is not possible unless at least two unlikely, independent, and concurrent or sequential changes have occurred in the conditions essential to nuclear criticality-safety. Each system shall be designed for criticality safety under normal and accident conditions. The calculated effective multiplication factor must be sufficiently below unity to show at least a five percent margin, after allowance for the bias in the method of calculation and the uncertainty in the experiments used to validate the methods of calculation.

[MGDS-RD 3.2.2.6.A] [10CFR60.131(b)(7)]

B. To mitigate the potential for nuclear criticality, the Engineering Barrier Segment shall be designed and constructed to comply with the nuclear criticality requirements specified by DOE order 6430.1A, 1300-4.

[MGDS-RD 3.2.2.6.B] [DOE Order 6430.1A, 1300-4]"

"3.7.1.3 INTERNAL STRUCTURE REQUIREMENTS

A. The internal structure shall provide separation of the waste forms such that nuclear criticality shall not be possible unless at least two unlikely, independent, and concurrent or sequential changes have occurred in the conditions essential to nuclear criticality safety. The calculated effective multiplication factor (k_{eff}) must be sufficiently below unity to show at least a five percent margin after allowance for the bias in the method of calculation and the uncertainty in the experiments used to validate the methods of calculation (TBD). [MGDS-RD 3.2.2.6.A][10CFR60.131(b)(7)]"

This document provides SNF composition data which may potentially be used in subsequent analyses for calculation of k_{eff} values. This document does not directly address the above listed requirements, but provides input for future analyses which may address these requirements. This document will not directly support any construction, fabrication, or procurement activity and therefore is not required to carry TBV (to be verified) or TBD (to be determined) items

associated with criteria to design outputs.

4.3 Assumptions

All assumptions identified in this section will require verification (or superseding assumptions) as the waste package design proceeds and should be treated as unconfirmed items for preliminary design. For this preliminary design, that will not be used to support procurement, fabrication, or construction, the assumptions are clearly identified and traceable to a source, but are not procedurally controlled as TBV.

4.3.1 Principal Isotope (PI) burnup credit is an acceptable criticality control mechanism for the waste package. (CDA Key 009, Ref. 5.10). This assumption is used throughout Section 7.

4.3.2 The Reference PWR fuel assembly selected for conceptual development is the B&W 15 x 15 fuel type, which has been established as one of the more reactive PWR fuel designs under intact fuel assembly and fixed Multi-Purpose Canister (MPC) geometry conditions (Ref. 5.11 p. II.A.3-35). This assumption is used throughout Section 7.

4.3.3 It is assumed that the criticality design basis fuel (DBF) characteristics are 3.0% U-235 enrichment and 20 GWd/MTU burnup. The basis for this assumption is a re-evaluation of the DBF in which scoping analysis indicates this DBF bounds (regarding criticality) 98% of the PWR SNF. This is more appropriate than the previous analysis which designated a primary criticality DBF with characterisitics of 3.75% U-235 enrichment and 32 GWd/MTU and a secondary criticality DBF with characteristics of 3.75% U-235 enrichment and 18 GWd/MTU providing reactivity coverage of 80% and 96% (Ref. 5.12, p. 11), respectively. Re-evaluation of the DBF will be finalized in early FY97 to verifiy these characteristics. This assumption is used throughout Section 7.

4.3.4 For SNF, the list of "Principal Isotopes" previously established (Ref. 5.13 p 4-4) for long-term criticality control was used. The 29 principal isotopes are shown in Table 4.3-1. This assumption is used in Sections 7.3.2 and 7.4.

Table 4.3-1 Principal Long-Term Burnup Credit Isotopes

-	Mo-95	Ru-101	Tc-99	Rh-103
Ag-109	Nd-143	Nd-145	Sm-147	Sm-149
Sm-150	Sm-151	Sm-152	Eu-151	Eu-153
Gd-155	U-233	U-234	U-235	U-236
U-238	Np-237	Pu-238	Pu-239	Pu-240
Pu-241	Pu-242	Am-241	Am-242m	Am-243

4.3.5 The assembly specific power is assumed to be a reasonable "minimum" value of 7.25 MW/assembly. This assumption should maximize the reactivity of the decayed SNF as documented in ORNL/TM-12973 (Ref. 5.14) studies using a similar group of isotopes as included in this analysis. The use of this value will require verification through a parametric analysis applicable to PI burnup credit. This assumption is used in Section 7.3.7.

4.3.6 The maximum core outlet temperature for B&W 15x15 reactor cores (607.6 K) is used and the reactor operating pressure is assumed to be saturation for the purposes of calculating moderator density. Minimizing moderator density should result in maximizing SNF residual reactivity consistent with DOE/RW-0472, Chapter 4 assumptions (Ref. 5.15). The use of this value will require verification through a parametric analysis applicable to PI burnup credit. This assumption is used in Sections 7.3.4 and 7.3.5.

4.3.7 The maximum pellet average temperature is assumed to be 975 K based on personal communication with BWFC personnel. This is a volume weighted average. The use of this value will require verification through a parametric analysis applicable to PI burnup credit. This assumption is used in Section 7.3.2.

4.3.8 The maximum beginning of cycle, hot full power boron concentration is assumed to be 1050 ppm based on personal communication with BWFC personnel. This is the maximum parts per million boron (ppmb) with Xe and Sm equilibrium buildup. The use of this value will require verification through a parametric analysis applicable to PI burnup credit. This assumption is used in Section 7.3.5.

4.3.9 The clad temperature is assumed to be 42 K higher than the moderator temperature based on personal communication with BWFC personnel. The use of this value will require verification through a parametric analysis applicable to PI burnup credit. This assumption is used in Section 7.3.3.

4.3.10 SAS2H/ORIGEN-S is assumed to provide reasonable predictions of isotopic compositions for a low power criticality event in a waste package over several thousand years. This assumptions will require future verification. This assumption is used in Section 7.5.2.

4.3.11 The temperature in a waste package during a long term low power criticality event is assumed to be an average of 373 K and the water density is assumed to be 1.0 g/cm^3. SAS2H allows only a single average temperature to be entered as was required for this case. This assumption is used in Section 7.5.1.

4.3.12 The power level in a waste package during a long term low power criticality event is assumed to be 2.182 kw (Ref. 5.20, p. 55). This assumption is used in Section 7.5.2.

4.4 Codes and Standards

Not Applicable.

5. References

5.1 "Perform Criticality, Thermal, Structural, and Shielding Analyses," Document Identifier (DI) Number: BB0000000-01717-2200-00025 REV 02, Civilian Radioactive Waste Management System (CRWMS) Management and Operating Contractor (M&O).

5.2 *Quality Assurance Requirements and Description* (QARD), DOE/RW-0333P, REV 5, U. S. Department of Energy (USDOE) Office of Civilian Radioactive Waste Management (OCRWM).

5.3 *Yucca Mountain Site Characterization Project Q-List*, YMP/90-55Q, REV 3, Yucca Mountain Site Characterization Project.

5.4 *SCALE 4.2*, RSIC Computer Code Collection, CCC-545, Oak Ridge National Laboratory, September 1994.

5.5 *Preliminary Waste Form Characteristics Report Version 1.0*, UCRL-ID-108314 Rev 1, Lawrence Livermore National Laboratory (LLNL), page 2.1.2.2-6, December 1994.

5.6 *Characteristics of Potential Repository Wastes*, DOE/RW-0184-R1, Volume 1, USDOE OCRWM, page 2A-8, July 1992.

5.7 Benedict, Manson, et al., Nuclear Chemical Engineering, Second Edition, McGraw-Hill Book Company, New York, 1981.

5.8 *Mined Geological Disposal System Requirements Document*, DOE/RW-0404P, DI#: B00000000-00811-1708-00002 REV 02 ICN 1, USDOE OCRWM.

5.9 *Engineered Barrier Design Requirements Document*, YMP/CM-0024, REV 0, ICN 1, Yucca Mountain Site Characterization Project.

5.10 *Controlled Design Assumptions (CDA) Document*, DI#: B00000000-01717-4600-00032 REV 03, CRWMS M&O. (TBV-221-DD)

5.11 "Multi-Purpose Canister (MPC) Implementation Program Conceptual Design Phase Report, Volume II A - MPC Conceptual Design Report", DI#: A20000000-00811-5705-00002 Rev 00, CRWMS M&O, Pages II.A.3-35.

5.12 "Waste Package Design Basis Fuel Analysis," DI#: BBA000000-01717-0200-00121 REV

00, CRWMS M&O.

5.13 "Disposal Criticality Analysis Technical Report," DI#: B00000000-01717-5705-00020 REV 00, CRWMS M&O.

5.14 DeHart, M. D., *Sensitivity and Parametric Evaluations of Significant Aspects of Burnup Credit for PWR Spent Fuel Packages*, ORNL/TM-12973, Oak Ridge National Laboratory, June 1995.

5.15 *Topical Report of Actinide-Only Burnup Credit for PWR Spent Nuclear Fuel Packages*, DOE/RW-0472, USDOE OCRWM, May 1995.

5.16 "Characteristics Data Base (CDB_R)," CSCI#: A00000000-02268-1200-20002 V1.1 REV 01, CRWMS M&O.

5.17 Bowman, S. M., and O. W. Hermann, *SCALE-4 Analysis of Pressurized Water Reactor Critical Configurations: Volume 3 - Surry Unit 1 Cycle 2*, ORNL/TM-12294/V2, Oak Ridge National Laboratory, March 1995, page 18.

5.18 Incropera, F. P., and D. P. Dewitt, Fundamentals of Heat Transfer, John Wiley & Sons, NY, 1981, Table A.6, page 783.

5.19 LaMarsh, J. R., Introduction to Nuclear Engineering, 2nd Edition, Addison-Wesley Publishing Company, Reading, MA, 1983, page 34.

5.20 "Second Waste Package Probabilistic Criticality Analysis: Generation and Evaluation of Internal Criticality Configurations," DI#: BBA000000-01717-2200-00005 REV 00, CRWMS M&O.

6. Use of Computer Software

6.1 Scientific and Engineering Software

SCALE 4.2 CSCI 30004 V1.0 Rev 0. Hewlett Packard Apollo 9000, Series 735 Workstations

The SAS2H sequence of the SCALE 4.2 code system (Ref. 5.4) was used for this analysis. This software was designed for PWR fuel depletion calculations to determine spent fuel isotopic content, decay heat rates, and radioactive source terms. The application to PWR fuel depletion in a reactor is appropriate for the use of this software and falls within the range of validation of this software. The application to long term low power depletion in a waste package does not fall within the range of validation and must be validated in the future. The associated 27BURNUPLIB cross section library was used for these calculations.

A benchmarking and result biasing methodology is in the process of being developed for SAS2H. Bias and uncertainties are applied to the MCNP results which are based on input from SAS2H.

6.2 Computational Support Software

LOTUS 1-2-3, Release 4.01 for Windows was used to calculate the isotopic number densities from the g/assembly output per time step provided in the SAS2H/ORIGEN-S output.

7. Design Analysis

This analysis is performed to provide the isotopic inventories as a function of time for the design basis PWR fuel and to provide the change in activity of the isotopic inventories as the result of a long term low power criticality event in a waste package.

7.1 Background

Previous analyses have been performed based on spent nuclear fuel (SNF) isotopic compositions obtained from the Characteristics Data Base (CDB) (Ref. 5.16). This is a preliminary analysis to generate PWR SNF isotopic compositions using SCALE 4.2 (Ref. 5.4). The data in the CDB was generated based on nominal fuel and operating characteristics. SCALE 4.2 can utilize bounding physical and operating paramaters as input to provide a conservative estimate of isotopic inventories.

7.2 Evaluation Procedure

The evaluation procedure is broken into three major tasks, with subtasks in each. The general procedure is as follows:

1) Parameter (Input) Identification
    a) Develop physical fuel description - mechanical parameters
    b) Obtain typical operating parameters

2) Run SCALE 4.2
    a) Calculate/ determine input parameters from task 1 for burnup calculation
    b) Determine decay time steps required for isotopic inventories

3) Process Output
    a) Using a spreadsheet, calculate isotopic number densities based upon selected output
    b) Format and extract number densities in a form suitable for use in MCNP

The results of task 1 are listed in Section 4.1. Details of tasks 2 and 3 are presented in Sections

7.3 and 7.4, respectively.

7.3 Code Input Calculations

7.3.1 SAS2H Data Block 5 Input

Table 4.1-1 provides the dimensions required for Data Block 5 in the SAS2H input file. The data is shown in the table below. The material numbers are standard (Ref. 5.4, p. S.2.5.10) for SAS2H.

Table 7.3.1-1 - Data Block 5

PITCH	1.44272
FUELOD	0.936244
MFUEL	1
MMOD	3
CLADOD	1.0922
MCLAD	2
CLADID	0.95758
MGAP	0

7.3.2 Fuel Density and Composition Calculations

The effective density to be used in the calculations is determined by dividing the UO_2 mass in Table 4.1-1 by the volume of the fuel in the assembly. The dimensions necessary to calculate the volume of fuel in the assembly are available in Table 4.1-1. The density is calculated as follows:

ρ_{UO2} = UO_2 mass / {π*(fuel pellet radius)^2 * fueled height * # of fuel Rods/assembly}
= 526.38 kg / {π*(0.468122 cm)^2 * 360.172 cm * 208} = 10.206 g/cm^3

The theoretical density of UO_2 is listed as 10.96 g/cm^3 in the SCALE 4.2 database (Ref. 5.4). Therefore, the effective density of fuel is 93.12% of theoretical.

The isotopic distribution of the uranium is determined by the given initial enrichment and the following emperical relationship (Ref. 5.17).

$wt\%_{234} = 0.007731(wt\%_{235})^{1.0837}$,
$wt\%_{236} = 0.0046 wt\%_{235}$,
$wt\%_{238} = 100\% - wt\%_{234} - wt\%_{235} - wt\%_{236}$

Using this formulation, the fresh fuel isotopics for 3.00% U_{235} enrichment was calculated as shown in Table 7.3.2-1. The U-234 and U-238 concentrations were found to be in error in the check of Rev 00. The wt% used was 0.0240 and 96.9622, for U-234 and U-238, respectively. These minor variations compared to the values in Table 7.3.2-1 would have no effect on the

resulting calculations. For consistency, these concentrations were also used in Rev 01 since only variations of the original case were run.

Table 7.3.2-1 Isotopic Breakdown of Uranium for 3% U_{235} Enrichment.

ISOTOPE	WT%
U-234	0.0254
U-235	3.0000
U-236	0.0138
U-238	96.9608

A trace amount of the fission products for which time dependant cross sections are desired are input along with the U mass fractions on the UO_2 "standard composition specification data" cards as described in Section S2.5.4.1 in the SCALE 4.2 manual (Ref. 5.4). The peak fuel temperature (975 K) from Table 4.1-2 is also entered on each of these cards.

7.3.3 Clad Temperature

The clad temperature is calculated by adding the maximum of 42 K to the peak moderator temperature of 607.6 K, as indicated in Table 4.1-2, giving approximately 650 K. Using the peak or maximum is consistent with the temperatures used for the other material regions. This information is listed on a zircaloy standard composition card as material 2.

7.3.4 Moderator Density

The maximum moderator temperature is assumed to provide a minimum moderator density and maximum temperature to result in maximum SNF residual reactivity consistent with Chapter 4 of the Burnup Credit Topical Report (Ref. 5.15). A temperature of 607.6 K is used from Table 4.1-2. The corresponding density is interpolated from the values listed for saturated water (Ref. 5.18) shown in Table 7.3.3-1. The density for 590 K is also included for trending and estimation of the density corresponding to the average exit temperature (595.4 K).

Table 7.3.3-1 Saturated Water Properties from Fundamentals of Heat Transfer (Ref. 5.18)

Temp (K)	Specific Volume (cm^3/g)	Calculated Density (Inverse Specific Volume, g/cm^3)
590	1.482	0.674764
600	1.541	0.648929
610	1.612	0.620347

The density at 607.6 K is determined as shown below:

$$\{(.648929 - .620347)/(600 - 610)\}(607.6 - 600) + .648929 = 0.6272$$

The moderator temperature and density are entered on a H_2O standard composition card as material number 3.

7.3.5 Boron Concentration

As indicated on page S2.5.12 of the SCALE 4.2 manual (Ref. 5.4), the average boron concentration is calculated by dividing the beginning of cycle value by 1.9. The beginning of cycle value is taken from Table 4.1-2 and the average value is determined to be 552.6 ppm.

The boron concentration along with the moderator temperature and density are entered on an arbitrary material card as described in Table M7.4.5 in the SCALE 4.2 manual (Ref. 5.4) as material number 3.

7.3.6 SAS2H Data Block 8 Input

This problem is making use of the larger unit cell capability of SAS2H. Therefore, the inputs for Data Block 8 must be determined. Four zones are modeled using information from Table 4.1-1.

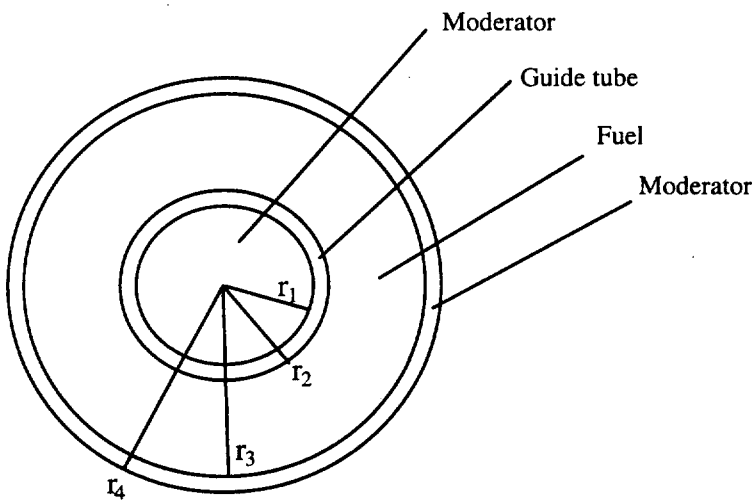


Figure 7.3.6-1 - Larger Unit Cell Model

The first radius, r_1, corresponds to the actual ID of the guide tube (OD of the moderator channel) with a material set to that of the moderator. $r_1 = 0.63246$ cm. The second radius, r_2, is the actual OD of the guide tube with the material set to that of the cladding. $r_2 = 0.67310$ cm. The third radius, r_3, is calculated to give an equal area equivalent to the maximum area of the fuel cell (or the pitch squared). The fourth radius is calculated to preserve the fuel to moderator ratio with the material set to a special number in the code -- 500. The method was determined in consultation with the author of the program at the Radiation Shielding Information Center (RSIC) at Oak Ridge National Laboratory.

The third radius is determined by setting the maximum area of the fuel cell equal to the area of

the equivalent circle.

$$s^2 = \pi \times r_3^2 \qquad r_3^2 = \frac{s^2}{\pi}$$

$$r_3 = \sqrt{\frac{s^2}{\pi}} = \frac{s}{\sqrt{\pi}} = \frac{1.44272}{\sqrt{\pi}} = 0.814cm$$

where r_3 = the third radius of the larger unit cell encompassing the moderator
s = side of the square (or the rod pitch in this case)

The fourth radius is calculated by taking a ratio of the number of available positions for fuel rods in the assembly to the number of positions used by the guide tubes and instrumentation tubes. For this model, the instrumentation tube is taken as equivalent to a guide tube. This ratio is set equal to the ratio of the areas of the fuel and moderator.

$$\frac{N_{positions}}{N_{guidetubes}} = \frac{\pi \times r_4^2}{\pi \times r_3^2} = \frac{r_4^2}{r_3^2}$$

$$r_4^2 = r_3^2 \times \frac{N_{positions}}{N_{guidetubes}}$$

$$r_4 = \sqrt{r_3^2 \times \frac{N_{positions}}{N_{guidetubes}}} = \sqrt{0.814^2 \times \frac{15 \times 15}{17}} = 2.961cm$$

where r_4 = fourth radius of the larger unit cell encompassing the fuel
$N_{positions}$ = total number of available positions in the lattice structure
$N_{guidetubes}$ = number of positions taken up by instrument & guide tubes

To summarize and group these radii and material numbers with the keywords used in the Data Block 8 input table in the SAS2H manual, the Table is presented below:

Table 7.3.6-1 Data Block 8

MIXES	3	Material No. for the moderator
RADIUS	0.63246	cm
MIXES	2	Material No. for the Zircaloy
RADIUS	0.67310	cm
MIXES	3	Material No. for the moderator
RADIUS	0.814	cm
MIXES	500	Special Material No. for fuel in the larger unit cell
RADIUS	2.961	cm

7.3.7 Specific Power and Effective Full Power Days Calculations

The calculated average assembly specific power is 2568 MW / 177 assemblies, or 14.51 MW/assembly. The reasonable minimum assembly specific power is calculated as follows:

1. Divide the average specific power by 1.2 (Table 4.1-2) to account for variation in assembly power across the core; 14.51/1.2 = 12.09 MW/assembly.

2. Multiply the minimum core assembly specific power by a capacity factor assumption of 0.6 (Table 4.1-2); 0.6 x 12.09 = 7.25 MW/assembly.

The Effective Full Power Day (EFPD) input is calculated for the desired burnup assuming the minimum assembly power and an assembly uranium loading of 0.464 MTU/assembly (Table 4.1-1): EFPD = Burnup of 20,000 (MWd/MTU) x 0.464 (MTU/assembly) / 7.25 (MW/assembly) = 1280 days. The power and burn values are entered in Data Block 9.

The burnup calculation was divided into 8 substeps through use of the nlib/cyc entry in Data Block 8.

7.3.8 Decay Input

The decay out to 1 million years was run as a separate case from the burnup calculation. The decay case is a stand alone ORIGEN-S problem which utilizes the output from the SAS2H burnup calculation and decays to a number of specified times.

The ORIGEN-S case was run immediately after the corresponding SAS2H case and utilized the final binary cross section file on unit 21 from the SAS2H case. The case input and output are included in Attachment II. The fact that the correct SAS2H generated library is used (unit 21) is verified by comparing the final downtime print of concentrations in the SAS2H output with the concentrations in the corresponding decay times in the ORIGEN-S output (compositions will match). The library contains only the final cycle step (1 position in library). The library unit

number and data position are entered in the input by the following line:

3$$ 21 0 1 e

The decay times are grouped in 10 steps with the units changing from days to years as appropriate. Based on the SAS2H input, the activities and masses listed in the output are per assembly.

7.4 Number Density Calculations Using ORIGEN-S Output

The grams/assembly output per time step from Attachment II was used to calculate the number density of each of the Principal Isotopes using a LOTUS 1-2-3 spreadsheet. The equation for number density is shown below (Ref. 5.19).

$$N = \rho N_A / M$$

where ρ is the physical density in g/cm^3,
N_A is Avagadro's Number - 0.602252E+24 atoms/mole,
and M is the gram atomic weight.

The units of the resulting number density is in atoms/cm^3. The required units for subsequent use are atoms/b-cm where 1 barn equals 10^{-24} cm^2. The calculations in the spreadsheet drops the E+24 from Avagadro's Number to account for the conversion. As a conservatism in the criticality calculations which will use these number densities, the values are adjusted up to a 96% theoretical density.

The input and output from these calculations are shown in Attachment III.

7.5 Effects of Long Term Low Power Criticality in the Waste Package

An additional set of calculations were performed to demonstrate the effects of a long term low power criticality in the waste package per the request of the originators of Ref. 5.20. These calculations required minor modifications of the previous SAS2H and ORIGEN-S inputs.

7.5.1 SAS2H Input Modifications

Minor changes as indicated below were made to the SAS2H input to facilitate cross section production at an appropriate temperature for the criticality effects calculations performed using ORIGEN-S. The nlib/cycle entry was changed to 1 from 8 and ncycles was increased to 9 from 1 in Data Block 8. Instead of 1 cycle at 7.25 MW/assembly for 1280 days, the Data Block 9 entries were changed to eight cycles at 7.25 MW/assembly for 160 days each with 0 down time between each cycle. The ninth cycle was set up with an arbitrary low power level (4.976E-5 MW/assembly) for 1 day with the addition of the following parameters which are assumed

representative of the postulated criticality in the waste package (Assumption 4.3.11).

bfrac (boron fraction)	-	0.
h2ofrac (inverse of the density in reactor calculation to bring density=1 g/cm^3)	-	1.594
temkcyc (modified temperature of all materials in current cycle)	-	373 K

SAS2H is limited to a single average temperature using this method. The input for this case (s3020ucf4.in) is included in Attachment IV. The output is essentially the same as that included in Attachment I for the original SAS2H case.

7.5.2 ORIGEN-S Input Modifications

Four ORIGEN-S cases were run based on the binary output files created by the SAS2H case discussed in Section 7.5.1. The data used includes cross sections and isotopic compositions from the last cycle run.

The first case (s3020ucfo1.in) is the same as the case described in Section 7.3.8 with minor modification to the time step edits and the addition of activity edits in curies for comparison to the long term low power criticality event simulations that follow. The input for this case is included in Attachment V and the activity edits from the output are summarized in Attachment VI.

The second through fourth cases (joklo7.in, joklo8.in, and joklo9.in) have depletion at a power level of 1.039-4 MW/assembly (2.182 kw/waste package divided by 21 assemblies/package) for periods of 10,000, 1000, and 5000 years, respectively, starting 15,000 years after discharge from the reactor cycles. The inputs for these cases are included in Attachments VII through IX. The summarized activity edits for these three cases are included in Attachment X for times after the depletion at a low power level which simulates a criticality event over a long time period.

The summarized grams/assembly table for the 15,000 year decay point of the decay only case is included in Attachment XI. The summarized grams/assembly tables for the criticality cases for the 10 decay times immediately following the criticality are included in Attachment XII.

8. Conclusions

The number densities calculated as indicated in Section 7.4 are shown in Table 8.1 for each isotope for 27 time steps from 1 to 999,999 years.

The activity tables generated in the cases for long term low power criticality simulations in a waste package are included in Attachments VI and X. The neutron flux distribution between the fast, epi-thermal, and thermal groups is provided from s3020ucf4.out (summarized in Attachment XIII) to demonstrate the components of the total flux indicated in Attachment X.

Table 8-1 Number Densities as a Function of TIme for 3.0% Enriched, 20GWD/MT Burnup B&W 15x15 SNF

MCNP ID	1 years	5 years	10 years	20 years	50 years	100 years	200 years
	NUMBER DENSITY (atoms/b-cm)						
8016.50C	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02
42095.50C	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05
43099.50C	2.8116E-05	2.8116E-05	2.8116E-05	2.8116E-05	2.8116E-05	2.7994E-05	2.7994E-05
44101.50C	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05
45103.50C	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05
47109.50C	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06
60143.50C	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05
60145.50C	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05
62147.50C	3.6054E-06	6.0472E-06	6.9977E-06	7.3255E-06	7.3501E-06	7.3501E-06	7.3501E-06
62149.50C	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07
62150.50C	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06
62151.50C	4.9056E-07	4.7620E-07	4.5786E-07	4.2436E-07	3.3661E-07	2.2893E-07	1.0609E-07
63151.55C	5.0253E-09	1.9942E-08	3.7889E-08	7.1869E-08	1.5953E-07	2.6722E-07	3.9006E-07
62152.50C	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06
63153.55C	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06
64155.50C	3.7532E-08	1.3132E-07	1.9193E-07	2.3467E-07	2.4710E-07	2.4710E-07	2.4710E-07
92233.50C	5.2691E-11	6.1989E-11	7.2321E-11	9.3501E-11	1.6324E-10	2.9755E-10	6.3539E-10
92234.50C	4.1561E-06	4.2024E-06	4.2590E-06	4.3670E-06	4.6447E-06	4.9842E-06	5.3494E-06
92235.50C	3.2267E-04	3.2267E-04	3.2267E-04	3.2267E-04	3.2267E-04	3.2318E-04	3.2318E-04
92236.50C	7.1910E-05	7.1910E-05	7.1910E-05	7.1910E-05	7.2420E-05	7.2420E-05	7.2930E-05
92238.50C	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02
93237.55C	6.5004E-06	6.5512E-06	6.6019E-06	6.7543E-06	7.5669E-06	9.0396E-06	1.1782E-05
94238.50C	1.4969E-06	1.4817E-06	1.4210E-06	1.3148E-06	1.0418E-06	7.0293E-07	3.2163E-07
94239.55C	1.3244E-04	1.3244E-04	1.3244E-04	1.3244E-04	1.3244E-04	1.3194E-04	1.3194E-04
94240.50C	3.3700E-05	3.3700E-05	3.3700E-05	3.3650E-05	3.3599E-05	3.3399E-05	3.3048E-05
94241.50C	1.9277E-05	1.5881E-05	1.2485E-05	7.6907E-06	1.8078E-06	1.6131E-07	1.2884E-09
94242.50C	3.5211E-06	3.5211E-06	3.5211E-06	3.5211E-06	3.5211E-06	3.5211E-06	3.5211E-06
95241.50C	1.8028E-06	5.1438E-06	8.5397E-06	1.3134E-05	1.8228E-05	1.8378E-05	1.5781E-05
95242.50C	2.1385E-08	2.0938E-08	2.0440E-08	1.9446E-08	1.6810E-08	1.3129E-08	8.0567E-09
95243.50C	5.0023E-07	5.0023E-07	5.0023E-07	5.0023E-07	4.9528E-07	4.9478E-07	4.9033E-07
Total	7.005442E-02	7.005698E-02	7.005804E-02	7.005831E-02	7.005883E-02	7.005849E-02	7.005861E-02

Table 8-1 Number Densities as a Function of Time for 3.0% Enriched, 20GWD/MT Burnup B&W 15x15 SNF Continued

MCNP ID	300 years	400 years	500 years	1000 years	4000 years	8000 years	10000 years
	NUMBER DENSITY (atoms/b-cm)						
8016.50C	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02
42095.50C	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05
43099.50C	2.7994E-05	2.7994E-05	2.7994E-05	2.7994E-05	2.7751E-05	2.7386E-05	2.7142E-05
44101.50C	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05
45103.50C	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05
47109.50C	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06
60143.50C	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05
60145.50C	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05
62147.50C	7.3501E-06	7.3501E-06	7.3501E-06	7.3501E-06	7.3501E-06	7.3501E-06	7.3501E-06
62149.50C	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07
62150.50C	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06
62151.50C	4.9056E-08	2.2733E-08	1.0529E-08	2.2335E-10	2.0580E-20	8.5350E-34	1.7469E-40
63151.55C	4.4669E-07	4.7301E-07	4.8498E-07	4.9535E-07	4.9615E-07	4.9615E-07	4.9615E-07
62152.50C	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06
63153.55C	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06
64155.50C	2.4710E-07	2.4710E-07	2.4710E-07	2.4710E-07	2.4710E-07	2.4710E-07	2.4710E-07
92233.50C	1.0538E-09	1.5446E-09	2.0973E-09	5.4757E-09	3.1150E-08	6.6122E-08	8.3169E-08
92234.50C	5.5552E-06	5.6066E-06	5.6580E-06	5.7095E-06	5.6580E-06	5.6066E-06	5.5552E-06
92235.50C	3.2369E-04	3.2421E-04	3.2472E-04	3.2625E-04	3.3701E-04	3.4981E-04	3.5596E-04
92236.50C	7.2930E-05	7.3440E-05	7.3950E-05	7.5480E-05	8.3640E-05	9.1290E-05	9.3840E-05
92238.50C	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02
93237.55C	1.4118E-05	1.6099E-05	1.7825E-05	2.3208E-05	2.7525E-05	2.7525E-05	2.7474E-05
94238.50C	1.4767E-07	6.8270E-08	3.1556E-08	7.7373E-10	8.4453E-17	2.4426E-25	1.3148E-29
94239.55C	1.3144E-04	1.3093E-04	1.3043E-04	1.2892E-04	1.1834E-04	1.0575E-04	9.9710E-05
94240.50C	3.2697E-05	3.2396E-05	3.2045E-05	3.0390E-05	2.2115E-05	1.4493E-05	1.1735E-05
94241.50C	1.3983E-11	3.7655E-12	3.6556E-12	3.5108E-12	2.7467E-12	1.9826E-12	1.6830E-12
94242.50C	3.5211E-06	3.5211E-06	3.5211E-06	3.5161E-06	3.4962E-06	3.4714E-06	3.4614E-06
95241.50C	1.3434E-05	1.1486E-05	9.7882E-06	4.3797E-06	3.5857E-08	1.2135E-10	5.5433E-11
95242.50C	4.9136E-09	3.0088E-09	1.8401E-09	1.5765E-10	6.2166E-17	1.7904E-25	9.5984E-30
95243.50C	4.8537E-07	4.8092E-07	4.7646E-07	4.5467E-07	3.4273E-07	2.3526E-07	1.9514E-07
Total	7.005827E-02	7.005849E-02	7.005870E-02	7.005857E-02	7.005821E-02	7.005790E-02	7.005741E-02

Table 8-1 Number Densities as a Function of TIme for 3.0% Enriched, 20GWD/MT Burnup B&W 15x15 SNF Continued

MCNP ID	14000 years	18000 years	22000 years	26000 years	30000 years	36000 years	45000 years
	NUMBER DENSITY (atoms/b-cm)						
8016.50C	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02
42095.50C	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05
43099.50C	2.6777E-05	2.6412E-05	2.6047E-05	2.5803E-05	2.5438E-05	2.4951E-05	2.4221E-05
44101.50C	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05
45103.50C	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05
47109.50C	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06
60143.50C	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05
60145.50C	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05
62147.50C	7.3501E-06	7.3501E-06	7.3501E-06	7.3501E-06	7.3501E-06	7.3501E-06	7.3501E-06
62149.50C	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07
62150.50C	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06
62151.50C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
63151.55C	4.9615E-07	4.9615E-07	4.9615E-07	4.9615E-07	4.9615E-07	4.9615E-07	4.9615E-07
62152.50C	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06
63153.55C	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06
64155.50C	2.4710E-07	2.4710E-07	2.4710E-07	2.4710E-07	2.4710E-07	2.4710E-07	2.4710E-07
92233.50C	1.1675E-07	1.5032E-07	1.8287E-07	2.1490E-07	2.4641E-07	2.9238E-07	3.5902E-07
92234.50C	5.5037E-06	5.5037E-06	5.4523E-06	5.4009E-06	5.3494E-06	5.2465E-06	5.1437E-06
92235.50C	3.6672E-04	3.7645E-04	3.8515E-04	3.9284E-04	3.9949E-04	4.0820E-04	4.1896E-04
92236.50C	9.7920E-05	1.0098E-04	1.0251E-04	1.0353E-04	1.0455E-04	1.0506E-04	1.0557E-04
92238.50C	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02
93237.55C	2.7474E-05	2.7423E-05	2.7373E-05	2.7373E-05	2.7322E-05	2.7271E-05	2.7170E-05
94238.50C	3.7877E-38	1.0923E-46	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
94239.55C	8.9135E-05	7.9063E-05	7.0502E-05	6.2948E-05	5.6401E-05	4.7287E-05	3.6510E-05
94240.50C	7.6727E-06	5.0650E-06	3.3048E-06	2.1664E-06	1.4192E-06	7.5223E-07	2.9136E-07
94241.50C	1.2135E-12	8.7894E-13	6.3423E-13	4.5645E-13	3.2960E-13	2.0176E-13	9.6883E-14
94242.50C	3.4365E-06	3.4067E-06	3.3818E-06	3.3570E-06	3.3321E-06	3.2973E-06	3.2426E-06
95241.50C	3.8254E-11	2.7567E-11	1.9926E-11	1.4383E-11	1.0387E-11	6.3923E-12	2.9265E-12
95242.50C	2.7701E-38	8.0070E-47	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
95243.50C	1.3373E-07	9.2122E-08	6.2900E-08	4.3287E-08	2.9717E-08	1.6889E-08	7.2311E-09
Total	7.005714E-02	7.005680E-02	7.005623E-02	7.005593E-02	7.005584E-02	7.005463E-02	7.005373E-02

Table 8-1 Number Densities as a Function of Time for 3.0% Enriched, 20GWD/MT Burnup B&W 15x15 SNF Continued

MCNP ID	60000 years	70000 years	100000 years	250000 years	500000 years	999999 years
	NUMBER DENSITY (atoms/b-cm)					
8016.50C	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02	4.6947E-02
42095.50C	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05	2.8413E-05
43099.50C	2.3004E-05	2.2274E-05	2.0205E-05	1.2293E-05	5.4285E-06	1.0516E-06
44101.50C	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05	2.6008E-05
45103.50C	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05	1.6846E-05
47109.50C	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06	2.4208E-06
60143.50C	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05	2.2660E-05
60145.50C	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05	1.6864E-05
62147.50C	7.3501E-06	7.3501E-06	7.3501E-06	7.3501E-06	7.3501E-06	7.3501E-06
62149.50C	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07	1.1479E-07
62150.50C	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06	6.4561E-06
62151.50C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
63151.55C	4.9615E-07	4.9615E-07	4.9615E-07	4.9615E-07	4.9615E-07	4.9615E-07
62152.50C	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06	2.9636E-06
63153.55C	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06	2.1255E-06
64155.50C	2.4710E-07	2.4710E-07	2.4710E-07	2.4710E-07	2.4710E-07	2.4710E-07
92233.50C	4.6389E-07	5.3208E-07	7.0771E-07	1.2966E-06	1.6324E-06	1.5756E-06
92234.50C	5.0048E-06	4.8968E-06	4.5984E-06	3.4360E-06	2.3198E-06	1.4968E-06
92235.50C	4.3176E-04	4.3791E-04	4.4815E-04	4.5532E-04	4.5532E-04	4.5532E-04
92236.50C	1.0557E-04	1.0557E-04	1.0557E-04	1.0506E-04	1.0455E-04	1.0251E-04
92238.50C	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02	2.2352E-02
93237.55C	2.7068E-05	2.6966E-05	2.6713E-05	2.5443E-05	2.3462E-05	1.9958E-05
94238.50C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
94239.55C	2.3719E-05	1.7827E-05	7.5034E-06	1.0072E-07	7.6041E-11	2.3215E-15
94240.50C	5.9677E-08	2.0761E-08	8.7258E-10	1.1735E-16	3.8163E-18	5.1653E-18
94241.50C	2.8516E-14	1.2635E-14	1.0937E-15	5.2936E-21	7.3911E-30	0.0000E+00
94242.50C	3.1531E-06	3.0934E-06	2.9293E-06	2.2181E-06	1.3925E-06	5.5204E-07
95241.50C	8.5896E-13	3.8054E-13	3.2910E-14	1.5981E-19	2.3472E-28	4.5645E-46
95242.50C	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
95243.50C	1.7681E-09	6.8844E-10	4.1108E-11	7.5282E-16	7.1320E-16	6.9834E-16
Total	7.005206E-02	7.005135E-02	7.004864E-02	7.003743E-02	7.002636E-02	7.001472E-02

9. Attachments

The following attachments are case input and output files and spreadsheets as listed. The name of the file is listed in parenthesis. The first three attachments are included in Revision 00 of this document and are unchanged by Revision 01.

I. SAS2H Burnup Case Output (s3020ucf.out) 2/16/96 825 pages
II. ORIGEN-S Decay Case Output (s3020ucfo.out) 2/16/96 122 pages
III. Spreadsheet for Number Density Calculation 3/31/96 18 pages
IV. Modified SAS2H Burnup Case Input (s3020ucf4.in) 3/7/96 2 pages
V. Modified ORIGEN-S Decay Case Input (s3020ucfo1.in) 3/12/96 1 page
VI. Modified ORIGEN-S Decay Case Output Summary (decay.sum) 3/29/96 93 pages
VII. Modified ORIGEN-S 10,000 year Criticality Case Input (joklo7.in) 3/14/96 1 page
VIII. Modified ORIGEN-S 1000 year Criticality Case Input (joklo8.in) 3/14/96 1 page
IX. Modified ORIGEN-S 5000 year Criticality Case Input (joklo9.in) 3/14/96 1 page
X. Modified ORIGEN-S Criticality Cases Output Summary (joklo8.sum) 3/14/96 95 pages
XI. Modified ORIGEN Decay Case Output Summary of grams/assembly tables (s3020ucfO1.sum) 8/8/96 19 pages
XII. Modified ORIGEN Criticality Cases Output Summary of grams/assembly tables (joklo8.grams) 8/9/96 51 pages
XIII. Modified SAS2H Burnup Case Flux Output Summary (flux) 3/12/96 1 page

```
0*****************************************************************************
*                                                                           *
*                  scale4.2  bulletin  board                                *
*                  --------  --------  -----                                *
*                                                                           *
*     welcome to the configuration controlled version of scale4.2.          *
*     any problems should be reported to kay martin at 4-9213.              *
*                                                                           *
*     updates that have been made from version 4.1 to 4.2 include:          *
*                                                                           *
*     nitawl:  parameter added to prevent exponent underflows for very      *
*     dilute resonance calculations on workstation.  (mrr 93-011)           *
*                                                                           *
*     nitawl:   corrected discrepancies in maximum fractional energy loss   *
*     of neutron in admixed moderator calculation and simpson rule          *
*     calculation of collision density as documented in "improved           *
*     calculation of flux shapes with the resonance shielding code          *
*     nitawl", by j. oppe, eon-i--93-003.  affects all calculations.        *
*     impact will vary, but is insignificant for hydrogen-moderated        *
*     systems. (mrr 93-030)                                                 *
*                                                                           *
*     sas4:  added option of axial source profile input for both radial     *
*     and axial dose calculations. also added option idr = 2 for            *
*     estimation to point detectors from collisions in both top and         *
*     bottom halves of geometry.  (mrr 92-016)                              *
*                                                                           *
*     morse:  modifications made for compatibility with the new options in  *
*     sas4 (i.e., the axial source profile input option and                 *
*     the option idr = 2 for estimation to point detectors from collisions  *
*     in both top and bottom halves of geometry).  (mrr 92-016)             *
*                                                                           *
*     csas & keno-v.a:  error checking during input processing was added    *
*     so that these modules terminate with an error message if input        *
*     errors are encountered.  (mrr 93-013, 93-014, 93-015, 93-018)         *
*                                                                           *
*     keno-v.a:  corrections made for applying differential albedo          *
*     boundary conditions to supergrouped problems where global unit        *
*     contains only an array specification.  effect on keff is very large   *
*     for this type of problem.  (mrr 93-033)                               *
*                                                                           *
*     keno-v.a:  corrected an error introduced with modification on may 24, *
*     1993 (mrr 93-033). this error affected problems with mirror or        *
*     periodic boundary conditions and could cause problem to loop, fail,   *
*     or run incorrectly.                                                   *
*                                                                           *
*     xsdrnpm:  corrected calculation of number of direct access data       *
*     blocks needed to weight the cross sections to prevent occasional      *
*     failure.  improved calculation of balance tables.  (mrr 93-021)       *
*                                                                           *
*     origen-s:  modified program to read combined binary libraries that    *
*     include multi-cycle cross sections.  add option to edit binary        *
*     library.  (mrr 93-026)                                                *
*                                                                           *
*     sas2:  modified to produce combined binary libraries for origen-s.    *
*     (mrr 93-027)                                                          *
*                                                                           *
*     couple:  modified to allow combined binary libraries to be made by    *
*     sas2.  (mrr 93-031)                                                   *
*                                                                           *
*     origen-s couple, sas2:  modified programs to accept the new updated   *
```

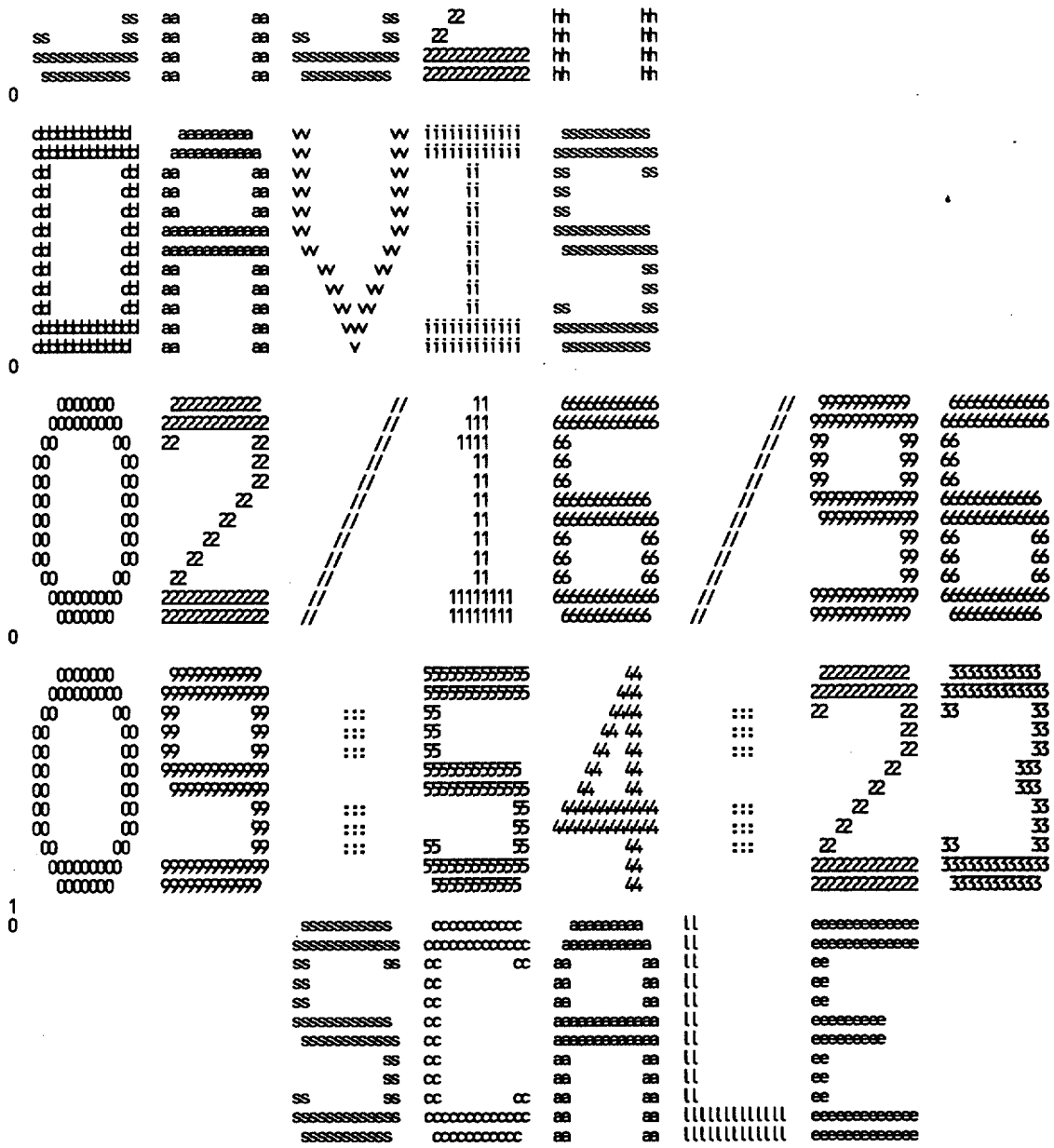
```
*     and expanded decay data and fission product yield libraries. (mrr      *
*     92-088, 92-025, 92-026)                                                *
*                                                                            *
*     origen-s libraries: the six standard origen-s card image libraries     *
*     have been replaced by two new libraries, end6dec and xsectpho.         *
*     end6dec contains the updated and expanded decay data library based     *
*     on endf/b-vi data. xsectpho contains the basic cross section and       *
*     photon spectra data and updated fission product yield data based on    *
*     endf/b-v data. (dnr 92-006, 007, 008, 009, 010, and dnr 93-001,        *
*     002, 003, 006, 008, 009)                                               *
*                                                                            *
*     std. comp. library: in dnr 92-033, the following nuclides were         *
*     changed to turn on resonance processing flag but should not have       *
*     been changed: niss, fess, mnss, crss, niinconel, crinconel,            *
*     feinconel. flags for these nuclides have now been returned to off.     *
*     (dnr 93-014)                                                           *
*                                                                            *
*     heating7: replaced heating6 with version 7.2. (mrr 93-038)             *
*                                                                            *
*     htas1: updated for compatibility with heating7 and to interact         *
*     effectively with ocular. fin effectiveness technique was added.        *
*     (mrr 93-036)                                                           *
*                                                                            *
*     ocular: made compatible with heating7 and htas1 on mainframe and       *
*     workstation. (mrr 93-037)                                              *
*                                                                            *
*     sas2: corrected so that 'parm=skipshipdata' would work on              *
*     workstation. (mrr 93-051)                                              *
*                                                                            *
*     aim: ft47ft001 is no longer require for aim to execute on              *
*     workstation. (mrr 93-052)                                              *
*                                                                            *
*     27group, 27burnup, and 218group - these libraries have been            *
*     updated to correct an error found in the chlorine cross-sections.      *
*     (dnr93-022)                                                            *
*                                                                            *
*     bonami: corrected so that a case with a number density of zero         *
*     for a nuclide that has bondarenko data will run without failing.       *
*     (mrr 93-060)                                                           *
*                                                                            *
*     csas: corrected calculation of dancoff correction factor for           *
*     cylindrical cells. note that previous calculations of small            *
*     cylindrical cells (o.d. < 0.3 cm) gave non-conservative keff           *
*     values. also corrected dancoff factor for multiregion slab             *
*     cell with vacuum boundary conditions to be set to zero.                *
*     (mrr 93-065)                                                           *
*                                                                            *
*     csas, sas1, sas2, sas3, sas4: error in miplib was corrected. for       *
*     resonance materials that are not part of the unit cell in lattice-     *
*     cell or multiregion problems, the dancoff factor defaulted to -1.      *
*     check your nitawl output in any previous scale-4.2 calculations        *
*     for dancoff factors =-1.                                               *
*     (mrr 93-070)                                                           *
*                                                                            *
******************************************************************************
1          primary module access and input record ( scale driver - 10/01/86 - 14:00 )
-  module sas2h    will be called
     SAS2H: Babcock Wilcox 15x15, 3.00wt%, 20gwd/mtu burn High Temp
     27burnuplib    latticecell
     '
```

```
' mixtures of fuel-pin-unit-cell:
'   densmass UO2/ Volume assembly = 526377.3 g/5.157524E4
uo2 1 den=10.2060 1 975 92235 3.00 92234 0.0240 92236 0.0138 92238 96.9622 end
kr-83     1 0 1-20 975 end
kr-85     1 0 1-20 975 end
sr-90     1 0 1-20 975 end
 y-89     1 0 1-20 975 end
mo-95     1 0 1-20 975 end
zr-93     1 0 1-20 975 end
zr-94     1 0 1-20 975 end
zr-95     1 0 1-20 975 end
rb-94     1 0 1-20 975 end
tc-99     1 0 1-20 975 end
rh-103    1 0 1-20 975 end
rh-105    1 0 1-20 975 end
ru-101    1 0 1-20 975 end
ru-106    1 0 1-20 975 end
pd-105    1 0 1-20 975 end
pd-108    1 0 1-20 975 end
ag-109    1 0 1-20 975 end
sb-124    1 0 1-20 975 end
xe-131    1 0 1-20 975 end
xe-132    1 0 1-20 975 end
xe-135    1 0 1-20 975 end
xe-136    1 0 1-20 975 end
cs-134    1 0 1-20 975 end
cs-135    1 0 1-20 975 end
cs-137    1 0 1-20 975 end
ba-136    1 0 1-20 975 end
la-139    1 0 1-20 975 end
pr-141    1 0 1-20 975 end
pr-143    1 0 1-20 975 end
ce-144    1 0 1-20 975 end
nd-143    1 0 1-20 975 end
nd-145    1 0 1-20 975 end
pm-147    1 0 1-20 975 end
pm-148    1 0 1-20 975 end
nd-147    1 0 1-20 975 end
sm-147    1 0 1-20 975 end
sm-149    1 0 1-20 975 end
sm-150    1 0 1-20 975 end
sm-151    1 0 1-20 975 end
sm-152    1 0 1-20 975 end
gd-155    1 0 1-20 975 end
eu-153    1 0 1-20 975 end
eu-154    1 0 1-20 975 end
eu-155    1 0 1-20 975 end
zircalloy 2   1.0  650 end
h2o       3 den=0.6272 1 607.6 end
arbm-boritod 0.6272 1 1 0 0 5000 100 3 552.6e-6 607.6 end
'
' 1050 ppm boron
' - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
end comp
'
' - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
'
'  fuel-pin-cell geometry:
'
squarepitch  1.44272  0.936244 1 3 1.0922 2 0.95758 0 end
```

```
      ,
      ,- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
      ,
      ,
      ,  assembly and cycle parameters:
      ,
      rpin/assm=208 fuelngth=360.172 ncycles=1 nlib/cyc=8
      printlevel=5 inplevel=2 numztotal=4  end
      3 0.63246 2 0.67310 3 0.814 500 2.961
      power=7.25 burn=1280 down=1826.25
         end
0   secondary module c0c008   has been called.
0   module c0c008   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c002   has been called.
0   module c0c002   is finished. completion code     0. cpu time used    20.00 (seconds).
0   secondary module c0c001   has been called.
0   module c0c001   is finished. completion code     0. cpu time used     3.00 (seconds).
0   secondary module c0c008   has been called.
0   module c0c008   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c002   has been called.
0   module c0c002   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c001   has been called.
0   module c0c001   is finished. completion code     0. cpu time used     2.00 (seconds).
0   secondary module c0c005   has been called.
0   module c0c005   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c004   has been called.
0   module c0c004   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c008   has been called.
0   module c0c008   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c002   has been called.
0   module c0c002   is finished. completion code     0. cpu time used    20.00 (seconds).
0   secondary module c0c001   has been called.
0   module c0c001   is finished. completion code     0. cpu time used     2.00 (seconds).
0   secondary module c0c008   has been called.
0   module c0c008   is finished. completion code     0. cpu time used      .00 (seconds).
0   secondary module c0c002   has been called.
0   module c0c002   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c001   has been called.
0   module c0c001   is finished. completion code     0. cpu time used     2.00 (seconds).
0   secondary module c0c005   has been called.
0   module c0c005   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c004   has been called.
0   module c0c004   is finished. completion code     0. cpu time used     2.00 (seconds).
0   secondary module c0c008   has been called.
0   module c0c008   is finished. completion code     0. cpu time used      .00 (seconds).
0   secondary module c0c002   has been called.
0   module c0c002   is finished. completion code     0. cpu time used    22.00 (seconds).
0   secondary module c0c001   has been called.
0   module c0c001   is finished. completion code     0. cpu time used     3.00 (seconds).
0   secondary module c0c008   has been called.
0   module c0c008   is finished. completion code     0. cpu time used      .00 (seconds).
0   secondary module c0c002   has been called.
0   module c0c002   is finished. completion code     0. cpu time used     2.00 (seconds).
0   secondary module c0c001   has been called.
0   module c0c001   is finished. completion code     0. cpu time used     2.00 (seconds).
0   secondary module c0c005   has been called.
0   module c0c005   is finished. completion code     0. cpu time used      .00 (seconds).
0   secondary module c0c004   has been called.
0   module c0c004   is finished. completion code     0. cpu time used     3.00 (seconds).
0   secondary module c0c008   has been called.
```

```
0  module c0c008  is finished. completion code    0. cpu time used     .00 (seconds).
0  secondary module c0c002  has been called.
0  module c0c002  is finished. completion code    0. cpu time used   20.00 (seconds).
0  secondary module c0c001  has been called.
0  module c0c001  is finished. completion code    0. cpu time used    2.00 (seconds).
0  secondary module c0c008  has been called.
0  module c0c008  is finished. completion code    0. cpu time used     .00 (seconds).
0  secondary module c0c002  has been called.
0  module c0c002  is finished. completion code    0. cpu time used    1.00 (seconds).
0  secondary module c0c001  has been called.
0  module c0c001  is finished. completion code    0. cpu time used    2.00 (seconds).
0  secondary module c0c005  has been called.
0  module c0c005  is finished. completion code    0. cpu time used    1.00 (seconds).
0  secondary module c0c004  has been called.
0  module c0c004  is finished. completion code    0. cpu time used    2.00 (seconds).
0  secondary module c0c008  has been called.
0  module c0c008  is finished. completion code    0. cpu time used    1.00 (seconds).
0  secondary module c0c002  has been called.
0  module c0c002  is finished. completion code    0. cpu time used   20.00 (seconds).
0  secondary module c0c001  has been called.
0  module c0c001  is finished. completion code    0. cpu time used    2.00 (seconds).
0  secondary module c0c008  has been called.
0  module c0c008  is finished. completion code    0. cpu time used    1.00 (seconds).
0  secondary module c0c002  has been called.
0  module c0c002  is finished. completion code    0. cpu time used    1.00 (seconds).
0  secondary module c0c001  has been called.
0  module c0c001  is finished. completion code    0. cpu time used    2.00 (seconds).
0  secondary module c0c005  has been called.
0  module c0c005  is finished. completion code    0. cpu time used    1.00 (seconds).
0  secondary module c0c004  has been called.
0  module c0c004  is finished. completion code    0. cpu time used    2.00 (seconds).
0  secondary module c0c008  has been called.
0  module c0c008  is finished. completion code    0. cpu time used    1.00 (seconds).
0  secondary module c0c002  has been called.
0  module c0c002  is finished. completion code    0. cpu time used   20.00 (seconds).
0  secondary module c0c001  has been called.
0  module c0c001  is finished. completion code    0. cpu time used    2.00 (seconds).
0  secondary module c0c008  has been called.
0  module c0c008  is finished. completion code    0. cpu time used    1.00 (seconds).
0  secondary module c0c002  has been called.
0  module c0c002  is finished. completion code    0. cpu time used    1.00 (seconds).
0  secondary module c0c001  has been called.
0  module c0c001  is finished. completion code    0. cpu time used    2.00 (seconds).
0  secondary module c0c005  has been called.
0  module c0c005  is finished. completion code    0. cpu time used     .00 (seconds).
0  secondary module c0c004  has been called.
0  module c0c004  is finished. completion code    0. cpu time used    3.00 (seconds).
0  secondary module c0c008  has been called.
0  module c0c008  is finished. completion code    0. cpu time used     .00 (seconds).
0  secondary module c0c002  has been called.
0  module c0c002  is finished. completion code    0. cpu time used   20.00 (seconds).
0  secondary module c0c001  has been called.
0  module c0c001  is finished. completion code    0. cpu time used    2.00 (seconds).
0  secondary module c0c008  has been called.
0  module c0c008  is finished. completion code    0. cpu time used     .00 (seconds).
0  secondary module c0c002  has been called.
0  module c0c002  is finished. completion code    0. cpu time used    1.00 (seconds).
0  secondary module c0c001  has been called.
0  module c0c001  is finished. completion code    0. cpu time used    2.00 (seconds).
0  secondary module c0c005  has been called.
```

```
0   module c0c005   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c004   has been called.
0   module c0c004   is finished. completion code     0. cpu time used     2.00 (seconds).
0   secondary module c0c008   has been called.
0   module c0c008   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c002   has been called.
0   module c0c002   is finished. completion code     0. cpu time used    20.00 (seconds).
0   secondary module c0c001   has been called.
0   module c0c001   is finished. completion code     0. cpu time used     3.00 (seconds).
0   secondary module c0c008   has been called.
0   module c0c008   is finished. completion code     0. cpu time used      .00 (seconds).
0   secondary module c0c002   has been called.
0   module c0c002   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c001   has been called.
0   module c0c001   is finished. completion code     0. cpu time used     2.00 (seconds).
0   secondary module c0c005   has been called.
0   module c0c005   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c004   has been called.
0   module c0c004   is finished. completion code     0. cpu time used     2.00 (seconds).
0   secondary module c0c008   has been called.
0   module c0c008   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c002   has been called.
0   module c0c002   is finished. completion code     0. cpu time used    20.00 (seconds).
0   secondary module c0c001   has been called.
0   module c0c001   is finished. completion code     0. cpu time used     2.00 (seconds).
0   secondary module c0c008   has been called.
0   module c0c008   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c002   has been called.
0   module c0c002   is finished. completion code     0. cpu time used     1.00 (seconds).
0   secondary module c0c001   has been called.
0   module c0c001   is finished. completion code     0. cpu time used     2.00 (seconds).
0   secondary module c0c005   has been called.
0   module c0c005   is finished. completion code     0. cpu time used      .00 (seconds).
0   secondary module c0c004   has been called.
0   module c0c004   is finished. completion code     0. cpu time used    13.00 (seconds).
0   module sas2h    is finished. completion code     0. cpu time used   281.00 (seconds).
0requested parm=halt8,skipcellwt,skipshipdata
  pass= 0, exec halts after pass   8

0                    90      unit no. of master storage data
0                    96      unit no. of bonami input data
0                    97      unit no. of nitawl input data
0                    98      unit no. of xsdrnpm input data
0                    93      unit no. of couple input data
0                    94      unit no. of origens input data
0                    95      unit no. of xsdose input data
0                    71      unit no. of recycled densities
0                    74      unit no. of neut. & gamma sources
0                    21      unit no. of origens input library
0                    33      unit no. of final origens library produced by sas2 case
0                    70      unit no. of sas2h storage data
0                    72      unit no. of (formatted) cycle atom densities, burnups, sources, etc.
1   sssssssssss     aaaaaaaaa     sssssssssss     22222222222    hh        hh
   sssssssssssss   aaaaaaaaaaa   sssssssssssss   22222222222    hh        hh
   ss        ss   aa        aa   ss        ss   22        22    hh        hh
   ss             aa        aa   ss                      22    hh        hh
   ss             aa        aa   ss                      22    hh        hh
   sssssssssssss   aaaaaaaaaaaaa   sssssssssssss           22    hhhhhhhhhhhh
    sssssssssssss   aaaaaaaaaaaaa    sssssssssssss        22      hhhhhhhhhhhh
              ss   aa        aa             ss      22        hh        hh
```



```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****             program:  sas2                                        *****
*****                                                                   *****
*****        creation date:  04/27/95                                   *****
*****                                                                   *****
*****             library:  /neutronics/scale/exe                       *****
*****                                                                   *****
*****                                                                   *****
*****    this is not a   scale  configuration controlled code           *****
*****                                                                   *****
*****             jobname:  davis                                       *****
*****                                                                   *****
*****    date of execution:  02/16/96                                   *****
*****                                                                   *****
*****    time of execution:  09:54:23                                   *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
0'
0'  mixtures of fuel-pin-unit-cell:
0'   den=mass UO2/ Volume assembly = 526377.3 g/5.157524E4
0'
0' 1050 ppm boron
0' - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
0'
0' - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
0'
0'  fuel-pin-cell geometry:
0'
0'
0' - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
0'
0'
0'  assembly and cycle parameters:
0'
0'
0'  mixtures of fuel-pin-unit-cell:
0'   den=mass UO2/ Volume assembly = 526377.3 g/5.157524E4
     sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0    **** problem parameters ****
```

```
    lib 27burnuplib  library
    mx           3 mixtures
    nsc         48 composition specifications
    izm          4 material zones
    ge  latticecell  geometry
    more         0 0/1 do not read/read optional parameter data
    msln         0 fuel solutions

0   **** problem composition description ****

    sc  uo2          standard composition
    mx           1 mixture no.
    vf      1.0000 volume fraction
    roth   10.2060 specified density
    temp    975.0 deg kelvin
            92235  3.00%
            92234   .02%
            92236   .01%
            92238  96.96%
    end

    sc  kr-83        standard composition
    mx           1 mixture no.
    den  1.0000E-20 atomic density
    roth    1.0000 theoretical density
    temp     975.0 deg kelvin
    end

    sc  kr-85        standard composition
    mx           1 mixture no.
    den  1.0000E-20 atomic density
    roth    1.0000 theoretical density
    temp     975.0 deg kelvin
    end

    sc  sr-90        standard composition
    mx           1 mixture no.
    den  1.0000E-20 atomic density
    roth    1.0000 theoretical density
    temp     975.0 deg kelvin
    end

    sc  y-89         standard composition
    mx           1 mixture no.
    den  1.0000E-20 atomic density
    roth    1.0000 theoretical density
    temp     975.0 deg kelvin
    end

    sc  mo-95        standard composition
    mx           1 mixture no.
    den  1.0000E-20 atomic density
    roth    1.0000 theoretical density
    temp     975.0 deg kelvin
    end

    sc  zr-93        standard composition
    mx           1 mixture no.
    den  1.0000E-20 atomic density
    roth    1.0000 theoretical density
```

```
temp       975.0 deg kelvin
end

sc  zr-94         standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  zr-95         standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  nb-94         standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  tc-99         standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  rh-103        standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth      12.5000 theoretical density
temp        975.0 deg kelvin
end

sc  rh-105        standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth      12.5000 theoretical density
temp        975.0 deg kelvin
end

sc  ru-101        standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  ru-106        standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  pd-105        standard composition
```

```
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  pd-108       standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  ag-109       standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth      10.6010 theoretical density
temp        975.0 deg kelvin
end

sc  sb-124       standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  xe-131       standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  xe-132       standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  xe-135       standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  xe-136       standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  cs-134       standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.8730 theoretical density
temp        975.0 deg kelvin
```

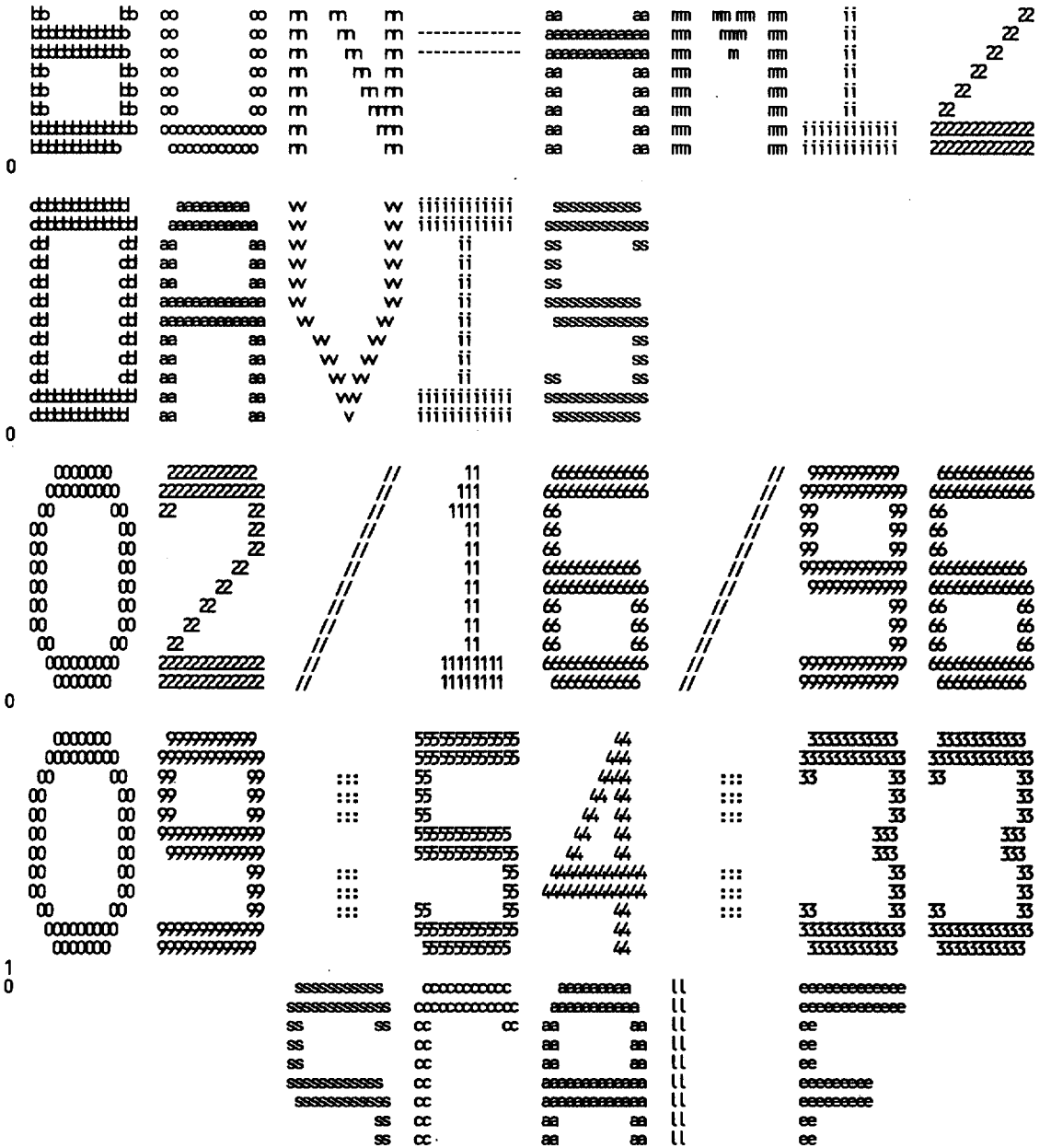
```
end

sc  cs-135        standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.8730 theoretical density
temp        975.0 deg kelvin
end

sc  cs-137        standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  ba-136        standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  la-139        standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  pr-141        standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  pr-143        standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  ce-144        standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       1.0000 theoretical density
temp        975.0 deg kelvin
end

sc  nd-143        standard composition
mx              1 mixture no.
den   1.0000E-20 atomic density
roth       6.9600 theoretical density
temp        975.0 deg kelvin
end

sc  nd-145        standard composition
mx              1 mixture no.
```

```
den   1.0000E-20 atomic density
roth      6.9600 theoretical density
temp       975.0 deg kelvin
end

sc  pm-147       standard composition
mx             1 mixture no.
den   1.0000E-20 atomic density
roth      1.0000 theoretical density
temp       975.0 deg kelvin
end

sc  pm-148       standard composition
mx             1 mixture no.
den   1.0000E-20 atomic density
roth      1.0000 theoretical density
temp       975.0 deg kelvin
end

sc  nd-147       standard composition
mx             1 mixture no.
den   1.0000E-20 atomic density
roth      1.0000 theoretical density
temp       975.0 deg kelvin
end

sc  sm-147       standard composition
mx             1 mixture no.
den   1.0000E-20 atomic density
roth      1.0000 theoretical density
temp       975.0 deg kelvin
end

sc  sm-149       standard composition
mx             1 mixture no.
den   1.0000E-20 atomic density
roth      7.7000 theoretical density
temp       975.0 deg kelvin
end

sc  sm-150       standard composition
mx             1 mixture no.
den   1.0000E-20 atomic density
roth      7.7000 theoretical density
temp       975.0 deg kelvin
end

sc  sm-151       standard composition
mx             1 mixture no.
den   1.0000E-20 atomic density
roth      7.7000 theoretical density
temp       975.0 deg kelvin
end

sc  sm-152       standard composition
mx             1 mixture no.
den   1.0000E-20 atomic density
roth      7.7000 theoretical density
temp       975.0 deg kelvin
end
```

```
    sc  gd-155        standard composition
    mx              1 mixture no.
    den   1.0000E-20 atomic density
    roth       1.0000 theoretical density
    temp        975.0 deg kelvin
    end

    sc  eu-153        standard composition
    mx              1 mixture no.
    den   1.0000E-20 atomic density
    roth       5.2400 theoretical density
    temp        975.0 deg kelvin
    end

    sc  eu-154        standard composition
    mx              1 mixture no.
    den   1.0000E-20 atomic density
    roth       5.2400 theoretical density
    temp        975.0 deg kelvin
    end

    sc  eu-155        standard composition
    mx              1 mixture no.
    den   1.0000E-20 atomic density
    roth       5.2400 theoretical density
    temp        975.0 deg kelvin
    end

    sc  zircalloy     standard composition
    mx              2 mixture no.
    vf         1.0000 volume fraction
    roth       6.4400 theoretical density
    temp        650.0 deg kelvin
    end

    sc  h2o           standard composition
    mx              3 mixture no.
    vf         1.0000 volume fraction
    roth        .6272 specified density
    temp        607.6 deg kelvin
    end

    sc  arbm-bormod   standard composition
    mx              3 mixture no.
    vf          .0006 volume fraction
    temp        607.6 deg kelvin
    roth        .6272 density
    nel             1 no. elements
    ivis            1 0/1 no variable isotope/variable isotope
    iqp             0 0/1 mixture/compound
    irs             0 0/1 no resonance mtl./resonance mtl.

                 5000 100.00
0'
0'  1050 ppm boron
0'  - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
    end

0   **** problem geometry ****
```

```
0'
0' - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
0'
0'  fuel-pin-cell geometry:
0'
    ctp squarepitch  cell type
    pitch     1.4427 cm center to center spacing
    fuelod     .9362 cm fuel diameter or slab thickness
    mfuel          1 mixture no. of fuel
    mmod           3 mixture no. of moderator
    cladod    1.0922 cm clad outer diameter
    mclad          2 mixture no. of clad
    gapod      .9576 cm gap outer diameter
    mgap           0 mixture no. of gap

0   zone specifications for latticecell geometry

                zone  1 is fuel
                zone  2 is gap
                zone  3 is clad
                zone  4 is mod
1     ***********************************************************************************************
      ***                                                                                         ***
      ***                        sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp   ***
      ***                                                                                         ***
      ***********************************************************************************************
      ***********************************************************************************************
      ***                                                                                         ***
      ***                         ********** data library information **********                 ***
      ***                                                                                         ***
      ***        unit                                          volume                             ***
      ***       number            data set name                  name       unit function         ***
      ***       ------            -------------                  ----       -------------         ***
      ***                                                                                         ***
      ***         89     /neutronics/scale/datalib/scale.rev04.sclib          standard composition library ***
      ***                                                                                         ***
      ***         87     /neutronics/scale/datalib/scale.rev03.xn27bu         cross section library ***
      ***                                                                                         ***
      ***         12     ft12f001                                             short cross section library ***
      ***                                                                                         ***
      ***********************************************************************************************
      ***********************************************************************************************
      ***                                                                                         ***
      ***                                                                                         ***
      ***                              standard composition library data                          ***
      ***                              --------------------------------                           ***
      ***                                                                                         ***
      ***          unit number  :  89                                                             ***
      ***                                                                                         ***
      ***          dataset name :  /neutronics/scale/datalib/scale.rev04.sclib                    ***
      ***                                                                                         ***
      ***          library title:  scale-4 standard composition library                           ***
      ***                          385 standard compositions, 332 nuclides                        ***
      ***                          10 elements with variable isotopic distrbutions.               ***
      ***                                                                                         ***
      ***          creation date:   4/17/95                                                       ***
      ***                                                                                         ***
      ***                                                                                         ***
      ***                                                                                         ***
```

```
      ***                                  cross section library data                                    ***
      ***                                  --------------------------                                    ***
      ***                                                                                                ***
      ***          unit number  :  87                                                                    ***
      ***                                                                                                ***
      ***          dataset name :  /neutronics/scale/datalib/scale.rev03.xn27bu                          ***
      ***                                                                                                ***
      ***          library title:  scale 4.2 - 27 group neutron burnup library                           ***
      ***                            based on endf-b version 4 data with endf-b version 5 fission products  ***
      ***                               compiled for nrc      1/27/89                                    ***
      ***                                  last updated       9/16/93                                    ***
      ***                                     l.m.petrie   -   ornl                                      ***
      ***                                                                                                ***
      ***                                                                                                ***
      ***                                                                                                ***
      ***                                                                                                ***
      ************************************************************************************************
      ************************************************************************************************
1

0    **** xsdrn mesh intervals ****

       8 mesh intervals in zone  1
       4 mesh intervals in zone  2
       4 mesh intervals in zone  3
       8 mesh intervals in zone  4
0'
0' - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
0'
0'
0'  assembly and cycle parameters:
0'
1     **** larger cell data (using sas2h) ****
0     inplevel=          2
      numzones=          4
      mixmoder=          3
      mxrepeats=         1
      facmesh=   1.000E+00
0     **** larger cell geometry
0     zone   xsdrnpm mixture   radius (cm)

        1          3          6.3246E-01
        2          2          6.7310E-01
        3          3          8.1400E-01
        4          1          2.9610E+00
 1    **** reactor history data ****
 0    rpin/assm=       208
      fuelngth=  3.602E+02
      ncycles=           1
      nlib/cyc=          8
      lightel=           0
      printlevel=        5
 0                                          ......average density......
      cycle   power(mw)  burn, days  down, days  relative to that in cycle 1
                                                    boron       water
        1     7.250E+00   1.280E+03   1.826E+03    1.000E+00   1.000E+00
 1  bbbbbbbbbbb     ooooooooooo    nn         nn                 aaaaaaaaa    mm         mm  iiiiiiiiiiii    22222222222
    bbbbbbbbbbbb    oooooooooooo   nnn        nn                 aaaaaaaaaaa   mmm       mmm  iiiiiiiiiiii   222222222222
    bb        bb   oo         oo   nnnn       nn                aa         aa  mmmm     mmmm      ii        22        22
    bb        bb   oo         oo   nn nn      nn                aa         aa  mm mm    mm mm      ii                  22
```



```
ss        ss  cc        cc  aa        aa  ll            ee
sssssssssssss  cccccccccccc  aa        aa  lllllllllllll  eeeeeeeeeeeee
 sssssssssss    cccccccccc   aa        aa  lllllllllllll  eeeeeeeeeeeee


*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****              program:  c0c008                                     *****
*****                                                                   *****
*****        creation date:  04/27/95                                   *****
*****                                                                   *****
*****              library:  /neutronics/scale/exe                      *****
*****                                                                   *****
*****                                                                   *****
*****    this is not a   scale  configuration controlled code           *****
*****                                                                   *****
*****              jobname:  davis                                      *****
*****                                                                   *****
*****    date of execution:  02/16/96                                   *****
*****                                                                   *****
*****    time of execution:  09:54:33                                   *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has      6 entries.
0        2q array has      2 entries.
1logical assignments
0master library   12
 working library   0
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere              2
0izm--number of zones or material regions                     4
0ms--mixing table length                                     66
0ibl--shielded cross section edit option (0/1--no/yes)        0
0ibr--bondarenko factor edit option (0/1--no/yes)             0
0issopt--dancoff factor option                                0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has     66 entries.
0        4q array has     66 entries.
```

```
0       5q array has     66 entries.
0       6q array has      4 entries.
0       7q array has      4 entries.
0       8q array has      4 entries.
0       9q array has      4 entries.
0      10q array has     66 entries.
0      11q array has      4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope  number density  new identifier
    1        1    92235    6.91508E-04           92235
    2        1    92234    5.55578E-06           92234
    3        1    92236    3.16744E-06           92236
    4        1    92238    2.20677E-02           92238
    5        1     8016    4.55359E-02            8016
    6        3     8016    2.09710E-02               6
    7        1    36083    1.00000E-20           36083
    8        1    36085    1.00000E-20           36085
    9        1    38090    1.00000E-20           38090
   10        1    39089    1.00000E-20           39089
   11        1    42095    1.00000E-20           42095
   12        1    40093    1.00000E-20           40093
   13        1    40094    1.00000E-20           40094
   14        1    40095    1.00000E-20           40095
   15        1    41094    1.00000E-20           41094
   16        1    43099    1.00000E-20           43099
   17        1    45103    1.00000E-20           45103
   18        1    45105    1.00000E-20           45105
   19        1    44101    1.00000E-20           44101
   20        1    44106    1.00000E-20           44106
   21        1    46105    1.00000E-20           46105
   22        1    46108    1.00000E-20           46108
   23        1    47109    1.00000E-20           47109
   24        1    51124    1.00000E-20           51124
   25        1    54131    1.00000E-20           54131
   26        1    54132    1.00000E-20           54132
   27        1    54135    1.00000E-20           54135
   28        1    54136    1.00000E-20           54136
   29        1    55134    1.00000E-20           55134
   30        1    55135    1.00000E-20           55135
   31        1    55137    1.00000E-20           55137
   32        1    56136    1.00000E-20           56136
   33        1    57139    1.00000E-20           57139
   34        1    59141    1.00000E-20           59141
   35        1    59143    1.00000E-20           59143
   36        1    58144    1.00000E-20           58144
   37        1    60143    1.00000E-20           60143
   38        1    60145    1.00000E-20           60145
   39        1    61147    1.00000E-20           61147
   40        1    61148    1.00000E-20           61148
   41        1    60147    1.00000E-20           60147
   42        1    62147    1.00000E-20           62147
   43        1    62149    1.00000E-20           62149
   44        1    62150    1.00000E-20           62150
   45        1    62151    1.00000E-20           62151
   46        1    62152    1.00000E-20           62152
   47        1    64155    1.00000E-20           64155
   48        1    63153    1.00000E-20           63153
   49        1    63154    1.00000E-20           63154
   50        1    63155    1.00000E-20           63155
   51        2    40302    4.25156E-02           40302
```

52	3	1001	4.19420E-02	1001
53	3	5010	3.81515E-06	5010
54	3	5011	1.54884E-05	5011
55	1	55133	1.00000E-20	55133
56	1	95237	1.00000E-20	95237
57	1	94238	1.00000E-20	94238
58	1	94239	1.00000E-20	94239
59	1	94240	1.00000E-20	94240
60	1	94241	1.00000E-20	94241
61	1	94242	1.00000E-20	94242
62	1	95241	1.00000E-20	95241
63	1	95243	1.00000E-20	95243
64	1	96244	1.00000E-20	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Ogeometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05844E-01	0
2	4	4.78790E-01	2.93000E+02	5.49010E-01	0
3	2	5.46100E-01	6.50000E+02	.00000E+00	0
4	3	8.13968E-01	6.07600E+02	.00000E+00	0

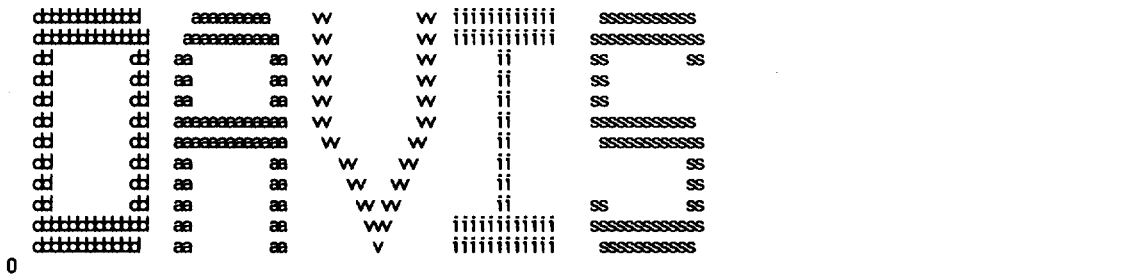
7711 locations of 200000 available are required to make a new master containing the self-shielded values

Ono nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

Ocopy	999	1/v cross sectio	from log 12	to log 18	bondarenko	trigger 0
Ocopy	999	1/v cross sectio	from log 18	to log 1	bondarenko	trigger 0
Ocopy	999	1/v cross sectio	from log 18	to log 1	bondarenko	trigger 0
Ocopy	1001	hydrogen	from log 12	to log 1	bondarenko	trigger 0
Ocopy	5010	b-10 1273 218ngp	from log 12	to log 1	bondarenko	trigger 0
Ocopy	5011	boron-11	from log 12	to log 1	bondarenko	trigger 0
Ocopy	8016	oxygen-16	from log 12	to log 18	bondarenko	trigger 0
Ocopy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
Ocopy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
Ocopy	36083	kr-83	from log 12	to log 1	bondarenko	trigger 0
Ocopy	36085	kr-85	from log 12	to log 1	bondarenko	trigger 0
Ocopy	38090	sr-90	from log 12	to log 1	bondarenko	trigger 0
Ocopy	39089	y-89	from log 12	to log 1	bondarenko	trigger 0
Ocopy	40093	zr-93	from log 12	to log 1	bondarenko	trigger 0
Ocopy	40094	zr-94	from log 12	to log 1	bondarenko	trigger 0
Ocopy	40095	zr-95	from log 12	to log 1	bondarenko	trigger 0
Ocopy	40302	zircalloy	from log 12	to log 1	bondarenko	trigger 0
Ocopy	41094	nb-94	from log 12	to log 1	bondarenko	trigger 0
Ocopy	42095	mo-95	from log 12	to log 1	bondarenko	trigger 0
Ocopy	43099	tc-99	from log 12	to log 1	bondarenko	trigger 0
Ocopy	44101	ru-101	from log 12	to log 1	bondarenko	trigger 0
Ocopy	44106	ru-106	from log 12	to log 1	bondarenko	trigger 0
Ocopy	45103	rh-103	from log 12	to log 1	bondarenko	trigger 0
Ocopy	45105	rh-105	from log 12	to log 1	bondarenko	trigger 0
Ocopy	46105	pd-105	from log 12	to log 1	bondarenko	trigger 0
Ocopy	46108	pd-108	from log 12	to log 1	bondarenko	trigger 0
Ocopy	47109	silver-109	from log 12	to log 1	bondarenko	trigger 0
Ocopy	51124	sb-124	from log 12	to log 1	bondarenko	trigger 0
Ocopy	54131	xe-131	from log 12	to log 1	bondarenko	trigger 0
Ocopy	54132	xe-132	from log 12	to log 1	bondarenko	trigger 0
Ocopy	54135	xenon-135	from log 12	to log 1	bondarenko	trigger 0
Ocopy	54136	xe-136	from log 12	to log 1	bondarenko	trigger 0
Ocopy	55133	cesium-133	from log 12	to log 1	bondarenko	trigger 0
Ocopy	55134	cs-134	from log 12	to log 1	bondarenko	trigger 0
Ocopy	55135	cs-135	from log 12	to log 1	bondarenko	trigger 0
Ocopy	55137	cs-137	from log 12	to log 1	bondarenko	trigger 0
Ocopy	56136	ba-136	from log 12	to log 1	bondarenko	trigger 0

```
0copy    57139  la-139          from log 12 to log  1    bondarenko trigger 0
0copy    58144  ce-144          from log 12 to log  1    bondarenko trigger 0
0copy    59141  pr-141          from log 12 to log  1    bondarenko trigger 0
0copy    59143  pr-143          from log 12 to log  1    bondarenko trigger 0
0copy    60143  nd-143          from log 12 to log  1    bondarenko trigger 0
0copy    60145  nd-145          from log 12 to log  1    bondarenko trigger 0
0copy    60147  nd-147          from log 12 to log  1    bondarenko trigger 0
0copy    61147  pm-147          from log 12 to log  1    bondarenko trigger 0
0copy    61148  pm-148          from log 12 to log  1    bondarenko trigger 0
0copy    62147  sm-147          from log 12 to log  1    bondarenko trigger 0
0copy    62149  sm-149          from log 12 to log  1    bondarenko trigger 0
0copy    62150  sm-150          from log 12 to log  1    bondarenko trigger 0
0copy    62151  sm-151          from log 12 to log  1    bondarenko trigger 0
0copy    62152  sm-152          from log 12 to log  1    bondarenko trigger 0
0copy    63153  eu-153          from log 12 to log  1    bondarenko trigger 0
0copy    63154  eu-154          from log 12 to log  1    bondarenko trigger 0
0copy    63155  eu-155          from log 12 to log  1    bondarenko trigger 0
0copy    64155  gd-155          from log 12 to log  1    bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92235  uranium-235     from log 12 to log  1    bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92238  uranium-238     from log 12 to log  1    bondarenko trigger 0
0copy    93237  neptunium-237   from log 12 to log  1    bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1    bondarenko trigger 0
0copy    94239  plutonium-239   from log 12 to log  1    bondarenko trigger 0
0copy    94240  plutonium-240   from log 12 to log  1    bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1    bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1    bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1    bondarenko trigger 0
0copy    95243  am-243 1057 218 from log 12 to log  1    bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1    bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
            last updated      9/16/93
              l.m.petrie   -   ornl
        tape id                          4321        number of nuclides                66
        number of neutron groups           27        number of gamma groups             0
        first thermal group                15        logical unit                       1
                                    table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id     999
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id      66
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89              id    1001
       b-10 1273 218ngp 042375 p-3 293k                                           id    5010
        boron-11       endf/b-iv mat 1160            updated 10/13/89              id    5011
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id    8016
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id       6
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89              id   36083
        kr-85            mt=  102                                                  id   36085
        sr-90          mt=102                        updated 10/13/89              id   38090
         y-89          mt=102                        updated 10/13/89              id   39089
        zr-93            mt=  102                                                  id   40093
        zr-94          mt=102                        updated 10/13/89              id   40094
        zr-95          mt=102                        updated 10/13/89              id   40095
        zircalloy      endf/b-iv mat 1284            updated 10/13/89              id   40302
        nb-94          mt=102                        updated 10/13/89              id   41094
        mo-95          mt=102                        updated 10/13/89              id   42095
        tc-99          mt=102                        updated 10/13/89              id   43099
        ru-101         mt=102                        updated 10/13/89              id   44101
        ru-106         mt=102                        updated 10/13/89              id   44106
```

```
      rh-103        mt=102                        updated 10/13/89          id    45103
      rh-105          mt=  102                                              id    45105
      pd-105        mt=102                        updated 10/13/89          id    46105
      pd-108        mt=102                        updated 10/13/89          id    46108
      silver-109    endf/b-iv mat 1139            updated 10/13/89          id    47109
      sb-124        mt=102                        updated 10/13/89          id    51124
      xe-131        mt=102,103,104,105,106        updated 10/13/89          id    54131
      xe-132        mt=102,103,104,105,106        updated 10/13/89          id    54132
      xenon-135     endf/b-iv mat 1294            updated 10/13/89          id    54135
      xe-136          mt=  102, 103, 104, 105, 107                          id    54136
      cesium-133    endf/b-iv mat 1141            updated 10/13/89          id    55133
      cs-134        mt=102                        updated 10/13/89          id    55134
      cs-135          mt=  102                                              id    55135
      cs-137        mt=102                        updated 10/13/89          id    55137
      ba-136        mt=102                        updated 10/13/89          id    56136
      la-139        mt=102                        updated 10/13/89          id    57139
      ce-144          mt=  102                                              id    58144
      pr-141        mt=102,103,104,105,106,107    updated 10/13/89          id    59141
      pr-143        mt=102                        updated 10/13/89          id    59143
      nd-143        mt=102                        updated 10/13/89          id    60143
      nd-145        mt=102                        updated 10/13/89          id    60145
      nd-147        mt=102                        updated 10/13/89          id    60147
      pm-147        mt=102                        updated 10/13/89          id    61147
      pm-148          mt=  102                                              id    61148
      sm-147        endf/b-v fission product      updated 10/13/89          id    62147
      sm-149        mt=102,103,107                updated 10/13/89          id    62149
      sm-150        mt=102                        updated 10/13/89          id    62150
      sm-151        mt=102,103,104,105,106,107    updated 10/13/89          id    62151
      sm-152        mt=102,103,104,105,106,107    updated 10/13/89          id    62152
      eu-153        mt=102,103,104,105,106,107    updated 10/13/89          id    63153
      eu-154        mt=102,103,104,105,106,107    updated 10/13/89          id    63154
      eu-155        mt=102,103,104,105,106,107    updated 10/13/89          id    63155
      gd-155        mt=102                        updated 10/13/89          id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     id    92234
      uranium-235   endf/b-iv mat 1261            updated 10/13/89          id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     id    92236
      uranium-238   endf/b-iv mat 1262            updated 10/13/89          id    92238
      neptunium-237 endf/b-iv mat 1263            updated 10/13/89          id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    94238
      plutonium-239 endf/b-iv mat 1264            updated 10/13/89          id    94239
      plutonium-240 endf/b-iv mat 1265            updated 10/13/89          id    94240
      plutonium-241 endf/b-iv mat 1266            updated 10/13/89          id    94241
      plutonium-242 endf/b-iv mat 1161            updated 10/13/89          id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                           id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                            id    95243
      curium-244    endf/b-iv mat 1162            updated 10/13/89          id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
1              nn          nn iiiiiiiiiiii   ttttttttttt     aaaaaaaaa    ww         ww  ll
               nnn         nn iiiiiiiiiiii   ttttttttttt    aaaaaaaaaaa   ww         ww  ll
               nnnn        nn      ii            tt        aa        aa  ww         ww  ll
               nn nn       nn      ii            tt        aa        aa  ww         ww  ll
               nn   nn     nn      ii            tt        aa        aa  ww         ww  ll
               nn    nn    nn      ii            tt        aaaaaaaaaaaa  ww    w    ww  ll
               nn     nn   nn      ii            tt        aaaaaaaaaaaa  ww   www   ww  ll
               nn      nn  nn      ii            tt        aa        aa  ww  ww ww  ww  ll
               nn       nn nn      ii            tt        aa        aa  ww ww    ww ww  ll
               nn        nnnn      ii            tt        aa        aa  wwww      wwww  ll
               nn         nnn iiiiiiiiiiii       tt        aa        aa  www        www  llllllllllll
               nn          nn iiiiiiiiiiii       tt        aa        aa  ww         ww  llllllllllll
0
```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dddddddddd aaaaaaaaaa w w iiiiiiiiiii ssssssssssss
dd dd aa aa w w ii ss ss
dd dd aa aa w w ii ss
dd dd aa aa w w ii ss
dd dd aaaaaaaaaaa w w ii sssssssssss
dd dd aaaaaaaaaaa w w ii ssssssssss
dd dd aa aa w w ii ss
dd dd aa aa w w ii ss
dd dd aa aa w w ii ss ss
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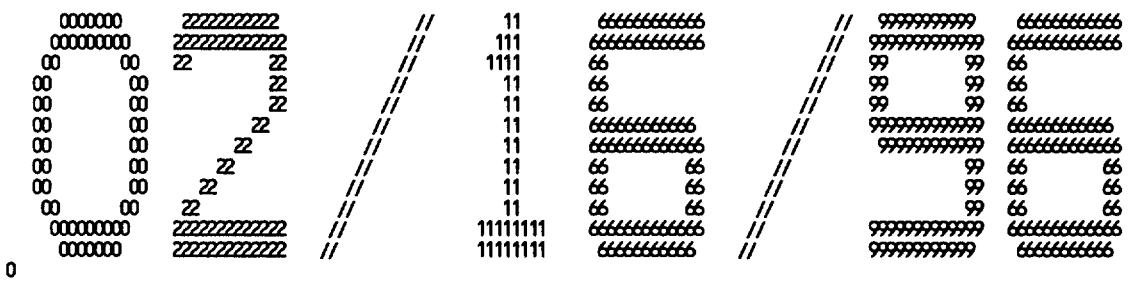
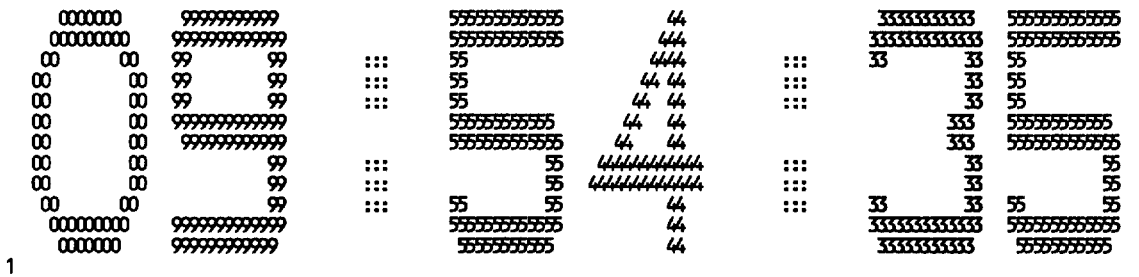
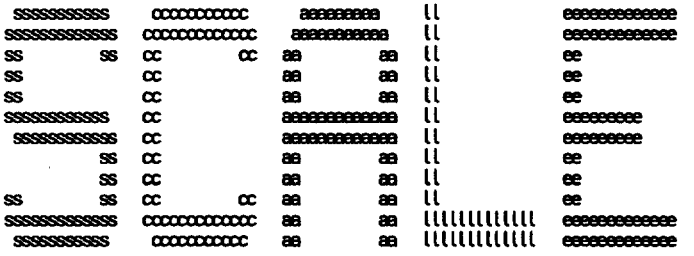
dddddddddd aa aa v iiiiiiiiiii ssssssssss
0


000000 2222222222 // 11 6666666666 // 9999999999 6666666666
00000000 22222222222 // 111 6666666666 // 99999999999 6666666666
00 00 22 22 // 1111 66 // 99 99 66
00 00 22 // 11 66 // 99 99 66
00 00 22 // 11 66 // 99 99 66
00 00 22 // 11 6666666666 // 9999999999 6666666666
00 00 22 // 11 6666666666 // 9999999999 6666666666
00 00 22 // 11 66 66 // 99 66 66
00 00 22 // 11 66 66 // 99 66 66
00 00 22 // 11 66 66 // 99 66 66
00000000 2222222222 // 11111111 6666666666 // 9999999999 6666666666
000000 2222222222 // 11111111 6666666666 // 9999999999 6666666666
0


000000 9999999999 5555555555 44 3333333333 5555555555
00000000 99999999999 5555555555 444 3333333333 5555555555
00 00 99 99 ::: 55 4444 ::: 33 33 55
00 00 99 99 ::: 55 44 44 ::: 33 55
00 00 99 99 ::: 55 44 44 ::: 33 55
00 00 9999999999 5555555555 44 44 333 5555555555
00 00 9999999999 5555555555 44 44 333 5555555555
00 00 99 ::: 55 4444444444 ::: 33 55
00 00 99 ::: 55 4444444444 ::: 33 55
00 00 99 ::: 55 55 44 ::: 33 33 55 55
00000000 99999999999 5555555555 44 3333333333 5555555555
000000 99999999999 5555555555 44 3333333333 5555555555
1
0


ssssssssss cccccccccc aaaaaaaa ll eeeeeeeeeeee
ssssssssssss cccccccccccc aaaaaaaaaa ll eeeeeeeeeeee
ss ss cc cc aa aa ll ee
ss cc aa aa ll ee
ss cc aa aa ll ee
ssssssssssss cc aaaaaaaaaaaa ll eeeeeeee
ssssssssssss cc aaaaaaaaaaaa ll eeeeeeee
ss cc aa aa ll ee
ss cc aa aa ll ee
ss ss cc cc aa aa ll ee
ssssssssssss cccccccccccc aa aa llllllllllll eeeeeeeeeeee
ssssssssss cccccccccc aa aa llllllllllll eeeeeeeeeeee

****

```
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****             program:  c0c002                                      *****
*****                                                                   *****
*****        creation date:  04/27/95                                   *****
*****                                                                   *****
*****             library:  /neutronics/scale/exe                       *****
*****                                                                   *****
*****                                                                   *****
*****    this is not a   scale  configuration controlled code           *****
*****                                                                   *****
*****             jobname:  davis                                       *****
*****                                                                   *****
*****    date of execution:  02/16/96                                   *****
*****                                                                   *****
*****    time of execution:  09:54:35                                   *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      9 entries.
0        1q array has     12 entries.
0select 65 nuclides from the master  library on logical  1
         0 nuclides from the working library on logical  2
         0 nuclides from the working library on logical  3
           to create the new working library on logical  4

        61 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has     65 entries.
0        3q array has    915 entries.
0        4q array has     65 entries.
0 general information concerning cross section library
    tape identification number                 4321
    number of nuclides on tape                   66
    number of neutron energy groups              27
    first thermal neutron energy group           15
    number of gamma energy groups                 0
0   direct access unit number  9 requires 117 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                          based on endf-b version 4 data with endf-b version 5 fission products
                             compiled for nrc      1/27/89
                                last updated       9/16/93
                                   l.m.petrie   -   ornl
0 nuclides from xsdrn tape
     1    1/v cross sections normalized to 1.0 at 0.0253 ev                    999
```

2	hydrogen	endf/b-iv mat 1269/thrm1002	updated 10/13/89	1001
3	b-10 1273 218ngp 042375 p-3 293k			5010
4	boron-11	endf/b-iv mat 1160	updated 10/13/89	5011
5	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	8016
6	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	.6
7	kr-83	mt=102,103,103,105,106,107	updated 10/13/89	36083
8	kr-85	mt= 102		36085
9	sr-90	mt=102	updated 10/13/89	38090
10	y-89	mt=102	updated 10/13/89	39089
11	zr-93	mt= 102		40093
12	zr-94	mt=102	updated 10/13/89	40094
13	zr-95	mt=102	updated 10/13/89	40095
14	zircalloy	endf/b-iv mat 1284	updated 10/13/89	40302
15	rb-94	mt=102	updated 10/13/89	41094
16	mo-95	mt=102	updated 10/13/89	42095
17	tc-99	mt=102	updated 10/13/89	43099
18	ru-101	mt=102	updated 10/13/89	44101
19	ru-106	mt=102	updated 10/13/89	44106
20	rh-103	mt=102	updated 10/13/89	45103
21	rh-105	mt= 102		45105
22	pd-105	mt=102	updated 10/13/89	46105
23	pd-108	mt=102	updated 10/13/89	46108
24	silver-109	endf/b-iv mat 1139	updated 10/13/89	47109
25	sb-124	mt=102	updated 10/13/89	51124
26	xe-131	mt=102,103,104,105,106	updated 10/13/89	54131
27	xe-132	mt=102,103,104,105,106	updated 10/13/89	54132
28	xenon-135	endf/b-iv mat 1294	updated 10/13/89	54135
29	xe-136	mt= 102, 103, 104, 105, 107		54136
30	cesium-133	endf/b-iv mat 1141	updated 10/13/89	55133
31	cs-134	mt=102	updated 10/13/89	55134
32	cs-135	mt= 102		55135
33	cs-137	mt=102	updated 10/13/89	55137
34	ba-136	mt=102	updated 10/13/89	56136
35	la-139	mt=102	updated 10/13/89	57139
36	ce-144	mt= 102		58144
37	pr-141	mt=102,103,104,105,106,107	updated 10/13/89	59141
38	pr-143	mt=102	updated 10/13/89	59143
39	nd-143	mt=102	updated 10/13/89	60143
40	nd-145	mt=102	updated 10/13/89	60145
41	nd-147	mt=102	updated 10/13/89	60147
42	pm-147	mt=102	updated 10/13/89	61147
43	pm-148	mt= 102		61148
44	sm-147	endf/b-v fission product	updated 10/13/89	62147
45	sm-149	mt=102,103,107	updated 10/13/89	62149
46	sm-150	mt=102	updated 10/13/89	62150
47	sm-151	mt=102,103,104,105,106,107	updated 10/13/89	62151
48	sm-152	mt=102,103,104,105,106,107	updated 10/13/89	62152
49	eu-153	mt=102,103,104,105,106,107	updated 10/13/89	63153
50	eu-154	mt=102,103,104,105,106,107	updated 10/13/89	63154
51	eu-155	mt=102,103,104,105,106,107	updated 10/13/89	63155
52	gd-155	mt=102	updated 10/13/89	64155
53	u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)			92234
54	uranium-235	endf/b-iv mat 1261	updated 10/13/89	92235
55	u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)			92236
56	uranium-238	endf/b-iv mat 1262	updated 10/13/89	92238
57	neptunium-237	endf/b-iv mat 1263	updated 10/13/89	93237
58	pu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)			94238
59	plutonium-239	endf/b-iv mat 1264	updated 10/13/89	94239
60	plutonium-240	endf/b-iv mat 1265	updated 10/13/89	94240
61	plutonium-241	endf/b-iv mat 1266	updated 10/13/89	94241

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    62.   plutonium-242  endf/b-iv mat 1161          updated 10/13/89              94242
    63    am-241 1056 sig=5+4 newklacs 218ngp p-3 293k                              95241
    64    am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                              95243
    65    curium-244     endf/b-iv mat 1162          updated 10/13/89              96244
01/v cross sections normalized to 1.0 at 0.0253 ev                      999    temperature=  975.00
0 hydrogen      endf/b-iv mat 1269/thrm1002   updated 10/13/89          1001    temperature=  607.60
                          thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                       5010    temperature=  607.60
                          thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 boron-11      endf/b-iv mat 1160            updated 10/13/89          5011    temperature=  607.60
                          thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 oxygen-16     endf/b-iv mat 1276            updated 10/13/89          8016    temperature=  975.00
0 oxygen-16     endf/b-iv mat 1276            updated 10/13/89             6    temperature=  607.60
0 kr-83         mt=102,103,103,105,106,107    updated 10/13/89         36083    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   82.202          temperature(kelvin)     =  975.000
0potential scatter sigma  =    7.004          lumped nuclear density  = 9.9999997E-21
0spin factor (g)          = 4988.190          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =  15.995              sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   = 237.953              sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11     1.809447E-04    .000000E+00    2.092318E-04
  12     2.169717E-02    .000000E+00    9.922354E-03
  13    -4.337918E-03    .000000E+00   -6.988131E-03
  14     4.783569E-05    .000000E+00   -1.724112E-05
0excess resonance integrals
0              resolved
0absorption   1.45275E+02
 fission      .00000E+00
- elapsed time   .00 min.
0 kr-85         mt= 102                                                 36085    temperature=  975.00
0 sr-90         mt=102                        updated 10/13/89          38090    temperature=  975.00
0  y-89         mt=102                        updated 10/13/89          39089    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   88.142          temperature(kelvin)     =  975.000
0potential scatter sigma  =    3.644          lumped nuclear density  = 9.9999997E-21
0spin factor (g)          =   78.664          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =  15.995              sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   = 237.953              sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   9     1.364407E-06    .000000E+00    2.180942E-04
  10     2.638645E-06    .000000E+00    7.570678E-06
0excess resonance integrals
0              resolved
0absorption   1.46528E-01
 fission      .00000E+00
- elapsed time   .00 min.
0 zr-93         mt= 102                                                 40093    temperature=  975.00
```

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0 zr-94        mt=102                    updated 10/13/89          40094    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   93.100          temperature(kelvin)     =   975.000
0potential scatter sigma  =    3.779          lumped nuclear density  = 9.9999997E-21
0spin factor (g)          =  180.853          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.933             sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   8     3.255227E-07    .000000E+00    2.652856E-04
   9     1.224071E-06    .000000E+00    9.974551E-05
0excess resonance integrals
0                resolved
0absorption     3.44401E-02
 fission         .00000E+00
-  elapsed time    .00 min.
0 zr-95        mt=102                    updated 10/13/89          40095    temperature=  975.00
0 zircalloy    endf/b-iv mat 1284        updated 10/13/89          40302    temperature=  650.00
0resonance data for this nuclide
0mass number (a)          =   90.436          temperature(kelvin)     =   650.000
0potential scatter sigma  =    6.385          lumped nuclear density  = 4.2515602E-02
0spin factor (g)          =    1.079          lump dimension (a-bar)  = 5.4610002E-01
0inner radius             = 4.7878999E-01     dancoff correction (c)  = 5.0364637E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   8    -1.780596E-03    .000000E+00   -1.286907E+00
   9    -5.895373E-02    .000000E+00   -2.695297E+00
  10    -6.959935E-02    .000000E+00   -1.601321E+00
  11    -1.883957E-01    .000000E+00   -7.920912E-01
0excess resonance integrals
0                resolved
0absorption     2.28539E-01
 fission         .00000E+00
-  elapsed time    .02 min.
0 rb-94        mt=102                    updated 10/13/89          41094    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   93.101          temperature(kelvin)     =   975.000
0potential scatter sigma  =    3.779          lumped nuclear density  = 9.9999997E-21
0spin factor (g)          = 43808.801          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.933             sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  13     1.043336E-02    .000000E+00    9.253548E-04
  14     9.836751E-03    .000000E+00   -4.064909E-04
0excess resonance integrals
0                resolved
0absorption     9.15001E+01
```

```
 fission          .00000E+00
- elapsed time    .02 min.
0 mo-95         mt=102                    updated 10/13/89          42095    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   94.091          temperature(kelvin)     =  975.000
0potential scatter sigma =    3.806         lumped nuclear density  = 9.9999997E-21
0spin factor (g)        =  607.724          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995          sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.953          sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  10     -7.915671E-05     .000000E+00    2.663419E-04
  11      2.016730E-04     .000000E+00    2.080861E-05
  12      9.774911E-03     .000000E+00    8.762282E-03
  13      1.615204E-04     .000000E+00   -2.779906E-05
0excess resonance integrals
0                resolved
0absorption     1.05222E+02
 fission          .00000E+00
- elapsed time    .02 min.
0 tc-99         mt=102                    updated 10/13/89          43099    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   98.150          temperature(kelvin)     =  975.000
0potential scatter sigma =    6.000         lumped nuclear density  = 9.9999997E-21
0spin factor (g)        = 4527.940          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995          sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.953          sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11      2.904125E-04     .000000E+00    1.159129E-04
  12      2.889429E-04     .000000E+00    1.895800E-05
  13      5.068587E-03     .000000E+00    2.067952E-04
  14      9.705323E-02     .000000E+00    2.243266E-03
  15      1.072213E-02     .000000E+00   -5.414662E-04
  16      4.836156E-03     .000000E+00   -2.802451E-04
  17      2.074327E-04     .000000E+00   -1.191957E-05
0excess resonance integrals
0                resolved
0absorption     3.35536E+02
 fission          .00000E+00
- elapsed time    .03 min.
0 ru-101        mt=102                    updated 10/13/89          44101    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =  100.039          temperature(kelvin)     =  975.000
0potential scatter sigma =    3.965         lumped nuclear density  = 9.9999997E-21
0spin factor (g)        = 8785.290          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995          sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
```

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Omass of moderator-2    =  237.933              sigma(per absorber atom)= 1.9051458E+19
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup        res abs         res fiss        res scat
  11      -3.518813E-02     .000000E+00   -3.622225E-03
  12       5.204938E-02     .000000E+00    5.420228E-03
  13       7.549752E-03     .000000E+00    1.902731E-04
  14       2.381085E-04     .000000E+00   -4.201588E-05
Oexcess resonance integrals
O                  resolved
Oabsorption       8.00378E+01
 fission           .00000E+00
- elapsed time    .03 min.
O ru-106        mt=102                      updated 10/13/89          44106     temperature=   975.00
O rh-103        mt=102                      updated 10/13/89          45103     temperature=   975.00
Oresonance data for this nuclide
Omass number (a)          =   102.021          temperature(kelvin)      =   975.000
Opotential scatter sigma  =     5.408          lumped nuclear density   = 9.9999997E-21
Ospin factor (g)          =      .500          lump dimension (a-bar)   = 4.6812201E-01
Oinner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1    =   15.995              sigma(per absorber atom)= 1.7075970E+19
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2    =  237.933              sigma(per absorber atom)= 1.9051458E+19
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup        res abs         res fiss        res scat
   9       1.326827E-03     .000000E+00    2.167915E-03
  10      -1.286871E-03     .000000E+00   -1.980879E-03
  11       4.747010E-04     .000000E+00    2.049829E-04
  12       6.839059E-05     .000000E+00   -1.216555E-05
  13        .000000E+00     .000000E+00     .000000E+00
  14        .000000E+00     .000000E+00     .000000E+00
  15       2.333214E-01     .000000E+00    3.451227E-03
  16       4.081323E+01     .000000E+00   -2.742478E-02
  17      -1.809042E+02     .000000E+00   -1.277730E-01
  18       8.817304E+01     .000000E+00    2.622113E-01
  19       1.162716E+01     .000000E+00   -1.845762E-03
  20       1.066385E+00     .000000E+00   -2.236318E-03
  21       2.092157E-01     .000000E+00    2.075584E-03
  22       2.606502E-01     .000000E+00    2.727417E-03
  23      -8.670080E-02     .000000E+00    1.600945E-03
Oexcess resonance integrals
O                  resolved
Oabsorption       1.17075E+03
 fission           .00000E+00
- elapsed time    .07 min.
O rh-105          mt=  102                                              45105     temperature=   975.00
O pd-105        mt=102                      updated 10/13/89          46105     temperature=   975.00
Oresonance data for this nuclide
Omass number (a)          =   104.004          temperature(kelvin)      =   975.000
Opotential scatter sigma  =     4.069          lumped nuclear density   = 9.9999997E-21
Ospin factor (g)          = 15210.000          lump dimension (a-bar)   = 4.6812201E-01
Oinner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1    =   15.995              sigma(per absorber atom)= 1.7075970E+19
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2    =  237.933              sigma(per absorber atom)= 1.9051458E+19
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0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  12      -4.362008E-02     .000000E+00   -2.957456E-04
  13       5.553506E-02     .000000E+00    5.201802E-04
  14       7.784640E-04     .000000E+00   -8.188062E-05
0excess resonance integrals
0                 resolved
0absorption      6.13404E+01
 fission          .00000E+00
-  elapsed time    .07 min.
0 pd-108        mt=102                    updated 10/13/89            46108     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   106.977          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.146          lumped nuclear density   = 9.9999997E-21
0spin factor (g)          = 21175.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11       1.170581E-04     .000000E+00    3.532089E-04
  12       1.367686E-02     .000000E+00    9.317974E-03
  13       6.985784E-03     .000000E+00    1.812033E-03
  14       8.561562E-02     .000000E+00   -3.205911E-05
  15      -1.840045E-01     .000000E+00    8.089985E-05
  16       2.946594E-04     .000000E+00   -9.255802E-06
0excess resonance integrals
0                 resolved
0absorption      2.14135E+02
 fission          .00000E+00
-  elapsed time    .07 min.
0 silver-109    endf/b-iv mat 1139          updated 10/13/89            47109     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   107.969          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.988          lumped nuclear density   = 9.9999997E-21
0spin factor (g)          =  1441.870          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  10       3.941120E-05     .000000E+00    8.699980E-05
  11       5.547873E-04     .000000E+00    3.035632E-04
  12      -6.959971E-01     .000000E+00   -3.045062E-02
  13       7.673479E-01     .000000E+00    3.380764E-02
  14       4.382060E-01     .000000E+00    2.461560E-02
0excess resonance integrals
0                 resolved
0absorption      1.40425E+03
 fission          .00000E+00
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- elapsed time    .07 min.
0 sb-124        mt=102                          updated 10/13/89            51124    temperature=  975.00
0 xe-131        mt=102,103,104,105,106          updated 10/13/89            54131    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   129.781             temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.301             lumped nuclear density   = 9.9999997E-21
0spin factor (g)          =   246.825             lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00         dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995               sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953               sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9       3.548233E-07      .000000E+00      2.687395E-06
  10       1.705408E-05      .000000E+00      2.475561E-05
  11       1.002568E-04      .000000E+00      3.780379E-05
  12       8.386960E-04      .000000E+00      6.769228E-05
  13       1.244908E-01      .000000E+00      1.863688E-01
  14       1.136255E-02      .000000E+00      1.588561E-02
0excess resonance integrals
0                 resolved
0absorption       8.40544E+02
 fission          .00000E+00
- elapsed time    .08 min.
0 xe-132        mt=102,103,104,105,106          updated 10/13/89            54132    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   130.771             temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.301             lumped nuclear density   = 9.9999997E-21
0spin factor (g)          =   675.899             lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00         dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995               sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953               sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9       3.846073E-07      .000000E+00      4.707993E-06
  10       2.022905E-05      .000000E+00      2.391328E-04
  11       3.346509E-08      .000000E+00     -9.309281E-07
0excess resonance integrals
0                 resolved
0absorption       9.84435E-01
 fission          .00000E+00
- elapsed time    .08 min.
0 xenon-135     endf/b-iv mat 1294              updated 10/13/89            54135    temperature=  975.00
0 xe-136          mt=  102,  103,  104,  105,  107                          54136    temperature=  975.00
0 cesium-133    endf/b-iv mat 1141              updated 10/13/89            55133    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   131.764             temperature(kelvin)      =   975.000
0potential scatter sigma  =     7.100             lumped nuclear density   = 9.9999997E-21
0spin factor (g)          =   374.437             lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00         dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995               sigma(per absorber atom)= 1.7075969E+19
0moderator-1 will be treated by the nordheim integral method.
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0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.8316216E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9     -3.703633E-06     .000000E+00     4.731736E-05
  10      6.616260E-05     .000000E+00     8.590073E-05
  11      5.686005E-04     .000000E+00     7.995660E-04
  12      1.210576E-03     .000000E+00     1.180891E-04
  13      2.886432E-03     .000000E+00     1.459001E-04
  14      7.713464E-02     .000000E+00     2.332192E-03
  15      5.632077E-03     .000000E+00    -4.067794E-04
  16      2.777925E-03     .000000E+00    -2.215554E-04
  17      2.352236E-03     .000000E+00    -1.830806E-04
  18      2.214984E-03     .000000E+00    -1.679470E-04
  19      1.316890E-03     .000000E+00    -9.665920E-05
0excess resonance integrals
0                resolved
0absorption      3.67817E+02
 fission          .00000E+00
-  elapsed time    .10 min.
0 cs-134        mt=102                   updated 10/13/89            55134     temperature=   975.00
0 cs-135          mt=  102                                           55135     temperature=   975.00
0 cs-137        mt=102                   updated 10/13/89            55137     temperature=   975.00
0 ba-136        mt=102                   updated 10/13/89            56136     temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =   134.737          temperature(kelvin)      =   975.000
0potential scatter sigma =     4.835          lumped nuclear density   = 9.9999997E-21
0spin factor (g)         =  1247.690          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10      1.392643E-06     .000000E+00     6.052888E-07
  11      2.651689E-05     .000000E+00     2.268840E-05
0excess resonance integrals
0                resolved
0absorption      1.38478E+00
 fission          .00000E+00
-  elapsed time    .10 min.
0 la-139        mt=102                   updated 10/13/89            57139     temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =   137.713          temperature(kelvin)      =   975.000
0potential scatter sigma =     4.906          lumped nuclear density   = 9.9999997E-21
0spin factor (g)         =   145.855          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9      5.785221E-05     .000000E+00     8.074925E-03
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  10      -5.416118E-05     .000000E+00   -7.962938E-03
  11        .000000E+00     .000000E+00     .000000E+00
  12       3.425439E-04     .000000E+00    1.623582E-04
0excess resonance integrals
0                resolved
0absorption       8.15213E+00
 fission           .00000E+00
- elapsed time     .12 min.
0 ce-144          mt=  102                                          58144     temperature=  975.00
0 pr-141        mt=102,103,104,105,106,107     updated 10/13/89     59141     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   139.697          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.953          lumped nuclear density   = 9.9999997E-21
0spin factor (g)          =  1026.500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  10       2.722221E-05     .000000E+00    9.441898E-04
  11       1.657300E-04     .000000E+00    1.836016E-03
  12       6.502524E-05     .000000E+00    8.269918E-06
0excess resonance integrals
0                resolved
0absorption       1.23055E+01
 fission           .00000E+00
- elapsed time     .12 min.
0 pr-143        mt=102                         updated 10/13/89     59143     temperature=  975.00
0 nd-143        mt=102                         updated 10/13/89     60143     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   141.682          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.000          lumped nuclear density   = 9.9999997E-21
0spin factor (g)          =  1964.850          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  10      -5.299144E-06     .000000E+00    3.773363E-05
  11       8.773024E-04     .000000E+00    7.552954E-03
  12       1.098715E-03     .000000E+00    4.429725E-04
0excess resonance integrals
0                resolved
0absorption       5.16983E+01
 fission           .00000E+00
- elapsed time     .12 min.
0 nd-145        mt=102                         updated 10/13/89     60145     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   143.668          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.047          lumped nuclear density   = 9.9999997E-21
0spin factor (g)          =  1007.250          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
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0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  10       9.267461E-05     .000000E+00     1.134150E-03
  11       5.599182E-05     .000000E+00     9.373933E-04
  12       3.607317E-03     .000000E+00     1.292681E-02
  13       9.669940E-05     .000000E+00     2.031052E-04
  14       3.997842E-02     .000000E+00     9.739675E-04
  15       5.917626E-03     .000000E+00    -4.639855E-04
  16       1.326674E-03     .000000E+00    -1.451365E-04
  17       9.642377E-04     .000000E+00    -1.063806E-04
  18       8.539549E-04     .000000E+00    -9.312791E-05
  19       7.633875E-04     .000000E+00    -8.068838E-05
  20       2.839147E-05     .000000E+00    -2.919823E-06
0excess resonance integrals
0                  resolved
0absorption       2.10327E+02
 fission           .00000E+00
- elapsed time    .13 min.
0 nd-147        mt=102                    updated 10/13/89          60147    temperature=   975.00
0 pm-147        mt=102                    updated 10/13/89          61147    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 9.9999997E-21
0spin factor (g)          = 21589.500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12       6.966507E-03     .000000E+00     1.468595E-03
  13       1.578501E-03     .000000E+00    -2.277522E-04
  14       5.784348E-01     .000000E+00     1.423051E-01
  15       4.142128E-02     .000000E+00     7.001469E-03
  16       1.698034E-02     .000000E+00     1.746893E-03
  17       1.369746E-02     .000000E+00     1.150502E-03
  18       1.253748E-02     .000000E+00     9.648900E-04
  19       6.999250E-04     .000000E+00     5.068569E-05
0excess resonance integrals
0                  resolved
0absorption       2.12313E+03
 fission           .00000E+00
- elapsed time    .13 min.
0 pm-148          mt=  102                                          61148    temperature=   975.00
0 sm-147        endf/b-v fission product  updated 10/13/89          62147    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 9.9999997E-21
0spin factor (g)          =      .000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
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  10      -8.693130E-05     .000000E+00   -2.192214E-04
  11       3.915146E-04     .000000E+00    2.219730E-03
  12       1.559308E-03     .000000E+00    4.600983E-04
  13       2.722763E-02     .000000E+00    1.456118E-02
  14       1.067168E-04     .000000E+00   -6.439571E-05
0excess resonance integrals
0                  resolved
0absorption       2.95075E+02
 fission           .00000E+00
- elapsed time    .15 min.
0 sm-151        mt=102,103,104,105,106,107     updated 10/13/89              62151     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   149.623              temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.185              lumped nuclear density   = 9.9999997E-21
0spin factor (g)          = 75574.703              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995                sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953                sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  14       5.260533E-03     .000000E+00   -7.897375E-03
  15       1.507732E+01     .000000E+00    7.666258E-02
  16      -2.165288E+01     .000000E+00   -6.105221E-02
  17       1.746777E+02     .000000E+00    8.370620E-01
  18      -3.196567E+02     .000000E+00   -1.772521E+00
  19       6.261735E+01     .000000E+00    3.870579E-01
  20       1.102369E+00     .000000E+00    3.251883E-04
  21      -8.248987E-02     .000000E+00    1.288040E-02
  22       7.434122E-02     .000000E+00    3.612924E-03
  23      -9.669451E-03     .000000E+00    3.056623E-04
0excess resonance integrals
0                  resolved
0absorption       2.06074E+03
 fission           .00000E+00
- elapsed time    .15 min.
0 sm-152        mt=102,103,104,105,106,107     updated 10/13/89              62152     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   150.615              temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.208              lumped nuclear density   = 9.9999997E-21
0spin factor (g)          =   863.594              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995                sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953                sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9       2.403198E-06     .000000E+00    1.159116E-04
  10       9.314650E-05     .000000E+00    7.525454E-04
  11       5.544180E-04     .000000E+00    1.900341E-03
  12       1.606336E-03     .000000E+00    3.771814E-03
  13       4.295352E-02     .000000E+00    1.044723E-01
  14       5.906535E-01     .000000E+00    6.507989E-01
0excess resonance integrals
```

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0                resolved
0absorption      2.91111E+03
 fission         .00000E+00
- elapsed time    .17 min.
0 eu-153        mt=102,103,104,105,106,107     updated 10/13/89            63153     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   151.607            temperature(kelvin)      =  975.000
0potential scatter sigma  =     9.731            lumped nuclear density   = 9.9999997E-21
0spin factor (g)          = 12265.900            lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00         dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -2.580043E-01     .000000E+00   -5.022002E-02
  13      -2.080346E-02     .000000E+00    2.732525E-03
  14      -4.284205E-01     .000000E+00    5.670392E-03
  15       3.649734E+00     .000000E+00   -9.770704E-03
  16      -3.288213E+00     .000000E+00    8.161153E-03
  17       1.506635E-01     .000000E+00   -3.437884E-03
  18       7.726895E-02     .000000E+00   -2.231282E-03
  19       5.055514E-02     .000000E+00   -1.541163E-03
  20      -1.265644E-01     .000000E+00   -1.041209E-03
0excess resonance integrals
0                resolved
0absorption      1.35663E+03
 fission         .00000E+00
- elapsed time    .17 min.
0 eu-154        mt=102,103,104,105,106,107     updated 10/13/89            63154     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   152.601            temperature(kelvin)      =  975.000
0potential scatter sigma  =     9.731            lumped nuclear density   = 9.9999997E-21
0spin factor (g)          = 19135.801            lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00         dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -3.844084E-01     .000000E+00   -6.007666E-02
  13      -2.933085E-01     .000000E+00   -2.421374E-02
  14       3.604651E-01     .000000E+00    1.521953E-02
  15       2.304189E-01     .000000E+00    2.127269E-02
  16       7.322216E+00     .000000E+00    9.281573E-02
  17      -1.435965E+02     .000000E+00   -1.894614E+00
  18       1.138804E+02     .000000E+00    1.860162E+00
  19      -1.039527E+02     .000000E+00    1.221570E+00
0excess resonance integrals
0                resolved
0absorption      2.13732E+03
 fission         .00000E+00
- elapsed time    .18 min.
0 eu-155        mt=102,103,104,105,106,107     updated 10/13/89            63155     temperature=  975.00
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0 gd-155        mt=102                          updated 10/13/89            64155     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   153.592             temperature(kelvin)       =   975.000
0potential scatter sigma  =     5.277             lumped nuclear density    = 9.9999997E-21
0spin factor (g)          = 12700.100             lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00         dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995              sigma(per absorber atom)= 1.7075970E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.933              sigma(per absorber atom)= 1.9051458E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -1.439257E+00     .000000E+00   -1.839427E-01
  13       1.541437E+00     .000000E+00    1.985446E-01
  14       2.192559E-01     .000000E+00    9.810235E-03
  15      -3.286444E-01     .000000E+00    5.341723E-05
  16       1.477360E+00     .000000E+00   -4.148852E-03
  17       1.568653E-01     .000000E+00   -1.479130E-03
  18       9.605146E-02     .000000E+00   -1.078059E-03
  19       6.295317E-02     .000000E+00   -8.026487E-04
  20       1.400321E-02     .000000E+00    3.090602E-04
  21        .000000E+00     .000000E+00     .000000E+00
  22        .000000E+00     .000000E+00     .000000E+00
  23        .000000E+00     .000000E+00     .000000E+00
  24        .000000E+00     .000000E+00     .000000E+00
  25      -2.406941E+03     .000000E+00   -1.882743E+00
  26      -5.227043E+03     .000000E+00    1.971364E+00
  27      -1.662799E+03     .000000E+00    7.404465E-01
0excess resonance integrals
0                 resolved
0absorption      3.82329E+04
 fission          .00000E+00
-  elapsed time     .18 min.
0u-234 1043 sigo=5+4 new(lacs p-3 293k f-1/e-m(1.+5)                          92234     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   232.029             temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.021             lumped nuclear density    = 5.5557821E-06
0spin factor (g)          =  6948.450             lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00         dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995              sigma(per absorber atom)= 3.0735492E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.955              sigma(per absorber atom)= 3.4280727E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      -2.660897E-02     .000000E+00   -7.755044E-02
  12      -2.166410E-01     .000000E+00   -9.087195E-02
  13       7.759067E-04     .000000E+00   -6.469014E-04
  14      -2.108644E+01     .000000E+00   -3.452136E+00
0excess resonance integrals
0                 resolved
0absorption      5.78630E+02
 fission          .00000E+00
-  elapsed time     .20 min.
0 uranium-235   endf/b-iv mat 1261          updated 10/13/89            92235     temperature=  975.00
0resonance data for this nuclide
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```
0mass number (a)          =   233.025          temperature(kelvin)      =   975.000
0potential scatter sigma  =    11.500          lumped nuclear density   = 6.9150812E-04
0spin factor (g)          = 15171.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 2.4693810E+02
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.049          sigma(per absorber atom)= 2.6500592E+02
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  12      -2.802867E+00   -1.745419E+00   -6.529980E-02
  13      -9.404244E+00   -4.671767E+00   -2.017245E-01
  14      -7.541845E+00   -4.596020E+00   -5.108717E-02
0excess resonance integrals
0                  resolved
0absorption       2.04864E+02
 fission          1.22258E+02
-  elapsed time    .22 min.
0u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    92236     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   234.017          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.995          lumped nuclear density   = 3.1674365E-06
0spin factor (g)          =  6328.490          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 5.3911008E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.934          sigma(per absorber atom)= 6.0137379E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -1.742947E-02    .000000E+00   -3.756222E-02
  12      -4.166518E-02    .000000E+00   -5.612943E-02
  13      -5.275458E-02    .000000E+00   -3.181131E-03
  14      -3.376845E+00    .000000E+00   -2.965938E-01
0excess resonance integrals
0                  resolved
0absorption       3.29303E+02
 fission           .00000E+00
-  elapsed time    .22 min.
0 uranium-238    endf/b-iv mat 1262          updated 10/13/89          92238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.006          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density   = 2.2067729E-02
0spin factor (g)          =   656.527          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 7.7379818E+00
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   235.041          sigma(per absorber atom)= 3.3317560E-01
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9      -3.953677E-02    .000000E+00   -4.059601E-01
  10      -1.027990E+00   -1.759790E-05   -6.492476E+00
  11      -9.713745E+00    .000000E+00   -2.691004E+01
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  12      -4.305893E+01     .000000E+00   -4.999826E+01
  13      -5.402488E+01     .000000E+00   -1.769476E+01
  14      -1.045212E+02     .000000E+00   -6.060839E+00
0excess resonance integrals
0                  resolved
0absorption       1.79456E+01
 fission          5.03812E-04
-  elapsed time     .23 min.
0 neptunium-237  endf/b-iv mat 1263            updated 10/13/89            93237     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   235.012           temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.500           lumped nuclear density    = 9.9999997E-21
0spin factor (g)          = 10100.800           lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00        dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995           sigma(per absorber atom)= 1.7075969E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051           sigma(per absorber atom)= 1.8316216E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11      -6.297421E-02   -1.837015E-06   -7.368062E-03
  12       4.699678E-02   -7.827351E-05    9.789990E-03
  13       4.846798E-02    9.304715E-05    1.906104E-03
  14       2.287751E-02    1.978009E-06   -4.934850E-04
0excess resonance integrals
0                  resolved
0absorption       2.95269E+02
 fission          1.38613E-01
-  elapsed time     .27 min.
0pu-238 1050 sig0=5+4 newklacs p-3 293k f-1/e-m(1.+5)                          94238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.167           temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.850           lumped nuclear density    = 9.9999997E-21
0spin factor (g)          = 13130.600           lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00        dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995           sigma(per absorber atom)= 1.7075969E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051           sigma(per absorber atom)= 1.8316216E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11       4.300073E-04    7.349576E-05    3.254688E-04
  12       3.435531E-04    4.151627E-05    1.223377E-04
  13       4.169841E-01    7.581419E-02   -8.996832E-03
  14      -3.821973E-01   -6.987069E-02    8.538967E-03
0excess resonance integrals
0                  resolved
0absorption       8.25561E+01
 fission          9.08581E+00
-  elapsed time     .27 min.
0 plutonium-239  endf/b-iv mat 1264            updated 10/13/89            94239     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.999           temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.200           lumped nuclear density    = 9.9999997E-21
0spin factor (g)          = 6435.710            lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00        dancoff correction (c)    = 3.4269261E-01
```

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0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.7075969E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.8316216E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11      1.026091E-03   7.365740E-04   7.731064E-05
  12      3.649406E-03   1.987919E-03   3.495295E-04
  13      3.192807E-03   1.440402E-05   8.998066E-04
  14      1.640449E-02   1.127308E-02  -5.654235E-04
0excess resonance integrals
0                resolved
0absorption     3.19726E+02
 fission        1.79269E+02
- elapsed time    .28 min.
0 plutonium-240  endf/b-iv mat 1265          updated 10/13/89          94240     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   237.992          temperature(kelvin)     =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density  = 9.9999997E-21
0spin factor (g)          =   669.244          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.7075969E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.8316216E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   9     -9.114988E-06   1.994661E-07   6.593086E-05
  10      6.315603E-05   2.939710E-06   2.577517E-04
  11      4.433857E-04   2.762662E-06   4.575704E-04
  12      3.239271E-03   1.745970E-05   2.000425E-03
  13      1.275347E-03   7.819998E-06   8.856502E-05
  14       .000000E+00    .000000E+00    .000000E+00
  15      1.760503E-02   3.359997E-06   3.506874E-03
  16      3.386359E+00   6.461107E-04   4.328788E-01
  17      5.735937E+02   1.094729E-01   5.201967E+01
  18     -2.554376E+03  -4.875140E-01  -2.052582E+02
  19      1.057519E+03   2.018322E-01   8.031049E+01
  20     -9.453103E+01  -1.804166E-02   1.836000E+00
0excess resonance integrals
0                resolved
0absorption     8.44126E+03
 fission        2.63833E+00
- elapsed time    .30 min.
0 plutonium-241  endf/b-iv mat 1266          updated 10/13/89          94241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   238.978          temperature(kelvin)     =   975.000
0potential scatter sigma  =    10.939          lumped nuclear density  = 9.9999997E-21
0spin factor (g)          = 16402.100          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.7075969E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.8316216E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
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0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  12      1.377094E-02    1.229498E-02    6.801242E-04
  13     -2.439721E-02   -2.559265E-02   -1.833407E-03
  14      7.042534E-02    6.269953E-02    1.419312E-03
  15      1.801109E-02    1.614762E-02   -4.699414E-04
0excess resonance integrals
0                 resolved
0absorption       5.09543E+02
 fission          4.27111E+02
- elapsed time    .32 min.
0 plutonium-242  endf/b-iv mat 1161          updated 10/13/89          94242     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   240.145          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.694          lumped nuclear density   = 9.9999997E-21
0spin factor (g)          =  6606.710          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.7075969E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 1.8316216E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11      1.732151E-04     .000000E+00    2.955152E-04
  12      1.338541E-03     .000000E+00    2.000390E-03
  13      1.258568E-04     .000000E+00    4.973793E-06
  14      8.150769E-02     .000000E+00    1.527770E-02
  15      5.500306E-01     .000000E+00    5.579308E-03
  16      4.034138E-02     .000000E+00   -3.459574E-03
  17      1.550422E-02     .000000E+00   -1.848340E-03
  18      1.112562E-02     .000000E+00   -1.430774E-03
0excess resonance integrals
0                 resolved
0absorption       1.11245E+03
 fission          .00000E+00
- elapsed time    .32 min.
0am-241 1056 sigp=5+4 newxlacs 218ngp p-3 293k                          95241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   238.950          temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.511          lumped nuclear density   = 9.9999997E-21
0spin factor (g)          = 82058.203          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.7075969E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 1.8316216E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  13      4.924720E-01    1.212994E-02    4.967665E-03
  14     -4.283262E-01   -1.106696E-02   -4.417147E-03
0excess resonance integrals
0                 resolved
0absorption       1.93478E+02
 fission          1.07615E+00
- elapsed time    .32 min.
0am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           95243     temperature=   975.00
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0resonance data for this nuclide
0mass number (a)          =  240.940          temperature(kelvin)      =   975.000
0potential scatter sigma  =    9.511          lumped nuclear density   = 9.9999997E-21
0spin factor (g)          = 82052.602          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995          sigma(per absorber atom)= 1.7075969E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  238.051          sigma(per absorber atom)= 1.8316216E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  13      -6.597584E-03    .000000E+00    4.390141E-04
  14       2.233211E-02    .000000E+00    2.374156E-04
0excess resonance integrals
0                resolved
0absorption      1.60152E+02
 fission          .00000E+00
-  elapsed time    .32 min.
0 curium-244     endf/b-iv mat 1162          updated 10/13/89          96244     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =  242.133          temperature(kelvin)      =   975.000
0potential scatter sigma  =   10.320          lumped nuclear density   = 9.9999997E-21
0spin factor (g)          = 5251.150          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995          sigma(per absorber atom)= 1.7075969E+19
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  238.051          sigma(per absorber atom)= 1.8316216E+19
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11       2.590136E-04    7.087814E-06    3.065648E-04
  12       7.074901E-04    3.320512E-05    1.406014E-04
  13       2.721932E-03    1.336724E-04    7.130241E-04
  14       8.470870E-02    5.068042E-03    1.606959E-02
0excess resonance integrals
0                resolved
0absorption      6.13904E+02
 fission         3.54222E+01
-  elapsed time    .33 min.
-  elapsed time    .33 min.
1     this xsdrn working tape was created 02/16/96 at 09:54:35
      the title of the parent case is as follows
      scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
         tape id                        4321        number of nuclides                  65
         number of neutron groups         27        number of gamma groups               0
         first thermal group              15        logical unit                         4
                                  table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id      999
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89              id     1001
       b-10 1273 218ngp 042375 p-3 293k                                           id     5010
        boron-11       endf/b-iv mat 1160            updated 10/13/89              id     5011
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id     8016
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id        6
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89              id    36083
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 kr-85          mt=  102                                                  id    36085
 sr-90        mt=102                      updated 10/13/89                id    38090
  y-89        mt=102                      updated 10/13/89                id    39089
 zr-93          mt=  102                                                  id    40093
 zr-94        mt=102                      updated 10/13/89                id    40094
 zr-95        mt=102                      updated 10/13/89                id    40095
 zircalloy    endf/b-iv mat 1284          updated 10/13/89                id    40302
 nb-94        mt=102                      updated 10/13/89                id    41094
 mo-95        mt=102                      updated 10/13/89                id    42095
 tc-99        mt=102                      updated 10/13/89                id    43099
 ru-101       mt=102                      updated 10/13/89                id    44101
 ru-106       mt=102                      updated 10/13/89                id    44106
 rh-103       mt=102                      updated 10/13/89                id    45103
 rh-105         mt=  102                                                  id    45105
 pd-105       mt=102                      updated 10/13/89                id    46105
 pd-108       mt=102                      updated 10/13/89                id    46108
 silver-109   endf/b-iv mat 1139          updated 10/13/89                id    47109
 sb-124       mt=102                      updated 10/13/89                id    51124
 xe-131       mt=102,103,104,105,106      updated 10/13/89                id    54131
 xe-132       mt=102,103,104,105,106      updated 10/13/89                id    54132
 xenon-135    endf/b-iv mat 1294          updated 10/13/89                id    54135
 xe-136         mt=  102, 103, 104, 105, 107                              id    54136
 cesium-133   endf/b-iv mat 1141          updated 10/13/89                id    55133
 cs-134       mt=102                      updated 10/13/89                id    55134
 cs-135         mt=  102                                                  id    55135
 cs-137       mt=102                      updated 10/13/89                id    55137
 ba-136       mt=102                      updated 10/13/89                id    56136
 la-139       mt=102                      updated 10/13/89                id    57139
 ce-144         mt=  102                                                  id    58144
 pr-141       mt=102,103,104,105,106,107  updated 10/13/89                id    59141
 pr-143       mt=102                      updated 10/13/89                id    59143
 nd-143       mt=102                      updated 10/13/89                id    60143
 nd-145       mt=102                      updated 10/13/89                id    60145
 nd-147       mt=102                      updated 10/13/89                id    60147
 pm-147       mt=102                      updated 10/13/89                id    61147
 pm-148         mt=  102                                                  id    61148
 sm-147       endf/b-v fission product    updated 10/13/89                id    62147
 sm-149       mt=102,103,107              updated 10/13/89                id    62149
 sm-150       mt=102                      updated 10/13/89                id    62150
 sm-151       mt=102,103,104,105,106,107  updated 10/13/89                id    62151
 sm-152       mt=102,103,104,105,106,107  updated 10/13/89                id    62152
 eu-153       mt=102,103,104,105,106,107  updated 10/13/89                id    63153
 eu-154       mt=102,103,104,105,106,107  updated 10/13/89                id    63154
 eu-155       mt=102,103,104,105,106,107  updated 10/13/89                id    63155
 gd-155       mt=102                      updated 10/13/89                id    64155
u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    92234
 uranium-235  endf/b-iv mat 1261          updated 10/13/89                id    92235
u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    92236
 uranium-238  endf/b-iv mat 1262          updated 10/13/89                id    92238
 neptunium-237 endf/b-iv mat 1263         updated 10/13/89                id    93237
pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      id    94238
 plutonium-239 endf/b-iv mat 1264         updated 10/13/89                id    94239
 plutonium-240 endf/b-iv mat 1265         updated 10/13/89                id    94240
 plutonium-241 endf/b-iv mat 1266         updated 10/13/89                id    94241
 plutonium-242 endf/b-iv mat 1161         updated 10/13/89                id    94242
am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                             id    95241
am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                              id    95243
 curium-244   endf/b-iv mat 1162          updated 10/13/89                id    96244
0      tape copy used     0 i/o's, and took     .00 seconds
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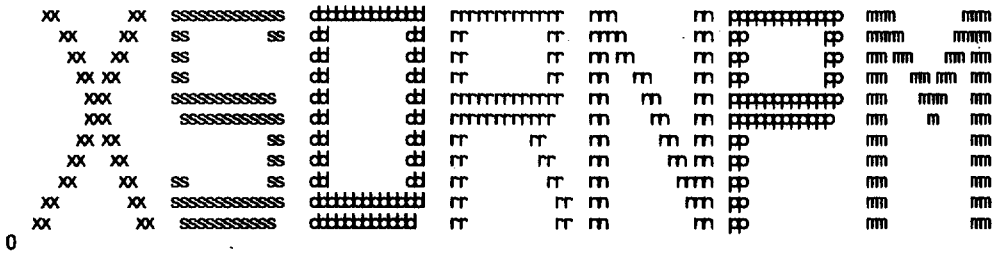

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    xx  xx    ss            dd        dd  rr        rr  rrn rrn     rrn  pp        pp  mm mm   mm mm
     xx xx    ss            dd        dd  rr        rr  rrn  rrn    rrn  pp        pp  mm  mm mm  mm
      xxx     ssssssssssss  dd        dd  rrrrrrrrrrrr  rrn   rrn   rrn  pppppppppppp  mm   mmm   mm
      xxx      ssssssssssss dd        dd  rrrrrrrrrrrr  rrn    rrn  rrn  pppppppppppp  mm    m    mm
     xx xx              ss  dd        dd  rr      rr    rrn     rrn rrn  pp            mm         mm
    xx  xx              ss  dd        dd  rr       rr   rrn      rrn rrn  pp            mm         mm
   xx    xx   ss        ss  dd        dd  rr        rr  rrn       rrrrn  pp            mm         mm
  xx      xx  ssssssssssss  dddddddddddd  rr         rr rrn        rrrn  pp            mm         mm
 xx        xx  ssssssssssss  dddddddddddd  rr         rr rrn         rrn  pp            mm         mm
0

 dddddddddddd    aaaaaaaaa   w         w  iiiiiiiiiiii    sssssssssss
 dddddddddddd   aaaaaaaaaaa  w         w  iiiiiiiiiiii   ssssssssssss
 dd        dd  aa        aa  w         w      ii        ss        ss
 dd        dd  aa        aa  w         w      ii        ss
 dd        dd  aa        aa  w         w      ii        ss
 dd        dd  aaaaaaaaaaaaa w         w      ii        ssssssssssss
 dd        dd  aaaaaaaaaaaaa  w       w       ii         ssssssssssss
 dd        dd  aa        aa    w     w        ii                  ss
 dd        dd  aa        aa     w   w         ii                  ss
 dd        dd  aa        aa      w w          ii        ss        ss
 dddddddddddd  aa        aa       ww      iiiiiiiiiiii   ssssssssssss
 dddddddddddd  aa        aa        v      iiiiiiiiiiii    sssssssssss
0

   0000000     22222222222          //       11        666666666666          //  99999999999   666666666666
  000000000    22222222222         //       111        666666666666         //  99999999999  666666666666
 00       00  22        22         //      1111        66                  //  99        99  66
00         00            22        //        11        66                  //  99        99  66
00         00            22        //        11        66                  //  99        99  66
00         00          22         //        11        666666666666        //   99999999999  666666666666
00         00        22          //        11        666666666666       //     99999999999  666666666666
00         00      22           //        11        66        66      //                99  66        66
00         00    22            //        11        66        66     //                 99  66        66
 00       00   22             //        11        66        66    //                  99  66        66
  000000000    22222222222   //        11111111   666666666666   //        99999999999  666666666666
   0000000     22222222222  //         11111111    666666666666  //         99999999999   666666666666
0

   0000000     9999999999              5555555555555  5555555555555              22222222222   666666666666
  000000000    99999999999             5555555555555  5555555555555             22222222222  666666666666
 00       00  99        99      :::    55            55                :::    22        22  66
00         00  99        99      :::    55            55                :::            22  66
00         00  99        99      :::    55            55                :::            22  66
00         00  99999999999             555555555555  555555555555                   22   666666666666
00         00   99999999999            5555555555555  5555555555555                 22    666666666666
00         00            99      :::              55            55      :::        22       66        66
00         00            99      :::              55            55      :::      22         66        66
 00       00             99      :::    55        55  55        55      :::    22           66        66
  000000000    99999999999             5555555555555  5555555555555             22222222222  666666666666
   0000000     99999999999              55555555555   55555555555              22222222222   666666666666
1
0                          sssssssssss   cccccccccc    aaaaaaaaa   ll          eeeeeeeeeeeee
                          ssssssssssss  cccccccccccc   aaaaaaaaaaa  ll          eeeeeeeeeeeee
                          ss        ss  cc        cc  aa        aa  ll          ee
                          ss            cc            aa        aa  ll          ee
                          ss            cc            aa        aa  ll          ee
                          sssssssssss   cc            aaaaaaaaaaaa  ll          eeeeeeeee
```

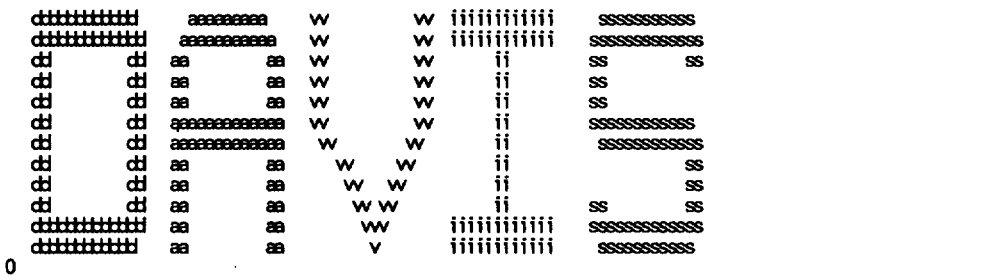

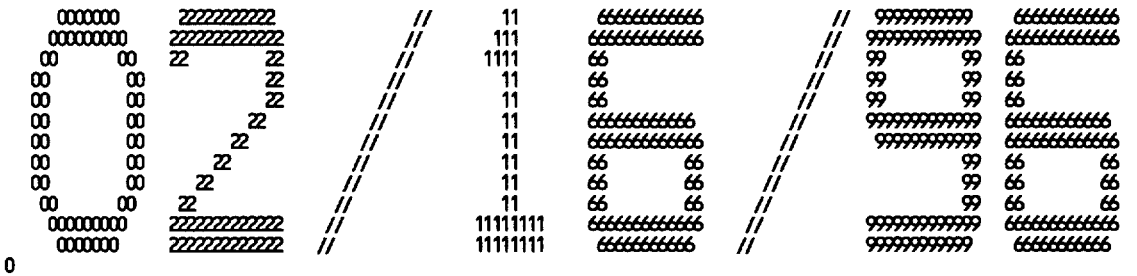

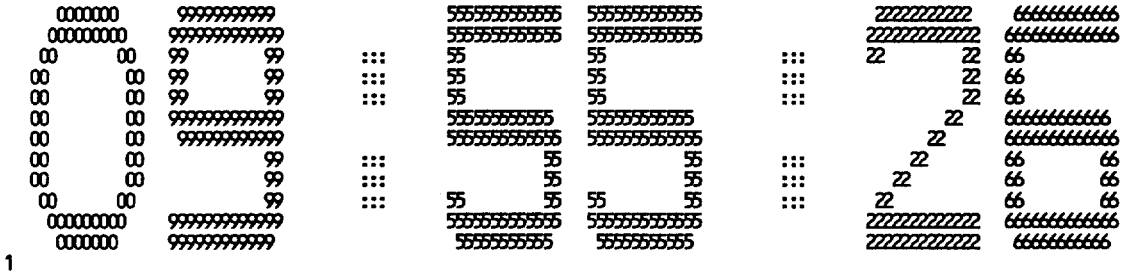

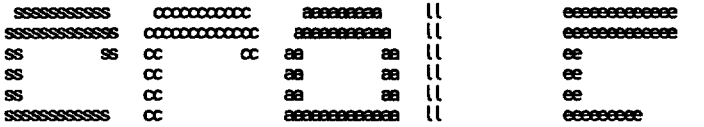

```
 ssssssssssss   cc            aaaaaaaaaaaa  ll            eeeeeeeee
          ss    cc            aa        aa  ll            ee
          ss    cc            aa        aa  ll            ee
ss        ss    cc        cc  aa        aa  ll            ee
ssssssssssssss  cccccccccccc  aa        aa  lllllllllllll  eeeeeeeeeeeee
 ssssssssssss    cccccccccc   aa        aa  lllllllllllll  eeeeeeeeeeeee
```

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****              program:  c0c001                                     *****
*****                                                                   *****
*****         creation date:  04/27/95                                  *****
*****                                                                   *****
*****              library:  /neutronics/scale/exe                      *****
*****                                                                   *****
*****                                                                   *****
*****     this is not a   scale  configuration controlled code          *****
*****                                                                   *****
*****              jobname:  davis                                      *****
*****                                                                   *****
*****     date of execution:  02/16/96                                  *****
*****                                                                   *****
*****     time of execution:  09:55:27                                  *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
```

```
1
                    at 0 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       -1q array has      1 entries.
0        1q array has     15 entries.
0        2q array has     10 entries.
0        3q array has     12 entries.
0        4q array has      9 entries.
0        5q array has     12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                   at 0 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0general problem description data block
0                              general problem data

 ige  1/2/3 = plane/cylinder/sphere      2      isn  quadrature order                  8
 izm  number of zones                    4      isct order of scattering               3
 im   number of spacial intervals       24      ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1      iim  inner iteration maximum          20
 ibr  right boundary condition           3      iom  outer iteration maximum          25
```

```
 mxx  number of mixtures                  3      iclc -1/0/n--flat res/sn/opt          0
 ms   mixing table length                65      ith  0/1 = forward/adjoint            0
 igm  number of energy groups            27      iflu not used(always wgtd)            0
 nng  number of neutron groups           27      iprt -2/-1/0/n=mixture xsec print    -2
 ngg  number of gamma groups              0      idl  0/1/2/3=no/prt nd/pch n/both    53
 iftg number of first thermal group      15      ipbt -1/0/1=none/fine/all bal. prt    0
0                              special options

 ifg  0/1 = none/weighting calculation    1      ipn  0/1/2 diff. coef. param          0
 iqm  volumetric sources (0/n=no/yes)     0      idfm 0/1 = none/density factors 38*   1
 ipm  boundary sources (0/n=no/yes)       0      iaz  0/n = none/n activities by zone  0
 ifn  0/1/2 = input 33*/34*/use last     53      iai  0/1=none/activities by interval  0
 itmx maximum time (minutes)             10      ifct 0/1=no/yes upscatter scaling     0
 idt1 0/1/2/3=no/xsect/srce/flux--out     0      ipvt 0/1/2=no/k/alpha parametric srch 0
 isx  broad group fluxes                  0      isen outer iteration acceleration     0
 ibln activity data unit                  0      nbnd band rebaln parameter            0
 jbkl 0/1/2 buckling geometry             0
0                            weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight     -1      ihtf total xsect psn in brd gp tables 3
 igmf number of broad groups             27      ndsf psn g-g or file number           4
 itp  0/10/20/30/40 0/c/e/ac/a            0      nusf table length or max order        4
 ipp  -2/-1/0/n=wgted xsect print        -2      mxcm extra 1-d x-sect positions       0
 iap  -1/n anisn xsect print             -1
0                            floating point parameters

 eps  overall convergence       1.00000E-04      dy   cyl/pla ht for buckling     .00000E+00
 ptc  point convergence         1.00000E-04      dz   plane depth for buckling    .00000E+00
 xnf  normalization factor      1.00000E+00      vsc  void streaming correction   .00000E+00
 ev   eigenvalue guess           .00000E+00      pv   ipvt=1/2--k/alpha           1.00000E+00
 evm  eigenvalue modifier        .00000E+00      eql  ev change eps for search    1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00      xmpm new param mod for search   7.50000E-01
     this case will require       2535 locations for mixing
     this case has been allocated 200000 locations
1                    at 0 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       13q array has      65 entries.
0       14q array has      65 entries.
0       15q array has      65 entries.
0                                data block 2 (mixing table, etc.)
0     nuclides        cccc                              mixing table                    extra
        on tape    identification                 mixture   component    atom density   xsect id's
     1      999                                        1       92235    6.91508E-04
     2     1001                                        1       92234    5.55578E-06
     3     5010                                        1       92236    3.16744E-06
     4     5011                                        1       92238    2.20677E-02
     5     8016                                        1        8016    4.55359E-02
     6        6                                        3           6    2.09710E-02
     7    36083                                        1       36083    1.00000E-20
     8    36085                                        1       36085    1.00000E-20
     9    38090                                        1       38090    1.00000E-20
    10    39089                                        1       39089    1.00000E-20
    11    40093                                        1       42095    1.00000E-20
    12    40094                                        1       40093    1.00000E-20
    13    40095                                        1       40094    1.00000E-20
    14    40302                                        1       40095    1.00000E-20
    15    41094                                        1       41094    1.00000E-20
    16    42095                                        1       43099    1.00000E-20
    17    43099                                        1       45103    1.00000E-20
    18    44101                                        1       45105    1.00000E-20
    19    44106                                        1       44101    1.00000E-20
```

20	45103	1	44106	1.00000E-20
21	45105	1	46105	1.00000E-20
22	46105	1	46108	1.00000E-20
23	46108	1	47109	1.00000E-20
24	47109	1	51124	1.00000E-20
25	51124	1	54131	1.00000E-20
26	54131	1	54132	1.00000E-20
27	54132	1	54135	1.00000E-20
28	54135	1	54136	1.00000E-20
29	54136	1	55134	1.00000E-20
30	55133	1	55135	1.00000E-20
31	55134	1	55137	1.00000E-20
32	55135	1	56136	1.00000E-20
33	55137	1	57139	1.00000E-20
34	56136	1	59141	1.00000E-20
35	57139	1	59143	1.00000E-20
36	58144	1	58144	1.00000E-20
37	59141	1	60143	1.00000E-20
38	59143	1	60145	1.00000E-20
39	60143	1	61147	1.00000E-20
40	60145	1	61148	1.00000E-20
41	60147	1	60147	1.00000E-20
42	61147	1	62147	1.00000E-20
43	61148	1	62149	1.00000E-20
44	62147	1	62150	1.00000E-20
45	62149	1	62151	1.00000E-20
46	62150	1	62152	1.00000E-20
47	62151	1	64155	1.00000E-20
48	62152	1	63153	1.00000E-20
49	63153	1	63154	1.00000E-20
50	63154	1	63155	1.00000E-20
51	63155	2	40302	4.25156E-02
52	64155	3	1001	4.19420E-02
53	92234	3	5010	3.81515E-06
54	92235	3	5011	1.54884E-05
55	92236	1	55133	1.00000E-20
56	92238	1	93237	1.00000E-20
57	93237	1	94238	1.00000E-20
58	94238	1	94239	1.00000E-20
59	94239	1	94240	1.00000E-20
60	94240	1	94241	1.00000E-20
61	94241	1	94242	1.00000E-20
62	94242	1	95241	1.00000E-20
63	95241	1	95243	1.00000E-20
64	95243	1	96244	1.00000E-20
65	96244	1	999	1.00000E-20

- elapsed time .00 min.
0 21649 locations will be used
0 35q array has 25 entries.
0 36q array has 24 entries.
0 38q array has 24 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 at 0 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	

2	6.43400E+06	4.40989E-01	2.88737E+09	2	0	2	1.00000E+00
3	3.00000E+06	1.20397E+00	2.12201E+09	3	0	3	1.00000E+00
4	1.85000E+06	1.68740E+00	1.75673E+09	4	0	4	1.00000E+00
5	1.40000E+06	1.96611E+00	1.46535E+09	5	0	5	1.00000E+00
6	9.00000E+05	2.40795E+00	1.06620E+09	6	0	6	1.00000E+00
7	4.00000E+05	3.21888E+00	6.07557E+08	7	0	7	1.00000E+00
8	1.00000E+05	4.60517E+00	2.72415E+08	8	0	8	1.00000E+00
9	1.70000E+04	6.37713E+00	1.13526E+08	9	0	9	1.00000E+00
10	3.00000E+03	8.11173E+00	4.82126E+07	10	0	10	1.00000E+00
11	5.50000E+02	9.80818E+00	2.05946E+07	11	0	11	1.00000E+00
12	1.00000E+02	1.15129E+01	1.01036E+07	12	0	12	1.00000E+00
13	3.00000E+01	1.27169E+01	5.69595E+06	13	0	13	1.00000E+00
14	1.00000E+01	1.38155E+01	3.20957E+06	14	0	14	1.00000E+00
15	3.04999E+00	1.50080E+01	2.10601E+06	15	0	15	1.00000E+00
16	1.77000E+00	1.55471E+01	1.70522E+06	16	0	16	1.00000E+00
17	1.29999E+00	1.58557E+01	1.52545E+06	17	0	17	1.00000E+00
18	1.12999E+00	1.59959E+01	1.42867E+06	18	0	18	1.00000E+00
19	1.00000E+00	1.61181E+01	1.31002E+06	19	0	19	1.00000E+00
20	8.00000E-01	1.63412E+01	9.05898E+05	20	0	20	1.00000E+00
21	4.00000E-01	1.70344E+01	8.17974E+05	21	0	21	1.00000E+00
22	3.25000E-01	1.72420E+01	6.90070E+05	22	0	22	1.00000E+00
23	2.25000E-01	1.76098E+01	4.86933E+05	23	0	23	1.00000E+00
24	9.99999E-02	1.84207E+01	3.57766E+05	24	0	24	1.00000E+00
25	5.00000E-02	1.91138E+01	2.71895E+05	25	0	25	1.00000E+00
26	3.00000E-02	1.96247E+01	1.87283E+05	26	0	26	1.00000E+00
27	1.00000E-02	2.07233E+01	8.88201E+04	27	0	27	1.00000E+00
28	1.00000E-05	2.76310E+01					

1 at 0 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gd/mtu burn high temp

0

	mixture by zone	order p(l) by zone	activity table matl no.	reaction	quadrature constants weights	directions	refl direc	wt x cos
1	1	3			0	-2.79004E-01	3	0
2	1	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	2	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	3	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28598E-02
7					5.55953E-02	2.31301E-01	6	1.28598E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02
16					0	-9.83052E-01	24	0
17					4.53365E-02	-9.64143E-01	24	-4.37099E-02
18					4.53365E-02	-8.17361E-01	23	-3.70555E-02
19					4.53365E-02	-5.46143E-01	22	-2.47597E-02
20					4.53365E-02	-1.91780E-01	21	-8.69444E-03
21					4.53365E-02	1.91780E-01	20	8.69444E-03
22					4.53365E-02	5.46143E-01	19	2.47597E-02
23					4.53365E-02	8.17361E-01	18	3.70555E-02
24					4.53365E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01

5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.85835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83052E-01	-4.49528E-01	8.36885E-01	5.00703E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20262E-01	4.16520E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20262E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17256E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17256E-01
22	5.46143E-01	-4.49528E-01	-3.20262E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20262E-01	-4.16520E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int radii mid pts zone no. areas volumes dens fact radius mod spec(int)

1	0	1.29551E-02	1	0	2.10906E-03	1.00000E+00	0
2	2.59102E-02	4.33406E-02	1	1.62798E-01	9.49518E-03	1.00000E+00	0
3	6.07710E-02	8.75100E-02	1	3.81835E-01	2.94045E-02	1.00000E+00	0
4	1.14249E-01	1.74155E-01	1	7.17848E-01	1.31104E-01	1.00000E+00	0
5	2.34061E-01	2.93967E-01	1	1.47065E+00	2.21299E-01	1.00000E+00	
6	3.53873E-01	3.80612E-01	1	2.22345E+00	1.27890E-01	1.00000E+00	
7	4.07351E-01	4.24781E-01	1	2.55946E+00	9.30429E-02	1.00000E+00	
8	4.42212E-01	4.55167E-01	1	2.77850E+00	7.41004E-02	1.00000E+00	
9	4.68122E-01	4.68814E-01	2	2.94130E+00	4.07946E-03	0	
10	4.69507E-01	4.71481E-01	2	2.95000E+00	1.16988E-02	0	
11	4.73456E-01	4.75431E-01	2	2.97481E+00	1.17968E-02	0	
12	4.77405E-01	4.78098E-01	2	2.99962E+00	4.16023E-03	0	
13	4.78790E-01	4.83159E-01	3	3.00833E+00	2.65268E-02	1.00000E+00	
14	4.87528E-01	4.99987E-01	3	3.06329E+00	7.82768E-02	1.00000E+00	
15	5.12445E-01	5.24903E-01	3	3.21979E+00	8.21777E-02	1.00000E+00	
16	5.37362E-01	5.41731E-01	3	3.37634E+00	2.97427E-02	1.00000E+00	
17	5.46100E-01	5.53513E-01	4	3.43125E+00	5.15631E-02	1.00000E+00	
18	5.60926E-01	5.70900E-01	4	3.52440E+00	7.15548E-02	1.00000E+00	
19	5.80874E-01	5.96175E-01	4	3.64974E+00	1.14628E-01	1.00000E+00	
20	6.11475E-01	6.45755E-01	4	3.84201E+00	2.78169E-01	1.00000E+00	
21	6.80034E-01	7.14313E-01	4	4.27278E+00	3.07702E-01	1.00000E+00	
22	7.48592E-01	7.63893E-01	4	4.70354E+00	1.46875E-01	1.00000E+00	
23	7.79193E-01	7.89167E-01	4	4.89582E+00	9.89116E-02	1.00000E+00	
24	7.99141E-01	8.06554E-01	4	5.02115E+00	7.51357E-02	1.00000E+00	
25	8.13968E-01			5.11431E+00			

- elapsed time .00 min.

1 outer iter | inner iters | 1 - balance | eigenvalue | 1 - source ratio | 1 - scatter ratio | 1 - upscat ratio | search parameter | time (min)

1	197	1.90564E-05	1.22058E+00	-2.19260E-01	1.00000E+00	3.33668E-03	.00000E+00	.0000
2	292	-1.88981E-06	1.23107E+00	1.08980E-03	-1.73021E-02	2.88363E-02	.00000E+00	.0000
3	377	8.20433E-06	1.22188E+00	1.02605E-03	9.41305E-03	1.25031E-02	.00000E+00	.0167
4	451	-4.50866E-07	1.21741E+00	3.84249E-04	4.54793E-03	2.87685E-03	.00000E+00	.0167
5	509	1.88203E-06	1.21627E+00	7.21640E-05	1.07277E-03	4.13854E-04	.00000E+00	.0167
6	551	-1.33478E-05	1.21632E+00	1.05179E-05	1.45281E-04	6.29152E-05	.00000E+00	.0167

grp to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	1	3.06407E-07	24	1.00000E+00	1
2	1	1	3.57448E-07	24	1.00000E+00	1
3	1	1	3.28814E-07	24	1.00000E+00	1

4	4	1	1	3.17300E-07	24	1.00000E+00	1
5	5	1	1	3.22693E-07	24	1.00000E+00	1
6	6	1	1	2.04244E-07	24	1.00000E+00	1
7	7	1	1	1.38376E-07	24	1.00000E+00	1
8	8	1	1	3.61431E-08	24	1.00000E+00	1
9	9	1	7	2.25372E-09	24	1.00000E+00	1
10	10	1	2	2.80847E-09	24	1.00000E+00	1
11	11	1	2	3.17741E-09	24	1.00000E+00	1
12	12	1	2	3.75445E-09	24	1.00000E+00	1
13	13	1	2	3.48470E-09	24	1.00000E+00	1
14	14	1	2	3.38799E-09	24	1.00000E+00	1
15	15	1	18	2.27172E-05	24	1.00010E+00	1
16	16	1	20	3.39167E-05	24	1.00009E+00	1
17	17	1	19	4.61487E-05	24	1.00009E+00	1
18	18	1	19	5.17709E-05	24	1.00010E+00	1
19	19	1	20	4.88440E-05	24	1.00011E+00	1
20	20	1	20	4.79851E-05	24	1.00018E+00	1
21	21	1	20	8.31927E-05	24	1.00017E+00	1
22	22	1	20	3.24259E-05	24	1.00008E+00	1
23	23	1	24	9.90472E-06	24	1.00000E+00	1
24	24	1	24	2.76203E-05	24	9.99989E-01	1
25	25	1	24	3.16361E-05	24	9.99992E-01	1
26	26	1	21	3.19527E-05	24	1.00003E+00	2
27	27	1	24	1.33300E-05	19	9.99999E-01	2

7 578 1.51990E-05 1.21590E+00 2.13601E-06 2.19379E-05 8.19833E-06 .00000E+00 .0167

final monitor

lambda 1.21611E+00 production/absorption 1.21611E+00 angular flux on 16

- elapsed time .02 min.

1 at 0 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 int. zone number radius int. midpoint area volume prod density

1	1	.00000E+00	1.29551E-02	.00000E+00	2.10906E-03	3.57472E-03
2	1	2.59102E-02	4.33406E-02	1.62798E-01	9.49318E-03	1.60836E-02
3	1	6.07710E-02	8.75100E-02	3.81835E-01	2.94045E-02	4.99010E-02
4	1	1.14249E-01	1.74155E-01	7.17848E-01	1.31104E-01	2.24410E-01
5	1	2.34061E-01	2.99367E-01	1.47065E+00	2.21295E-01	3.86876E-01
6	1	3.53873E-01	3.80612E-01	2.22345E+00	1.27890E-01	2.28822E-01
7	1	4.07351E-01	4.24781E-01	2.55946E+00	9.30429E-02	1.69575E-01
8	1	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02	1.37069E-01
9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07946E-03	.00000E+00
10	2	4.69507E-01	4.71481E-01	2.95000E+00	1.16988E-02	.00000E+00
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	2	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.65268E-02	.00000E+00
14	3	4.87528E-01	4.99987E-01	3.06325E+00	7.82768E-02	.00000E+00
15	3	5.12445E-01	5.24903E-01	3.21979E+00	8.21777E-02	.00000E+00
16	3	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02	.00000E+00
17	4	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02	.00000E+00
18	4	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	4	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01	.00000E+00
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01	.00000E+00
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	4	7.48592E-01	7.63895E-01	4.70354E+00	1.46875E-01	.00000E+00
23	4	7.79198E-01	7.89167E-01	4.89582E+00	9.89116E-02	.00000E+00
24	4	7.99141E-01	8.06654E-01	5.02115E+00	7.51357E-02	.00000E+00
25		8.13968E-01		5.11431E+00		

1 at 0 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 total flux

0 int. grp. 1 grp. 2 grp. 3 grp. 4 grp. 5 grp. 6 grp. 7 grp. 8

1	1.68015E-01	1.30208E+00	1.66757E+00	1.03770E+00	1.57363E+00	3.03069E+00	2.90515E+00	2.07866E+00
2	1.68074E-01	1.30265E+00	1.66820E+00	1.03819E+00	1.57433E+00	3.03199E+00	2.90582E+00	2.07872E+00

3	1.68019E-01	1.30203E+00	1.66741E+00	1.03771E+00	1.57353E+00	3.03036E+00	2.90478E+00	2.07852E+00
4	1.67635E-01	1.29778E+00	1.66190E+00	1.03434E+00	1.56816E+00	3.01975E+00	2.89839E+00	2.07747E+00
5	1.66643E-01	1.28691E+00	1.64797E+00	1.02586E+00	1.55471E+00	2.99351E+00	2.88269E+00	2.07488E+00
6	1.65504E-01	1.27456E+00	1.63252E+00	1.01639E+00	1.53980E+00	2.96479E+00	2.86559E+00	2.07201E+00
7	1.64602E-01	1.26492E+00	1.62080E+00	1.00921E+00	1.52861E+00	2.94364E+00	2.85308E+00	2.06985E+00
8	1.63709E-01	1.25556E+00	1.60880E+00	1.00244E+00	1.51822E+00	2.92433E+00	2.84178E+00	2.06781E+00
9	1.63221E-01	1.25050E+00	1.60264E+00	9.98849E-01	1.51275E+00	2.91429E+00	2.83594E+00	2.06674E+00
10	1.63120E-01	1.24948E+00	1.60141E+00	9.98157E-01	1.51175E+00	2.91249E+00	2.83494E+00	2.06655E+00
11	1.62971E-01	1.24801E+00	1.59963E+00	9.97166E-01	1.51033E+00	2.90994E+00	2.83354E+00	2.06626E+00
12	1.62873E-01	1.24703E+00	1.59846E+00	9.96523E-01	1.50941E+00	2.90830E+00	2.83264E+00	2.06608E+00
13	1.62691E-01	1.24522E+00	1.59626E+00	9.95282E-01	1.50758E+00	2.90485E+00	2.83070E+00	2.06570E+00
14	1.62195E-01	1.24008E+00	1.58978E+00	9.91446E-01	1.50175E+00	2.89353E+00	2.82424E+00	2.06467E+00
15	1.61638E-01	1.23384E+00	1.58143E+00	9.86127E-01	1.49333E+00	2.87682E+00	2.81460E+00	2.06354E+00
16	1.61366E-01	1.23039E+00	1.57644E+00	9.82668E-01	1.48759E+00	2.86523E+00	2.80786E+00	2.06308E+00
17	1.61235E-01	1.22842E+00	1.57334E+00	9.80329E-01	1.48361E+00	2.85726E+00	2.80318E+00	2.06290E+00
18	1.61053E-01	1.22585E+00	1.56957E+00	9.77358E-01	1.47854E+00	2.84726E+00	2.79729E+00	2.06277E+00
19	1.60848E-01	1.22281E+00	1.56477E+00	9.73995E-01	1.47284E+00	2.83608E+00	2.79070E+00	2.06254E+00
20	1.60562E-01	1.21887E+00	1.55891E+00	9.69779E-01	1.46575E+00	2.82219E+00	2.78253E+00	2.06223E+00
21	1.60364E-01	1.21612E+00	1.55480E+00	9.66795E-01	1.46072E+00	2.81234E+00	2.77682E+00	2.06214E+00
22	1.60366E-01	1.21600E+00	1.55450E+00	9.66514E-01	1.46020E+00	2.81133E+00	2.77637E+00	2.06237E+00
23	1.60438E-01	1.21684E+00	1.55562E+00	9.67244E-01	1.46137E+00	2.81363E+00	2.77786E+00	2.06265E+00
24	1.60522E-01	1.21783E+00	1.55698E+00	9.68142E-01	1.46284E+00	2.81649E+00	2.77967E+00	2.06292E+00
0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58406E+00	1.44107E+00	1.29878E+00	7.92535E-01	6.74146E-01	6.01091E-01	3.73477E-01	2.08862E-01
2	1.58398E+00	1.44096E+00	1.29867E+00	7.92502E-01	6.73939E-01	6.00810E-01	3.73446E-01	2.08845E-01
3	1.58417E+00	1.44118E+00	1.29904E+00	7.92847E-01	6.74374E-01	6.01452E-01	3.73522E-01	2.08881E-01
4	1.58523E+00	1.44245E+00	1.30172E+00	7.95911E-01	6.78866E-01	6.05077E-01	3.73939E-01	2.09085E-01
5	1.58787E+00	1.44556E+00	1.30831E+00	8.03477E-01	6.88016E-01	6.14063E-01	3.74947E-01	2.09582E-01
6	1.59082E+00	1.44895E+00	1.31552E+00	8.11807E-01	6.89775E-01	6.23996E-01	3.76052E-01	2.10122E-01
7	1.59306E+00	1.45144E+00	1.32083E+00	8.17982E-01	6.94773E-01	6.31995E-01	3.76814E-01	2.10517E-01
8	1.59517E+00	1.45369E+00	1.32567E+00	8.23652E-01	6.99354E-01	6.38211E-01	3.77512E-01	2.10873E-01
9	1.59630E+00	1.45486E+00	1.32817E+00	8.26597E-01	7.01734E-01	6.41755E-01	3.77870E-01	2.11058E-01
10	1.59649E+00	1.45505E+00	1.32857E+00	8.27072E-01	7.02125E-01	6.42326E-01	3.77951E-01	2.11089E-01
11	1.59678E+00	1.45532E+00	1.32915E+00	8.27749E-01	7.02684E-01	6.43142E-01	3.78017E-01	2.11135E-01
12	1.59697E+00	1.45549E+00	1.32952E+00	8.28188E-01	7.03044E-01	6.43670E-01	3.78073E-01	2.11164E-01
13	1.59736E+00	1.45585E+00	1.33028E+00	8.29082E-01	7.03785E-01	6.44749E-01	3.78188E-01	2.11224E-01
14	1.59840E+00	1.45700E+00	1.33271E+00	8.31881E-01	7.06099E-01	6.48127E-01	3.78556E-01	2.11413E-01
15	1.59957E+00	1.45864E+00	1.33613E+00	8.35743E-01	7.09292E-01	6.52781E-01	3.79078E-01	2.11674E-01
16	1.60013E+00	1.45972E+00	1.33838E+00	8.38234E-01	7.11351E-01	6.55778E-01	3.79424E-01	2.11843E-01
17	1.60044E+00	1.46054E+00	1.34006E+00	8.40064E-01	7.12830E-01	6.57961E-01	3.79615E-01	2.11947E-01
18	1.60089E+00	1.46164E+00	1.34236E+00	8.42566E-01	7.14852E-01	6.60936E-01	3.79829E-01	2.12077E-01
19	1.60146E+00	1.46290E+00	1.34498E+00	8.45446E-01	7.17144E-01	6.64366E-01	3.80081E-01	2.12229E-01
20	1.60225E+00	1.46448E+00	1.34830E+00	8.49115E-01	7.20089E-01	6.68739E-01	3.80389E-01	2.12419E-01
21	1.60285E+00	1.46562E+00	1.35068E+00	8.51730E-01	7.22160E-01	6.71838E-01	3.80546E-01	2.12529E-01
22	1.60291E+00	1.46573E+00	1.35090E+00	8.51959E-01	7.22295E-01	6.72081E-01	3.80463E-01	2.12501E-01
23	1.60275E+00	1.46544E+00	1.35031E+00	8.51279E-01	7.21707E-01	6.71247E-01	3.80320E-01	2.12434E-01
24	1.60255E+00	1.46509E+00	1.34956E+00	8.50440E-01	7.20997E-01	6.70228E-01	3.80175E-01	2.12363E-01
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.08523E-02	7.68450E-02	1.43864E-01	4.69466E-01	1.45353E-01	2.97143E-01	9.02604E-01	6.43355E-01
2	9.08353E-02	7.68258E-02	1.43836E-01	4.69370E-01	1.45298E-01	2.97006E-01	9.02133E-01	6.42930E-01
3	9.08656E-02	7.68604E-02	1.43885E-01	4.69544E-01	1.45404E-01	2.97302E-01	9.03157E-01	6.44069E-01
4	9.10451E-02	7.70659E-02	1.44176E-01	4.70575E-01	1.46024E-01	2.98993E-01	9.09010E-01	6.50338E-01
5	9.14884E-02	7.75741E-02	1.44889E-01	4.73112E-01	1.47559E-01	3.03184E-01	9.23508E-01	6.65915E-01
6	9.19747E-02	7.81326E-02	1.45667E-01	4.75887E-01	1.49249E-01	3.07812E-01	9.39496E-01	6.83214E-01
7	9.23339E-02	7.85458E-02	1.46239E-01	4.77929E-01	1.50502E-01	3.11254E-01	9.51373E-01	6.96175E-01
8	9.26632E-02	7.89253E-02	1.46760E-01	4.79795E-01	1.51652E-01	3.14424E-01	9.62296E-01	7.08188E-01
9	9.28347E-02	7.91229E-02	1.47030E-01	4.80764E-01	1.52250E-01	3.16072E-01	9.67970E-01	7.14441E-01
10	9.28638E-02	7.91559E-02	1.47076E-01	4.80927E-01	1.52348E-01	3.16336E-01	9.68864E-01	7.15386E-01
11	9.29053E-02	7.92032E-02	1.47141E-01	4.81159E-01	1.52486E-01	3.16712E-01	9.70136E-01	7.16730E-01
12	9.29522E-02	7.92337E-02	1.47184E-01	4.81309E-01	1.52575E-01	3.16955E-01	9.70957E-01	7.17596E-01

13	9.29871E-02	7.92962E-02	1.47270E-01	4.81617E-01	1.52759E-01	3.17452E-01	9.72636E-01	7.19366E-01
14	9.31586E-02	7.94919E-02	1.47540E-01	4.82575E-01	1.53336E-01	3.19002E-01	9.77871E-01	7.24827E-01
15	9.33940E-02	7.97616E-02	1.47912E-01	4.83886E-01	1.54137E-01	3.21121E-01	9.84994E-01	7.32137E-01
16	9.35447E-02	7.99352E-02	1.48150E-01	4.84725E-01	1.54656E-01	3.22470E-01	9.89500E-01	7.36668E-01
17	9.36519E-02	8.00625E-02	1.48321E-01	4.85333E-01	1.55060E-01	3.23526E-01	9.93257E-01	7.40826E-01
18	9.37970E-02	8.02370E-02	1.48552E-01	4.86173E-01	1.55629E-01	3.25038E-01	9.98876E-01	7.47375E-01
19	9.39654E-02	8.04386E-02	1.48820E-01	4.87150E-01	1.56288E-01	3.26808E-01	1.00558E+00	7.55265E-01
20	9.41792E-02	8.06955E-02	1.49163E-01	4.88403E-01	1.57135E-01	3.29109E-01	1.01451E+00	7.65898E-01
21	9.43266E-02	8.08770E-02	1.49401E-01	4.89289E-01	1.57750E-01	3.30800E-01	1.02130E+00	7.74195E-01
22	9.43320E-02	8.08908E-02	1.49413E-01	4.89350E-01	1.57821E-01	3.31007E-01	1.02237E+00	7.75782E-01
23	9.42863E-02	8.08417E-02	1.49341E-01	4.89102E-01	1.57678E-01	3.30626E-01	1.02108E+00	7.74477E-01
24	9.42324E-02	8.07821E-02	1.49256E-01	4.88803E-01	1.57497E-01	3.30139E-01	1.01954E+00	7.72611E-01

0 int. grp. 25 grp. 26 grp. 27

1	2.61593E-01	1.55540E-01	1.98117E-02
2	2.61414E-01	1.55433E-01	1.98150E-02
3	2.62054E-01	1.56069E-01	2.00107E-02
4	2.65425E-01	1.59236E-01	2.08915E-02
5	2.73818E-01	1.67159E-01	2.31327E-02
6	2.83196E-01	1.76124E-01	2.57599E-02
7	2.90280E-01	1.83005E-01	2.78849E-02
8	2.96903E-01	1.89535E-01	3.00040E-02
9	3.00363E-01	1.92968E-01	3.11391E-02
10	3.00866E-01	1.93429E-01	3.12682E-02
11	3.01580E-01	1.94085E-01	3.14518E-02
12	3.02041E-01	1.94507E-01	3.15701E-02
13	3.02978E-01	1.95364E-01	3.18102E-02
14	3.05823E-01	1.97947E-01	3.25203E-02
15	3.09528E-01	2.01258E-01	3.33988E-02
16	3.11747E-01	2.03198E-01	3.38891E-02
17	3.13970E-01	2.05505E-01	3.44667E-02
18	3.17643E-01	2.09524E-01	3.60276E-02
19	3.22115E-01	2.14398E-01	3.76432E-02
20	3.28207E-01	2.21025E-01	3.97654E-02
21	3.33062E-01	2.26425E-01	4.15082E-02
22	3.34116E-01	2.27807E-01	4.20254E-02
23	3.33481E-01	2.27525E-01	4.19646E-02
24	3.32508E-01	2.26443E-01	4.17693E-02

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.13807E-02	.00000E+00	1.20349E-02	9.98292E-03	3.06431E-03	1.05147E-02	9.98827E-01
2	.00000E+00	1.89181E-01	2.19886E-03	1.63986E-01	6.50952E-02	1.34448E-02	1.12853E-01	1.00004E+00
3	.00000E+00	2.15036E-01	2.56637E-02	1.59961E-01	8.05577E-02	1.55674E-02	1.44563E-01	1.00001E+00
4	.00000E+00	1.24418E-01	3.85217E-02	1.04771E-01	6.76868E-02	7.46119E-03	8.77894E-02	1.00001E+00
5	.00000E+00	1.65841E-01	6.73968E-02	2.58878E-01	9.47626E-02	4.50099E-03	1.33976E-01	9.99991E-01
6	.00000E+00	1.79949E-01	1.34067E-01	6.53736E-01	5.44567E-02	7.18526E-03	2.52364E-01	1.00003E+00
7	.00000E+00	8.95229E-02	9.82419E-02	7.45743E-01	3.63484E-02	7.86084E-03	1.43364E-01	1.00001E+00
8	.00000E+00	1.37908E-02	4.25643E-02	6.31201E-01	2.14672E-02	1.43444E-02	2.05411E-02	1.00004E+00
9	.00000E+00	1.00142E-03	2.16884E-02	5.34272E-01	2.05097E-02	2.36016E-02	-2.15205E-02	9.99989E-01
10	.00000E+00	7.43875E-05	2.06315E-02	4.56925E-01	1.06293E-02	3.67080E-02	-2.66320E-02	1.00001E+00
11	.00000E+00	5.85240E-06	1.06302E-02	4.16452E-01	8.08901E-03	5.90627E-02	-5.65161E-02	1.00001E+00
12	.00000E+00	4.11122E-07	8.08906E-03	2.35668E-01	9.32623E-03	6.36957E-02	-6.49273E-02	9.99957E-01
13	.00000E+00	6.52825E-08	9.32624E-03	1.74157E-01	6.16830E-03	5.65834E-02	-5.34258E-02	1.00001E+00
14	.00000E+00	1.29379E-08	6.16830E-03	1.51972E-01	7.56523E-03	7.67766E-02	-7.81738E-02	1.00000E+00
15	.00000E+00	1.46206E-09	7.65500E-03	8.58051E-02	8.98340E-03	6.81610E-03	-8.14481E-03	1.00002E+00
16	.00000E+00	4.29309E-10	9.16672E-03	4.37935E-02	9.81815E-03	3.66138E-03	-4.31287E-03	1.00000E+00
17	.00000E+00	1.38258E-10	8.07550E-03	1.55718E-02	7.99007E-03	4.05731E-03	-3.98153E-03	9.99970E-01
18	.00000E+00	9.89890E-11	7.55144E-03	1.25548E-02	7.48546E-03	4.63627E-03	-4.56982E-03	9.99962E-01
19	.00000E+00	1.39949E-10	9.44175E-03	2.73846E-02	1.01027E-02	5.65122E-03	-6.31168E-03	9.99972E-01
20	.00000E+00	2.27572E-10	1.19658E-02	1.12376E-01	1.05948E-02	2.38759E-02	-2.25040E-02	9.99976E-01

21	.00000E+00	3.33092E-11	1.06521E-02	2.78215E-02	1.07506E-02	1.36800E-02	-1.37768E-02	9.99929E-01
22	.00000E+00	3.86463E-11	1.52984E-02	6.49242E-02	1.46572E-02	3.78728E-02	-3.71298E-02	9.99966E-01
23	.00000E+00	3.69501E-11	2.06823E-02	2.19015E-01	2.39756E-02	1.26019E-01	-1.29313E-01	9.99999E-01
24	.00000E+00	1.00573E-11	2.87406E-02	1.48197E-01	2.86378E-02	1.38738E-01	-1.38536E-01	1.00001E+00
25	.00000E+00	2.94413E-12	2.42538E-02	5.52382E-02	1.80605E-02	7.97872E-02	-7.35946E-02	1.00001E+00
26	.00000E+00	2.06444E-12	1.17637E-02	3.77369E-02	7.98884E-03	7.31048E-02	-6.95275E-02	9.99995E-01
27	.00000E+00	4.91967E-13	2.49716E-03	5.52789E-03	1.33605E-03	2.05787E-02	-1.92179E-02	1.00001E+00
28	.00000E+00	1.00000E+00	6.52922E-01	5.55571E+00	6.52922E-01	9.28144E-01	7.40379E-02	9.99995E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.65248E-01	1.05147E-02	1.67957E-01	.00000E+00	2.15356E-03	2.51447E-03	.00000E+00	1.14358E-01
2	1.25077E+00	1.12853E-01	1.30142E+00	.00000E+00	1.79132E-05	1.17117E-02	.00000E+00	8.82066E-01
3	1.60296E+00	1.44563E-01	1.66656E+00	.00000E+00	.00000E+00	1.45446E-02	.00000E+00	1.12969E+00
4	9.99032E-01	8.77894E-02	1.03721E+00	.00000E+00	.00000E+00	6.31230E-03	.00000E+00	7.03353E-01
5	1.51302E+00	1.33976E-01	1.57291E+00	.00000E+00	.00000E+00	1.88452E-03	.00000E+00	1.06583E+00
6	2.91477E+00	2.52364E-01	3.02952E+00	.00000E+00	.00000E+00	1.74220E-03	.00000E+00	2.05239E+00
7	2.83620E+00	1.43354E-01	2.90441E+00	.00000E+00	.00000E+00	1.81389E-03	.00000E+00	1.97957E+00
8	2.06679E+00	2.05411E-02	2.07856E+00	.00000E+00	.00000E+00	1.93179E-03	.00000E+00	1.42757E+00
9	1.59624E+00	-2.15209E-02	1.58416E+00	.00000E+00	.00000E+00	2.67782E-03	.00000E+00	1.09406E+00
10	1.45481E+00	-2.66320E-02	1.44119E+00	.00000E+00	.00000E+00	5.70145E-03	.00000E+00	9.96179E-01
11	1.32806E+00	-5.65161E-02	1.29904E+00	.00000E+00	.00000E+00	1.16776E-02	.00000E+00	9.02821E-01
12	8.26472E-01	-6.49273E-02	7.92828E-01	.00000E+00	.00000E+00	1.47800E-02	.00000E+00	5.55624E-01
13	7.01630E-01	-5.34258E-02	6.74396E-01	.00000E+00	.00000E+00	1.36248E-02	.00000E+00	4.72221E-01
14	6.41604E-01	-7.81738E-02	6.01440E-01	.00000E+00	.00000E+00	9.97937E-03	.00000E+00	4.25718E-01
15	3.77821E-01	-8.14481E-03	3.73485E-01	.00000E+00	.00000E+00	2.51433E-03	.00000E+00	2.58441E-01
16	2.11033E-01	-4.31287E-03	2.08868E-01	.00000E+00	.00000E+00	1.66506E-03	.00000E+00	1.44443E-01
17	9.28196E-02	-3.98153E-03	9.08647E-02	.00000E+00	.00000E+00	2.52477E-03	.00000E+00	6.31285E-02
18	7.91074E-02	-4.56982E-03	7.68607E-02	.00000E+00	.00000E+00	3.35695E-03	.00000E+00	5.35711E-02
19	1.47004E-01	-6.31168E-03	1.43881E-01	.00000E+00	.00000E+00	4.06104E-03	.00000E+00	9.99763E-02
20	4.80644E-01	-2.25040E-02	4.69502E-01	.00000E+00	.00000E+00	1.72805E-02	.00000E+00	3.26528E-01
21	1.52201E-01	-1.37768E-02	1.45395E-01	.00000E+00	.00000E+00	1.00277E-02	.00000E+00	1.02089E-01
22	3.15982E-01	-3.71298E-02	2.97291E-01	.00000E+00	.00000E+00	2.72668E-02	.00000E+00	2.10107E-01
23	9.67743E-01	-1.29313E-01	9.03188E-01	.00000E+00	.00000E+00	9.16735E-02	.00000E+00	6.40548E-01
24	7.14209E-01	-1.38536E-01	6.43952E-01	.00000E+00	.00000E+00	1.04029E-01	.00000E+00	4.63655E-01
25	3.00257E-01	-7.35946E-02	2.61867E-01	.00000E+00	.00000E+00	6.04430E-02	.00000E+00	1.91360E-01
26	1.92847E-01	-6.95275E-02	1.55752E-01	.00000E+00	.00000E+00	5.56009E-02	.00000E+00	1.17858E-01
27	3.11053E-02	-1.92179E-02	1.98489E-02	.00000E+00	.00000E+00	1.55149E-02	.00000E+00	1.67887E-02
28	2.39584E+01	7.40379E-02	2.39421E+01	.00000E+00	2.17148E-03	4.96856E-01	.00000E+00	1.64859E+01

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-3.72529E-09	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.21541E-08	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.19209E-07	1.00000E+00
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.04308E-07	9.99999E-01
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-4.84288E-08	1.00000E+00
9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-08	1.00000E+00
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-4.28408E-08	1.00000E+00
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.11759E-08	1.00000E+00
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.98023E-08	1.00000E+00
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	4.47035E-08	9.99999E-01
14	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	9.31323E-10	1.00000E+00
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-4.65661E-09	1.00000E+00
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-4.65661E-09	1.00000E+00
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.11759E-08	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00

22	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
23	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.98023E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.98023E-08	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86265E-09	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.58325E-07	1.00001E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.62848E-01	1.05147E-02	1.63248E-01	1.05147E-02	.00000E+00	.00000E+00	.00000E+00	5.17429E-03
2	1.24679E+00	1.12853E-01	1.25077E+00	1.12853E-01	.00000E+00	.00000E+00	.00000E+00	3.96292E-02
3	1.59817E+00	1.44563E-01	1.60296E+00	1.44563E-01	.00000E+00	.00000E+00	.00000E+00	5.07928E-02
4	9.96361E-01	8.77894E-02	9.99052E-01	8.77894E-02	.00000E+00	.00000E+00	.00000E+00	3.16611E-02
5	1.50918E+00	1.33976E-01	1.51302E+00	1.33976E-01	.00000E+00	.00000E+00	.00000E+00	4.79533E-02
6	2.90789E+00	2.52365E-01	2.91477E+00	2.52364E-01	.00000E+00	.00000E+00	.00000E+00	9.23895E-02
7	2.85241E+00	1.43355E-01	2.85620E+00	1.43354E-01	.00000E+00	.00000E+00	.00000E+00	8.99455E-02
8	2.06603E+00	2.05410E-02	2.06579E+00	2.05411E-02	.00000E+00	.00000E+00	.00000E+00	6.55779E-02
9	1.59702E+00	-2.15209E-02	1.59624E+00	-2.15209E-02	.00000E+00	.00000E+00	.00000E+00	5.06697E-02
10	1.45554E+00	-2.66320E-02	1.45481E+00	-2.66320E-02	.00000E+00	.00000E+00	.00000E+00	4.61806E-02
11	1.32961E+00	-5.65161E-02	1.32806E+00	-5.65161E-02	.00000E+00	.00000E+00	.00000E+00	4.21717E-02
12	8.28298E-01	-6.49273E-02	8.26472E-01	-6.49273E-02	.00000E+00	.00000E+00	.00000E+00	2.62580E-02
13	7.03134E-01	-5.34258E-02	7.01630E-01	-5.34258E-02	.00000E+00	.00000E+00	.00000E+00	2.22909E-02
14	6.43802E-01	-7.81738E-02	6.41604E-01	-7.81738E-02	.00000E+00	.00000E+00	.00000E+00	2.03973E-02
15	3.78054E-01	-8.14481E-03	3.77821E-01	-8.14481E-03	.00000E+00	.00000E+00	.00000E+00	1.19551E-02
16	2.11155E-01	-4.31287E-03	2.11053E-01	-4.31287E-03	.00000E+00	.00000E+00	.00000E+00	6.69969E-03
17	9.29315E-02	-3.98154E-03	9.28196E-02	-3.98153E-03	.00000E+00	.00000E+00	.00000E+00	2.94771E-03
18	7.92346E-02	-4.56982E-03	7.91074E-02	-4.56982E-03	.00000E+00	.00000E+00	.00000E+00	2.51278E-03
19	1.47180E-01	-6.31168E-03	1.47004E-01	-6.31168E-03	.00000E+00	.00000E+00	.00000E+00	4.66852E-03
20	4.81270E-01	-2.25040E-02	4.80644E-01	-2.25040E-02	.00000E+00	.00000E+00	.00000E+00	1.52660E-02
21	1.52574E-01	-1.37768E-02	1.52201E-01	-1.37768E-02	.00000E+00	.00000E+00	.00000E+00	4.83697E-03
22	3.16996E-01	-3.71298E-02	3.15982E-01	-3.71298E-02	.00000E+00	.00000E+00	.00000E+00	1.00449E-02
23	9.71172E-01	-1.29513E-01	9.67743E-01	-1.29513E-01	.00000E+00	.00000E+00	.00000E+00	3.07672E-02
24	7.17831E-01	-1.38536E-01	7.14209E-01	-1.38536E-01	.00000E+00	.00000E+00	.00000E+00	2.27242E-02
25	3.02163E-01	-7.35946E-02	3.00257E-01	-7.35946E-02	.00000E+00	.00000E+00	.00000E+00	9.55931E-03
26	1.94614E-01	-6.95275E-02	1.92847E-01	-6.95275E-02	.00000E+00	.00000E+00	.00000E+00	6.14885E-03
27	3.16001E-02	-1.92179E-02	3.11053E-02	-1.92179E-02	.00000E+00	.00000E+00	.00000E+00	9.95198E-04
28	2.39539E+01	7.40887E-02	2.39584E+01	7.40892E-02	.00000E+00	.00000E+00	.00000E+00	7.60257E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	3.58926E-03	2.69061E-03	1.37883E-05	-2.60842E-03	1.00001E+00
2	.00000E+00	.00000E+00	4.69509E-04	2.54049E-02	1.82295E-02	5.04709E-05	-1.78100E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.57258E-03	4.97107E-02	1.57180E-02	1.35962E-04	-1.32804E-02	9.99993E-01
4	.00000E+00	.00000E+00	5.04472E-03	4.19119E-02	5.42668E-03	1.02889E-04	-4.84414E-04	9.99995E-01
5	.00000E+00	.00000E+00	1.08874E-02	8.14660E-02	5.15211E-03	1.51770E-04	5.58315E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.82610E-02	2.34896E-01	3.20953E-03	3.19861E-04	1.47317E-02	1.00000E+00
7	.00000E+00	.00000E+00	1.21890E-02	2.35087E-01	1.18167E-03	3.44606E-04	1.06628E-02	9.99999E-01
8	.00000E+00	.00000E+00	2.14897E-03	1.58413E-01	7.62782E-03	2.94604E-04	-5.77395E-03	1.00002E+00
9	.00000E+00	.00000E+00	7.66074E-03	1.05026E-01	8.75504E-04	1.10747E-03	5.67798E-03	9.99991E-01
10	.00000E+00	.00000E+00	8.76669E-04	8.53265E-02	8.46587E-04	8.33265E-04	-8.03193E-04	1.00000E+00
11	.00000E+00	.00000E+00	8.46648E-04	7.67312E-02	8.66566E-04	1.33141E-03	-1.35131E-03	1.00000E+00
12	.00000E+00	.00000E+00	8.66572E-04	4.66180E-02	8.67312E-04	4.15054E-05	-4.22969E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.67313E-04	3.95841E-02	8.07489E-04	6.01001E-05	-2.68221E-07	1.00000E+00
14	.00000E+00	.00000E+00	8.07490E-04	3.64751E-02	6.87378E-04	9.71530E-05	2.29552E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.32160E-04	2.08015E-02	8.51337E-04	8.35362E-05	-2.03078E-04	1.00004E+00
16	.00000E+00	.00000E+00	9.56741E-04	1.11217E-02	9.63492E-04	5.24080E-05	-5.94230E-05	1.00005E+00
17	.00000E+00	.00000E+00	1.07626E-03	4.27625E-03	1.05261E-03	2.58338E-05	-2.28314E-06	1.00002E+00
18	.00000E+00	.00000E+00	1.11370E-03	3.43879E-03	1.11057E-03	2.35486E-05	-2.02870E-05	1.00001E+00
19	.00000E+00	.00000E+00	1.12015E-03	7.35449E-03	1.08509E-03	4.76470E-05	-1.28211E-05	1.00003E+00
20	.00000E+00	.00000E+00	1.33553E-03	2.64811E-02	1.12581E-03	1.96890E-04	1.18613E-05	1.00004E+00
21	.00000E+00	.00000E+00	1.53238E-03	7.08989E-03	1.69352E-03	7.81089E-05	-2.39557E-04	1.00002E+00
22	.00000E+00	.00000E+00	2.17055E-03	1.61303E-02	2.15576E-03	1.87947E-04	-1.73450E-04	1.00001E+00

23	.00000E+00	.00000E+00	3.02517E-03	5.22345E-02	3.85489E-03	7.91044E-04	-1.60043E-03	9.99998E-01
24	.00000E+00	.00000E+00	4.68155E-03	3.66019E-02	5.02305E-03	8.52627E-04	-1.19369E-03	9.99997E-01
25	.00000E+00	.00000E+00	4.51051E-03	1.39792E-02	3.59805E-03	4.75468E-04	4.37118E-04	9.99998E-01
26	.00000E+00	.00000E+00	1.87269E-03	1.00717E-02	1.33100E-03	4.39791E-04	1.02103E-04	9.99997E-01
27	.00000E+00	.00000E+00	3.85945E-04	1.88163E-03	9.69488E-07	1.37625E-04	2.47361E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.80122E-02	1.43170E+00	8.80122E-02	8.27732E-03	-8.18214E-03	9.99999E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.61312E-01	7.90628E-03	1.62848E-01	1.05147E-02	9.61326E-05	.00000E+00	.00000E+00	3.50942E-02
2	1.22961E+00	9.50427E-02	1.24679E+00	1.12853E-01	.00000E+00	.00000E+00	.00000E+00	2.68091E-01
3	1.57521E+00	1.31282E-01	1.59817E+00	1.44563E-01	.00000E+00	.00000E+00	.00000E+00	3.43632E-01
4	9.81750E-01	8.73049E-02	9.96361E-01	8.77894E-02	.00000E+00	.00000E+00	.00000E+00	2.14273E-01
5	1.48604E+00	1.39559E-01	1.50918E+00	1.33976E-01	.00000E+00	.00000E+00	.00000E+00	3.24507E-01
6	2.86208E+00	2.67096E-01	2.90789E+00	2.52365E-01	.00000E+00	.00000E+00	.00000E+00	6.25182E-01
7	2.80602E+00	1.54017E-01	2.85241E+00	1.43355E-01	.00000E+00	.00000E+00	.00000E+00	6.10973E-01
8	2.06294E+00	1.47671E-02	2.06603E+00	2.05410E-02	.00000E+00	.00000E+00	.00000E+00	4.47349E-01
9	1.60024E+00	-1.58430E-02	1.59702E+00	-2.15209E-02	.00000E+00	.00000E+00	.00000E+00	3.46532E-01
10	1.46001E+00	-2.74352E-02	1.45554E+00	-2.66320E-02	.00000E+00	.00000E+00	.00000E+00	3.15952E-01
11	1.33897E+00	-5.78674E-02	1.32961E+00	-5.65161E-02	.00000E+00	.00000E+00	.00000E+00	2.89215E-01
12	8.38878E-01	-6.49696E-02	8.28258E-01	-6.49273E-02	.00000E+00	.00000E+00	.00000E+00	1.80721E-01
13	7.11882E-01	-5.34261E-02	7.05136E-01	-5.34258E-02	.00000E+00	.00000E+00	.00000E+00	1.53386E-01
14	6.56551E-01	-7.81509E-02	6.43802E-01	-7.81738E-02	.00000E+00	.00000E+00	.00000E+00	1.40985E-01
15	3.79482E-01	-8.34788E-03	3.78054E-01	-8.14481E-03	.00000E+00	.00000E+00	.00000E+00	8.21012E-02
16	2.11870E-01	-4.37229E-03	2.11155E-01	-4.31287E-03	.00000E+00	.00000E+00	.00000E+00	4.58474E-02
17	9.35760E-02	-3.98382E-03	9.29315E-02	-3.98154E-03	.00000E+00	.00000E+00	.00000E+00	2.02160E-02
18	7.99731E-02	-4.59011E-03	7.92346E-02	-4.56982E-03	.00000E+00	.00000E+00	.00000E+00	1.72580E-02
19	1.48197E-01	-6.32450E-03	1.47180E-01	-6.31168E-03	.00000E+00	.00000E+00	.00000E+00	3.20170E-02
20	4.84860E-01	-2.24921E-02	4.81270E-01	-2.25040E-02	.00000E+00	.00000E+00	.00000E+00	1.04752E-01
21	1.54767E-01	-1.40164E-02	1.52574E-01	-1.37768E-02	.00000E+00	.00000E+00	.00000E+00	3.33214E-02
22	3.22794E-01	-3.73033E-02	3.16996E-01	-3.71298E-02	.00000E+00	.00000E+00	.00000E+00	6.95716E-02
23	9.90653E-01	-1.30913E-01	9.71172E-01	-1.29513E-01	.00000E+00	.00000E+00	.00000E+00	2.12720E-01
24	7.37816E-01	-1.39730E-01	7.17831E-01	-1.38536E-01	.00000E+00	.00000E+00	.00000E+00	1.57895E-01
25	3.12291E-01	-7.31575E-02	3.02163E-01	-7.35946E-02	.00000E+00	.00000E+00	.00000E+00	6.66844E-02
26	2.03660E-01	-6.92254E-02	1.94614E-01	-6.93275E-02	.00000E+00	.00000E+00	.00000E+00	4.32596E-02
27	3.40010E-02	-1.89705E-02	3.16001E-02	-1.92179E-02	.00000E+00	.00000E+00	.00000E+00	7.14200E-03
28	2.39254E+01	6.58576E-02	2.39539E+01	7.40887E-02	9.61326E-05	.00000E+00	.00000E+00	5.18846E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	5.67143E-03	7.50661E-03	4.00069E-04	-7.90628E-03	9.99950E-01
2	.00000E+00	.00000E+00	4.30715E-03	7.47921E-02	9.89005E-02	1.05321E-03	-9.50428E-02	9.99962E-01
3	.00000E+00	.00000E+00	4.65988E-02	6.83678E-02	1.77880E-01	5.37362E-06	-1.31282E-01	9.99977E-01
4	.00000E+00	.00000E+00	6.94784E-02	4.56306E-02	1.56782E-01	3.21524E-06	-8.73049E-02	9.99988E-01
5	.00000E+00	.00000E+00	1.28846E-01	1.48151E-01	2.68404E-01	3.76632E-06	-1.39559E-01	9.99991E-01
6	.00000E+00	.00000E+00	2.73628E-01	4.54952E-01	5.40714E-01	1.14684E-05	-2.67096E-01	9.99998E-01
7	.00000E+00	.00000E+00	5.51713E-01	7.94789E-01	7.05714E-01	2.53392E-05	-1.54017E-01	9.99987E-01
8	.00000E+00	.00000E+00	7.34931E-01	9.99864E-01	7.49717E-01	4.69623E-05	-1.47671E-02	9.99912E-01
9	.00000E+00	.00000E+00	7.40083E-01	9.14471E-01	7.24176E-01	9.57405E-05	1.58429E-02	9.99890E-01
10	.00000E+00	.00000E+00	7.20995E-01	8.62845E-01	6.95424E-01	2.10831E-04	2.74352E-02	9.99896E-01
11	.00000E+00	.00000E+00	6.98564E-01	8.01997E-01	6.40283E-01	4.55433E-04	5.78573E-02	9.99941E-01
12	.00000E+00	.00000E+00	5.57567E-01	4.18158E-01	4.92015E-01	5.94990E-04	6.46898E-02	9.99979E-01
13	.00000E+00	.00000E+00	4.87977E-01	3.38160E-01	4.33667E-01	8.98228E-04	5.34261E-02	9.99969E-01
14	.00000E+00	.00000E+00	4.69838E-01	3.26656E-01	3.90215E-01	1.47835E-03	7.81508E-02	9.99988E-01
15	.00000E+00	.00000E+00	2.53350E-01	1.30086E-01	2.43703E-01	1.29614E-03	8.37076E-03	9.99922E-01
16	.00000E+00	.00000E+00	1.68220E-01	5.53113E-02	1.62952E-01	8.95343E-04	4.38508E-03	9.99925E-01
17	.00000E+00	.00000E+00	8.71688E-02	1.59025E-02	8.27399E-02	4.44195E-04	3.99135E-03	9.99924E-01
18	.00000E+00	.00000E+00	7.75862E-02	1.32844E-02	7.25884E-02	4.06450E-04	4.59729E-03	9.99923E-01
19	.00000E+00	.00000E+00	1.31159E-01	3.73668E-02	1.24014E-01	8.19018E-04	6.33721E-03	9.99913E-01
20	.00000E+00	.00000E+00	3.23868E-01	2.63568E-01	2.97999E-01	3.37195E-03	2.25337E-02	9.99888E-01
21	.00000E+00	.00000E+00	1.58104E-01	5.48634E-02	1.42725E-01	1.35939E-03	1.40380E-02	9.99885E-01
22	.00000E+00	.00000E+00	3.09794E-01	1.72985E-01	2.69202E-01	3.28812E-03	3.73215E-02	9.99944E-01
23	.00000E+00	.00000E+00	7.75988E-01	9.61250E-01	6.31227E-01	1.38581E-02	1.30921E-01	9.99977E-01

24	.00000E+00	.00000E+00	8.06292E-01	8.43719E-01	6.51274E-01	1.52960E-02	1.39736E-01	9.99984E-01
25	.00000E+00	.00000E+00	5.21382E-01	3.41671E-01	4.39561E-01	8.66600E-03	7.31596E-02	9.99991E-01
26	.00000E+00	.00000E+00	4.10999E-01	3.61002E-01	3.33434E-01	8.33987E-03	6.92373E-02	9.99972E-01
27	.00000E+00	.00000E+00	1.36260E-01	7.51161E-02	1.14432E-01	2.85820E-03	1.89708E-02	9.99995E-01
28	.00000E+00	.00000E+00	9.64465E+00	9.58063E+00	9.64465E+00	6.61818E-02	-6.56843E-02	9.99949E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.60565E-01	5.25118E-10	1.61312E-01	7.90628E-03	4.15137E-10	.00000E+00	.00000E+00	1.83768E-01
2	1.21835E+00	-5.67621E-08	1.22961E+00	9.50427E-02	.00000E+00	.00000E+00	.00000E+00	1.39494E+00
3	1.55768E+00	-3.72236E-08	1.57521E+00	1.31282E-01	.00000E+00	.00000E+00	.00000E+00	1.78401E+00
4	9.68612E-01	-1.06027E-09	9.81750E-01	8.73049E-02	.00000E+00	.00000E+00	.00000E+00	1.10975E+00
5	1.46360E+00	-6.34128E-08	1.48604E+00	1.39559E-01	.00000E+00	.00000E+00	.00000E+00	1.67724E+00
6	2.81799E+00	2.11228E-08	2.86208E+00	2.67096E-01	.00000E+00	.00000E+00	.00000E+00	3.22940E+00
7	2.78061E+00	-2.06552E-08	2.80602E+00	1.54017E-01	.00000E+00	.00000E+00	.00000E+00	3.18443E+00
8	2.06305E+00	-3.17924E-08	2.06294E+00	1.47671E-02	.00000E+00	.00000E+00	.00000E+00	2.36050E+00
9	1.60244E+00	-4.16572E-08	1.60024E+00	-1.58430E-02	.00000E+00	.00000E+00	.00000E+00	1.83391E+00
10	1.46491E+00	-5.43783E-08	1.46001E+00	-2.74352E-02	.00000E+00	.00000E+00	.00000E+00	1.67624E+00
11	1.34918E+00	-5.43663E-08	1.33897E+00	-5.78674E-02	.00000E+00	.00000E+00	.00000E+00	1.54336E+00
12	8.50000E-01	-2.03588E-08	8.38878E-01	-6.49696E-02	.00000E+00	.00000E+00	.00000E+00	9.72025E-01
13	7.20627E-01	3.52663E-08	7.11882E-01	-5.34261E-02	.00000E+00	.00000E+00	.00000E+00	8.24272E-01
14	6.69695E-01	-1.66829E-08	6.56551E-01	-7.81509E-02	.00000E+00	.00000E+00	.00000E+00	7.65587E-01
15	3.80070E-01	2.28811E-05	3.79482E-01	-8.34788E-03	.00000E+00	.00000E+00	.00000E+00	4.35291E-01
16	2.12311E-01	1.27901E-05	2.11870E-01	-4.37229E-03	.00000E+00	.00000E+00	.00000E+00	2.43095E-01
17	9.41972E-02	7.53311E-06	9.35760E-02	-3.98382E-03	.00000E+00	.00000E+00	.00000E+00	1.07795E-01
18	8.07441E-02	7.17857E-06	7.99731E-02	-4.59011E-03	.00000E+00	.00000E+00	.00000E+00	9.23698E-02
19	1.49198E-01	1.27066E-05	1.48197E-01	-6.32450E-03	.00000E+00	.00000E+00	.00000E+00	1.70731E-01
20	4.88569E-01	4.16091E-05	4.84860E-01	-2.24921E-02	.00000E+00	.00000E+00	.00000E+00	5.59046E-01
21	1.57378E-01	2.16381E-05	1.54767E-01	-1.40164E-02	.00000E+00	.00000E+00	.00000E+00	1.79905E-01
22	3.29861E-01	1.82521E-05	3.22794E-01	-3.73033E-02	.00000E+00	.00000E+00	.00000E+00	3.76862E-01
23	1.01843E+00	8.20884E-06	9.90653E-01	-1.30913E-01	.00000E+00	.00000E+00	.00000E+00	1.16216E+00
24	7.71623E-01	6.19712E-06	7.37816E-01	-1.39730E-01	.00000E+00	.00000E+00	.00000E+00	8.78121E-01
25	3.31975E-01	2.09127E-06	3.12291E-01	-7.31575E-02	.00000E+00	.00000E+00	.00000E+00	3.76664E-01
26	2.25941E-01	1.18510E-05	2.03660E-01	-6.92254E-02	.00000E+00	.00000E+00	.00000E+00	2.54277E-01
27	4.16513E-02	3.20933E-07	3.40010E-02	-1.89705E-02	.00000E+00	.00000E+00	.00000E+00	4.59747E-02
28	2.39693E+01	1.72942E-04	2.39254E+01	6.58578E-02	4.15137E-10	.00000E+00	.00000E+00	2.74217E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.13807E-02	.00000E+00	2.12956E-02	2.01801E-02	3.47816E-03	5.25118E-10	9.98822E-01
2	.00000E+00	1.89181E-01	6.97592E-03	2.64183E-01	1.81623E-01	1.45485E-02	-5.67621E-08	1.00002E+00
3	.00000E+00	2.15085E-01	7.48251E-02	2.78040E-01	2.74155E-01	1.57087E-02	-3.72236E-08	9.99987E-01
4	.00000E+00	1.24418E-01	1.13045E-01	1.92313E-01	2.29896E-01	7.56729E-03	-1.06027E-09	1.00000E+00
5	.00000E+00	1.65841E-01	2.07131E-01	4.88495E-01	3.68319E-01	4.65653E-03	-6.34128E-08	9.99989E-01
6	.00000E+00	1.79949E-01	4.25956E-01	1.34358E+00	5.98380E-01	7.51659E-03	2.11228E-08	1.00001E+00
7	.00000E+00	8.95229E-02	6.62144E-01	1.77562E+00	7.43244E-01	8.23079E-03	-2.06552E-08	9.99989E-01
8	.00000E+00	1.37908E-02	7.79644E-01	1.78948E+00	7.78812E-01	1.46859E-02	-3.17924E-08	9.99920E-01
9	.00000E+00	1.00142E-03	7.69382E-01	1.55377E+00	7.45662E-01	2.48048E-02	-4.16572E-08	9.99893E-01
10	.00000E+00	7.43875E-05	7.42503E-01	1.40510E+00	7.04900E-01	3.77521E-02	-5.43783E-08	9.99900E-01
11	.00000E+00	5.85240E-06	7.10041E-01	1.29518E+00	6.49238E-01	6.08495E-02	-5.43663E-08	9.99942E-01
12	.00000E+00	4.11122E-07	5.66523E-01	7.00444E-01	5.02208E-01	6.43302E-02	-2.03588E-08	9.99974E-01
13	.00000E+00	6.52825E-08	4.98170E-01	5.51901E-01	4.40643E-01	5.75417E-02	3.52663E-08	9.99971E-01
14	.00000E+00	1.29573E-08	4.76814E-01	5.15103E-01	3.98467E-01	7.83521E-02	-1.66829E-08	9.99989E-01
15	.00000E+00	1.46205E-09	2.61737E-01	2.36692E-01	2.53537E-01	8.19578E-03	2.28811E-05	9.99927E-01
16	.00000E+00	4.29309E-10	1.78343E-01	1.10226E-01	1.73734E-01	4.60914E-03	1.27901E-05	9.99931E-01
17	.00000E+00	1.38258E-10	9.63205E-02	3.57505E-02	9.17826E-02	4.53734E-03	7.53311E-06	9.99928E-01
18	.00000E+00	9.89890E-11	8.62513E-02	2.92780E-02	8.11842E-02	5.06627E-03	7.17857E-06	9.99926E-01
19	.00000E+00	1.39949E-10	1.41720E-01	7.21049E-02	1.35201E-01	6.51788E-03	1.27066E-05	9.99918E-01
20	.00000E+00	2.27572E-10	3.37170E-01	4.02625E-01	3.09720E-01	2.74447E-02	4.16091E-05	9.99892E-01
21	.00000E+00	3.33092E-11	1.70285E-01	8.97747E-02	1.55169E-01	1.51175E-02	2.16381E-05	9.99885E-01
22	.00000E+00	3.86463E-11	3.27263E-01	2.54039E-01	2.85915E-01	4.13489E-02	1.82521E-05	9.99943E-01
23	.00000E+00	3.69501E-11	7.99695E-01	1.23250E+00	6.59057E-01	1.40669E-01	8.20884E-06	9.99977E-01
24	.00000E+00	1.00573E-11	8.39715E-01	1.02852E+00	6.84834E-01	1.54886E-01	6.19712E-06	9.99985E-01

25	.00000E+00	2.94413E-12	5.50146E-01	4.10889E-01	4.61220E-01	8.89287E-02	2.09127E-06	9.99992E-01
26	.00000E+00	2.06444E-12	4.24636E-01	4.08811E-01	3.42752E-01	8.18845E-02	1.18510E-05	9.99971E-01
27	.00000E+00	4.91967E-13	1.39143E-01	8.25256E-02	1.15769E-01	2.33745E-02	3.20953E-07	9.99997E-01
28	.00000E+00	1.00000E+00	1.08856E+01	1.65680E+01	1.08856E+01	1.00260E+00	1.72916E-04	9.99956E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.60565E-01	5.25118E-10	1.67957E-01	.00000E+00	2.24970E-03	2.51447E-03	.00000E+00	3.38394E-01
2	1.21835E+00	-5.67621E-08	1.30142E+00	.00000E+00	1.79132E-05	1.17117E-02	.00000E+00	2.58473E+00
3	1.55768E+00	-3.72236E-08	1.66656E+00	.00000E+00	.00000E+00	1.45446E-02	.00000E+00	3.30813E+00
4	9.68612E-01	-1.06027E-09	1.03721E+00	.00000E+00	.00000E+00	6.31230E-03	.00000E+00	2.05904E+00
5	1.46360E+00	-6.34128E-08	1.57291E+00	.00000E+00	.00000E+00	1.88452E-03	.00000E+00	3.11553E+00
6	2.81799E+00	2.11228E-08	3.02952E+00	.00000E+00	.00000E+00	1.74220E-03	.00000E+00	5.99936E+00
7	2.78061E+00	-2.06552E-08	2.90441E+00	.00000E+00	.00000E+00	1.81389E-03	.00000E+00	5.86492E+00
8	2.06305E+00	-3.17924E-08	2.07856E+00	.00000E+00	.00000E+00	1.93179E-03	.00000E+00	4.30099E+00
9	1.60244E+00	-4.16572E-08	1.58416E+00	.00000E+00	.00000E+00	2.67782E-03	.00000E+00	3.32517E+00
10	1.46491E+00	-5.43783E-08	1.44119E+00	.00000E+00	.00000E+00	5.70145E-03	.00000E+00	3.03455E+00
11	1.34918E+00	-5.43663E-08	1.29904E+00	.00000E+00	.00000E+00	1.16776E-02	.00000E+00	2.77757E+00
12	8.50000E-01	-2.03588E-08	7.92822E-01	.00000E+00	.00000E+00	1.47800E-02	.00000E+00	1.73463E+00
13	7.20627E-01	3.52663E-08	6.74396E-01	.00000E+00	.00000E+00	1.36248E-02	.00000E+00	1.47217E+00
14	6.69695E-01	-1.66829E-08	6.01440E-01	.00000E+00	.00000E+00	9.97957E-03	.00000E+00	1.35269E+00
15	3.80070E-01	2.28811E-05	3.73486E-01	.00000E+00	.00000E+00	2.51433E-03	.00000E+00	7.87828E-01
16	2.12311E-01	1.27901E-05	2.08868E-01	.00000E+00	.00000E+00	1.66606E-03	.00000E+00	4.40084E-01
17	9.41972E-02	7.53311E-06	9.08647E-02	.00000E+00	.00000E+00	2.52477E-03	.00000E+00	1.94087E-01
18	8.07441E-02	7.17857E-06	7.68607E-02	.00000E+00	.00000E+00	3.35695E-03	.00000E+00	1.65712E-01
19	1.49198E-01	1.27066E-05	1.43881E-01	.00000E+00	.00000E+00	4.06104E-03	.00000E+00	3.07398E-01
20	4.88569E-01	4.16091E-05	4.69502E-01	.00000E+00	.00000E+00	1.72805E-02	.00000E+00	1.00557E+00
21	1.57378E-01	2.16381E-05	1.45395E-01	.00000E+00	.00000E+00	1.00277E-02	.00000E+00	3.20153E-01
22	3.29861E-01	1.82521E-05	2.97291E-01	.00000E+00	.00000E+00	2.72668E-02	.00000E+00	6.66385E-01
23	1.01843E+00	8.20884E-06	9.03188E-01	.00000E+00	.00000E+00	9.16735E-02	.00000E+00	2.04620E+00
24	7.71623E-01	6.19712E-06	6.43952E-01	.00000E+00	.00000E+00	1.04029E-01	.00000E+00	1.52239E+00
25	3.31975E-01	2.09127E-06	2.61867E-01	.00000E+00	.00000E+00	6.04430E-02	.00000E+00	6.44267E-01
26	2.25941E-01	1.18510E-05	1.55752E-01	.00000E+00	.00000E+00	5.56009E-02	.00000E+00	4.21543E-01
27	4.16513E-02	3.20953E-07	1.98489E-02	.00000E+00	.00000E+00	1.55149E-02	.00000E+00	7.09007E-02
28	2.39693E+01	1.72942E-04	2.39421E+01	.00000E+00	2.26761E-03	4.96856E-01	.00000E+00	4.98604E+01

- elapsed time .02 min.

0direct access unit 9 requires 516 blocks of length 1456 for cross section weighting.

1 transport cross section weighting function

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.26228E-03	2.44524E-02	3.14807E-02	1.91558E-02	2.98609E-02	5.60589E-02	3.19451E-02	4.59551E-03
2	3.53462E-03	3.79366E-02	4.85962E-02	2.95113E-02	4.50373E-02	8.48349E-02	4.81901E-02	6.90508E-03
3	2.87209E-03	3.23666E-02	4.29057E-02	2.72045E-02	4.24752E-02	8.06478E-02	4.61598E-02	5.50959E-03
4	9.91417E-04	1.19105E-02	1.64469E-02	1.09526E-02	1.74707E-02	3.34402E-02	1.98574E-02	1.97631E-03
5	1.64636E-03	1.85855E-02	2.46645E-02	1.56300E-02	2.44272E-02	4.66204E-02	2.67512E-02	3.28566E-03

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.81624E-03	5.96728E-03	1.26259E-02	1.44556E-02	1.19054E-02	1.75290E-02	1.84194E-03	9.67101E-04
2	7.23449E-03	8.95263E-03	1.89985E-02	2.18260E-02	1.79596E-02	2.62789E-02	2.73820E-03	1.44998E-03
3	5.82794E-03	8.39654E-03	1.77648E-02	2.01806E-02	1.66006E-02	2.42867E-02	2.56194E-03	1.34920E-03
4	1.94925E-03	3.41518E-03	7.21395E-03	8.10619E-03	6.70527E-03	9.76968E-03	1.11069E-03	5.69566E-04
5	3.38196E-03	4.86239E-03	1.02835E-02	1.16727E-02	9.62716E-03	1.40332E-02	1.52847E-03	7.95542E-04

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.86997E-04	1.01715E-03	1.41319E-03	5.03154E-03	3.06020E-03	8.23309E-03	2.86578E-02	3.04788E-02
2	1.33854E-03	1.53632E-03	2.12194E-03	7.56614E-03	4.63193E-03	1.24824E-02	4.34693E-02	4.65691E-02
3	1.23753E-03	1.42307E-03	1.96336E-03	6.99187E-03	4.31747E-03	1.15639E-02	4.04213E-02	4.32245E-02
4	5.01070E-04	5.73536E-04	7.96136E-04	2.82623E-03	1.74630E-03	4.67389E-03	1.66004E-02	1.76715E-02
5	7.18167E-04	8.23998E-04	1.14198E-03	4.06164E-03	2.49259E-03	6.68756E-03	2.34784E-02	2.50088E-02

0zone	grp. 25	grp. 26	grp. 27	grp. 28
1	1.60868E-02	1.49143E-02	3.92940E-03	3.82952E-01
2	2.47390E-02	2.33049E-02	6.46018E-03	5.84204E-01
3	2.28009E-02	2.15254E-02	5.93407E-03	5.38513E-01
4	9.22248E-03	8.56924E-03	2.17097E-03	2.16717E-01
5	1.31429E-02	1.22416E-02	3.20979E-03	3.10808E-01

1 at 0 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0cell averaged fluxes

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.66111E-01	1.28125E+00	1.64093E+00	1.02166E+00	1.54818E+00	2.98120E+00	2.87543E+00	2.07362E+00
2	1.63045E-01	1.24874E+00	1.60052E+00	9.97663E-01	1.51104E+00	2.91123E+00	2.83425E+00	2.06640E+00
3	1.61931E-01	1.23701E+00	1.58558E+00	9.88693E-01	1.49733E+00	2.88469E+00	2.81913E+00	2.06414E+00
4	1.60561E-01	1.21878E+00	1.55872E+00	9.69603E-01	1.46543E+00	2.82157E+00	2.78228E+00	2.06240E+00
5	1.62577E-01	1.24180E+00	1.58934E+00	9.89236E-01	1.49682E+00	2.88231E+00	2.81772E+00	2.06636E+00

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58918E+00	1.44700E+00	1.31140E+00	8.07074E-01	6.85926E-01	6.18378E-01	3.75399E-01	2.09811E-01
2	1.59664E+00	1.45518E+00	1.32886E+00	8.27409E-01	7.02403E-01	6.42732E-01	3.77974E-01	2.11112E-01
3	1.59896E+00	1.45786E+00	1.33449E+00	8.33875E-01	7.07747E-01	6.50528E-01	3.78828E-01	2.11548E-01
4	1.60231E+00	1.46456E+00	1.34845E+00	8.49272E-01	7.20178E-01	6.68904E-01	3.80320E-01	2.12395E-01
5	1.59753E+00	1.45791E+00	1.33444E+00	8.33579E-01	7.07284E-01	6.49880E-01	3.78501E-01	2.11433E-01

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.16975E-02	7.78148E-02	1.45221E-01	4.74299E-01	1.48289E-01	3.05191E-01	9.30430E-01	6.73489E-01
2	9.28844E-02	7.91794E-02	1.47109E-01	4.81043E-01	1.52416E-01	3.16523E-01	9.69496E-01	7.16054E-01
3	9.32798E-02	7.96310E-02	1.47752E-01	4.83249E-01	1.53750E-01	3.20092E-01	9.81527E-01	7.28655E-01
4	9.41821E-02	8.07048E-02	1.49170E-01	4.88446E-01	1.57187E-01	3.29269E-01	1.01540E+00	7.67227E-01
5	9.32466E-02	7.96138E-02	1.47683E-01	4.83113E-01	1.53813E-01	3.20156E-01	9.85068E-01	7.31414E-01

0zone	grp. 25	grp. 26	grp. 27
1	2.77960E-01	1.71195E-01	2.43865E-02
2	3.01221E-01	1.95755E-01	3.13594E-02
3	3.07693E-01	1.99607E-01	3.29544E-02
4	3.29096E-01	2.22165E-01	4.01688E-02
5	3.09529E-01	2.02525E-01	3.40632E-02

0flux disadvantage factors (zone average/cell average-flux)

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.02174E+00	1.03177E+00	1.03246E+00	1.03278E+00	1.03431E+00	1.03431E+00	1.02048E+00	1.00352E+00
2	1.00288E+00	1.00559E+00	1.00703E+00	1.00852E+00	1.00951E+00	1.01008E+00	1.00587E+00	1.00038E+00
3	9.96024E-01	9.96149E-01	9.97625E-01	9.99451E-01	1.00034E+00	1.00083E+00	1.00150E+00	9.98930E-01
4	9.87597E-01	9.81465E-01	9.80731E-01	9.80154E-01	9.79031E-01	9.78927E-01	9.87424E-01	9.98087E-01
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	9.94772E-01	9.92519E-01	9.82728E-01	9.68436E-01	9.69804E-01	9.51526E-01	9.91804E-01	9.92329E-01
2	9.99440E-01	9.98130E-01	9.95816E-01	9.92837E-01	9.95099E-01	9.89001E-01	9.98606E-01	9.98484E-01
3	1.00089E+00	9.99962E-01	1.00003E+00	1.00060E+00	1.00066E+00	1.00100E+00	1.00086E+00	1.00054E+00
4	1.00299E+00	1.00456E+00	1.01050E+00	1.01907E+00	1.01823E+00	1.02927E+00	1.00481E+00	1.00455E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.83387E-01	9.77403E-01	9.85331E-01	9.81756E-01	9.64086E-01	9.53259E-01	9.46455E-01	9.20796E-01
2	9.96116E-01	9.94544E-01	9.96113E-01	9.95714E-01	9.90920E-01	9.88654E-01	9.86194E-01	9.79000E-01
3	1.00036E+00	1.00022E+00	1.00033E+00	1.00028E+00	9.99592E-01	9.99802E-01	9.98432E-01	9.96092E-01
4	1.01003E+00	1.01370E+00	1.01007E+00	1.01104E+00	1.02193E+00	1.02847E+00	1.05289E+00	1.04896E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

0zone	grp. 25	grp. 26	grp. 27
1	8.98010E-01	8.45308E-01	7.15919E-01
2	9.73157E-01	9.56697E-01	9.20623E-01
3	9.94067E-01	9.85593E-01	9.67446E-01
4	1.06322E+00	1.09698E+00	1.17924E+00
5	1.00000E+00	1.00000E+00	1.00000E+00

0cell averaged currents

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.26228E-03	2.44524E-02	3.14807E-02	1.91558E-02	2.98609E-02	5.60589E-02	3.19451E-02	4.59551E-03
2	3.53462E-03	3.79366E-02	4.85962E-02	2.95113E-02	4.50373E-02	8.48349E-02	4.81901E-02	6.90508E-03
3	2.87209E-03	3.23666E-02	4.29057E-02	2.72045E-02	4.24752E-02	8.06478E-02	4.61598E-02	5.50959E-03
4	9.91417E-04	1.19105E-02	1.64469E-02	1.09526E-02	1.74707E-02	3.34402E-02	1.95574E-02	1.97631E-03

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    5 1.64636E-03 1.85855E-02 2.46645E-02 1.56300E-02 2.44272E-02 4.66204E-02 2.67512E-02 3.28566E-03
Ozone   grp. 9     grp. 10     grp. 11     grp. 12     grp. 13     grp. 14     grp. 15     grp. 16
    1 4.81624E-03 5.96728E-03 1.26259E-02 1.44556E-02 1.19054E-02 1.73290E-02 1.84194E-03 9.67101E-04
    2 7.23449E-03 8.95263E-03 1.89985E-02 2.18260E-02 1.79596E-02 2.62789E-02 2.73820E-03 1.44993E-03
    3 5.82794E-03 8.39654E-03 1.77648E-02 2.01806E-02 1.66006E-02 2.42867E-02 2.56194E-03 1.34920E-03
    4 1.94925E-03 3.41518E-03 7.21395E-03 8.10619E-03 6.70527E-03 9.76968E-03 1.11069E-03 5.69366E-04
    5 3.38196E-03 4.86239E-03 1.02835E-02 1.16727E-02 9.62716E-03 1.40832E-02 1.52847E-03 7.95542E-04
Ozone   grp. 17     grp. 18     grp. 19     grp. 20     grp. 21     grp. 22     grp. 23     grp. 24
    1 8.86997E-04 1.01715E-03 1.41319E-03 5.03154E-03 3.06020E-03 8.23309E-03 2.86578E-02 3.04788E-02
    2 1.33854E-03 1.53632E-03 2.12194E-03 7.56616E-03 4.63195E-03 1.24824E-02 4.34693E-02 4.65691E-02
    3 1.23753E-03 1.42307E-03 1.96336E-03 6.99187E-03 4.31747E-03 1.15639E-02 4.04213E-02 4.32245E-02
    4 5.01070E-04 5.73536E-04 7.96136E-04 2.82623E-03 1.74630E-03 4.67389E-03 1.66004E-02 1.76715E-02
    5 7.18167E-04 8.23998E-04 1.14198E-03 4.06164E-03 2.49259E-03 6.68756E-03 2.34784E-02 2.50088E-02
Ozone   grp. 25     grp. 26     grp. 27
    1 1.60858E-02 1.49143E-02 3.92940E-03
    2 2.47390E-02 2.33049E-02 6.46018E-03
    3 2.28009E-02 2.15254E-02 5.95407E-03
    4 9.22248E-03 8.56924E-03 2.17097E-03
    5 1.31429E-02 1.22416E-02 3.20979E-03
Ozone      volume     vol. fraction

    1    6.88443E-01    3.30753E-01
    2    3.17352E-02    1.52468E-02
    3    2.16724E-01    1.04122E-01
    4    1.14454E+00    5.49878E-01
    5    2.08144E+00    1.00000E+00
 - elapsed time    .03 min.
 0requested parm=halt8,skipcellwt,skipshipdata
   pass= 0, exec halts after pass  8
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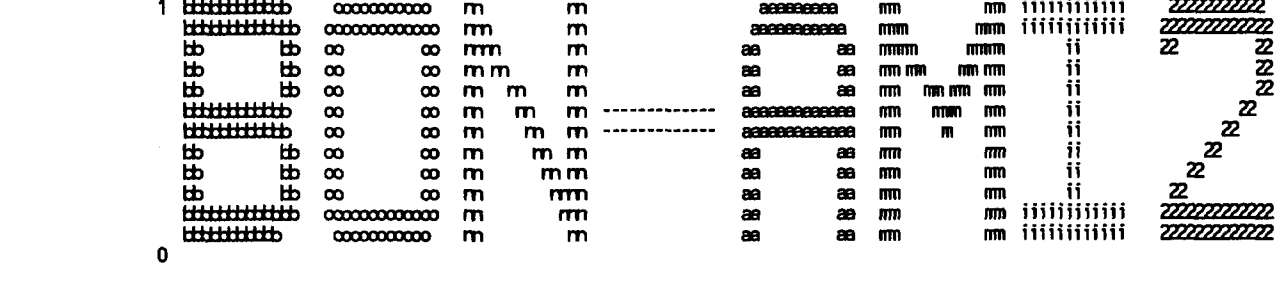

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0
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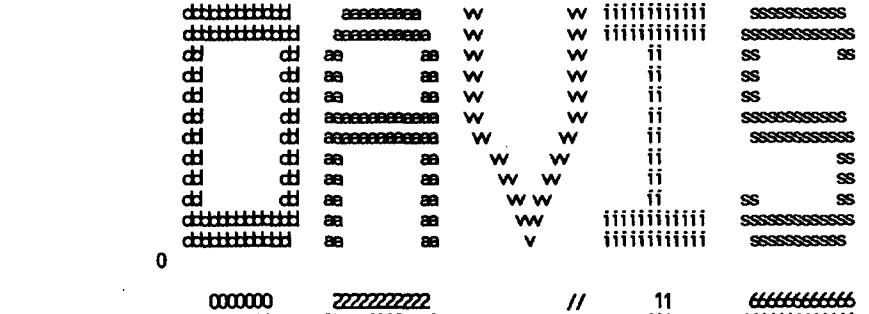
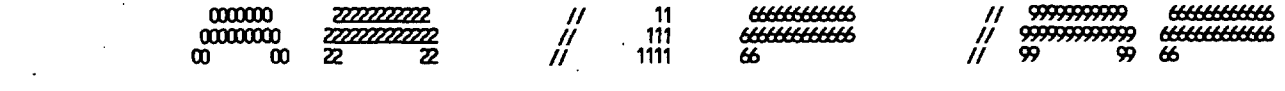
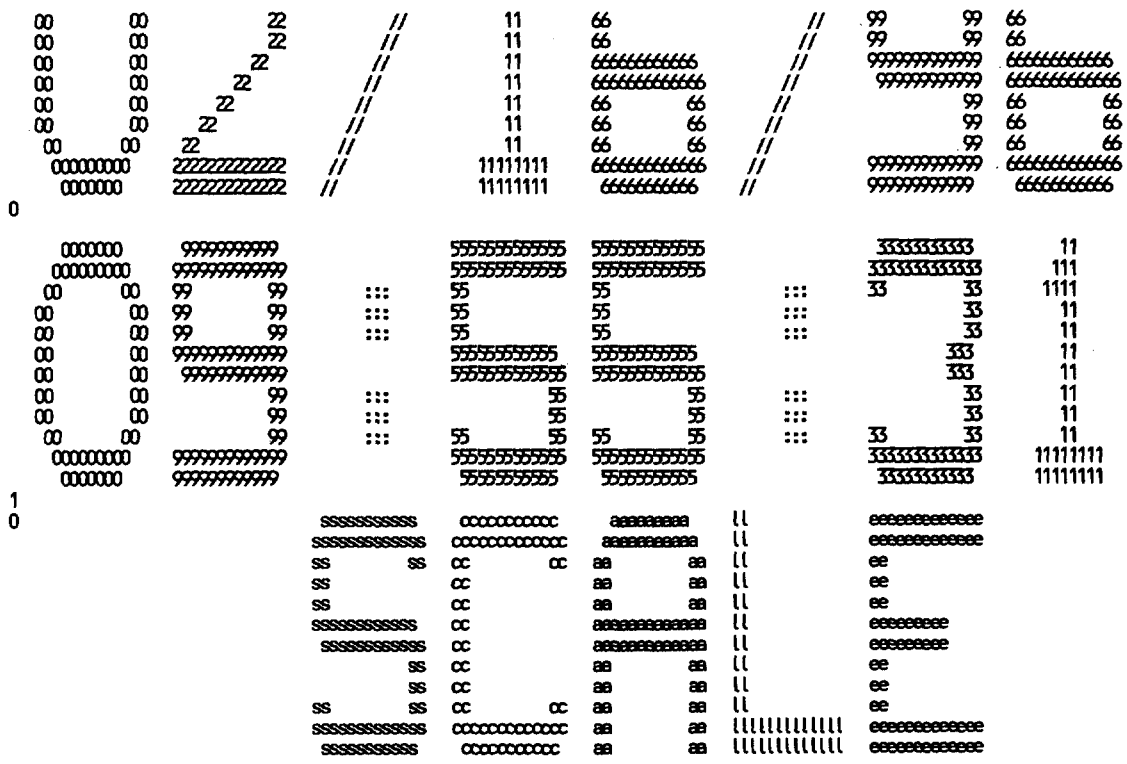


```
0
```



```
  00      00          22        //        11      66                  //   99       99  66
  00      00          22        //        11      66                  //   99       99  66
  00      00        22          //        11      666666666666        //   999999999999  666666666666
  00      00      22            //        11      6666666666666       //    99999999999  6666666666666
  00      00    22              //        11      66       66         //             99  66       66
  00      00  22                //        11      66       66         //             99  66       66
   00    00  22                 //        11      66       66         //             99  66       66
    000000000  2222222222222    //      11111111  6666666666666       //   999999999999  6666666666666
     0000000   2222222222222    //      11111111   66666666666        //    99999999999   66666666666
0

     0000000   99999999999            5555555555555  5555555555555            33333333333       11
    000000000  9999999999999          5555555555555  5555555555555           3333333333333      111
   00      00  99       99     :::    55             55                :::   33       33      1111
  00       00  99       99     :::    55             55                :::             33       11
  00       00  99       99     :::    55             55                :::             33       11
  00       00  9999999999999         555555555555   555555555555                   333       11
  00       00   99999999999          5555555555555  5555555555555                  333       11
  00       00           99     :::              55             55     :::             33       11
  00       00           99     :::              55             55     :::             33       11
   00     00            99     :::    55       55  55       55     :::   33       33       11
    000000000  9999999999999          5555555555555  5555555555555           3333333333333   11111111
     0000000   999999999999            55555555555    55555555555             33333333333   11111111
1
0                         sssssssssss    cccccccccc     aaaaaaaaa    ll          eeeeeeeeeeeee
                         sssssssssssss  cccccccccccc   aaaaaaaaaa   ll          eeeeeeeeeeeee
                         ss       ss  cc        cc  aa        aa  ll          ee
                         ss           cc            aa        aa  ll          ee
                         ss           cc            aa        aa  ll          ee
                         sssssssssss  cc            aaaaaaaaaaaa  ll          eeeeeeeee
                          sssssssssss cc            aaaaaaaaaaaa  ll          eeeeeeeee
                                  ss  cc            aa        aa  ll          ee
                                  ss  cc            aa        aa  ll          ee
                         ss       ss  cc        cc  aa        aa  ll          ee
                         sssssssssssss  cccccccccccc  aa        aa  llllllllllll  eeeeeeeeeeeee
                          sssssssssss    cccccccccc   aa        aa  llllllllllll  eeeeeeeeeeeee
```



```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****              program:  c0c008                                     *****
*****                                                                   *****
*****         creation date:  04/27/95                                  *****
*****                                                                   *****
*****              library:  /neutronics/scale/exe                      *****
*****                                                                   *****
*****                                                                   *****
```

```
                    *****   this is not a   scale  configuration controlled code          *****
                    *****                                                                  *****
                    *****             jobname:  davis                                      *****
                    *****                                                                  *****
                    *****   date of execution:  02/16/96                                   *****
                    *****                                                                  *****
                    *****   time of execution:  09:55:31                                   *****
                    *****                                                                  *****
                    *****                                                                  *****
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************

1
0       -1q array has       1 entries.
0        0q array has       4 entries.
0        1q array has       6 entries.
0        2q array has       2 entries.
1logical assignments
0master library   12
 working library  17
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere                2
0izm--number of zones or material regions                       4
0ms--mixing table length                                       70
0ibl--shielded cross section edit option (0/1--no/yes)          0
0ibr--bondarenko factor edit option (0/1--no/yes)               0
0issopt--dancoff factor option                                  0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has      70 entries.
0        4q array has      70 entries.
0        5q array has      70 entries.
0        6q array has       4 entries.
0        7q array has       4 entries.
0        8q array has       4 entries.
0        9q array has       4 entries.
0       10q array has      70 entries.
0       11q array has       4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope  number density  new identifier
    1        3     8016    2.09710E-02             201
    2        3     1001    4.19420E-02             202
    3        3     5010    3.81515E-06             203
    4        3     5011    1.54884E-05             204
    5        2    40802    4.25156E-02             205
    6        1    92235    2.28718E-04          200006
    7        1    92234    1.83759E-06          200007
    8        1    92236    1.04764E-06          200008
    9        1    92238    7.29896E-03          200009
   10        1     8016    1.50611E-02          200010
   11        1     8016    1.15315E-02          200011
   12        1    36083    3.30753E-21          200012
   13        1    36085    3.30753E-21          200013
   14        1    38090    3.30753E-21          200014
   15        1    39089    3.30753E-21          200015
   16        1    42095    3.30753E-21          200016
   17        1    40093    3.30753E-21          200017
   18        1    40094    3.30753E-21          200018
```

19	1	40095	3.30753E-21	200019
20	1	41094	3.30753E-21	200020
21	1	43099	3.30753E-21	200021
22	1	45103	3.30753E-21	200022
23	1	45105	3.30753E-21	200023
24	1	44101	3.30753E-21	200024
25	1	44106	3.30753E-21	200025
26	1	46105	3.30753E-21	200026
27	1	46108	3.30753E-21	200027
28	1	47109	3.30753E-21	200028
29	1	51124	3.30753E-21	200029
30	1	54131	3.30753E-21	200030
31	1	54132	3.30753E-21	200031
32	1	54135	3.30753E-21	200032
33	1	54136	3.30753E-21	200033
34	1	55134	3.30753E-21	200034
35	1	55135	3.30753E-21	200035
36	1	55137	3.30753E-21	200036
37	1	56136	3.30753E-21	200037
38	1	57139	3.30753E-21	200038
39	1	59141	3.30753E-21	200039
40	1	59143	3.30753E-21	200040
41	1	58144	3.30753E-21	200041
42	1	60143	3.30753E-21	200042
43	1	60145	3.30753E-21	200043
44	1	61147	3.30753E-21	200044
45	1	61148	3.30753E-21	200045
46	1	60147	3.30753E-21	200046
47	1	62147	3.30753E-21	200047
48	1	62149	3.30753E-21	200048
49	1	62150	3.30753E-21	200049
50	1	62151	3.30753E-21	200050
51	1	62152	3.30753E-21	200051
52	1	64155	3.30753E-21	200052
53	1	63153	3.30753E-21	200053
54	1	63154	3.30753E-21	200054
55	1	63155	3.30753E-21	200055
56	1	40302	4.42681E-03	200056
57	1	1001	2.30630E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	3.30753E-21	200060
61	1	93237	3.30753E-21	200061
62	1	94238	3.30753E-21	200062
63	1	94239	3.30753E-21	200063
64	1	94240	3.30753E-21	200064
65	1	94241	3.30753E-21	200065
66	1	94242	3.30753E-21	200066
67	1	95241	3.30753E-21	200067
68	1	95243	3.30753E-21	200068
69	1	96244	3.30753E-21	200069
70	1	999	3.30753E-21	200070

Ogeometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.32460E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.23052E+01	0
3	3	8.14000E-01	6.07600E+02	3.54862E+00	0
4	1	2.96100E+00	9.75000E+02	2.32883E-01	0

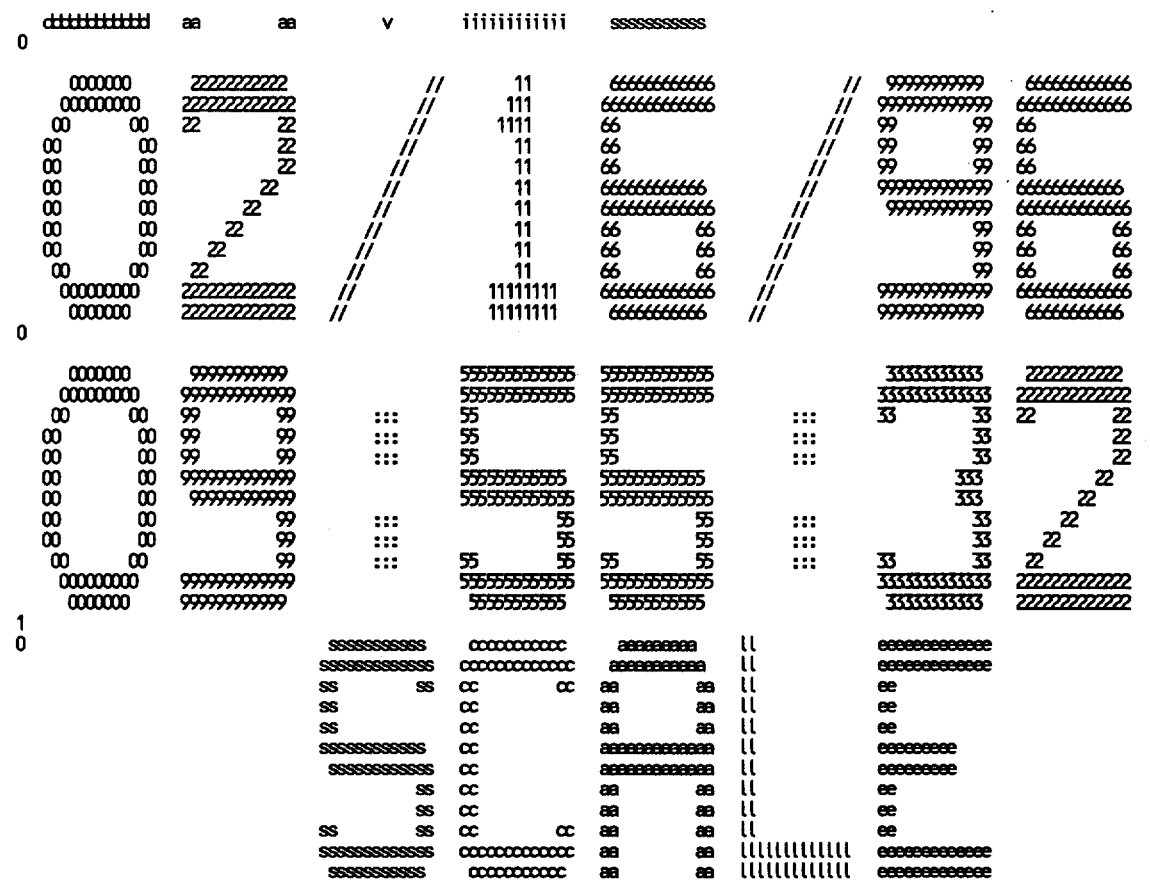
8067 locations of 200000 available are required to make a new master containing the self-shielded values
Ono nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

```
Ocopy      999 1/v cross sectio from log 12 to log  1   bondarenko trigger 0
Ocopy     1001  hydrogen        from log 12 to log 18   bondarenko trigger 0
Ocopy     1001  hydrogen        from log 18 to log  1   bondarenko trigger 0
Ocopy     1001  hydrogen        from log 18 to log  1   bondarenko trigger 0
Ocopy     5010 b-10 1273 218ngp from log 12 to log 18   bondarenko trigger 0
Ocopy     5010 b-10 1273 218ngp from log 18 to log  1   bondarenko trigger 0
Ocopy     5010 b-10 1273 218ngp from log 18 to log  1   bondarenko trigger 0
Ocopy     5011  boron-11        from log 12 to log 18   bondarenko trigger 0
Ocopy     5011  boron-11        from log 18 to log  1   bondarenko trigger 0
Ocopy     5011  boron-11        from log 18 to log  1   bondarenko trigger 0
Ocopy     8016  oxygen-16       from log 12 to log 18   bondarenko trigger 0
Ocopy     8016  oxygen-16       from log 18 to log  1   bondarenko trigger 0
Ocopy     8016  oxygen-16       from log 18 to log  1   bondarenko trigger 0
Ocopy     8016  oxygen-16       from log 18 to log  1   bondarenko trigger 0
Ocopy    36083  kr-83           from log 12 to log  1   bondarenko trigger 0
Ocopy    36085  kr-85           from log 12 to log  1   bondarenko trigger 0
Ocopy    38090  sr-90           from log 12 to log  1   bondarenko trigger 0
Ocopy    39089   y-89           from log 12 to log  1   bondarenko trigger 0
Ocopy    40093  zr-93           from log 12 to log  1   bondarenko trigger 0
Ocopy    40094  zr-94           from log 12 to log  1   bondarenko trigger 0
Ocopy    40095  zr-95           from log 12 to log  1   bondarenko trigger 0
Ocopy    40302  zircalloy       from log 12 to log 18   bondarenko trigger 0
Ocopy    40302  zircalloy       from log 18 to log  1   bondarenko trigger 0
Ocopy    40302  zircalloy       from log 18 to log  1   bondarenko trigger 0
Ocopy    41094  nb-94           from log 12 to log  1   bondarenko trigger 0
Ocopy    42095  mo-95           from log 12 to log  1   bondarenko trigger 0
Ocopy    43099  tc-99           from log 12 to log  1   bondarenko trigger 0
Ocopy    44101  ru-101          from log 12 to log  1   bondarenko trigger 0
Ocopy    44106  ru-106          from log 12 to log  1   bondarenko trigger 0
Ocopy    45103  rh-103          from log 12 to log  1   bondarenko trigger 0
Ocopy    45105  rh-105          from log 12 to log  1   bondarenko trigger 0
Ocopy    46105  pd-105          from log 12 to log  1   bondarenko trigger 0
Ocopy    46108  pd-108          from log 12 to log  1   bondarenko trigger 0
Ocopy    47109  silver-109      from log 12 to log  1   bondarenko trigger 0
Ocopy    51124  sb-124          from log 12 to log  1   bondarenko trigger 0
Ocopy    54131  xe-131          from log 12 to log  1   bondarenko trigger 0
Ocopy    54132  xe-132          from log 12 to log  1   bondarenko trigger 0
Ocopy    54135  xenon-135       from log 12 to log  1   bondarenko trigger 0
Ocopy    54136  xe-136          from log 12 to log  1   bondarenko trigger 0
Ocopy    55133  cesium-133      from log 12 to log  1   bondarenko trigger 0
Ocopy    55134  cs-134          from log 12 to log  1   bondarenko trigger 0
Ocopy    55135  cs-135          from log 12 to log  1   bondarenko trigger 0
Ocopy    55137  cs-137          from log 12 to log  1   bondarenko trigger 0
Ocopy    56136  ba-136          from log 12 to log  1   bondarenko trigger 0
Ocopy    57139  la-139          from log 12 to log  1   bondarenko trigger 0
Ocopy    58144  ce-144          from log 12 to log  1   bondarenko trigger 0
Ocopy    59141  pr-141          from log 12 to log  1   bondarenko trigger 0
Ocopy    59143  pr-143          from log 12 to log  1   bondarenko trigger 0
Ocopy    60143  nd-143          from log 12 to log  1   bondarenko trigger 0
Ocopy    60145  nd-145          from log 12 to log  1   bondarenko trigger 0
Ocopy    60147  nd-147          from log 12 to log  1   bondarenko trigger 0
Ocopy    61147  pm-147          from log 12 to log  1   bondarenko trigger 0
Ocopy    61148  pm-148          from log 12 to log  1   bondarenko trigger 0
Ocopy    62147  sm-147          from log 12 to log  1   bondarenko trigger 0
Ocopy    62149  sm-149          from log 12 to log  1   bondarenko trigger 0
Ocopy    62150  sm-150          from log 12 to log  1   bondarenko trigger 0
Ocopy    62151  sm-151          from log 12 to log  1   bondarenko trigger 0
Ocopy    62152  sm-152          from log 12 to log  1   bondarenko trigger 0
Ocopy    63153  eu-153          from log 12 to log  1   bondarenko trigger 0
Ocopy    63154  eu-154          from log 12 to log  1   bondarenko trigger 0
```

```
0copy    63155   eu-155          from log 12 to log  1    bondarenko trigger 0
0copy    64155   gd-155          from log 12 to log  1    bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92235   uranium-235     from log 12 to log  1    bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92238   uranium-238     from log 12 to log  1    bondarenko trigger 0
0copy    93237   neptunium-237   from log 12 to log  1    bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1    bondarenko trigger 0
0copy    94239   plutonium-239   from log 12 to log  1    bondarenko trigger 0
0copy    94240   plutonium-240   from log 12 to log  1    bondarenko trigger 0
0copy    94241   plutonium-241   from log 12 to log  1    bondarenko trigger 0
0copy    94242   plutonium-242   from log 12 to log  1    bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1    bondarenko trigger 0
0copy    95243  am-243 1057 218  from log 12 to log  1    bondarenko trigger 0
0copy    96244   curium-244      from log 12 to log  1    bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc      1/27/89
             last updated      9/16/93
                l.m.petrie   -   ornl
        tape id                          4321        number of nuclides                  70
        number of neutron groups           27        number of gamma groups               0
        first thermal group                15        logical unit                         1
                                  table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id   200070
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89             id      202
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89             id   200057
       b-10 1273 218ngp 042375 p-3 293k                                           id      203
       b-10 1273 218ngp 042375 p-3 293k                                           id   200058
        boron-11       endf/b-iv mat 1160            updated 10/13/89             id      204
        boron-11       endf/b-iv mat 1160            updated 10/13/89             id   200059
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id      201
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id   200010
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id   200011
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89             id   200012
        kr-85             mt=  102                                                id   200013
        sr-90          mt=102                        updated 10/13/89             id   200014
         y-89          mt=102                        updated 10/13/89             id   200015
        zr-93             mt=  102                                                id   200017
        zr-94          mt=102                        updated 10/13/89             id   200018
        zr-95          mt=102                        updated 10/13/89             id   200019
        zircalloy      endf/b-iv mat 1284            updated 10/13/89             id      205
        zircalloy      endf/b-iv mat 1284            updated 10/13/89             id   200056
        nb-94          mt=102                        updated 10/13/89             id   200020
        mo-95          mt=102                        updated 10/13/89             id   200016
        tc-99          mt=102                        updated 10/13/89             id   200021
        ru-101         mt=102                        updated 10/13/89             id   200024
        ru-106         mt=102                        updated 10/13/89             id   200025
        rh-103         mt=102                        updated 10/13/89             id   200022
        rh-105            mt=  102                                                id   200023
        pd-105         mt=102                        updated 10/13/89             id   200026
        pd-108         mt=102                        updated 10/13/89             id   200027
        silver-109     endf/b-iv mat 1139            updated 10/13/89             id   200028
        sb-124         mt=102                        updated 10/13/89             id   200029
        xe-131         mt=102,103,104,105,106        updated 10/13/89             id   200030
        xe-132         mt=102,103,104,105,106        updated 10/13/89             id   200031
        xenon-135      endf/b-iv mat 1294            updated 10/13/89             id   200032
        xe-136            mt=  102, 103, 104, 105, 107                            id   200033
        cesium-133     endf/b-iv mat 1141            updated 10/13/89             id   200060
        cs-134         mt=102                        updated 10/13/89             id   200034
```

```
      cs-135          mt=  102                                                  id   200035
      cs-137        mt=102                        updated 10/13/89              id   200036
      ba-136        mt=102                        updated 10/13/89              id   200037
      la-139        mt=102                        updated 10/13/89              id   200038
      ce-144          mt=  102                                                  id   200041
      pr-141        mt=102,103,104,105,106,107    updated 10/13/89              id   200039
      pr-143        mt=102                        updated 10/13/89              id   200040
      nd-143        mt=102                        updated 10/13/89              id   200042
      nd-145        mt=102                        updated 10/13/89              id   200043
      nd-147        mt=102                        updated 10/13/89              id   200046
      pm-147        mt=102                        updated 10/13/89              id   200044
      pm-148          mt=  102                                                  id   200045
      sm-147        endf/b-v fission product      updated 10/13/89              id   200047
      sm-149        mt=102,103,107                updated 10/13/89              id   200048
      sm-150        mt=102                        updated 10/13/89              id   200049
      sm-151        mt=102,103,104,105,106,107    updated 10/13/89              id   200050
      sm-152        mt=102,103,104,105,106,107    updated 10/13/89              id   200051
      eu-153        mt=102,103,104,105,106,107    updated 10/13/89              id   200053
      eu-154        mt=102,103,104,105,106,107    updated 10/13/89              id   200054
      eu-155        mt=102,103,104,105,106,107    updated 10/13/89              id   200055
      gd-155        mt=102                        updated 10/13/89              id   200052
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                        id   200007
      uranium-235   endf/b-iv mat 1261            updated 10/13/89              id   200006
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                        id   200008
      uranium-238   endf/b-iv mat 1262            updated 10/13/89              id   200009
      neptunium-237 endf/b-iv mat 1263            updated 10/13/89              id   200061
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id   200062
      plutonium-239 endf/b-iv mat 1264            updated 10/13/89              id   200063
      plutonium-240 endf/b-iv mat 1265            updated 10/13/89              id   200064
      plutonium-241 endf/b-iv mat 1266            updated 10/13/89              id   200065
      plutonium-242 endf/b-iv mat 1161            updated 10/13/89              id   200066
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                              id   200067
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                               id   200068
      curium-244    endf/b-iv mat 1162            updated 10/13/89              id   200069
0       tape copy used      0 i/o's, and took     .00 seconds
1              mn         mn  iiiiiiiiiiii   ttttttttttt     aaaaaaaaa    ww         ww  ll
               mm         mn  iiiiiiiiiiii   ttttttttttt    aaaaaaaaaa   ww         ww  ll
               mmn        mn       ii            tt        aa        aa  ww         ww  ll
               mn mn      mn       ii            tt        aa        aa  ww         ww  ll
               mn   mn    mn       ii            tt        aa        aa  ww         ww  ll
               mn    mn   mn       ii            tt        aaaaaaaaaaaa  ww    w    ww  ll
               mn     mn  mn       ii            tt        aaaaaaaaaaaa  ww   www   ww  ll
               mn      mn mn       ii            tt        aa        aa  ww  ww ww  ww  ll
               mn       mn mn      ii            tt        aa        aa  ww ww    ww ww  ll
               mn        mmn       ii            tt        aa        aa  wwww     wwww  ll
               mn         mm  iiiiiiiiiiii       tt        aa        aa  www       www  llllllllllll
               mn          mn  iiiiiiiiiiii       tt        aa        aa  ww         ww  llllllllllll
0

  dddddddddddd     aaaaaaaaa    w         w  iiiiiiiiiiii    sssssssssss
  dddddddddddd    aaaaaaaaaaa   w         w  iiiiiiiiiiii   sssssssssssss
  dd        dd  aa        aa  w         w       ii        ss        ss
  dd        dd  aa        aa  w         w       ii        ss
  dd        dd  aa        aa  w         w       ii        ss
  dd        dd  aaaaaaaaaaaa  w         w       ii        sssssssssssss
  dd        dd  aaaaaaaaaaaa   w       w        ii         sssssssssssss
  dd        dd  aa        aa     w    w         ii                  ss
  dd        dd  aa        aa      w  w          ii                  ss
  dd        dd  aa        aa       w w          ii        ss        ss
  dddddddddddd  aa        aa        ww      iiiiiiiiiiii   sssssssssssss
```


program verification information
code system: scale version: 4.2
program: c0c002

```
                    *****                                                                  *****
                    *****       creation date:  04/27/95                                   *****
                    *****                                                                  *****
                    *****             library:  /neutronics/scale/exe                      *****
                    *****                                                                  *****
                    *****                                                                  *****
                    *****   this is not a   scale  configuration controlled code           *****
                    *****                                                                  *****
                    *****             jobname:  davis                                      *****
                    *****                                                                  *****
                    *****   date of execution:  02/16/96                                   *****
                    *****                                                                  *****
                    *****   time of execution:  09:55:32                                   *****
                    *****                                                                  *****
                    *****                                                                  *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has     12 entries.
0select  5 nuclides from the master  library on logical  1
        65 nuclides from the working library on logical  3
         0 nuclides from the working library on logical  0
           to create the new working library on logical  4

         1 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has     70 entries.
0        3q array has     15 entries.
0        4q array has      5 entries.
0 general information concerning cross section library
    tape identification number                4349
    number of nuclides on tape                  65
    number of neutron energy groups             27
    first thermal neutron energy group          15
    number of gamma energy groups                0
0   direct access unit number  9 requires  72 blocks of length  1484 words
- xsdrn tape   4321
                    scale 4.2 - 27 group neutron burnup library
                       based on endf-b version 4 data with endf-b version 5 fission products
                          compiled for nrc      1/27/89
                             last updated      9/16/93
                                l.m.petrie   -   ornl
-  work tape   4349

 xsdrn weighted tape--parent case entitled-- at 0 d, sas2h: babcock wilcox 15x15,
  3.00wt%, 20gwd/mtu burn high temp


0 nuclides from xsdrn tape
     1     hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89              202
     2    b-10 1273 218ngp 042375 p-3 293k                                              203
     3     boron-11       endf/b-iv mat 1160             updated 10/13/89              204
     4     oxygen-16      endf/b-iv mat 1276             updated 10/13/89              201
     5     zircalloy      endf/b-iv mat 1284             updated 10/13/89              205
0 nuclides from  work tape
```

```
  6  1/v cross sections normalized to 1.0 at 0.0253 ev                          999
  7   hydrogen        endf/b-iv mat 1269/thrmf1002    updated 10/13/89         1001
  8  b-10 1273 218grp 042375 p-3 293k                                          5010
  9   boron-11        endf/b-iv mat 1160              updated 10/13/89         5011
 10   oxygen-16       endf/b-iv mat 1276              updated 10/13/89         8016
 11   oxygen-16       endf/b-iv mat 1276              updated 10/13/89            6
 12   kr-83           mt=102,103,103,105,106,107      updated 10/13/89        36083
 13   kr-85             mt=  102                                              36085
 14   sr-90           mt=102                          updated 10/13/89        38090
 15    y-89           mt=102                          updated 10/13/89        39089
 16   zr-93             mt=  102                                              40093
 17   zr-94           mt=102                          updated 10/13/89        40094
 18   zr-95           mt=102                          updated 10/13/89        40095
 19   zircalloy       endf/b-iv mat 1284              updated 10/13/89        40802
 20   nb-94           mt=102                          updated 10/13/89        41094
 21   mo-95           mt=102                          updated 10/13/89        42095
 22   tc-99           mt=102                          updated 10/13/89        43099
 23   ru-101          mt=102                          updated 10/13/89        44101
 24   ru-106          mt=102                          updated 10/13/89        44106
 25   rh-103          mt=102                          updated 10/13/89        45103
 26   rh-105            mt=  102                                              45105
 27   pd-105          mt=102                          updated 10/13/89        46105
 28   pd-108          mt=102                          updated 10/13/89        46108
 29   silver-109      endf/b-iv mat 1139              updated 10/13/89        47109
 30   sb-124          mt=102                          updated 10/13/89        51124
 31   xe-131          mt=102,103,104,105,106          updated 10/13/89        54131
 32   xe-132          mt=102,103,104,105,106          updated 10/13/89        54132
 33   xenon-135       endf/b-iv mat 1294              updated 10/13/89        54135
 34   xe-136            mt=  102, 103, 104, 105, 107                          54136
 35   cesium-133      endf/b-iv mat 1141              updated 10/13/89        55133
 36   cs-134          mt=102                          updated 10/13/89        55134
 37   cs-135            mt=  102                                              55135
 38   cs-137          mt=102                          updated 10/13/89        55137
 39   ba-136          mt=102                          updated 10/13/89        56136
 40   la-139          mt=102                          updated 10/13/89        57139
 41   ce-144            mt=  102                                              58144
 42   pr-141          mt=102,103,104,105,106,107      updated 10/13/89        59141
 43   pr-143          mt=102                          updated 10/13/89        59143
 44   nd-143          mt=102                          updated 10/13/89        60143
 45   nd-145          mt=102                          updated 10/13/89        60145
 46   nd-147          mt=102                          updated 10/13/89        60147
 47   pm-147          mt=102                          updated 10/13/89        61147
 48   pm-148            mt=  102                                              61148
 49   sm-147          endf/b-v fission product        updated 10/13/89        62147
 50   sm-149          mt=102,103,107                  updated 10/13/89        62149
 51   sm-150          mt=102                          updated 10/13/89        62150
 52   sm-151          mt=102,103,104,105,106,107      updated 10/13/89        62151
 53   sm-152          mt=102,103,104,105,106,107      updated 10/13/89        62152
 54   eu-153          mt=102,103,104,105,106,107      updated 10/13/89        63153
 55   eu-154          mt=102,103,104,105,106,107      updated 10/13/89        63154
 56   eu-155          mt=102,103,104,105,106,107      updated 10/13/89        63155
 57   gd-155          mt=102                          updated 10/13/89        64155
 58  u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                        92234
 59   uranium-235     endf/b-iv mat 1261              updated 10/13/89        92235
 60  u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                        92236
 61   uranium-238     endf/b-iv mat 1262              updated 10/13/89        92238
 62   neptunium-237   endf/b-iv mat 1263              updated 10/13/89        93237
 63  pu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                       94238
 64   plutonium-239   endf/b-iv mat 1264              updated 10/13/89        94239
 65   plutonium-240   endf/b-iv mat 1265              updated 10/13/89        94240
```

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   66    plutonium-241  endf/b-iv mat 1266          updated 10/13/89          94241
   67    plutonium-242  endf/b-iv mat 1161          updated 10/13/89          94242
   68   am-241 1056 sigp=5+4 newxlacs 218ngp p-3 293k                         95241
   69   am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                          95243
   70    curium-244     endf/b-iv mat 1162          updated 10/13/89          96244
0 hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          202    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                          203    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160            updated 10/13/89          204    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276            updated 10/13/89          201    temperature=   607.60
0 zircalloy      endf/b-iv mat 1284            updated 10/13/89          205    temperature=   650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)       =   650.000
0potential scatter sigma  =     6.385          lumped nuclear density    = 4.2515602E-02
0spin factor (g)          =     1.079          lump dimension (a-bar)    = 6.7309999E-01
0inner radius             = 6.3246000E-01      dancoff correction (c)    = 1.6805907E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   8      -1.156752E-03    .000000E+00   -7.806033E-01
   9      -4.625978E-02    .000000E+00   -2.073270E+00
  10      -5.962230E-02    .000000E+00   -1.351984E+00
  11      -1.761672E-01    .000000E+00   -7.350731E-01
0excess resonance integrals
0                 resolved
0absorption      2.92402E-01
 fission          .00000E+00
-  elapsed time    .00 min.
-  elapsed time    .02 min.
1     this xsdrn working tape was created 02/16/96 at 09:55:32
      the title of the parent case is as follows
      xsdrn weighted tape--parent case entitled-- at 0 d, sas2h: babcock wilcox 15x15,
       3.00wt%, 20gwd/mtu burn high temp

         tape id                          8670        number of nuclides                 70
         number of neutron groups           27        number of gamma groups              0
         first thermal group                15        logical unit                        4
                                  table of contents
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          id      202
       b-10 1273 218ngp 042375 p-3 293k                                         id      203
        boron-11       endf/b-iv mat 1160            updated 10/13/89          id      204
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89          id      201
        zircalloy      endf/b-iv mat 1284            updated 10/13/89          id      205
       1/v cross sections normalized to 1.0 at 0.0253 ev                        id      999
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          id     1001
       b-10 1273 218ngp 042375 p-3 293k                                         id     5010
        boron-11       endf/b-iv mat 1160            updated 10/13/89          id     5011
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89          id     8016
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89          id        6
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89          id    36083
        kr-85            mt=  102                                               id    36085
        sr-90          mt=102                        updated 10/13/89          id    38090
         y-89          mt=102                        updated 10/13/89          id    39089
        zr-93            mt=  102                                               id    40093
        zr-94          mt=102                        updated 10/13/89          id    40094
        zr-95          mt=102                        updated 10/13/89          id    40095
        zircalloy      endf/b-iv mat 1284            updated 10/13/89          id    40302
```

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        rb-94          mt=102                          updated 10/13/89              id    41094
        mo-95          mt=102                          updated 10/13/89              id    42095
        tc-99          mt=102                          updated 10/13/89              id    43099
        ru-101         mt=102                          updated 10/13/89              id    44101
        ru-106         mt=102                          updated 10/13/89              id    44106
        rh-103         mt=102                          updated 10/13/89              id    45103
        rh-105           mt=  102                                                    id    45105
        pd-105         mt=102                          updated 10/13/89              id    46105
        pd-108         mt=102                          updated 10/13/89              id    46108
        silver-109     endf/b-iv mat 1139              updated 10/13/89              id    47109
        sb-124         mt=102                          updated 10/13/89              id    51124
        xe-131         mt=102,103,104,105,106          updated 10/13/89              id    54131
        xe-132         mt=102,103,104,105,106          updated 10/13/89              id    54132
        xenon-135      endf/b-iv mat 1294              updated 10/13/89              id    54135
        xe-136           mt=  102, 103, 104, 105, 107                                id    54136
        cesium-133     endf/b-iv mat 1141              updated 10/13/89              id    55133
        cs-134         mt=102                          updated 10/13/89              id    55134
        cs-135           mt=  102                                                    id    55135
        cs-137         mt=102                          updated 10/13/89              id    55137
        ba-136         mt=102                          updated 10/13/89              id    56136
        la-139         mt=102                          updated 10/13/89              id    57139
        ce-144           mt=  102                                                    id    58144
        pr-141         mt=102,103,104,105,106,107      updated 10/13/89              id    59141
        pr-143         mt=102                          updated 10/13/89              id    59143
        nd-143         mt=102                          updated 10/13/89              id    60143
        nd-145         mt=102                          updated 10/13/89              id    60145
        nd-147         mt=102                          updated 10/13/89              id    60147
        pm-147         mt=102                          updated 10/13/89              id    61147
        pm-148           mt=  102                                                    id    61148
        sm-147         endf/b-v fission product        updated 10/13/89              id    62147
        sm-149         mt=102,103,107                  updated 10/13/89              id    62149
        sm-150         mt=102                          updated 10/13/89              id    62150
        sm-151         mt=102,103,104,105,106,107      updated 10/13/89              id    62151
        sm-152         mt=102,103,104,105,106,107      updated 10/13/89              id    62152
        eu-153         mt=102,103,104,105,106,107      updated 10/13/89              id    63153
        eu-154         mt=102,103,104,105,106,107      updated 10/13/89              id    63154
        eu-155         mt=102,103,104,105,106,107      updated 10/13/89              id    63155
        gd-155         mt=102                          updated 10/13/89              id    64155
      u-234 1043 sigo=5+4 newklacs p-3 295k f-1/e-m(1.+5)                            id    92234
       uranium-235     endf/b-iv mat 1261              updated 10/13/89              id    92235
      u-236 1163 sigo=5+4 newklacs p-3 295k f-1/e-m(1.+5)                            id    92236
       uranium-238     endf/b-iv mat 1262              updated 10/13/89              id    92238
       neptunium-237   endf/b-iv mat 1263              updated 10/13/89              id    93237
      pu-238 1050 sigo=5+4 newklacs p-3 295k f-1/e-m(1.+5)                           id    94238
       plutonium-239   endf/b-iv mat 1264              updated 10/13/89              id    94239
       plutonium-240   endf/b-iv mat 1265              updated 10/13/89              id    94240
       plutonium-241   endf/b-iv mat 1266              updated 10/13/89              id    94241
       plutonium-242   endf/b-iv mat 1161              updated 10/13/89              id    94242
      am-241 1056 sigo=5+4 newklacs 218ngp p-3 295k                                  id    95241
      am-243 1057 218 gp wt f-1/e-m 090576 p3 295k                                   id    95243
       curium-244      endf/b-iv mat 1162              updated 10/13/89              id    96244
0        tape copy used      0 i/o's, and took      .00 seconds
1 xx         xx   sssssssssss    ddddddddddd    rrrrrrrrrrr    rr         rr  ppppppppp     rrr          rrr
   xx         xx  sssssssssssss  ddddddddddddd  rrrrrrrrrrrr   rrr        rr  ppppppppppp    rrrr        rrrr
    xx       xx   ss          ss  dd          dd  rr          rr  rrrr      rr  pp        pp   rrrrrr      rrrrrr
     xx     xx    ss              dd          dd  rr          rr  rr rr     rr  pp        pp   rr  rrr    rrr rr
      xx   xx     ss              dd          dd  rr          rr  rr  rr    rr  pp        pp   rr   rrr   rrr  rr
       xx xx      ss              dd          dd  rr          rr  rr   rr   rr  pp        pp   rr    rrr  rrr   rr
        xxx       sssssssssss     dd          dd  rrrrrrrrrrrr   rr    rr  rr  ppppppppp     rr     rrrrrr    rr
        xxx        sssssssssss    dd          dd  rrrrrrrrrrr    rr     rr rr  ppppppppp     rr      rrrr     rr
       xx xx              ss     dd          dd  rr          rr  rr      rrrr  pp            rr       rr      rr
```
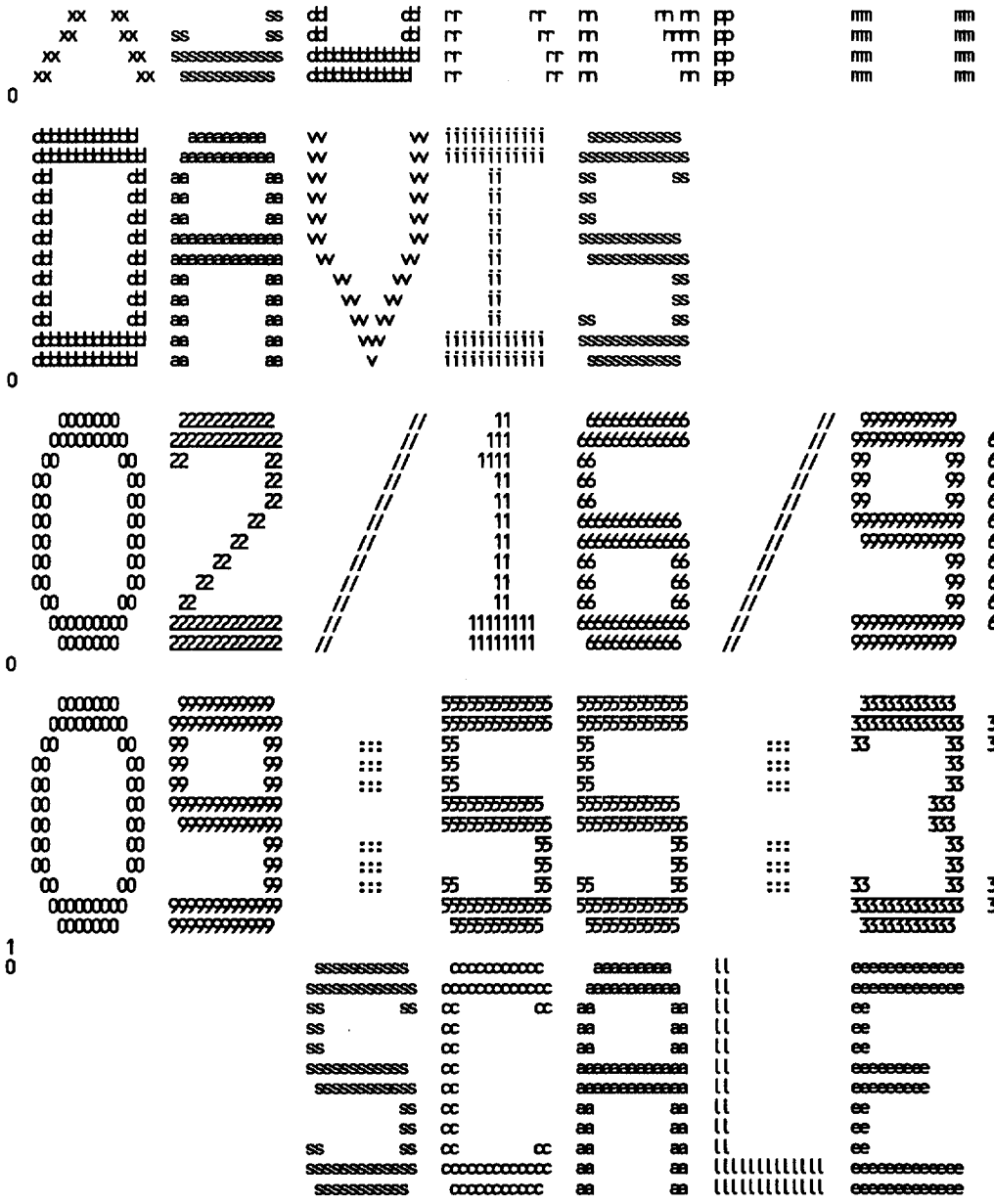



```
**********************************************************************
**********************************************************************
**********************************************************************
*****                                                            *****
*****                 program verification information            *****
*****                                                            *****
*****                 code system:    scale  version:    4.2     *****
*****                                                            *****
**********************************************************************
**********************************************************************
*****                                                            *****
*****                                                            *****
*****              program:  c0c001                              *****
*****                                                            *****
*****          creation date:  04/27/95                          *****
*****                                                            *****
*****              library:  /neutronics/scale/exe               *****
*****                                                            *****
*****                                                            *****
*****     this is not a   scale  configuration controlled code   *****
*****                                                            *****
*****              jobname:  davis                               *****
*****                                                            *****
*****     date of execution:  02/16/96                           *****
*****                                                            *****
*****     time of execution:  09:55:33                           *****
*****                                                            *****
*****                                                            *****
**********************************************************************
**********************************************************************
**********************************************************************
1
                    at 0 cl, second part of sas2h pass to make library
0       -1q array has      1 entries.
0        0q array has     11 entries.
0        1q array has     15 entries.
0        2q array has     10 entries.
0        3q array has     12 entries.
0        4q array has      9 entries.
0        5q array has     12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                    at 0 cl, second part of sas2h pass to make library
0general problem description data block
0                          general problem data

 ige  1/2/3 = plane/cylinder/sphere      2       isn  quadrature order                  8
 izm  number of zones                    4       isct order of scattering               3
 im   number of special intervals       28       ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1       iim  inner iteration maximum          20
 ibr  right boundary condition           3       iam  outer iteration maximum          25
 mxx  number of mixtures                 3       iclc -1/0/n--flat res/sry/opt          0
 ms   mixing table length               70       ith  0/1 = forward/adjoint         0
 igm  number of energy groups           27       iflu not used(always =gtd)             0
 nrg  number of neutron groups          27       iprt -2/-1/0/n=mixture xsec print     -2
 ngg  number of gamma groups             0       idl  0/1/2/3=no/prt nd/pch n/both   14
 iftg number of first thermal group     15       ipbt -1/0/1=none/fine/all bal. prt     0
```

0 special options

ifg	0/1 = none/weighting calculation 1	ipn	0/1/2 diff. coef. param 0
iqm	volumetric sources (0/n=no/yes) 0	idfm	0/1 = none/density factors 38* 0
ipm	boundary sources (0/n=no/yes) 0	iaz	0/n = none/n activities by zone 0
ifn	0/1/2 = input 33*/34*/use last 14	iai	0/1=none/activities by interval 0
itmx	maximum time (minutes) 10	ifct	0/1=no/yes upscatter scaling 0
idt1	0/1/2/3=no/xsect/srce/flux--out 0	ipvt	0/1/2=no/k/alpha parametric srch 0
isx	broad group fluxes 0	isen	outer iteration acceleration 0
ibln	activity data unit 0	nbnd	band rebaln parameter 0
jbkl	0/1/2 buckling geometry 0		

0 weighting data (ifg=1)

icon	-1/0/1=cell/zone/region weight -1	ihtf	total xsect psn in brd gp tables 3
igmf	number of broad groups 3	ndsf	psn g-g or file number 4
itp	0/10/20/30/40 0/c/e/ac/a 0	nusf	table length or max order 6
ipp	-2/-1/0/n=wgted xsect print -2	mscm	extra 1-d x-sect positions 0
iap	-1/n anisn xsect print -1		

0 floating point parameters

eps	overall convergence	1.00000E-04	dy	cyl/pla ht for buckling	.00000E+00
ptc	point convergence	1.00000E-04	dz	plane depth for buckling	2.00000E+02
xnf	normalization factor	1.00000E+00	vsc	void streaming correction	.00000E+00
ev	eigenvalue guess	.00000E+00	pv	ipvt=1/2--k/alpha	1.00000E+00
evm	eigenvalue modifier	.00000E+00	eql	ev change eps for search	1.00000E-03
bf	buckling factor=1.420892	1.42089E+00	xnpm	new param mod for search	7.50000E-01

this case will require 2611 locations for mixing
this case has been allocated 200000 locations

1 at 0 cl, second part of sas2h pass to make library
0 13q array has 70 entries.
0 14q array has 70 entries.
0 15q array has 70 entries.
0 data block 2 (mixing table, etc.)

	nuclides on tape	cccc identification	mixing table mixture	component	atom density	extra xsect id's
1	202		3	201	2.09710E-02	
2	203		3	202	4.19420E-02	
3	204		3	203	3.81515E-06	
4	201		3	204	1.54884E-05	
5	205		2	205	4.25156E-02	
6	999		1	92235	2.28718E-04	
7	1001		1	92234	1.83759E-06	
8	5010		1	92236	1.04764E-06	
9	5011		1	92238	7.29896E-03	
10	8016		1	8016	1.50611E-02	
11	6		1	6	1.15315E-02	
12	36083		1	36083	3.30753E-21	
13	36085		1	36085	3.30753E-21	
14	38090		1	38090	3.30753E-21	
15	39089		1	39089	3.30753E-21	
16	40093		1	42095	3.30753E-21	
17	40094		1	40093	3.30753E-21	
18	40095		1	40094	3.30753E-21	
19	40302		1	40095	3.30753E-21	
20	41094		1	41094	3.30753E-21	
21	42095		1	43099	3.30753E-21	
22	43099		1	45103	3.30753E-21	
23	44101		1	45105	3.30753E-21	
24	44106		1	44101	3.30753E-21	
25	45103		1	44106	3.30753E-21	

26	45105	1	46105	3.30753E-21
27	46105	1	46108	3.30753E-21
28	46108	1	47109	3.30753E-21
29	47109	1	51124	3.30753E-21
30	51124	1	54131	3.30753E-21
31	54131	1	54132	3.30753E-21
32	54132	1	54135	3.30753E-21
33	54135	1	54136	3.30753E-21
34	54136	1	55134	3.30753E-21
35	55133	1	55135	3.30753E-21
36	55134	1	55137	3.30753E-21
37	55135	1	56136	3.30753E-21
38	55137	1	57139	3.30753E-21
39	56136	1	59141	3.30753E-21
40	57139	1	59143	3.30753E-21
41	58144	1	58144	3.30753E-21
42	59141	1	60143	3.30753E-21
43	59143	1	60145	3.30753E-21
44	60143	1	61147	3.30753E-21
45	60145	1	61148	3.30753E-21
46	60147	1	60147	3.30753E-21
47	61147	1	62147	3.30753E-21
48	61148	1	62149	3.30753E-21
49	62147	1	62150	3.30753E-21
50	62149	1	62151	3.30753E-21
51	62150	1	62152	3.30753E-21
52	62151	1	64155	3.30753E-21
53	62152	1	63153	3.30753E-21
54	63153	1	63154	3.30753E-21
55	63154	1	63155	3.30753E-21
56	63155	1	40302	4.42681E-03
57	64155	1	1001	2.30630E-02
58	92234	1	5010	2.09787E-06
59	92235	1	5011	8.51673E-06
60	92236	1	55133	3.30753E-21
61	92238	1	95237	3.30753E-21
62	95237	1	94238	3.30753E-21
63	94238	1	94239	3.30753E-21
64	94239	1	94240	3.30753E-21
65	94240	1	94241	3.30753E-21
66	94241	1	94242	3.30753E-21
67	94242	1	95241	3.30753E-21
68	95241	1	95243	3.30753E-21
69	95243	1	96244	3.30753E-21
70	96244	1	999	3.30753E-21

- elapsed time .00 min.
0 24259 locations will be used
0 35q array has 29 entries.
0 36q array has 28 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 at 0 d, second part of sas2h pass to make library

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	1	0	2	1.00000E+00	
3	3.00000E+06	1.20897E+00	2.12201E+09	1	0	3	1.00000E+00	

4	1.85000E+06	1.68740E+00	1.75673E+09	1	0	4	1.00000E+00
5	1.40000E+06	1.96611E+00	1.46535E+09	1	0	5	1.00000E+00
6	9.00000E+05	2.40795E+00	1.06620E+09	2	0	6	1.00000E+00
7	4.00000E+05	3.21888E+00	6.07557E+08	2	0	7	1.00000E+00
8	1.00000E+05	4.60517E+00	2.72415E+08	2	0	8	1.00000E+00
9	1.70000E+04	6.37713E+00	1.13526E+08	2	0	9	1.00000E+00
10	3.00000E+03	8.11173E+00	4.82126E+07	2	0	10	1.00000E+00
11	5.50000E+02	9.80818E+00	2.05946E+07	2	0	11	1.00000E+00
12	1.00000E+02	1.15129E+01	1.01036E+07	2	0	12	1.00000E+00
13	3.00000E+01	1.27169E+01	5.69595E+06	2	0	13	1.00000E+00
14	1.00000E+01	1.38155E+01	3.20957E+06	2	0	14	1.00000E+00
15	3.04999E+00	1.50030E+01	2.10601E+06	2	0	15	1.00000E+00
16	1.77000E+00	1.55471E+01	1.70522E+06	2	0	16	1.00000E+00
17	1.29999E+00	1.58557E+01	1.52545E+06	2	0	17	1.00000E+00
18	1.12999E+00	1.59959E+01	1.42867E+06	2	0	18	1.00000E+00
19	1.00000E+00	1.61181E+01	1.31002E+06	2	0	19	1.00000E+00
20	8.00000E-01	1.63412E+01	9.05898E+05	2	0	20	1.00000E+00
21	4.00000E-01	1.70344E+01	8.17974E+05	3	0	21	1.00000E+00
22	3.25000E-01	1.72420E+01	6.90070E+05	3	0	22	1.00000E+00
23	2.25000E-01	1.76098E+01	4.86953E+05	3	0	23	1.00000E+00
24	9.99999E-02	1.84207E+01	3.57766E+05	3	0	24	1.00000E+00
25	5.00000E-02	1.91138E+01	2.71895E+05	3	0	25	1.00000E+00
26	3.00000E-02	1.96247E+01	1.87283E+05	3	0	26	1.00000E+00
27	1.00000E-02	2.07233E+01	8.88201E+04	3	0	27	1.00000E+00
28	1.00000E-05	2.76310E+01					

1 at 0 d, second part of sas2h pass to make library

0

	mixture by zone	order p(l) by zone	activity table matl no.	reaction	quadrature constants weights	directions	refl direc	wt x cos
1	3	3			0	-2.79004E-01	3	0
2	2	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	3	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	1	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28593E-02
7					5.55953E-02	2.31301E-01	6	1.28593E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02
16					0	-9.83032E-01	24	0
17					4.53365E-02	-9.64143E-01	24	-4.37099E-02
18					4.53365E-02	-8.17361E-01	23	-3.70655E-02
19					4.53365E-02	-5.46143E-01	22	-2.47597E-02
20					4.53365E-02	-1.91780E-01	21	-8.69444E-03
21					4.53365E-02	1.91780E-01	20	8.69444E-03
22					4.53365E-02	5.46143E-01	19	2.47597E-02
23					4.53365E-02	8.17361E-01	18	3.70655E-02
24					4.53365E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0argl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01

7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83052E-01	-4.49528E-01	8.36885E-01	5.00708E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91089E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20862E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20862E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17256E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17256E-01
22	5.46143E-01	-4.49528E-01	-3.20862E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20862E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91089E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.97644E-02	1	0	4.90881E-03		0	
2	3.95287E-02	5.92931E-02	1	2.48366E-01	1.47264E-02		0	
3	7.90575E-02	1.18586E-01	1	4.96733E-01	5.89057E-02		0	
4	1.58115E-01	1.97644E-01	1	9.93466E-01	9.81762E-02		0	
5	2.37172E-01	2.76701E-01	1	1.49020E+00	1.37447E-01			
6	3.16230E-01	3.55759E-01	1	1.98693E+00	1.76717E-01			
7	3.95288E-01	4.34816E-01	1	2.48366E+00	2.15988E-01			
8	4.74345E-01	5.13874E-01	1	2.98040E+00	2.55258E-01			
9	5.53403E-01	5.73167E-01	1	3.47713E+00	1.42355E-01			
10	5.92931E-01	6.12696E-01	1	3.72550E+00	1.52173E-01			
11	6.32460E-01	6.42620E-01	2	3.97386E+00	8.20460E-02			
12	6.52780E-01	6.62940E-01	2	4.10154E+00	8.46405E-02			
13	6.73100E-01	6.96583E-01	3	4.22921E+00	2.05562E-01			
14	7.20067E-01	7.43550E-01	3	4.52431E+00	2.19422E-01			
15	7.67033E-01	7.90517E-01	3	4.81941E+00	2.33282E-01			
16	8.14000E-01	8.62795E-01	4	5.11451E+00	5.29051E-01			
17	9.11591E-01	9.60386E-01	4	5.72769E+00	5.88891E-01			
18	1.00918E+00	1.10577E+00	4	6.34088E+00	1.35731E+00			
19	1.20436E+00	1.30195E+00	4	7.56724E+00	1.59667E+00			
20	1.39955E+00	1.49714E+00	4	8.79360E+00	1.83603E+00			
21	1.59473E+00	1.69232E+00	4	1.00200E+01	2.07540E+00			
22	1.78991E+00	1.88750E+00	4	1.12463E+01	2.31476E+00			
23	1.98509E+00	2.08268E+00	4	1.24727E+01	2.55412E+00			
24	2.18027E+00	2.27786E+00	4	1.36991E+01	2.79349E+00			
25	2.37545E+00	2.47305E+00	4	1.49254E+01	3.03285E+00			
26	2.57064E+00	2.66823E+00	4	1.61518E+01	3.27221E+00			
27	2.76582E+00	2.81461E+00	4	1.73781E+01	1.72587E+00			
28	2.86341E+00	2.91220E+00	4	1.79913E+01	1.78571E+00			
29	2.96100E+00			1.86045E+01				

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	298	1.04391E-06	1.25444E+00	-2.24725E-01	1.00000E+00	4.94988E-02	.00000E+00	.0000
2	422	1.08560E-06	1.23658E+00	3.25266E-03	1.64749E-02	3.07640E-02	.00000E+00	.0167
3	541	4.33274E-06	1.22463E+00	1.56369E-03	1.30333E-02	1.22907E-02	.00000E+00	.0167
4	642	5.48531E-06	1.21957E+00	5.17811E-04	5.65449E-03	2.68604E-03	.00000E+00	.0167
5	721	-6.68063E-06	1.21831E+00	1.04339E-04	1.26694E-03	3.03774E-04	.00000E+00	.0167
6	773	-2.39359E-06	1.21809E+00	1.96049E-05	1.22027E-04	1.80469E-05	.00000E+00	.0333

grp to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1 1	1	17	1.97858E-05	28	9.99998E-01	1

2	2	1	17	2.43694E-05	28	9.99998E-01	1
3	3	1	17	2.22065E-05	28	9.99998E-01	1
4	4	1	17	2.15955E-05	28	9.99998E-01	1
5	5	1	17	2.15005E-05	28	9.99998E-01	1
6	6	1	17	1.48570E-05	28	9.99999E-01	1
7	7	1	17	7.95796E-06	28	9.99997E-01	2
8	8	1	15	1.63517E-06	20	1.00000E+00	2
9	9	1	27	6.04249E-06	28	1.00001E+00	3
10	10	1	26	1.45127E-06	28	1.00000E+00	3
11	11	1	26	1.07523E-06	28	1.00000E+00	3
12	12	1	26	3.17028E-07	28	1.00000E+00	3
13	13	1	26	2.02823E-06	28	9.99998E-01	3
14	14	1	25	6.37018E-07	28	1.00000E+00	3
15	15	1	2	2.21687E-05	28	1.00002E+00	2
16	16	1	2	2.88768E-05	28	1.00002E+00	2
17	17	1	2	4.29906E-05	28	1.00008E+00	2
18	18	1	2	4.95055E-05	28	1.00012E+00	3
19	19	1	2	5.41915E-05	28	1.00013E+00	3
20	20	1	2	7.96373E-05	28	1.00011E+00	3
21	21	2	28	3.55246E-05	28	9.99984E-01	3
22	22	2	17	1.12423E-05	16	9.99999E-01	3
23	23	2	15	3.65537E-05	28	1.00001E+00	4
24	24	2	10	4.08816E-05	9	1.00000E+00	4
25	25	2	26	3.01312E-05	28	1.00008E+00	5
26	26	2	16	2.66475E-05	28	1.00000E+00	6
27	27	2	28	1.69354E-05	28	1.00000E+00	8

7 807 3.15920E-06 1.21799E+00 4.31073E-06 2.13203E-06 -6.07809E-06 .00000E+00 .0333

final monitor

lambda 1.21804E+00 production/absorption 1.23409E+00 angular flux on 16

- elapsed time .03 min.

1 at 0 d, second part of sas2h pass to make library

0 int.	zone	number	radius	int. midpoint	area	volume	prod density
1	1		.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1		3.95287E-02	5.92931E-02	2.48366E-01	1.47264E-02	.00000E+00
3	1		7.90575E-02	1.18586E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1		1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1		2.37172E-01	2.76701E-01	1.49020E+00	1.37447E-01	.00000E+00
6	1		3.16230E-01	3.55759E-01	1.98693E+00	1.76717E-01	.00000E+00
7	1		3.95288E-01	4.34816E-01	2.48366E+00	2.15988E-01	.00000E+00
8	1		4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1		5.53403E-01	5.73167E-01	3.47713E+00	1.42365E-01	.00000E+00
10	1		5.92931E-01	6.12696E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2		6.32460E-01	6.42620E-01	3.97386E+00	8.20460E-02	.00000E+00
12	2		6.52780E-01	6.62940E-01	4.10154E+00	8.46405E-02	.00000E+00
13	3		6.73100E-01	6.96583E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3		7.20067E-01	7.43550E-01	4.52431E+00	2.19422E-01	.00000E+00
15	3		7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4		8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.75743E-02
17	4		9.11591E-01	9.60388E-01	5.72769E+00	5.88891E-01	3.00622E-02
18	4		1.00918E+00	1.10577E+00	6.34088E+00	1.35731E+00	6.79756E-02
19	4		1.20436E+00	1.30195E+00	7.56724E+00	1.59667E+00	7.84531E-02
20	4		1.39955E+00	1.49714E+00	8.79360E+00	1.83603E+00	8.90244E-02
21	4		1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	9.96516E-02
22	4		1.78991E+00	1.88750E+00	1.12463E+01	2.31478E+00	1.10339E-01
23	4		1.98509E+00	2.08268E+00	1.24727E+01	2.55412E+00	1.21093E-01
24	4		2.18027E+00	2.27786E+00	1.36991E+01	2.79349E+00	1.31928E-01
25	4		2.37545E+00	2.47305E+00	1.49254E+01	3.03285E+00	1.42861E-01
26	4		2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.53922E-01
27	4		2.76582E+00	2.81461E+00	1.73781E+01	1.72587E+00	8.11563E-02
28	4		2.86341E+00	2.91220E+00	1.79913E+01	1.78571E+00	8.40025E-02

29 2.96100E+00 1.86045E+01
1 at 0 d, second part of ses2h pass to make library
0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.18199E-02	8.76944E-02	1.10876E-01	6.84606E-02	1.02528E-01	1.92543E-01	1.92954E-01	1.46861E-01
2	1.18151E-02	8.76446E-02	1.10812E-01	6.84223E-02	1.02475E-01	1.92456E-01	1.92914E-01	1.46855E-01
3	1.18156E-02	8.76570E-02	1.10833E-01	6.84401E-02	1.02510E-01	1.92526E-01	1.92967E-01	1.46866E-01
4	1.18218E-02	8.77348E-02	1.10944E-01	6.85188E-02	1.02640E-01	1.92770E-01	1.93124E-01	1.46895E-01
5	1.18329E-02	8.78717E-02	1.11138E-01	6.86511E-02	1.02857E-01	1.93170E-01	1.93574E-01	1.46959E-01
6	1.18481E-02	8.80603E-02	1.11405E-01	6.88342E-02	1.02955E-01	1.93722E-01	1.93715E-01	1.46995E-01
7	1.18674E-02	8.83016E-02	1.11748E-01	6.90719E-02	1.03344E-01	1.94442E-01	1.94160E-01	1.47065E-01
8	1.18906E-02	8.86030E-02	1.12183E-01	6.93789E-02	1.03851E-01	1.95382E-01	1.94740E-01	1.47148E-01
9	1.19101E-02	8.88682E-02	1.12574E-01	6.96604E-02	1.04320E-01	1.96254E-01	1.95279E-01	1.47217E-01
10	1.19234E-02	8.90760E-02	1.12900E-01	6.99082E-02	1.04742E-01	1.97042E-01	1.95768E-01	1.47266E-01
11	1.19346E-02	8.92482E-02	1.13173E-01	7.01161E-02	1.05096E-01	1.97720E-01	1.96188E-01	1.47310E-01
12	1.19467E-02	8.93763E-02	1.13345E-01	7.02243E-02	1.05266E-01	1.98059E-01	1.96392E-01	1.47354E-01
13	1.19722E-02	8.96096E-02	1.13612E-01	7.03620E-02	1.05457E-01	1.98402E-01	1.96587E-01	1.47422E-01
14	1.20096E-02	8.99812E-02	1.14061E-01	7.06172E-02	1.05834E-01	1.99066E-01	1.96970E-01	1.47514E-01
15	1.20536E-02	9.04591E-02	1.14679E-01	7.10033E-02	1.06434E-01	2.00145E-01	1.97603E-01	1.47614E-01
16	1.21220E-02	9.12252E-02	1.15686E-01	7.16477E-02	1.07452E-01	2.01996E-01	1.98703E-01	1.47784E-01
17	1.21897E-02	9.19899E-02	1.16695E-01	7.22967E-02	1.08489E-01	2.03903E-01	1.99855E-01	1.47980E-01
18	1.22440E-02	9.26139E-02	1.17526E-01	7.28356E-02	1.09363E-01	2.05554E-01	2.00883E-01	1.48185E-01
19	1.22918E-02	9.31712E-02	1.18277E-01	7.33253E-02	1.10165E-01	2.07098E-01	2.01861E-01	1.48398E-01
20	1.23201E-02	9.35094E-02	1.18740E-01	7.36294E-02	1.10669E-01	2.08075E-01	2.02509E-01	1.48554E-01
21	1.23381E-02	9.37289E-02	1.19044E-01	7.38308E-02	1.11006E-01	2.08778E-01	2.02962E-01	1.48671E-01
22	1.23498E-02	9.38737E-02	1.19248E-01	7.39663E-02	1.11235E-01	2.09253E-01	2.03282E-01	1.48759E-01
23	1.23573E-02	9.39679E-02	1.19382E-01	7.40560E-02	1.11388E-01	2.09577E-01	2.03504E-01	1.48822E-01
24	1.23617E-02	9.40249E-02	1.19465E-01	7.41112E-02	1.11483E-01	2.09784E-01	2.03648E-01	1.48864E-01
25	1.23637E-02	9.40517E-02	1.19505E-01	7.41381E-02	1.11531E-01	2.09891E-01	2.03724E-01	1.48886E-01
26	1.23634E-02	9.40497E-02	1.19504E-01	7.41376E-02	1.11531E-01	2.09899E-01	2.03731E-01	1.48887E-01
27	1.23618E-02	9.40300E-02	1.19478E-01	7.41200E-02	1.11502E-01	2.09844E-01	2.03693E-01	1.48874E-01
28	1.23594E-02	9.40005E-02	1.19438E-01	7.40930E-02	1.11457E-01	2.09752E-01	2.03629E-01	1.48853E-01

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.15771E-01	1.06876E-01	1.00523E-01	6.51792E-02	5.58608E-02	5.37705E-02	2.95248E-02	1.63404E-02
2	1.15771E-01	1.06878E-01	1.00528E-01	6.51842E-02	5.58656E-02	5.37771E-02	2.95269E-02	1.63413E-02
3	1.15769E-01	1.06869E-01	1.00507E-01	6.51608E-02	5.58440E-02	5.37465E-02	2.95208E-02	1.63384E-02
4	1.15764E-01	1.06846E-01	1.00456E-01	6.51029E-02	5.57920E-02	5.36729E-02	2.95057E-02	1.63312E-02
5	1.15757E-01	1.06812E-01	1.00379E-01	6.50153E-02	5.57132E-02	5.35609E-02	2.94833E-02	1.63205E-02
6	1.15746E-01	1.06765E-01	1.00274E-01	6.48964E-02	5.56067E-02	5.34092E-02	2.94536E-02	1.63064E-02
7	1.15733E-01	1.06703E-01	1.00136E-01	6.47405E-02	5.54678E-02	5.32107E-02	2.94162E-02	1.62884E-02
8	1.15718E-01	1.06621E-01	9.99534E-02	6.45351E-02	5.52860E-02	5.29501E-02	2.93690E-02	1.62656E-02
9	1.15706E-01	1.06543E-01	9.97816E-02	6.43434E-02	5.51173E-02	5.27073E-02	2.93266E-02	1.62448E-02
10	1.15705E-01	1.06470E-01	9.96228E-02	6.41690E-02	5.49648E-02	5.24869E-02	2.92895E-02	1.62264E-02
11	1.15710E-01	1.06413E-01	9.94972E-02	6.40321E-02	5.48436E-02	5.23127E-02	2.92570E-02	1.62106E-02
12	1.15704E-01	1.06392E-01	9.94501E-02	6.39785E-02	5.47985E-02	5.22427E-02	2.92392E-02	1.62027E-02
13	1.15695E-01	1.06363E-01	9.93858E-02	6.38985E-02	5.47224E-02	5.21391E-02	2.92042E-02	1.61953E-02
14	1.15587E-01	1.06297E-01	9.92394E-02	6.37191E-02	5.45725E-02	5.19179E-02	2.89994E-02	1.61819E-02
15	1.15508E-01	1.06187E-01	9.89998E-02	6.34399E-02	5.43382E-02	5.15708E-02	2.89618E-02	1.61609E-02
16	1.15399E-01	1.06007E-01	9.86031E-02	6.29802E-02	5.39517E-02	5.09961E-02	2.88931E-02	1.61242E-02
17	1.15301E-01	1.05828E-01	9.82065E-02	6.25207E-02	5.35600E-02	5.04191E-02	2.88113E-02	1.60830E-02
18	1.15230E-01	1.05676E-01	9.78673E-02	6.21280E-02	5.32160E-02	4.99233E-02	2.87235E-02	1.60407E-02
19	1.15175E-01	1.05537E-01	9.75508E-02	6.17619E-02	5.28896E-02	4.94592E-02	2.86307E-02	1.59967E-02
20	1.15148E-01	1.05448E-01	9.73461E-02	6.15255E-02	5.26738E-02	4.91575E-02	2.85612E-02	1.59643E-02
21	1.15135E-01	1.05387E-01	9.72088E-02	6.13610E-02	5.25212E-02	4.89467E-02	2.85080E-02	1.59395E-02
22	1.15128E-01	1.05345E-01	9.71024E-02	6.12439E-02	5.24111E-02	4.87959E-02	2.84675E-02	1.59207E-02
23	1.15124E-01	1.05315E-01	9.70304E-02	6.11606E-02	5.23323E-02	4.86865E-02	2.84377E-02	1.59068E-02
24	1.15121E-01	1.05295E-01	9.69814E-02	6.11040E-02	5.22786E-02	4.86154E-02	2.84172E-02	1.58973E-02
25	1.15119E-01	1.05282E-01	9.69521E-02	6.10702E-02	5.22470E-02	4.85722E-02	2.84057E-02	1.58920E-02
26	1.15116E-01	1.05278E-01	9.69427E-02	6.10595E-02	5.22380E-02	4.85594E-02	2.84039E-02	1.58912E-02
27	1.15114E-01	1.05280E-01	9.69485E-02	6.10663E-02	5.22458E-02	4.85694E-02	2.84089E-02	1.58936E-02

28	1.15113E-01	1.05286E-01	9.69644E-02	6.10848E-02	5.22649E-02	4.85946E-02	2.84181E-02	1.58979E-02
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.32821E-03	6.33269E-03	1.16362E-02	3.84160E-02	1.29140E-02	2.85902E-02	9.63479E-02	7.90104E-02
2	7.32868E-03	6.33313E-03	1.16369E-02	3.84179E-02	1.29147E-02	2.85912E-02	9.63424E-02	7.89938E-02
3	7.32681E-03	6.33116E-03	1.16338E-02	3.84070E-02	1.29078E-02	2.85688E-02	9.62227E-02	7.88495E-02
4	7.32230E-03	6.32641E-03	1.16266E-02	3.83811E-02	1.28921E-02	2.85181E-02	9.59597E-02	7.85386E-02
5	7.31549E-03	6.31923E-03	1.16157E-02	3.83422E-02	1.28684E-02	2.84423E-02	9.55695E-02	7.80782E-02
6	7.30633E-03	6.30951E-03	1.16011E-02	3.82899E-02	1.28364E-02	2.83405E-02	9.50495E-02	7.74641E-02
7	7.29447E-03	6.29685E-03	1.15821E-02	3.82222E-02	1.27947E-02	2.82092E-02	9.43869E-02	7.66820E-02
8	7.27904E-03	6.28027E-03	1.15574E-02	3.81342E-02	1.27402E-02	2.80401E-02	9.35498E-02	7.56970E-02
9	7.26478E-03	6.26483E-03	1.15347E-02	3.80530E-02	1.26894E-02	2.78852E-02	9.27971E-02	7.48153E-02
10	7.25186E-03	6.25078E-03	1.15142E-02	3.79797E-02	1.26430E-02	2.77471E-02	9.21427E-02	7.40540E-02
11	7.24139E-03	6.23951E-03	1.14978E-02	3.79215E-02	1.26072E-02	2.76429E-02	9.16676E-02	7.35257E-02
12	7.23687E-03	6.23496E-03	1.14906E-02	3.78980E-02	1.25948E-02	2.76071E-02	9.15230E-02	7.33901E-02
13	7.23119E-03	6.22879E-03	1.14815E-02	3.78654E-02	1.25759E-02	2.75458E-02	9.12413E-02	7.30552E-02
14	7.21944E-03	6.21553E-03	1.14626E-02	3.77962E-02	1.25323E-02	2.74096E-02	9.06127E-02	7.22862E-02
15	7.20087E-03	6.19439E-03	1.14331E-02	3.76881E-02	1.24625E-02	2.72012E-02	8.96953E-02	7.11792E-02
16	7.17006E-03	6.15962E-03	1.13843E-02	3.75118E-02	1.23501E-02	2.68713E-02	8.82917E-02	6.95356E-02
17	7.13836E-03	6.12455E-03	1.13340E-02	3.73322E-02	1.22389E-02	2.65415E-02	8.68739E-02	6.79058E-02
18	7.10954E-03	6.09364E-03	1.12879E-02	3.71691E-02	1.21417E-02	2.62450E-02	8.55179E-02	6.63638E-02
19	7.08140E-03	6.06415E-03	1.12430E-02	3.70104E-02	1.20491E-02	2.59570E-02	8.41519E-02	6.48211E-02
20	7.06211E-03	6.04431E-03	1.12119E-02	3.69012E-02	1.19871E-02	2.57596E-02	8.31760E-02	6.37302E-02
21	7.04802E-03	6.03009E-03	1.11892E-02	3.68215E-02	1.19427E-02	2.56154E-02	8.24431E-02	6.29187E-02
22	7.03762E-03	6.01972E-03	1.11724E-02	3.67627E-02	1.19101E-02	2.55082E-02	8.18871E-02	6.23087E-02
23	7.03008E-03	6.01225E-03	1.11602E-02	3.67197E-02	1.18864E-02	2.54290E-02	8.14695E-02	6.18533E-02
24	7.02494E-03	6.00714E-03	1.11518E-02	3.66901E-02	1.18699E-02	2.53729E-02	8.11678E-02	6.15239E-02
25	7.02200E-03	6.00417E-03	1.11469E-02	3.66725E-02	1.18596E-02	2.53371E-02	8.09688E-02	6.13030E-02
26	7.02137E-03	6.00338E-03	1.11457E-02	3.66681E-02	1.18559E-02	2.53220E-02	8.08720E-02	6.11854E-02
27	7.02239E-03	6.00468E-03	1.11480E-02	3.66724E-02	1.18572E-02	2.53238E-02	8.08630E-02	6.11594E-02
28	7.02445E-03	6.00653E-03	1.11511E-02	3.66826E-02	1.18619E-02	2.53371E-02	8.09154E-02	6.11972E-02

0 int.	grp. 25	grp. 26	grp. 27
1	3.56378E-02	2.56275E-02	4.85640E-03
2	3.56251E-02	2.56130E-02	4.85290E-03
3	3.55450E-02	2.55415E-02	4.83822E-03
4	3.53744E-02	2.53902E-02	4.80707E-03
5	3.51216E-02	2.51643E-02	4.75985E-03
6	3.47836E-02	2.48597E-02	4.69498E-03
7	3.43531E-02	2.44682E-02	4.60974E-03
8	3.38127E-02	2.39724E-02	4.49912E-03
9	3.33318E-02	2.35288E-02	4.39859E-03
10	3.29220E-02	2.31477E-02	4.31152E-03
11	3.26478E-02	2.29017E-02	4.25873E-03
12	3.25894E-02	2.28650E-02	4.25538E-03
13	3.23935E-02	2.26812E-02	4.20561E-03
14	3.19450E-02	2.22411E-02	4.08455E-03
15	3.13140E-02	2.16123E-02	3.90221E-03
16	3.03968E-02	2.07082E-02	3.63369E-03
17	2.95052E-02	1.98611E-02	3.40450E-03
18	2.86691E-02	1.91154E-02	3.23675E-03
19	2.78430E-02	1.84023E-02	3.08811E-03
20	2.72680E-02	1.79299E-02	3.00019E-03
21	2.68464E-02	1.75972E-02	2.94218E-03
22	2.65338E-02	1.73591E-02	2.90272E-03
23	2.63031E-02	1.71880E-02	2.87507E-03
24	2.61373E-02	1.70675E-02	2.85604E-03
25	2.60257E-02	1.69870E-02	2.84349E-03
26	2.59633E-02	1.69408E-02	2.83629E-03
27	2.59454E-02	1.69244E-02	2.83357E-03
28	2.59575E-02	1.69278E-02	2.83344E-03

- elapsed time .03 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	4.60870E-04	6.09337E-04	5.07372E-05	-6.60049E-04	9.99962E-01
2	.00000E+00	.00000E+00	3.49626E-04	5.95317E-03	7.82435E-03	1.70120E-04	-7.64465E-03	9.99976E-01
3	.00000E+00	.00000E+00	3.71088E-03	5.38673E-03	1.40126E-02	9.14396E-05	-1.03930E-02	9.99985E-01
4	.00000E+00	.00000E+00	5.48493E-03	3.57253E-03	1.22749E-02	4.16912E-05	-6.83155E-03	9.99994E-01
5	.00000E+00	.00000E+00	1.01291E-02	1.14843E-02	2.08050E-02	4.94905E-05	-1.07265E-02	1.00000E+00
6	.00000E+00	.00000E+00	2.13346E-02	3.44620E-02	4.09583E-02	8.42046E-05	-1.97082E-02	1.00001E+00
7	.00000E+00	.00000E+00	4.21123E-02	6.09391E-02	5.41094E-02	6.11903E-05	-1.20581E-02	9.99995E-01
8	.00000E+00	.00000E+00	5.63040E-02	7.82869E-02	5.87010E-02	3.63752E-05	-2.42834E-03	9.99914E-01
9	.00000E+00	.00000E+00	5.77401E-02	7.25211E-02	5.74300E-02	2.92392E-05	2.87403E-04	9.99887E-01
10	.00000E+00	.00000E+00	5.70144E-02	6.90088E-02	5.54588E-02	3.59781E-05	1.52560E-03	9.99895E-01
11	.00000E+00	.00000E+00	5.57524E-02	6.53608E-02	5.21816E-02	5.49608E-05	3.51934E-03	9.99938E-01
12	.00000E+00	.00000E+00	4.52588E-02	3.49724E-02	4.11494E-02	6.02369E-05	4.05021E-03	9.99978E-01
13	.00000E+00	.00000E+00	4.04233E-02	2.85746E-02	3.66450E-02	8.46469E-05	3.69489E-03	9.99969E-01
14	.00000E+00	.00000E+00	3.94219E-02	2.84977E-02	3.40426E-02	1.37530E-04	5.24222E-03	9.99988E-01
15	.00000E+00	.00000E+00	2.18148E-02	1.09688E-02	2.05489E-02	1.13809E-04	1.15256E-03	9.99978E-01
16	.00000E+00	.00000E+00	1.43447E-02	4.65599E-03	1.37170E-02	7.76467E-05	5.50388E-04	9.99978E-01
17	.00000E+00	.00000E+00	7.40583E-03	1.35166E-03	7.08266E-03	3.86930E-05	3.34613E-04	9.99983E-01
18	.00000E+00	.00000E+00	6.59488E-03	1.13732E-03	6.21456E-03	3.55873E-05	3.44854E-04	9.99982E-01
19	.00000E+00	.00000E+00	1.11652E-02	3.18389E-03	1.05671E-02	7.13098E-05	5.27021E-04	9.99978E-01
20	.00000E+00	.00000E+00	2.76967E-02	2.26336E-02	2.55903E-02	2.95190E-04	1.81139E-03	9.99994E-01
21	.00000E+00	.00000E+00	1.38756E-02	4.89838E-03	1.27430E-02	1.22844E-04	1.00926E-03	1.00004E+00
22	.00000E+00	.00000E+00	2.85411E-02	1.62509E-02	2.52899E-02	3.12136E-04	2.98663E-03	1.00009E+00
23	.00000E+00	.00000E+00	7.80827E-02	9.79401E-02	6.43146E-02	1.42175E-03	1.23333E-02	1.00017E+00
24	.00000E+00	.00000E+00	8.54159E-02	9.23651E-02	7.12974E-02	1.68040E-03	1.24262E-02	1.00014E+00
25	.00000E+00	.00000E+00	5.71760E-02	3.90471E-02	5.02342E-02	9.92412E-04	5.94429E-03	1.00009E+00
26	.00000E+00	.00000E+00	4.56459E-02	4.34833E-02	4.01626E-02	1.00562E-03	4.47523E-03	1.00005E+00
27	.00000E+00	.00000E+00	1.54627E-02	9.41508E-03	1.43429E-02	3.58375E-04	7.61410E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.48258E-01	8.46811E-01	8.48258E-01	7.51361E-03	-7.52357E-03	1.00001E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.19298E-02	-6.60049E-04	1.18258E-02	.00000E+00	3.36981E-11	.00000E+00	1.88622E-05	1.49171E-02
2	8.91860E-02	-7.64465E-03	8.77366E-02	.00000E+00	.00000E+00	.00000E+00	8.62881E-05	1.11052E-01
3	1.13078E-01	-1.03930E-02	1.10952E-01	.00000E+00	.00000E+00	.00000E+00	9.10163E-05	1.40537E-01
4	7.00480E-02	-6.83155E-03	6.84948E-02	.00000E+00	.00000E+00	.00000E+00	4.14395E-05	8.68850E-02
5	1.04982E-01	-1.07265E-02	1.02378E-01	.00000E+00	.00000E+00	.00000E+00	4.91986E-05	1.30015E-01
6	1.97494E-01	-1.97082E-02	1.92627E-01	.00000E+00	.00000E+00	.00000E+00	8.33359E-05	2.44622E-01
7	1.96049E-01	-1.20581E-02	1.92997E-01	.00000E+00	.00000E+00	.00000E+00	5.92475E-05	2.44161E-01
8	1.47290E-01	-2.42834E-03	1.46868E-01	.00000E+00	.00000E+00	.00000E+00	3.26982E-05	1.84821E-01
9	1.15707E-01	2.87403E-04	1.15770E-01	.00000E+00	.00000E+00	.00000E+00	2.16466E-05	1.45436E-01
10	1.06428E-01	1.52560E-03	1.06873E-01	.00000E+00	.00000E+00	.00000E+00	1.91161E-05	1.34063E-01
11	9.95311E-02	3.51934E-03	1.00516E-01	.00000E+00	.00000E+00	.00000E+00	1.78442E-05	1.25780E-01
12	6.40691E-02	4.05021E-03	6.51703E-02	.00000E+00	.00000E+00	.00000E+00	1.04751E-05	8.12948E-02
13	5.48775E-02	3.69489E-03	5.58525E-02	.00000E+00	.00000E+00	.00000E+00	8.74647E-06	6.96511E-02
14	5.23606E-02	5.24222E-03	5.37589E-02	.00000E+00	.00000E+00	.00000E+00	8.55773E-06	6.67904E-02
15	2.90675E-02	1.15256E-03	2.95207E-02	.00000E+00	.00000E+00	.00000E+00	4.51887E-06	3.67035E-02
16	1.62154E-02	5.50388E-04	1.63385E-02	.00000E+00	.00000E+00	.00000E+00	2.27851E-06	2.04632E-02
17	7.24423E-03	3.34613E-04	7.32720E-03	.00000E+00	.00000E+00	.00000E+00	9.37779E-07	9.16227E-03
18	6.24242E-03	3.44854E-04	6.33167E-03	.00000E+00	.00000E+00	.00000E+00	7.89624E-07	7.90811E-03
19	1.15018E-02	5.27021E-04	1.16344E-02	.00000E+00	.00000E+00	.00000E+00	1.52219E-06	1.45478E-02
20	3.79539E-02	1.81139E-03	3.84083E-02	.00000E+00	.00000E+00	.00000E+00	5.62688E-06	4.80074E-02
21	1.26162E-02	1.00926E-03	1.29119E-02	.00000E+00	.00000E+00	.00000E+00	1.47280E-06	1.60626E-02
22	2.76680E-02	2.93663E-03	2.85845E-02	.00000E+00	.00000E+00	.00000E+00	3.23650E-06	3.54039E-02
23	9.17714E-02	1.23333E-02	9.63274E-02	.00000E+00	.00000E+00	.00000E+00	9.76650E-06	1.18411E-01
24	7.36258E-02	1.24262E-02	7.89950E-02	.00000E+00	.00000E+00	.00000E+00	5.89247E-06	9.61312E-02
25	3.26920E-02	5.94429E-03	3.56328E-02	.00000E+00	.00000E+00	.00000E+00	2.08839E-06	4.30461E-02
26	2.29529E-02	4.47523E-03	2.56260E-02	.00000E+00	.00000E+00	.00000E+00	1.07109E-06	3.06280E-02
27	4.26245E-03	7.61410E-04	4.85670E-03	.00000E+00	.00000E+00	.00000E+00	1.25901E-07	5.76249E-03
28	1.79680E+00	-7.52357E-03	1.80409E+00	.00000E+00	3.36981E-11	.00000E+00	5.87150E-04	2.26224E+00

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.03564E-04	1.52597E-04	2.28919E-06	-1.49446E-04	1.00002E+00
2	.00000E+00	.00000E+00	2.66507E-05	1.41076E-03	1.01229E-03	1.35879E-05	-9.99266E-04	1.00000E+00
3	.00000E+00	.00000E+00	1.43570E-04	2.73107E-03	8.63535E-04	1.99849E-05	-7.39940E-04	9.99999E-01
4	.00000E+00	.00000E+00	2.79114E-04	2.28785E-03	2.96227E-04	1.30011E-05	-3.01311E-05	1.00000E+00
5	.00000E+00	.00000E+00	6.01541E-04	4.40145E-03	2.78358E-04	1.68062E-05	3.05284E-04	1.00001E+00
6	.00000E+00	.00000E+00	1.00347E-03	1.23936E-02	1.69332E-04	2.70429E-05	8.06959E-04	1.00001E+00
7	.00000E+00	.00000E+00	6.62953E-04	1.25895E-02	6.32815E-05	2.68049E-05	5.72767E-04	1.00001E+00
8	.00000E+00	.00000E+00	1.16440E-04	9.20079E-03	4.43053E-04	2.20949E-05	-3.48723E-04	1.00001E+00
9	.00000E+00	.00000E+00	4.44842E-04	6.35120E-03	5.29442E-05	7.66081E-05	3.15298E-04	9.99989E-01
10	.00000E+00	.00000E+00	5.30082E-05	4.97591E-03	4.93697E-05	5.91964E-05	-5.55519E-05	9.99996E-01
11	.00000E+00	.00000E+00	4.95730E-05	4.43879E-03	5.01296E-05	8.96966E-05	-9.04498E-05	9.99999E-01
12	.00000E+00	.00000E+00	5.01259E-05	2.75207E-03	5.12013E-05	5.65411E-06	-6.73995E-06	1.00000E+00
13	.00000E+00	.00000E+00	5.12014E-05	2.35809E-03	4.81035E-05	6.31845E-06	-3.21912E-06	1.00000E+00
14	.00000E+00	.00000E+00	4.81035E-05	2.25443E-03	4.24849E-05	8.60956E-06	-2.99001E-06	1.00000E+00
15	.00000E+00	.00000E+00	4.51235E-05	1.22676E-03	5.02074E-05	6.35311E-06	-1.14636E-05	1.00002E+00
16	.00000E+00	.00000E+00	5.64988E-05	6.55314E-04	5.67709E-05	3.88394E-06	-4.17526E-06	1.00003E+00
17	.00000E+00	.00000E+00	6.36239E-05	2.55243E-04	6.28287E-05	1.89734E-06	-1.11171E-06	1.00002E+00
18	.00000E+00	.00000E+00	6.65004E-05	2.07160E-04	6.68911E-05	1.72471E-06	-2.12574E-06	1.00002E+00
19	.00000E+00	.00000E+00	6.74980E-05	4.40094E-04	6.49319E-05	3.41502E-06	-8.73522E-07	1.00003E+00
20	.00000E+00	.00000E+00	8.12622E-05	1.59775E-03	6.79260E-05	1.37364E-05	-5.14090E-07	1.00006E+00
21	.00000E+00	.00000E+00	9.59079E-05	4.46910E-04	1.06751E-04	5.53980E-06	-1.63880E-05	1.00001E+00
22	.00000E+00	.00000E+00	1.44652E-04	1.07068E-03	1.43095E-04	1.38245E-05	-1.22735E-05	1.00000E+00
23	.00000E+00	.00000E+00	2.16892E-04	3.74901E-03	2.75240E-04	6.12330E-05	-1.19589E-04	1.00000E+00
24	.00000E+00	.00000E+00	3.53050E-04	2.83832E-03	3.89516E-04	6.96707E-05	-1.06273E-04	1.00001E+00
25	.00000E+00	.00000E+00	3.59770E-04	1.13977E-03	2.95361E-04	4.03348E-05	2.60305E-05	1.00001E+00
26	.00000E+00	.00000E+00	1.52652E-04	8.88045E-04	1.17357E-04	3.98662E-05	-4.57095E-06	1.00000E+00
27	.00000E+00	.00000E+00	3.40292E-05	1.86949E-04	9.63229E-08	1.38700E-05	2.00606E-05	1.00000E+00
28	.00000E+00	.00000E+00	5.26785E-03	8.30512E-02	5.26785E-03	6.63045E-04	-6.58410E-04	1.00006E+00
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	nŵn rate	fiss rate	flux*db**2	total flux
1	1.19541E-02	-8.09496E-04	1.19258E-02	-6.60049E-04	5.45214E-06	.00000E+00	1.50719E-06	1.99036E-03
2	8.94422E-02	-8.64391E-03	8.91860E-02	-7.64465E-03	.00000E+00	.00000E+00	1.07852E-05	1.48873E-02
3	1.13422E-01	-1.11329E-02	1.13078E-01	-1.03930E-02	.00000E+00	.00000E+00	1.25152E-05	1.88789E-02
4	7.02645E-02	-6.86168E-03	7.00480E-02	-6.83155E-03	.00000E+00	.00000E+00	7.38470E-06	1.16966E-02
5	1.05323E-01	-1.04202E-02	1.04982E-01	-1.07265E-02	.00000E+00	.00000E+00	8.60640E-06	1.75325E-02
6	1.98171E-01	-1.89013E-02	1.97494E-01	-1.97082E-02	.00000E+00	.00000E+00	1.01663E-05	3.29860E-02
7	1.96458E-01	-1.14853E-02	1.96049E-01	-1.20581E-02	.00000E+00	.00000E+00	8.35036E-06	3.27192E-02
8	1.47377E-01	-2.77706E-03	1.47290E-01	-2.42834E-03	.00000E+00	.00000E+00	5.27056E-06	2.45585E-02
9	1.15696E-01	6.02701E-04	1.15707E-01	2.87403E-04	.00000E+00	.00000E+00	4.57772E-06	1.92868E-02
10	1.06389E-01	1.47005E-03	1.06428E-01	1.52560E-03	.00000E+00	.00000E+00	4.89844E-06	1.77358E-02
11	9.94369E-02	3.42889E-03	9.95311E-02	3.51934E-03	.00000E+00	.00000E+00	4.74734E-06	1.65809E-02
12	6.39618E-02	4.04347E-03	6.40691E-02	4.05021E-03	.00000E+00	.00000E+00	3.20386E-06	1.06688E-02
13	5.47775E-02	3.69167E-03	5.48775E-02	3.69489E-03	.00000E+00	.00000E+00	2.73818E-06	9.13745E-03
14	5.22205E-02	5.23923E-03	5.23606E-02	5.24222E-03	.00000E+00	.00000E+00	2.60480E-06	8.71390E-03
15	2.90319E-02	1.14109E-03	2.90675E-02	1.15256E-03	.00000E+00	.00000E+00	1.42658E-06	4.84190E-03
16	1.61995E-02	5.46215E-04	1.62154E-02	5.50888E-04	.00000E+00	.00000E+00	7.95959E-07	2.70142E-03
17	7.23519E-03	3.33501E-04	7.24423E-03	3.34613E-04	.00000E+00	.00000E+00	3.55364E-07	1.20666E-03
18	6.23331E-03	3.42730E-04	6.24242E-03	3.44854E-04	.00000E+00	.00000E+00	3.06086E-07	1.03966E-03
19	1.14877E-02	5.26147E-04	1.15018E-02	5.27021E-04	.00000E+00	.00000E+00	5.63813E-07	1.91590E-03
20	3.78869E-02	1.81087E-03	3.79339E-02	1.81139E-03	.00000E+00	.00000E+00	1.85696E-06	6.31902E-03
21	1.25913E-02	9.92869E-04	1.26162E-02	1.00926E-03	.00000E+00	.00000E+00	6.16223E-07	2.10041E-03
22	2.75965E-02	2.92435E-03	2.76680E-02	2.93663E-03	.00000E+00	.00000E+00	1.34918E-06	4.60467E-03
23	9.14823E-02	1.22137E-02	9.17714E-02	1.23333E-02	.00000E+00	.00000E+00	4.45761E-06	1.52675E-02
24	7.33567E-02	1.23199E-02	7.36238E-02	1.24262E-02	.00000E+00	.00000E+00	3.55316E-06	1.22441E-02
25	3.25755E-02	5.97052E-03	3.26920E-02	5.94429E-03	.00000E+00	.00000E+00	1.56841E-06	5.43699E-03
26	2.28895E-02	4.47065E-03	2.29529E-02	4.47523E-03	.00000E+00	.00000E+00	1.08873E-06	3.81430E-03
27	4.25575E-03	7.81470E-04	4.26245E-03	7.61410E-04	.00000E+00	.00000E+00	1.96335E-07	7.09589E-04
28	1.79768E+00	-8.18191E-03	1.79680E+00	-7.52557E-03	5.45214E-06	.00000E+00	1.05491E-04	2.99575E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance

1	.00000E+00	.00000E+00	.00000E+00	2.44059E-04	3.23052E-04	2.68976E-05	-3.49917E-04	9.99989E-01
2	.00000E+00	.00000E+00	1.85349E-04	3.17768E-03	4.17648E-03	9.08064E-05	-4.08184E-03	9.99995E-01
3	.00000E+00	.00000E+00	1.98045E-03	2.87933E-03	7.49144E-03	4.88857E-05	-5.55979E-03	9.99994E-01
4	.00000E+00	.00000E+00	2.95133E-03	1.91291E-03	6.57256E-03	2.23236E-05	-3.66353E-03	9.99998E-01
5	.00000E+00	.00000E+00	5.41861E-03	6.15920E-03	1.11586E-02	2.65426E-05	-5.76656E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.14259E-02	1.84767E-02	2.19597E-02	4.51461E-05	-1.05752E-02	1.00001E+00
7	.00000E+00	.00000E+00	2.25729E-02	3.23781E-02	2.87493E-02	3.25115E-05	-6.20877E-03	9.99996E-01
8	.00000E+00	.00000E+00	2.99674E-02	4.11331E-02	3.08424E-02	1.91121E-05	-8.91483E-04	9.99920E-01
9	.00000E+00	.00000E+00	3.04006E-02	3.79886E-02	3.00439E-02	1.52962E-05	3.44866E-04	9.99890E-01
10	.00000E+00	.00000E+00	2.98601E-02	3.60117E-02	2.89408E-02	1.87749E-05	9.03647E-04	9.99900E-01
11	.00000E+00	.00000E+00	2.91134E-02	3.39528E-02	2.70906E-02	2.85335E-05	1.99609E-03	9.99945E-01
12	.00000E+00	.00000E+00	2.35226E-02	1.80317E-02	2.12165E-02	3.10580E-05	2.27558E-03	9.99982E-01
13	.00000E+00	.00000E+00	2.08951E-02	1.47278E-02	1.88874E-02	4.36284E-05	1.96470E-03	9.99974E-01
14	.00000E+00	.00000E+00	2.05396E-02	1.45667E-02	1.74010E-02	7.02989E-05	2.86855E-03	9.99991E-01
15	.00000E+00	.00000E+00	1.11856E-02	5.70869E-03	1.06853E-02	5.91801E-05	4.41317E-04	9.99979E-01
16	.00000E+00	.00000E+00	7.40269E-03	2.42316E-03	7.13885E-03	4.04108E-05	2.23601E-04	9.99979E-01
17	.00000E+00	.00000E+00	3.83129E-03	7.00802E-04	3.64624E-03	2.00613E-05	1.65049E-04	9.99984E-01
18	.00000E+00	.00000E+00	3.41253E-03	5.88106E-04	3.21353E-03	1.84021E-05	1.80459E-04	9.99983E-01
19	.00000E+00	.00000E+00	5.77524E-03	1.65072E-03	5.47860E-03	3.69712E-05	2.59800E-04	9.99979E-01
20	.00000E+00	.00000E+00	1.43202E-02	1.17247E-02	1.32564E-02	1.52915E-04	9.11076E-04	9.99991E-01
21	.00000E+00	.00000E+00	7.14958E-03	2.51352E-03	6.53883E-03	6.30850E-05	5.47494E-04	1.00003E+00
22	.00000E+00	.00000E+00	1.45695E-02	8.27243E-03	1.28737E-02	1.58991E-04	1.53611E-03	1.00005E+00
23	.00000E+00	.00000E+00	3.90628E-02	4.92649E-02	3.23509E-02	7.15155E-04	5.99209E-03	1.00009E+00
24	.00000E+00	.00000E+00	4.22981E-02	4.56231E-02	3.52168E-02	8.30021E-04	6.24587E-03	1.00010E+00
25	.00000E+00	.00000E+00	2.80716E-02	1.90249E-02	2.44756E-02	4.83533E-04	3.11048E-03	1.00006E+00
26	.00000E+00	.00000E+00	2.22987E-02	2.07057E-02	1.91245E-02	4.78853E-04	2.69480E-03	1.00002E+00
27	.00000E+00	.00000E+00	7.50638E-03	4.36414E-03	6.64831E-03	1.66114E-04	6.91940E-04	1.00000E+00
28	.00000E+00	.00000E+00	4.35501E-01	4.34130E-01	4.35501E-01	3.74336E-03	-3.74358E-03	1.00000E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.20783E-02	-1.15941E-03	1.19541E-02	-8.09496E-04	1.78644E-11	.00000E+00	9.68147E-06	7.90807E-03
2	9.07332E-02	-1.27258E-02	8.94422E-02	-8.64391E-03	.00000E+00	.00000E+00	4.60588E-05	5.92666E-02
3	1.15039E-01	-1.66927E-02	1.13422E-01	-1.11329E-02	.00000E+00	.00000E+00	4.86594E-05	7.51344E-02
4	7.12318E-02	-1.05252E-02	7.02645E-02	-6.86168E-03	.00000E+00	.00000E+00	2.21887E-05	4.65225E-02
5	1.06791E-01	-1.61868E-02	1.05323E-01	-1.04202E-02	.00000E+00	.00000E+00	2.63860E-05	6.97294E-02
6	2.00791E-01	-2.94765E-02	1.98171E-01	-1.89013E-02	.00000E+00	.00000E+00	4.46803E-05	1.31154E-01
7	1.97982E-01	-1.76941E-02	1.96458E-01	-1.14853E-02	.00000E+00	.00000E+00	3.14792E-05	1.29727E-01
8	1.47669E-01	-3.66854E-03	1.47377E-01	-2.77706E-03	.00000E+00	.00000E+00	1.71801E-05	9.71079E-02
9	1.15465E-01	9.47567E-04	1.15696E-01	6.02701E-04	.00000E+00	.00000E+00	1.13242E-05	7.60833E-02
10	1.06121E-01	2.37370E-03	1.06386E-01	1.47005E-03	.00000E+00	.00000E+00	9.97560E-06	6.99597E-02
11	9.88555E-02	5.42498E-03	9.94369E-02	3.42889E-03	.00000E+00	.00000E+00	9.26398E-06	6.53001E-02
12	6.32728E-02	6.31905E-03	6.39618E-02	4.04347E-03	.00000E+00	.00000E+00	5.40096E-06	4.19154E-02
13	5.41988E-02	5.65638E-03	5.47775E-02	3.69167E-03	.00000E+00	.00000E+00	4.50808E-06	3.58995E-02
14	5.13627E-02	8.10778E-03	5.22205E-02	5.23923E-03	.00000E+00	.00000E+00	4.37432E-06	3.41401E-02
15	2.87354E-02	1.58241E-03	2.90319E-02	1.14109E-03	.00000E+00	.00000E+00	2.34979E-06	1.90856E-02
16	1.61482E-02	7.69816E-04	1.61995E-02	5.46215E-04	.00000E+00	.00000E+00	1.18582E-06	1.06498E-02
17	7.18959E-03	4.98650E-04	7.28519E-03	3.33501E-04	.00000E+00	.00000E+00	4.86213E-07	4.75039E-03
18	6.18150E-03	5.23189E-04	6.23331E-03	3.42730E-04	.00000E+00	.00000E+00	4.08313E-07	4.08926E-03
19	1.14150E-02	7.85947E-04	1.14877E-02	5.26147E-04	.00000E+00	.00000E+00	7.89195E-07	7.54244E-03
20	3.76202E-02	2.72195E-03	3.78869E-02	1.81087E-03	.00000E+00	.00000E+00	2.91485E-06	2.48689E-02
21	1.24205E-02	1.54036E-03	1.25913E-02	9.92869E-04	.00000E+00	.00000E+00	7.55743E-07	8.24225E-03
22	2.70778E-02	4.46046E-03	2.75965E-02	2.92435E-03	.00000E+00	.00000E+00	1.64753E-06	1.80222E-02
23	8.91589E-02	1.82058E-02	9.14823E-02	1.22137E-02	.00000E+00	.00000E+00	4.91265E-06	5.95619E-02
24	7.05374E-02	1.85658E-02	7.33567E-02	1.23199E-02	.00000E+00	.00000E+00	2.91054E-06	4.74834E-02
25	3.09493E-02	9.08080E-03	3.25755E-02	5.97032E-03	.00000E+00	.00000E+00	9.95167E-07	2.09734E-02
26	2.12447E-02	7.16545E-03	2.28595E-02	4.47065E-03	.00000E+00	.00000E+00	5.10028E-07	1.45843E-02
27	3.79067E-03	1.47341E-03	4.25575E-03	7.81470E-04	.00000E+00	.00000E+00	5.83584E-08	2.67107E-03
28	1.79426E+00	-1.19255E-02	1.79768E+00	-8.18191E-03	1.78646E-11	.00000E+00	3.11083E-04	1.18237E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.12780E-02	.00000E+00	1.97669E-02	1.87315E-02	3.50125E-03	1.15935E-03	9.98896E-01

2	.00000E+00	1.88887E-01	6.47514E-03	2.43892E-01	1.67674E-01	1.49760E-02	1.27250E-02	1.00002E+00
3	.00000E+00	2.14987E-01	6.90926E-02	2.54748E-01	2.51189E-01	1.62006E-02	1.66918E-02	9.99991E-01
4	.00000E+00	1.24456E-01	1.03752E-01	1.75581E-01	2.09894E-01	7.78824E-03	1.05246E-02	1.00000E+00
5	.00000E+00	1.65945E-01	1.89669E-01	4.43213E-01	3.34177E-01	5.25480E-03	1.61857E-02	9.99991E-01
6	.00000E+00	1.80122E-01	3.88153E-01	1.19094E+00	5.30399E-01	8.39376E-03	2.94745E-02	1.00002E+00
7	.00000E+00	8.94322E-02	5.91879E-01	1.56515E+00	6.55144E-01	8.48104E-03	1.76916E-02	9.99995E-01
8	.00000E+00	1.38095E-02	6.89078E-01	1.57541E+00	6.85649E-01	1.36262E-02	3.66836E-03	9.99921E-01
9	.00000E+00	1.00281E-03	6.77766E-01	1.36995E+00	6.57448E-01	2.23407E-02	-9.43830E-04	9.99888E-01
10	.00000E+00	7.44912E-05	6.54568E-01	1.24239E+00	6.23274E-01	3.38081E-02	-2.37267E-03	9.99898E-01
11	.00000E+00	5.86056E-06	6.27477E-01	1.15377E+00	5.78353E-01	5.45917E-02	-5.42428E-03	9.99940E-01
12	.00000E+00	4.11695E-07	5.03904E-01	6.30554E-01	4.52098E-01	5.81387E-02	-6.31912E-03	9.99974E-01
13	.00000E+00	6.53735E-08	4.46764E-01	5.00998E-01	4.00002E-01	5.24317E-02	-5.65701E-03	9.99972E-01
14	.00000E+00	1.29553E-08	4.30986E-01	4.74158E-01	3.66794E-01	7.23045E-02	-8.10798E-03	9.99990E-01
15	.00000E+00	1.46409E-09	2.39500E-01	2.17918E-01	2.33428E-01	7.65784E-03	-1.58003E-03	9.99977E-01
16	.00000E+00	4.29908E-10	1.63661E-01	1.01593E-01	1.60126E-01	4.30729E-03	-7.67970E-04	9.99976E-01
17	.00000E+00	1.38451E-10	8.85328E-02	3.30364E-02	8.48148E-02	4.21695E-03	-4.97260E-04	9.99981E-01
18	.00000E+00	9.91271E-11	7.93631E-02	2.71108E-02	7.51751E-02	4.71118E-03	-5.19385E-04	9.99953E-01
19	.00000E+00	1.40145E-10	1.30522E-01	6.67880E-02	1.25252E-01	6.07616E-03	-7.78759E-04	9.99946E-01
20	.00000E+00	2.27889E-10	3.11565E-01	3.74954E-01	2.88577E-01	2.57076E-02	-2.71367E-03	9.99981E-01
21	.00000E+00	3.33557E-11	1.60058E-01	8.51752E-02	1.47219E-01	1.43790E-02	-1.54242E-03	1.00001E+00
22	.00000E+00	3.87002E-11	3.15268E-01	2.48135E-01	2.79270E-01	4.04630E-02	-4.46053E-03	9.99985E-01
23	.00000E+00	3.70016E-11	7.99105E-01	1.25933E+00	6.73384E-01	1.43952E-01	-1.81998E-02	9.99966E-01
24	.00000E+00	1.00713E-11	8.60207E-01	1.07621E+00	7.16591E-01	1.62198E-01	-1.85610E-02	9.99976E-01
25	.00000E+00	2.94824E-12	5.70970E-01	4.33195E-01	4.86258E-01	9.37998E-02	-9.07487E-03	9.99979E-01
26	.00000E+00	2.06732E-12	4.41694E-01	4.32114E-01	3.62289E-01	8.65731E-02	-7.16413E-03	9.99992E-01
27	.00000E+00	4.92653E-13	1.45249E-01	8.70195E-02	1.22073E-01	2.46495E-02	-1.47326E-03	9.99997E-01
28	.00000E+00	1.00000E+00	9.68526E+00	1.52831E+01	9.68526E+00	9.90529E-01	1.19633E-02	9.99964E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.23580E-02	-6.64037E-08	1.20783E-02	-1.15941E-03	2.08820E-03	2.33396E-03	2.72749E-04	3.14103E-01
2	9.39823E-02	-7.17095E-07	9.07332E-02	-1.27258E-02	1.65374E-05	1.08121E-02	1.54489E-03	2.38621E+00
3	1.19413E-01	-8.72858E-07	1.15039E-01	-1.66927E-02	.00000E+00	1.33262E-02	1.80780E-03	3.03101E+00
4	7.40762E-02	-5.89581E-07	7.12318E-02	-1.05252E-02	.00000E+00	5.76311E-03	8.79525E-04	1.87990E+00
5	1.11429E-01	-1.06623E-06	1.06791E-01	-1.61868E-02	.00000E+00	1.70983E-03	1.02991E-03	2.82673E+00
6	2.09694E-01	-1.90959E-06	2.00791E-01	-2.94765E-02	.00000E+00	1.54427E-03	1.73112E-03	5.31778E+00
7	2.03589E-01	-2.45783E-06	1.97982E-01	-1.78941E-02	.00000E+00	1.59888E-03	1.22588E-03	5.16972E+00
8	1.48840E-01	-1.85387E-07	1.47669E-01	-3.66854E-03	.00000E+00	1.70070E-03	6.97047E-04	3.78649E+00
9	1.15112E-01	3.73622E-06	1.15465E-01	9.47567E-04	.00000E+00	2.36108E-03	4.70573E-04	2.93179E+00
10	1.05290E-01	1.02529E-06	1.06121E-01	2.37370E-03	.00000E+00	5.04123E-03	4.27740E-04	2.68316E+00
11	9.69750E-02	7.00472E-07	9.88655E-02	5.42498E-03	.00000E+00	1.04025E-02	3.86016E-04	2.47430E+00
12	6.10973E-02	-7.44237E-08	6.32728E-02	6.31905E-03	.00000E+00	1.33053E-02	2.27420E-04	1.56155E+00
13	5.22776E-02	-6.29925E-07	5.41988E-02	5.65638E-03	.00000E+00	1.23682E-02	1.97250E-04	1.33639E+00
14	4.85115E-02	-2.05207E-07	5.13627E-02	8.10778E-03	.00000E+00	9.18611E-03	1.80553E-04	1.24516E+00
15	2.84229E-02	2.37714E-06	2.89394E-02	1.58241E-03	.00000E+00	2.31490E-03	1.12122E-04	7.25340E-01
16	1.59001E-02	1.84514E-06	1.61482E-02	7.69816E-04	.00000E+00	1.53556E-03	5.91769E-05	4.05614E-01
17	7.02551E-03	1.28993E-06	7.18959E-03	4.98550E-04	.00000E+00	2.33310E-03	2.40450E-05	1.79353E-01
18	6.00693E-03	3.80411E-06	6.18150E-03	5.23189E-04	.00000E+00	3.10847E-03	1.99208E-05	1.53446E-01
19	1.11514E-02	7.18773E-06	1.14150E-02	7.85947E-04	.00000E+00	3.76158E-03	3.88964E-05	2.84726E-01
20	3.66847E-02	8.27839E-06	3.76202E-02	2.72195E-03	.00000E+00	1.61008E-02	1.36356E-04	9.36926E-01
21	1.18652E-02	-2.05195E-06	1.24205E-02	1.54036E-03	.00000E+00	9.51397E-03	3.60080E-05	3.03750E-01
22	2.53461E-02	-6.47962E-08	2.70778E-02	4.46046E-03	.00000E+00	2.66331E-02	7.51286E-05	6.50898E-01
23	8.09522E-02	6.20171E-06	8.91589E-02	1.82058E-02	.00000E+00	9.36691E-02	2.21487E-04	2.09074E+00
24	6.12274E-02	4.77858E-06	7.05374E-02	1.85688E-02	.00000E+00	1.08853E-01	1.29482E-04	1.59299E+00
25	2.59679E-02	5.93596E-06	3.09493E-02	9.08080E-03	.00000E+00	6.37241E-02	4.35942E-05	6.79242E-01
26	1.69322E-02	1.32238E-06	2.12447E-02	7.16545E-03	.00000E+00	5.87701E-02	2.11954E-05	4.45571E-01
27	2.83361E-03	1.54423E-07	3.79067E-03	1.47341E-03	.00000E+00	1.63597E-02	2.15556E-06	7.47615E-02
28	1.78306E+00	3.77761E-05	1.79426E+00	-1.19255E-02	2.10474E-03	4.98131E-01	1.19978E-02	4.54677E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.12780E-02	.00000E+00	2.06749E-02	1.98165E-02	3.58115E-03	-6.64037E-08	9.98955E-01
2	.00000E+00	1.88887E-01	7.03677E-03	2.54434E-01	1.80687E-01	1.52505E-02	-7.17095E-07	1.00002E+00

3	.00000E+00	2.14987E-01	7.49275E-02	2.65745E-01	2.73557E-01	1.63609E-02	-8.72858E-07	9.99990E-01
4	.00000E+00	1.24456E-01	1.12447E-01	1.83355E-01	2.29088E-01	7.86526E-03	-5.89581E-07	1.00000E+00
5	.00000E+00	1.65945E-01	2.05818E-01	4.65258E-01	3.66420E-01	5.34764E-03	-1.06623E-06	9.99992E-01
6	.00000E+00	1.80122E-01	4.21921E-01	1.25627E+00	5.93486E-01	8.55015E-03	-1.90959E-06	1.00002E+00
7	.00000E+00	8.94322E-02	6.57227E-01	1.67105E+00	7.38066E-01	8.60154E-03	-2.45783E-06	9.99995E-01
8	.00000E+00	1.38095E-02	7.75466E-01	1.70404E+00	7.75635E-01	1.37038E-02	-1.85387E-07	9.99920E-01
9	.00000E+00	1.00281E-03	7.66351E-01	1.48578E+00	7.44975E-01	2.24618E-02	3.73622E-06	9.99888E-01
10	.00000E+00	7.44912E-05	7.41496E-01	1.35238E+00	7.07723E-01	3.39221E-02	1.02529E-06	9.99898E-01
11	.00000E+00	5.86056E-06	7.12392E-01	1.25750E+00	6.57675E-01	5.47649E-02	7.00472E-07	9.99940E-01
12	.00000E+00	4.11695E-07	5.72736E-01	6.86310E-01	5.14515E-01	5.82357E-02	-7.44257E-08	9.99974E-01
13	.00000E+00	6.53735E-08	5.08133E-01	5.46658E-01	4.55582E-01	5.25663E-02	-6.29925E-07	9.99972E-01
14	.00000E+00	1.29553E-08	4.90795E-01	5.19477E-01	4.18280E-01	7.25209E-02	-2.05207E-07	9.99989E-01
15	.00000E+00	1.46409E-09	2.72546E-01	2.35818E-01	2.64712E-01	7.85718E-03	2.37714E-06	9.99977E-01
16	.00000E+00	4.29908E-10	1.85465E-01	1.09527E-01	1.81058E-01	4.42923E-03	1.84514E-06	9.99976E-01
17	.00000E+00	1.38451E-10	9.98335E-02	3.53441E-02	9.55568E-02	4.27758E-03	1.28993E-06	9.99982E-01
18	.00000E+00	9.91271E-11	8.94369E-02	2.90434E-02	8.46701E-02	4.76690E-03	3.80411E-06	9.99956E-01
19	.00000E+00	1.40145E-10	1.47530E-01	7.20627E-02	1.41343E-01	6.18785E-03	7.18773E-06	9.99950E-01
20	.00000E+00	2.27889E-10	3.53663E-01	4.10910E-01	3.27491E-01	2.61694E-02	8.27838E-06	9.99983E-01
21	.00000E+00	3.33557E-11	1.81179E-01	9.30340E-02	1.66608E-01	1.45704E-02	-2.05195E-06	1.00001E+00
22	.00000E+00	3.87002E-11	3.58523E-01	2.73729E-01	3.17577E-01	4.09479E-02	-6.47962E-08	9.99996E-01
23	.00000E+00	3.70016E-11	9.16472E-01	1.41028E+00	7.70325E-01	1.46150E-01	6.20171E-06	9.99989E-01
24	.00000E+00	1.00713E-11	9.88274E-01	1.21704E+00	8.23495E-01	1.64778E-01	4.77858E-06	9.99996E-01
25	.00000E+00	2.94824E-12	6.56578E-01	4.92406E-01	5.61261E-01	9.53161E-02	5.95396E-06	9.99992E-01
26	.00000E+00	2.06752E-12	5.09791E-01	4.97191E-01	4.21693E-01	8.80974E-02	1.32258E-06	9.99999E-01
27	.00000E+00	4.92653E-13	1.68252E-01	1.00986E-01	1.43064E-01	2.51879E-02	1.54423E-07	9.99998E-01
28	.00000E+00	1.00000E+00	1.09743E+01	1.66471E+01	1.09743E+01	1.00245E+00	3.77442E-05	9.99969E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dj**2	total flux
1	1.23580E-02	-6.64037E-08	1.18258E-02	.00000E+00	2.09366E-03	2.33396E-03	3.02200E-04	3.38918E-01
2	9.39823E-02	-7.17095E-07	8.77366E-02	.00000E+00	1.65374E-05	1.08121E-02	1.68802E-03	2.57140E+00
3	1.19413E-01	-8.72858E-07	1.10952E-01	.00000E+00	.00000E+00	1.33262E-02	1.95999E-03	3.26556E+00
4	7.40762E-02	-5.89581E-07	6.84948E-02	.00000E+00	.00000E+00	5.76311E-03	9.50338E-04	2.02500E+00
5	1.11429E-01	-1.06623E-06	1.02378E-01	.00000E+00	.00000E+00	1.70983E-03	1.11410E-03	3.04401E+00
6	2.09694E-01	-1.90959E-06	1.92627E-01	.00000E+00	.00000E+00	1.54427E-03	1.86980E-03	5.72654E+00
7	2.08589E-01	-2.45783E-06	1.92997E-01	.00000E+00	.00000E+00	1.59888E-03	1.32498E-03	5.57633E+00
8	1.48840E-01	-1.85387E-07	1.46868E-01	.00000E+00	.00000E+00	1.70070E-03	7.52196E-04	4.09298E+00
9	1.15112E-01	3.73622E-06	1.15770E-01	.00000E+00	.00000E+00	2.36108E-03	5.07921E-04	3.17260E+00
10	1.05290E-01	1.02529E-06	1.06873E-01	.00000E+00	.00000E+00	5.04123E-03	4.61730E-04	2.90492E+00
11	9.69750E-02	7.00472E-07	1.00516E-01	.00000E+00	.00000E+00	1.04025E-02	4.17871E-04	2.68196E+00
12	6.10973E-02	-7.44237E-08	6.51703E-02	.00000E+00	.00000E+00	1.33053E-02	2.46500E-04	1.69543E+00
13	5.22778E-02	-6.29925E-07	5.58525E-02	.00000E+00	.00000E+00	1.23682E-02	2.13243E-04	1.45108E+00
14	4.86115E-02	-2.05207E-07	5.37589E-02	.00000E+00	.00000E+00	9.18611E-03	1.96090E-04	1.35481E+00
15	2.84229E-02	2.37714E-06	2.95207E-02	.00000E+00	.00000E+00	2.31490E-03	1.20417E-04	7.85971E-01
16	1.59001E-02	1.84514E-06	1.63386E-02	.00000E+00	.00000E+00	1.53556E-03	6.34372E-05	4.39428E-01
17	7.02551E-03	1.28993E-06	7.32720E-03	.00000E+00	.00000E+00	2.33310E-03	2.58243E-05	1.94472E-01
18	6.00693E-03	3.80411E-06	6.33167E-03	.00000E+00	.00000E+00	3.10847E-03	2.14248E-05	1.66483E-01
19	1.11514E-02	7.18773E-06	1.16344E-02	.00000E+00	.00000E+00	3.76158E-03	4.17716E-05	3.08732E-01
20	3.66847E-02	8.27838E-06	3.84083E-02	.00000E+00	.00000E+00	1.61008E-02	1.46754E-04	1.01612E+00
21	1.18652E-02	-2.05195E-06	1.29119E-02	.00000E+00	.00000E+00	9.51397E-03	3.88527E-05	3.30155E-01
22	2.53461E-02	-6.47962E-08	2.85845E-02	.00000E+00	.00000E+00	2.66331E-02	8.13618E-05	7.08928E-01
23	8.09522E-02	6.20171E-06	9.63274E-02	.00000E+00	.00000E+00	9.36691E-02	2.40624E-04	2.28398E+00
24	6.12274E-02	4.77858E-06	7.89950E-02	.00000E+00	.00000E+00	1.08853E-01	1.42038E-04	1.74885E+00
25	2.59679E-02	5.93396E-06	3.56328E-02	.00000E+00	.00000E+00	6.37241E-02	4.81941E-05	7.48698E-01
26	1.69522E-02	1.32238E-06	2.56260E-02	.00000E+00	.00000E+00	5.87701E-02	2.38652E-05	4.94598E-01
27	2.83361E-03	1.54423E-07	4.85670E-03	.00000E+00	.00000E+00	1.63597E-02	2.53615E-06	8.39046E-02
28	1.78306E+00	3.77761E-05	1.80409E+00	.00000E+00	2.11019E-03	4.98131E-01	1.30016E-02	4.92118E+01

- elapsed time .03 min.

Odirect access unit 9 requires 556 blocks of length 216 for cross section weighting.

1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.05802E-03	4.90074E-03	5.23101E-03	2.49702E-03	3.18128E-03	5.53412E-03	3.72450E-03	1.74270E-03

2	6.44558E-04	4.84076E-03	5.72652E-03	3.42789E-03	4.29945E-03	6.17429E-03	4.34711E-03	2.14750E-03
3	1.08468E-03	5.31306E-03	5.81350E-03	2.90628E-03	3.86953E-03	6.80402E-03	4.39517E-03	1.82342E-03
4	7.45609E-04	4.17379E-03	4.88188E-03	2.37843E-03	2.82768E-03	4.80678E-03	3.32958E-03	1.79588E-03
5	7.67354E-04	4.23822E-03	4.92519E-03	2.40280E-03	2.87762E-03	4.89597E-03	3.37922E-03	1.79624E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.11186E-03	1.01521E-03	1.09810E-03	8.72879E-04	7.75523E-04	9.87936E-04	3.12593E-04	1.53467E-04
2	1.78609E-03	1.95226E-03	2.04432E-03	1.59830E-03	1.40199E-03	1.63645E-03	6.25509E-04	3.39600E-04
3	1.12149E-03	1.05890E-03	1.30638E-03	1.21988E-03	1.08690E-03	1.48015E-03	3.71550E-04	1.82336E-04
4	1.19333E-03	1.09557E-03	1.08044E-03	6.77667E-04	6.01603E-04	6.36550E-04	3.11361E-04	1.61723E-04
5	1.19150E-03	1.09436E-03	1.04626E-03	7.05103E-04	6.25980E-04	6.78794E-04	3.14757E-04	1.62915E-04

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.55757E-05	7.17018E-05	1.20555E-04	4.27531E-04	1.86248E-04	5.24162E-04	2.16734E-03	2.12216E-03
2	1.61434E-04	1.46426E-04	2.55703E-04	8.51725E-04	3.43534E-04	8.89215E-04	3.46637E-03	3.32368E-03
3	1.00487E-04	1.00288E-04	1.59534E-04	5.60242E-04	2.78847E-04	8.01077E-04	3.27563E-03	3.29927E-03
4	6.92857E-05	5.99060E-05	1.11534E-04	3.88516E-04	1.25667E-04	3.11337E-04	1.16175E-03	9.75384E-04
5	7.08741E-05	6.19527E-05	1.13965E-04	3.97203E-04	1.33401E-04	3.36248E-04	1.27209E-03	1.09745E-03

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	9.99428E-04	7.23432E-04	1.11046E-04	4.17261E-02
2	1.57751E-03	1.17131E-03	2.08199E-04	5.53857E-02
3	1.60282E-03	1.23236E-03	2.33226E-04	5.14809E-02
4	4.15738E-04	2.55393E-04	3.17970E-05	3.45521E-02
5	4.77769E-04	3.05638E-04	4.12657E-05	3.54101E-02

1broad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.0000E+07	2.6244E+06	1.9614E+09	7.1555E-01
2	9.0000E+05	1.5038E+05	9.4943E+06	2.8445E-01
3	4.0000E-01	1.2730E-01	3.6885E+05	1.2464E-10
4	1.0000E-05			

1 at 0 d, second part of sas2h pass to make library

0cell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3
1	3.84661E-01	1.14066E+00	2.74893E-01
2	3.89867E-01	1.14233E+00	2.65034E-01
3	3.92791E-01	1.14281E+00	2.60592E-01
4	4.07936E-01	1.14647E+00	2.29278E-01
5	4.08252E-01	1.14609E+00	2.32524E-01

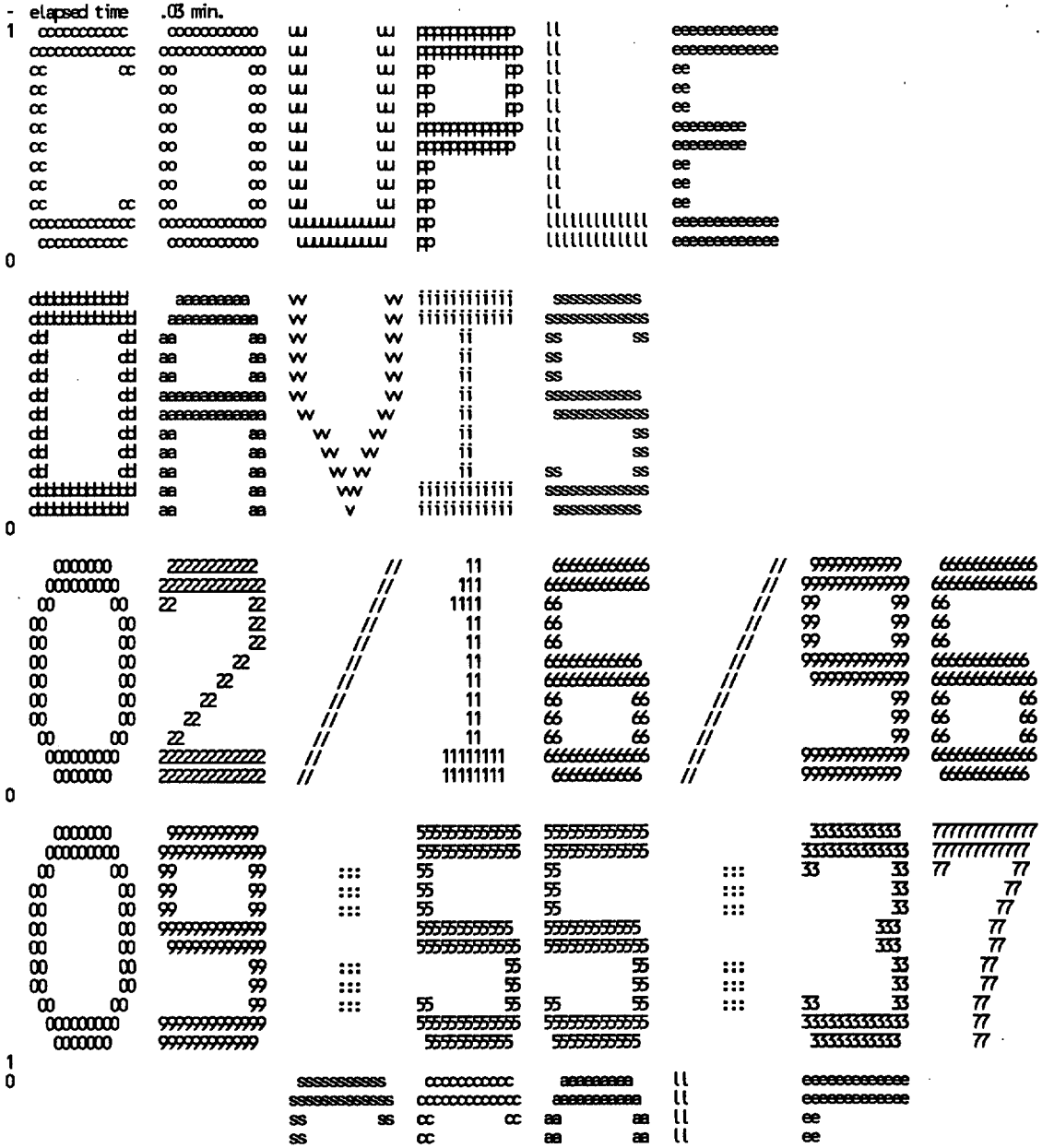
0flux disadvantage factors (zone average/cell average-flux)

Ozone	grp. 1	grp. 2	grp. 3
1	9.42216E-01	9.95260E-01	1.18523E+00
2	9.54967E-01	9.96729E-01	1.14080E+00
3	9.62129E-01	9.97140E-01	1.12168E+00
4	1.00413E+00	1.00033E+00	9.86890E-01
5	1.00000E+00	1.00000E+00	1.00000E+00

0cell averaged currents

Ozone	grp. 1	grp. 2	grp. 3
1	1.68681E-02	1.80243E-02	6.83381E-03
2	1.89392E-02	2.54717E-02	1.09748E-02
3	1.89870E-02	2.17707E-02	1.07231E-02
4	1.50074E-02	1.62677E-02	3.27706E-03
5	1.52112E-02	1.65351E-02	3.66386E-03

Ozone	volume	vol. fraction
1	1.25665E+00	4.56236E-02
2	1.66687E-01	6.05165E-03
3	6.58265E-01	2.38987E-02
4	2.54624E+01	9.24426E-01
5	2.75440E+01	1.00000E+00


- elapsed time .03 min.
1
0
0
0
0
1
0

```
ss              cc              aa         aa   ll              ee
ssssssssssss    cc              aaaaaaaaaaaa    ll              eeeeeeeee
 ssssssssssss   cc              aaaaaaaaaaaa    ll              eeeeeeeee
          ss    cc              aa         aa   ll              ee
          ss    cc              aa         aa   ll              ee
ss        ss    cc         cc   aa         aa   ll              ee
ssssssssssss    cccccccccccc    aa         aa   llllllllllll    eeeeeeeeeeeee
 ssssssssss      cccccccccc     aa         aa   llllllllllll    eeeeeeeeeeeee
```

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****              program:  c0c005                                     *****
*****                                                                   *****
*****         creation date:  04/27/95                                  *****
*****                                                                   *****
*****              library:  /neutronics/scale/exe                      *****
*****                                                                   *****
*****                                                                   *****
*****     this is not a   scale  configuration controlled code          *****
*****                                                                   *****
*****              jobname:  davis                                      *****
*****                                                                   *****
*****     date of execution:  02/16/96                                  *****
*****                                                                   *****
*****     time of execution:  09:55:37                                  *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
```

```
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       2q array has      1 entries.
0        * core allocated to array-data (by -1$$ or default) was   200000 words. *
1         * broad 3-group flux weighting factors *
0
0                 therm =    .5135
0                 res   =    .3373
```

0 fast = 2.5480
0 user requested (see jadb) that all nuclide transitions available from ampx data be updated,
0 including those not present in prior origen library.
1cross sections, available from ampx (normalized to thermal flux), barns

10010	to 10020	2.66896E-01
10010	tot-cap	2.66896E-01
50100	to 40100	1.81165E-02
50100	to 10010	1.81165E-02
50100	to 40090	2.64465E-03
50100	to 10020	2.64465E-03
50100	to 30070	3.07004E+03
50100	to 20040	3.07018E+03
50100	to 10030	6.74369E-02
50100	tot-cap	3.07013E+03
50110	to 50100	7.48316E-06
50110	to 50120	4.05557E-03
50110	to 40110	9.54925E-07
50110	to 10010	9.54925E-07
50110	to 40090	8.52174E-06
50110	to 10030	8.52174E-06
50110	to 30080	1.11247E-04
50110	to 20040	1.11247E-04
50110	tot-cap	4.18378E-03
80160	to 80170	1.42557E-04
80160	to 70160	6.54764E-05
80160	to 10010	6.54764E-05
80160	to 70150	1.23488E-05
80160	to 10020	1.23488E-05
80160	to 60130	1.89717E-02
80160	to 20040	1.89717E-02
80160	to 80161	2.87156E-03
80160	tot-cap	1.91921E-02
360830	to 360820	1.48692E-02
360830	to 360810	1.56982E-09
360830	to 360840	1.43253E+02
360830	to 350830	6.24822E-04
360830	to 10010	6.24822E-04
360830	to 350820	4.91091E-06
360830	to 10020	4.91091E-06
360830	to 350810	1.71646E-06
360830	to 10030	1.71646E-06
360830	to 340810	2.77794E-08
360830	to 20030	2.77794E-08
360830	to 340800	3.26687E-05
360830	to 20040	3.26687E-05
360830	tot-cap	1.43268E+02
360850	to 360860	1.27987E+00
360850	tot-cap	1.27987E+00
380900	to 380910	5.96492E-01
380900	tot-cap	5.96492E-01
390890	to 390900	9.19218E-01
390890	tot-cap	9.19218E-01
400930	to 400940	1.05458E+01
400930	tot-cap	1.05458E+01
400940	to 400950	1.49521E-01
400940	tot-cap	1.49521E-01
400950	to 400960	1.76090E+00
400950	tot-cap	1.76090E+00
410940	to 410950	3.13074E+01

410940 tot-cap 3.13074E+01
420950 to 420960 3.20135E+01
420950 tot-cap 3.20135E+01
430990 to 430980 4.51155E-03
430990 to 431000 7.36808E+01
430990 tot-cap 7.36853E+01
441010 to 441020 2.21494E+01
441010 tot-cap 2.21494E+01
441060 to 441070 6.80340E-01
441060 tot-cap 6.80340E-01
451030 to 451020 1.63392E-03
451030 to 451040 3.16604E+02
451030 tot-cap 3.16606E+02
451050 to 451060 7.55330E+03
451050 tot-cap 7.55330E+03
461050 to 461060 2.77114E+01
461050 tot-cap 2.77114E+01
461080 to 461090 5.41240E+01
461080 tot-cap 5.41240E+01
471090 to 471080 3.79956E-03
471090 to 471100 3.03309E+02
471090 to 461090 2.18946E-04
471090 to 10010 2.18946E-04
471090 to 451060 1.78860E-04
471090 to 20040 1.78860E-04
471090 to 471091 4.85547E-01
471090 tot-cap 3.03314E+02
511240 to 511250 1.00854E+01
511240 tot-cap 1.00854E+01
541310 to 541300 4.60710E-02
541310 to 541290 9.63355E-06
541310 to 541320 2.22180E+02
541310 to 531310 2.84678E-05
541310 to 10010 2.84678E-05
541310 to 531300 3.86352E-07
541310 to 10020 3.86352E-07
541310 to 531290 3.96165E-07
541310 to 10080 3.96165E-07
541310 to 521280 1.32134E-05
541310 to 20040 1.32134E-05
541310 tot-cap 2.22226E+02
541320 to 541310 7.44257E-03
541320 to 541300 1.57851E-05
541320 to 541330 7.67510E-01
541320 to 531320 5.75290E-06
541320 to 10010 5.75290E-06
541320 to 531310 2.39875E-07
541320 to 10020 2.39875E-07
541320 to 531300 3.22992E-08
541320 to 10080 3.22992E-08
541320 to 521290 6.99477E-07
541320 to 20040 6.99477E-07
541320 tot-cap 7.74975E-01
541350 to 541360 1.45451E+06
541350 tot-cap 1.45451E+06
541360 to 541350 1.27310E-02
541360 to 541340 3.88835E-05
541360 to 541370 1.14774E-01
541360 to 531360 2.35156E-07
541360 to 10010 2.35156E-07

541360	to 531350	8.75217E-08
541360	to 10020	8.75217E-08
541360	to 531340	1.97727E-08
541360	to 10030	1.97727E-08
541360	to 521330	1.97201E-07
541360	to 20040	1.97201E-07
541360	tot-cap	1.27544E-01
551330	to 551320	5.96169E-08
551330	to 551340	8.49278E+01
551330	to 541330	6.64118E-04
551330	to 10010	6.64118E-04
551330	to 531300	1.01880E-05
551330	to 20040	1.01880E-05
551330	tot-cap	8.49345E+01
551340	to 551350	1.16499E+02
551340	tot-cap	1.16499E+02
551350	to 551360	1.74991E+01
551350	tot-cap	1.74991E+01
551370	to 551380	1.89455E-01
551370	tot-cap	1.89455E-01
561360	to 561370	7.40243E-01
561360	tot-cap	7.40243E-01
571390	to 571400	7.23852E+00
571390	tot-cap	7.23852E+00
581440	to 581450	1.07327E+00
581440	tot-cap	1.07327E+00
591410	to 591400	4.27200E-08
591410	to 591390	1.22745E-06
591410	to 571370	1.85273E-06
591410	to 20040	3.83396E-05
591410	to 581400	1.30563E-05
591410	to 10010	3.75300E-05
591410	to 591420	1.05570E+01
591410	to 581410	3.53579E-05
591410	to 10020	1.08842E-05
591410	to 581390	1.14145E-06
591410	to 10030	1.14145E-06
591410	to 571390	1.10237E-08
591410	to 20030	1.10237E-08
591410	to 571380	3.64869E-05
591410	tot-cap	1.05613E+01
591430	to 591440	8.62961E+01
591430	tot-cap	8.62961E+01
601430	to 601420	6.54806E-02
601430	to 601410	6.67121E-06
601430	to 581390	1.50245E-05
601430	to 20040	4.19139E-04
601430	to 591420	2.79256E-06
601430	to 10010	2.90234E-05
601430	to 601440	1.92236E+02
601430	to 591430	2.79713E-05
601430	to 10020	1.74047E-06
601430	to 591410	2.50801E-06
601430	to 10030	2.50801E-06
601430	to 581410	1.20500E-08
601430	to 20030	1.20500E-08
601430	to 581400	4.04115E-04
601430	tot-cap	1.92302E+02
601450	to 601440	8.41167E-02
601450	to 601430	8.51763E-05

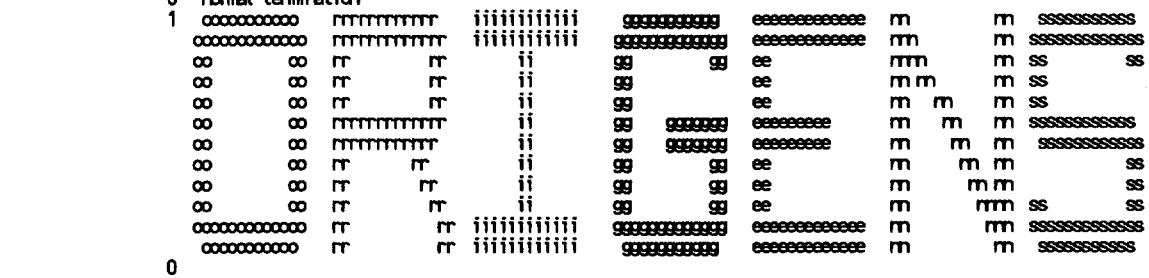
601450 to 581410 6.15051E-06
601450 to 20040 1.55137E-04
601450 to 591440 1.59998E-06
601450 to 10010 1.04520E-05
601450 to 601460 6.65327E+01
601450 to 591450 9.81384E-06
601450 to 10020 9.61787E-07
601450 to 591430 1.51627E-06
601450 to 10030 1.51627E-06
601450 to 581430 3.08714E-09
601450 to 20030 3.08714E-09
601450 to 581420 1.48986E-04
601450 tot-cap 6.66170E+01
601470 to 601480 1.51802E+02
601470 tot-cap 1.51802E+02
611470 to 611460 2.29508E-02
611470 to 611450 7.16100E-05
611470 to 591430 6.41668E-06
611470 to 20040 5.99075E-05
611470 to 601460 8.79970E-06
611470 to 10010 2.01743E-05
611470 to 611480 4.92318E+02
611470 to 601470 1.79798E-05
611470 to 10020 6.60469E-06
611470 to 601450 2.49369E-06
611470 to 10030 2.49369E-06
611470 to 591450 3.74933E-09
611470 to 20030 3.74933E-09
611470 to 591440 5.34908E-05
611470 tot-cap 4.92341E+02
611480 to 611490 1.05385E+04
611480 tot-cap 1.05385E+04
621470 to 621460 5.98828E-02
621470 to 621450 5.39103E-03
621470 to 601430 4.80610E-05
621470 to 20040 9.47967E-04
621470 to 611460 1.08654E-04
621470 to 10010 1.57037E-04
621470 to 621480 1.87417E+02
621470 to 611470 1.38720E-04
621470 to 10020 9.03379E-05
621470 to 611450 9.70023E-05
621470 to 10030 9.70023E-05
621470 to 601450 4.46326E-06
621470 to 20030 4.46326E-06
621470 to 601440 8.99905E-04
621470 to 621471 1.27230E+00
621470 tot-cap 1.87483E+02
621490 to 621480 3.38650E-02
621490 to 621470 2.68719E-05
621490 to 621500 4.49490E+04
621490 to 611490 3.53511E-04
621490 to 10010 3.53511E-04
621490 to 601460 3.53511E-04
621490 to 20040 3.53511E-04
621490 tot-cap 4.49491E+04
621500 to 621510 1.16371E+02
621500 tot-cap 1.16371E+02
621510 to 621500 1.13963E-01
621510 to 621490 1.01117E-04

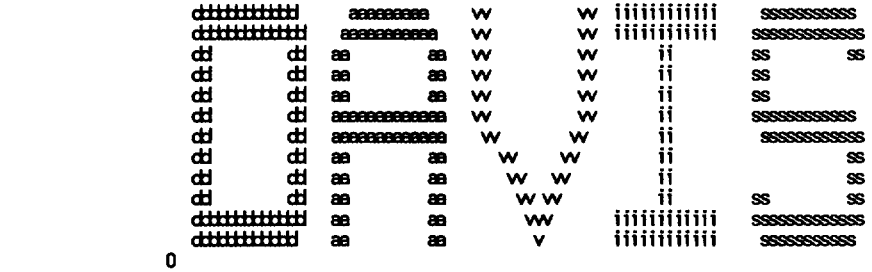
621510	to 601470	1.15091E-05
621510	to 20040	9.05073E-05
621510	to 611500	1.38459E-06
621510	to 10010	1.08487E-05
621510	to 621520	4.75106E+03
621510	to 611510	1.00028E-05
621510	to 10020	5.38656E-07
621510	to 611490	9.78974E-07
621510	to 10030	9.78974E-07
621510	to 601490	1.00853E-09
621510	to 20030	1.00853E-09
621510	to 601480	7.89982E-05
621510	tot-cap	4.75117E+03
621520	to 621510	1.35406E-02
621520	to 621500	9.14946E-05
621520	to 601480	2.04655E-06
621520	to 20040	8.50518E-06
621520	to 611510	5.86501E-07
621520	to 10010	1.73075E-06
621520	to 621530	6.22065E+02
621520	to 611520	1.53744E-06
621520	to 10020	3.93192E-07
621520	to 611500	1.02260E-07
621520	to 10030	1.02260E-07
621520	to 601500	3.09906E-10
621520	to 20030	3.09906E-10
621520	to 601490	6.45864E-06
621520	tot-cap	6.22079E+02
631530	to 631520	1.31512E-02
631530	to 631510	1.96388E-05
631530	to 611490	3.38063E-05
631530	to 20040	4.75442E-04
631530	to 621520	5.51439E-06
631530	to 10010	4.72410E-05
631530	to 631540	5.24135E+02
631530	to 621530	4.53653E-05
631530	to 10020	3.62861E-06
631530	to 621510	8.12082E-07
631530	to 10030	8.12082E-07
631530	to 611510	1.85602E-08
631530	to 20030	1.85602E-08
631530	to 611500	4.41636E-04
631530	tot-cap	5.24149E+02
631540	to 631530	2.10257E-02
631540	to 631520	7.55216E-06
631540	to 611500	7.34312E-11
631540	to 20040	5.64502E-04
631540	to 621530	1.65340E-06
631540	to 10010	9.02816E-04
631540	to 631550	9.65321E+02
631540	to 621540	9.02815E-04
631540	to 10020	1.65248E-06
631540	to 621520	2.80047E-06
631540	to 10030	2.80047E-06
631540	to 611520	1.18657E-08
631540	to 20030	1.18657E-08
631540	to 611510	5.64502E-04
631540	tot-cap	9.65344E+02
631550	to 631540	1.72613E-02
631550	to 631530	4.83354E-05

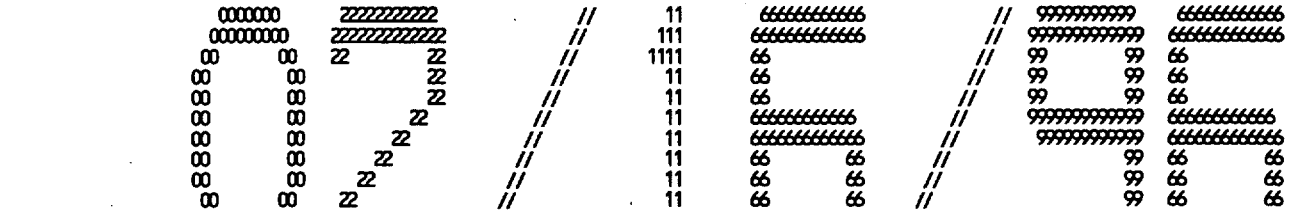
631550 to 611510 1.30274E-06
631550 to 20040 6.41208E-06
631550 to 621540 2.63564E-06
631550 to 10010 5.55710E-06
631550 to 631560 2.46919E+03
631550 to 621550 4.27468E-06
631550 to 10020 1.35322E-06
631550 to 621530 4.47964E-07
631550 to 10030 4.47964E-07
631550 to 611530 1.01533E-10
631550 to 20030 1.01533E-10
631550 to 611520 5.10929E-06
631550 tot-cap 2.46921E+03
641550 to 641560 1.66647E+04
641550 tot-cap 1.66647E+04
922340 to 922330 4.52222E-03
922340 fission 3.36683E+00
922340 nu-sigf 8.84026E+00
922340 to 922320 6.55695E-05
922340 to 922350 1.54966E+02
922340 to 922341 2.28857E+00
922340 tot-cap 1.58337E+02
922350 to 922340 2.08089E-02
922350 fission 3.45274E+02
922350 nu-sigf 8.35906E+02
922350 to 922330 1.97518E-05
922350 to 922360 7.79041E+01
922350 to 922351 6.49553E-02
922350 tot-cap 4.23199E+02
922360 to 922350 2.30571E-02
922360 fission 1.43525E+00
922360 nu-sigf 3.95370E+00
922360 to 922340 3.07009E-04
922360 to 922370 6.53622E+01
922360 to 922361 2.49832E+00
922360 tot-cap 6.68208E+01
922380 to 922370 4.60256E-02
922380 fission 7.16463E-01
922380 nu-sigf 2.01392E+00
922380 to 922360 2.97346E-04
922380 to 922390 6.85783E+00
922380 tot-cap 7.62061E+00
932370 to 932360 1.04888E-02
932370 fission 3.90501E+00
932370 nu-sigf 1.17476E+01
932370 to 932350 4.01271E-05
932370 to 932380 2.56347E+02
932370 to 932371 5.85573E-01
932370 tot-cap 2.60262E+02
942380 to 942370 1.68594E-03
942380 fission 1.85098E+01
942380 nu-sigf 5.23282E+01
942380 to 942360 9.43537E-06
942380 to 942390 2.54280E+02
942380 to 942381 2.27351E+00
942380 tot-cap 2.72791E+02
942390 to 942380 8.96190E-03
942390 fission 8.64299E+02
942390 nu-sigf 2.48458E+03
942390 to 942370 1.51904E-05

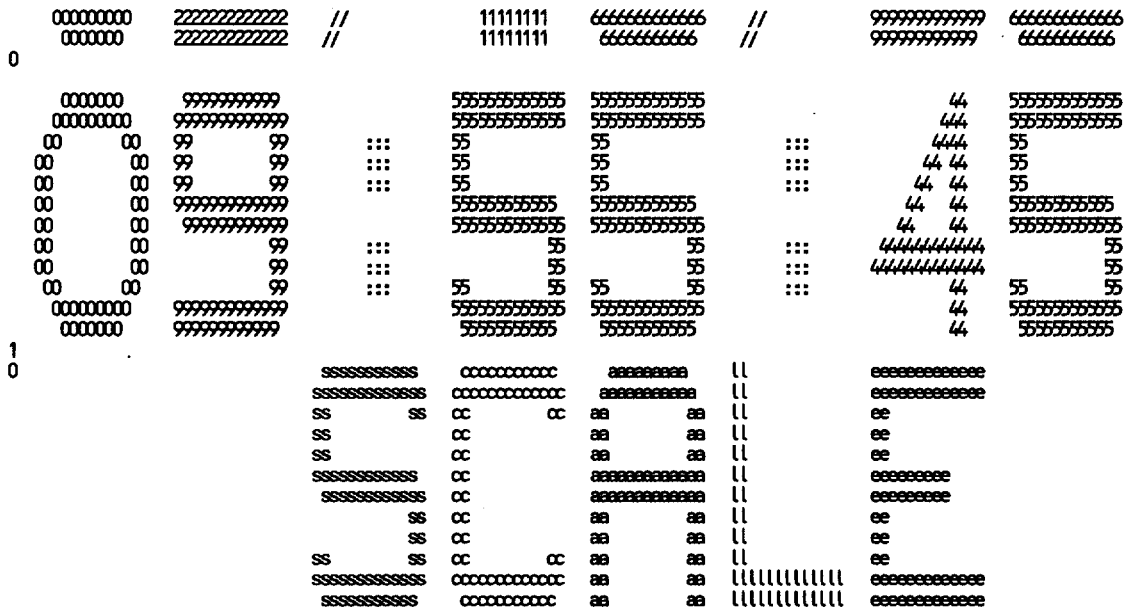
```
                    942390 to 942360  1.50585E-08
                    942390 to 942400  4.90677E+02
                    942390 tot-cap    1.35499E+03
                    942400 to 942390  4.19874E-03
                    942400 fission    4.59747E+00
                    942400 nu-sigf    1.43440E+01
                    942400 to 942380  4.09730E-05
                    942400 to 942410  1.93411E+03
                    942400 tot-cap    1.93871E+03
                    942410 to 942400  5.38011E-02
                    942410 fission    8.86980E+02
                    942410 nu-sigf    2.60217E+03
                    942410 to 942390  8.76709E-05
                    942410 to 942420  2.95973E+02
                    942410 tot-cap    1.18301E+03
                    942420 to 942410  1.71166E-02
                    942420 fission    3.37854E+00
                    942420 nu-sigf    1.05719E+01
                    942420 to 942400  2.08084E-04
                    942420 to 942430  2.62084E+02
                    942420 tot-cap    2.65480E+02
                    952410 fission    1.08184E+01
                    952410 nu-sigf    3.47448E+01
                    952410 to 952420  9.79069E+02
                    952410 tot-cap    9.89887E+02
                    952430 fission    2.60540E+00
                    952430 nu-sigf    8.75092E+00
                    952430 to 952440  3.44795E+02
                    952430 tot-cap    3.47400E+02
                    962440 to 962430  4.11346E-03
                    962440 fission    1.19573E+01
                    962440 nu-sigf    4.00144E+01
                    962440 to 962420  4.10210E-05
                    962440 to 962450  1.12244E+02
                    962440 to 962441  2.90118E+00
                    962440 tot-cap    1.24206E+02
0the reaction  50100 to  30070 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
0the reaction  50100 to  40090 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
0the reaction  50110 to  40090 was not used, because  50110 is not in library., (in subr pool)
                                    in the search of library number 3
0the reaction  50100 to  40100 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
0the reaction  80160 to  80161 was not used, because  80161 is not in library., (in subr pool)
0the reaction 621470 to 621471 was not used, because 621471 is not in library., (in subr pool)
0the fission product transitions for  922340 were not used.  library fissile nuclides are
  922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  922340 to 922341 was not used, because  922341 is not in library., (in subr pool)
0the reaction  922350 to 922351 was not used, because  922351 is not in library., (in subr pool)
0the fission product transitions for  922360 were not used.  library fissile nuclides are
  922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  922360 to 922361 was not used, because  922361 is not in library., (in subr pool)
0the fission product transitions for  952370 were not used.  library fissile nuclides are
  922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  952370 to 952371 was not used, because  952371 is not in library., (in subr pool)
0the fission product transitions for  942380 were not used.  library fissile nuclides are
```

```
   922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction 942380 to 942381 was not used, because 942381 is not in library., (in subr pool)
0the fission product transitions for 942400 were not used. library fissile nuclides are
   922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for 942420 were not used. library fissile nuclides are
   922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for 952410 were not used. library fissile nuclides are
   922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for 952430 were not used. library fissile nuclides are
   922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for 962440 were not used. library fissile nuclides are
   922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction 962440 to 962441 was not used, because 962441 is not in library., (in subr pool)
1
0                    case completed.  date,   2/16/1996
0 * normal termination *
```










```
*****************************************************************
*****************************************************************
*****************************************************************
*****                                                       *****
*****              program verification information          *****
*****                                                       *****
*****              code system:   scale  version:   4.2     *****
*****                                                       *****
*****************************************************************
*****************************************************************
*****                                                       *****
*****                                                       *****
*****          program:  c0c004                             *****
*****                                                       *****
*****       creation date:  04/27/95                        *****
*****                                                       *****
*****          library:  /nautronics/scale/exe              *****
*****                                                       *****
*****                                                       *****
*****   this is not a  scale  configuration controlled code *****
*****                                                       *****
*****          jobname:  davis                              *****
*****                                                       *****
*****   date of execution:  02/16/96                        *****
*****                                                       *****
*****   time of execution:  09:55:45                        *****
```

```
                    *****                                                                  *****
                    *****                                                                  *****
                    ***********************************************************************
                    ***********************************************************************
                    ***********************************************************************
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0        dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0            short-lived split test fraction, qxn =    9.1188E-04
0            half-norm of matrix used, axn =    7.0000E+00
0            4-place-accuracy-retention ratio, ratio4 =    6.4516E-13
0       1q array has     20 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       4q array has      1 entries.
0      54q array has     12 entries.
1library information...

        cross-section data taken from position number  1 of library on unit 15.

        pass   0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
        pass   1
        pass   0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
        ***********************************************************************
        *                                                                     *
        *          prelim lwr origen-s binary working library--id = 1143     *
        *        made from modified card-image origen-s libraries of scale 4.2 *
        *     data from the light element, actinide, and fission product libraries *
        *       decay data, including gamma and total energy, are from endf/b-vi *
        *                                                                     *
        *     neutron flux spectrum factors and cross sections were produced from *
        *    the "presas2" case updating all nuclides on the scale "burnup" library *
        *                                                                     *
        *                fission product yields are from endf/b-v             *
        *                                                                     *
        *            photon libraries use an 18-energy-group structure        *
        *           the photon data are from the master photon data base,     *
        *            produced to include bremsstrahlung from uo2 matrix       *
        *                                                                     *
        *      see information above this box (if present) for later updates  *
        *                                                                     *
        ***********************************************************************
        *                                                                     *
0       ***********************************************************************
```

0 .other identification and sizes of library.
0 data set name: ft15f001
0 2/16/1996 date library was produced
0 1697 total number of nuclides in library
689 number of light-element nuclides
129 number of actinide nuclides
879 number of fission product nuclides
0 7985 number of nonzero off-diagonal matrix elements
0 **********
1

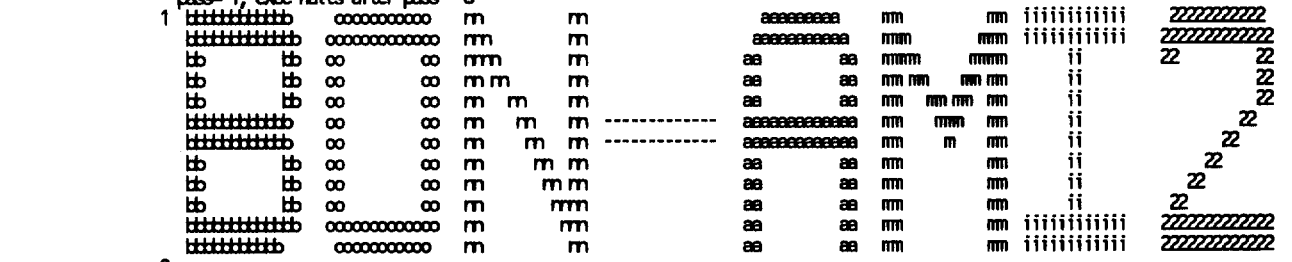
sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 1
power= 8.466E-05mw, burnup=6.772?E-03mwd, flux= 1.72E+13n/cm**2-sec
0 nuclide concentrations, gram atoms
basis = converted to atoms/(barn-cm)

	charge	20.0 d	40.0 d	60.0 d	80.0 d
u230	.00E+00	1.00E-23	3.36E-23	6.45E-23	9.96E-23
u231	.00E+00	6.20E-22	1.50E-21	2.40E-21	3.31E-21
u232	.00E+00	1.09E-14	2.21E-14	3.36E-14	4.55E-14
u233	.00E+00	1.14E-12	2.26E-12	3.35E-12	4.42E-12
u234	5.56E-06	5.53E-06	5.50E-06	5.48E-06	5.45E-06
u235	6.92E-04	6.83E-04	6.74E-04	6.66E-04	6.58E-04
u236	3.17E-06	4.75E-06	6.32E-06	7.86E-06	9.37E-06
u237	.00E+00	1.63E-08	1.97E-08	2.14E-08	2.28E-08
u238	2.21E-02	2.21E-02	2.21E-02	2.21E-02	2.20E-02
u239	.00E+00	5.29E-09	5.31E-09	5.29E-09	5.27E-09
u240	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	9.63E-18	5.61E-17	1.48E-16	2.86E-16
np236m	.00E+00	3.36E-16	9.23E-16	1.57E-15	2.26E-15
np236	.00E+00	6.61E-16	3.89E-15	1.03E-14	2.03E-14
np237	.00E+00	2.15E-08	5.89E-08	1.01E-07	1.45E-07
np238	.00E+00	1.95E-11	6.16E-11	1.09E-10	1.60E-10
np239	.00E+00	7.60E-07	7.66E-07	7.63E-07	7.61E-07
np240m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np240	.00E+00	1.20E-11	1.21E-11	1.20E-11	1.19E-11
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	.00E+00	8.39E-16	5.07E-15	1.36E-14	2.67E-14
pu237	.00E+00	6.58E-16	2.80E-15	6.02E-15	9.96E-15
pu238	.00E+00	4.28E-11	3.03E-10	8.58E-10	1.73E-09
pu239	.00E+00	3.66E-06	7.94E-06	1.20E-05	1.60E-05
pu240	.00E+00	2.60E-08	1.11E-07	2.51E-07	4.39E-07
pu241	.00E+00	4.63E-10	4.08E-09	1.39E-08	3.27E-08
pu242	.00E+00	9.67E-13	1.75E-11	9.09E-11	2.87E-10
pu243	.00E+00	1.12E-16	2.04E-15	1.06E-14	3.32E-14
pu244	.00E+00	6.19E-40	1.61E-36	1.48E-34	3.62E-33
pu245	.00E+00	.00E+00	.00E+00	7.64E-41	2.75E-39
pu246	.00E+00	.00E+00	1.40E-45	1.26E-43	3.79E-42
am239	.00E+00	3.92E-24	7.04E-23	3.65E-22	1.15E-21
am240	.00E+00	9.80E-22	2.26E-20	1.29E-19	4.25E-19
am241	.00E+00	2.90E-13	5.18E-12	2.69E-11	8.48E-11
am242m	.00E+00	2.55E-16	9.12E-15	7.03E-14	2.91E-13
am242	.00E+00	3.39E-16	6.10E-15	3.16E-14	9.92E-14
am243	.00E+00	1.42E-15	5.25E-14	4.14E-13	1.76E-12
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	4.41E-19	1.63E-17	1.29E-16	5.47E-16
am245	.00E+00	.00E+00	1.04E-40	9.67E-39	2.34E-37
am246	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
totals	2.28E-02	2.28E-02	2.28E-02	2.27E-02	2.27E-02
0 flux		1.72E+13	1.73E+13	1.72E+13	1.72E+13

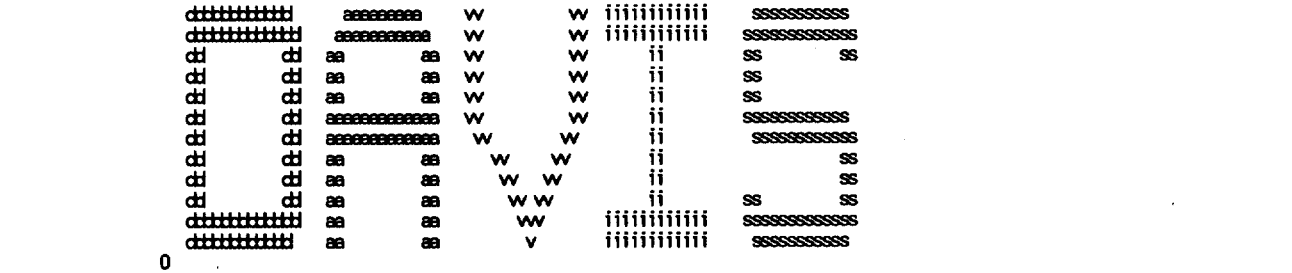
0 .results on logical unit no. 71, position 1, for time step 4, subcase 1. (run position 1, case position 1)

```
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  2, for time step  4, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  3, for time step  0, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  4, for time step  1, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0     .terminated logical unit no. 71 with zero flag record.
1  * normal termination of execution *
0                                   table of contents for material tables
0                                     case or subcase printed      page

                                                 1                 1
0ndset          33
          15          4          1         27          6          0          0          0          0          0
           0          0          0          0          0          2         -1       1698        690        130
         880       7935          0          5         99          2         16         96         18         18
          18          0         71
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       57q array has      4 entries.
0        1q array has     20 entries.
0        1q array has     10 entries.
     l90   92270
     l116  55405
     l32   33663 nudata (library) storage size
     l44   33734
     l103  70769
0       58q array has      4 entries.
0       60q array has      4 entries.
0       66q array has      1 entries.
0       73q array has      4 entries.
0       74q array has      4 entries.
0       75q array has      4 entries.
     l140  61885
     used    94591 in size   200000
0jopt           12
           0          0          0          0          0          0          0          0          0          0
           0          0
0therm           4
  5.134568E-01 3.372767E-01 2.548021E+00 1.000000E-31
0non             5
        7935         20          6         18       1697
0mm             19
           4          4          0          0          1          1          0          0          0          0
          21        100          4          4          3         74          4          1          0
0tconst          5
  8.640000E+04 1.000000E-20  .000000E+00  .000000E+00 1.000000E-08
0mzero           4
           0        689        129        879
0pow             3
   .000000E+00  .000000E+00  .000000E+00
0 linp           9
           6          0         51         26          2       3000       1000       1697         94
```

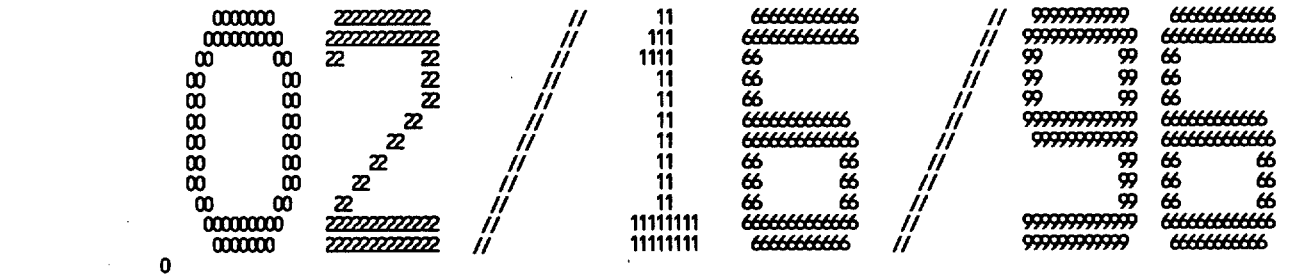
```
 n-gamma, fission and total mev/fission =          4.2823E+00     1.9427E+02     1.9856E+02
 start of interval flux =        1.73556E+13
 n-gamma, fission and total mev/fission =          4.6429E+00     1.9435E+02     1.9899E+02
 start of interval flux =        1.73046E+13
 n-gamma, fission and total mev/fission =          4.6996E+00     1.9444E+02     1.9914E+02
 start of interval flux =        1.72419E+13
 n-gamma, fission and total mev/fission =          4.7478E+00     1.9452E+02     1.9927E+02
 start of interval flux =        1.71873E+13
0 case or subcase    1  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0      56q array has     20 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has     20 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has     20 entries.
0      56q array has     20 entries.
0requested parm=halt8,skipcellwt,skipshipdata
  pass= 1, exec halts after pass   8
```



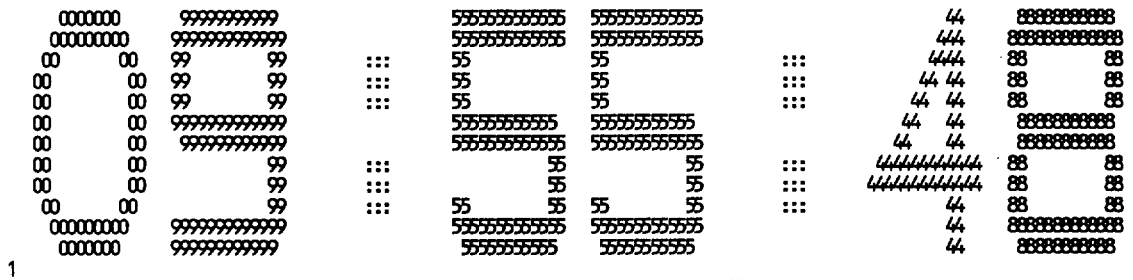
```
0
```

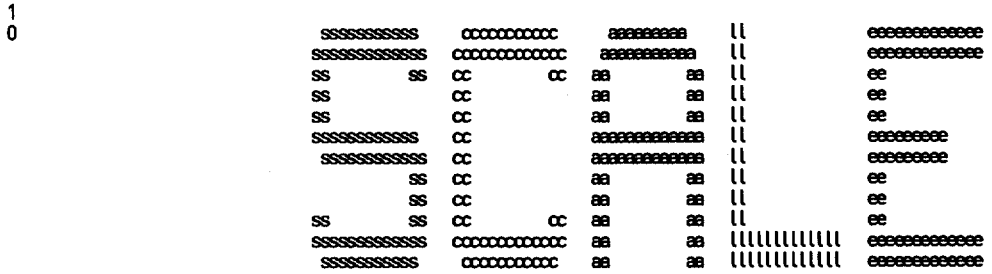


```
0
```



```
0
```





```
**********************************************************************
**********************************************************************
**********************************************************************
******                                                          ******
******                program verification information          ******
******                                                          ******
******               code system:   scale  version:   4.2       ******
******                                                          ******
**********************************************************************
**********************************************************************
******                                                          ******
******                                                          ******
******           program:  c0c008                               ******
******                                                          ******
******      creation date:  04/27/95                            ******
******                                                          ******
******           library:  /neutronics/scale/exe                ******
******                                                          ******
******                                                          ******
******  this is not a  scale  configuration controlled code     ******
******                                                          ******
******           jobname:  davis                                ******
******                                                          ******
******  date of execution:  02/16/96                            ******
******                                                          ******
******  time of execution:  09:55:48                            ******
******                                                          ******
******                                                          ******
**********************************************************************
```

```
                    ********************************************************************************
                    ********************************************************************************

1
0       -1q array has       1 entries.
0        0q array has       4 entries.
0        1q array has       6 entries.
0        2q array has       2 entries.
1logical assignments
0master library   12
 working library   0
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere                2
0izm--number of zones or material regions                       4
0ms--mixing table length                                       66
0ibl--shielded cross section edit option (0/1--no/yes)          0
0ibr--bondarenko factor edit option (0/1--no/yes)               0
0issopt--dancoff factor option                                  0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation 1.350E+00
0        3q array has      66 entries.
0        4q array has      66 entries.
0        5q array has      66 entries.
0        6q array has       4 entries.
0        7q array has       4 entries.
0        8q array has       4 entries.
0        9q array has       4 entries.
0       10q array has      66 entries.
0       11q array has       4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope  number density  new identifier
    1        1    92235    6.57647E-04           92235
    2        1    92234    5.45374E-06           92234
    3        1    92236    9.37010E-06           92236
    4        1    92238    2.20477E-02           92238
    5        1     8016    4.55359E-02            8016
    6        3     8016    2.09710E-02               6
    7        1    36083    1.57183E-07           36083
    8        1    36085    7.63106E-08           36085
    9        1    38090    1.70684E-06           38090
   10        1    39089    5.60000E-07           39089
   11        1    42095    2.50288E-07           42095
   12        1    40093    1.24307E-06           40093
   13        1    40094    1.91444E-06           40094
   14        1    40095    1.29859E-06           40095
   15        1    41094    5.36198E-13           41094
   16        1    43099    1.77108E-06           43099
   17        1    45103    4.59914E-07           45103
   18        1    45105    1.10044E-08           45105
   19        1    44101    1.56724E-06           44101
   20        1    44106    1.80896E-07           44106
   21        1    46105    3.66502E-07           46105
   22        1    46108    4.74250E-08           46108
   23        1    47109    2.91333E-08           47109
   24        1    51124    9.07937E-12           51124
   25        1    54131    7.49268E-07           54131
   26        1    54132    1.26842E-06           54132
   27        1    54135    6.32256E-09           54135
   28        1    54136    3.00800E-06           54136
```

29	1	55134	8.18674E-09	55134
30	1	55135	9.06121E-07	55135
31	1	55137	1.90508E-06	55137
32	1	56136	2.19836E-09	56136
33	1	57139	1.91454E-06	57139
34	1	59141	9.07627E-07	59141
35	1	59143	4.07108E-07	59143
36	1	58144	1.48283E-06	58144
37	1	60143	1.31604E-06	60143
38	1	60145	1.17029E-06	60145
39	1	61147	5.25252E-07	61147
40	1	61148	1.26721E-09	61148
41	1	60147	1.34940E-07	60147
42	1	62147	1.30142E-08	62147
43	1	62149	6.35746E-08	62149
44	1	62150	2.60260E-07	62150
45	1	62151	1.03932E-07	62151
46	1	62152	1.16691E-07	62152
47	1	64155	1.02921E-10	64155
48	1	63153	5.54702E-08	63153
49	1	63154	1.61916E-09	63154
50	1	63155	1.09678E-08	63155
51	2	40802	4.25156E-02	40802
52	3	1001	4.19420E-02	1001
53	3	5010	3.81515E-06	5010
54	3	5011	1.54884E-05	5011
55	1	55133	1.82872E-06	55133
56	1	93237	1.45033E-07	93237
57	1	94238	1.72916E-09	94238
58	1	94239	1.59534E-05	94239
59	1	94240	4.39198E-07	94240
60	1	94241	3.26765E-08	94241
61	1	94242	2.86985E-10	94242
62	1	95241	8.48261E-11	95241
63	1	95243	1.76207E-12	95243
64	1	96244	1.17608E-14	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Ogeometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05844E-01	0
2	4	4.78790E-01	2.93000E+02	5.49010E-01	0
3	2	5.46100E-01	6.50000E+02	.00000E+00	0
4	3	8.13968E-01	6.07600E+02	.00000E+00	0

7711 locations of 200000 available are required to make a new master containing the self-shielded values

Ono nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

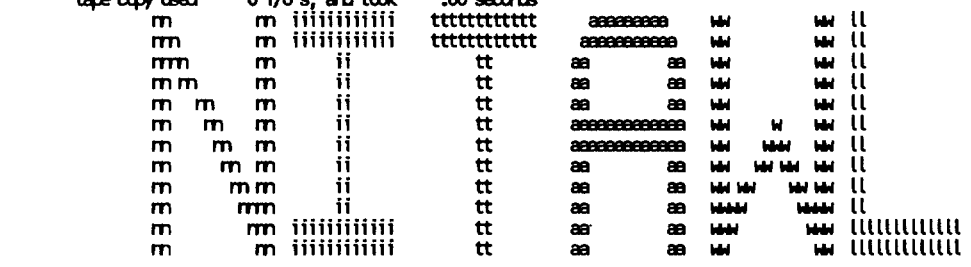
Ocopy 999 1/v cross sectio from log 12 to log 18 bondarenko trigger 0
Ocopy 999 1/v cross sectio from log 18 to log 1 bondarenko trigger 0
Ocopy 999 1/v cross sectio from log 18 to log 1 bondarenko trigger 0
Ocopy 1001 hydrogen from log 12 to log 1 bondarenko trigger 0
Ocopy 5010 b-10 1273 218ngp from log 12 to log 1 bondarenko trigger 0
Ocopy 5011 boron-11 from log 12 to log 1 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 12 to log 18 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0
Ocopy 36083 kr-83 from log 12 to log 1 bondarenko trigger 0
Ocopy 36085 kr-85 from log 12 to log 1 bondarenko trigger 0
Ocopy 38090 sr-90 from log 12 to log 1 bondarenko trigger 0
Ocopy 39089 y-89 from log 12 to log 1 bondarenko trigger 0
Ocopy 40093 zr-93 from log 12 to log 1 bondarenko trigger 0

```
0copy    40094  zr-94          from log 12 to log  1   bondarenko trigger 0
0copy    40095  zr-95          from log 12 to log  1   bondarenko trigger 0
0copy    40302  zircalloy      from log 12 to log  1   bondarenko trigger 0
0copy    41094  nb-94          from log 12 to log  1   bondarenko trigger 0
0copy    42095  mo-95          from log 12 to log  1   bondarenko trigger 0
0copy    43099  tc-99          from log 12 to log  1   bondarenko trigger 0
0copy    44101  ru-101         from log 12 to log  1   bondarenko trigger 0
0copy    44106  ru-106         from log 12 to log  1   bondarenko trigger 0
0copy    45103  rh-103         from log 12 to log  1   bondarenko trigger 0
0copy    45105  rh-105         from log 12 to log  1   bondarenko trigger 0
0copy    46105  pd-105         from log 12 to log  1   bondarenko trigger 0
0copy    46108  pd-108         from log 12 to log  1   bondarenko trigger 0
0copy    47109  silver-109     from log 12 to log  1   bondarenko trigger 0
0copy    51124  sb-124         from log 12 to log  1   bondarenko trigger 0
0copy    54131  xe-131         from log 12 to log  1   bondarenko trigger 0
0copy    54132  xe-132         from log 12 to log  1   bondarenko trigger 0
0copy    54135  xenon-135      from log 12 to log  1   bondarenko trigger 0
0copy    54136  xe-136         from log 12 to log  1   bondarenko trigger 0
0copy    55133  cesium-133     from log 12 to log  1   bondarenko trigger 0
0copy    55134  cs-134         from log 12 to log  1   bondarenko trigger 0
0copy    55135  cs-135         from log 12 to log  1   bondarenko trigger 0
0copy    55137  cs-137         from log 12 to log  1   bondarenko trigger 0
0copy    56136  ba-136         from log 12 to log  1   bondarenko trigger 0
0copy    57139  la-139         from log 12 to log  1   bondarenko trigger 0
0copy    58144  ce-144         from log 12 to log  1   bondarenko trigger 0
0copy    59141  pr-141         from log 12 to log  1   bondarenko trigger 0
0copy    59143  pr-143         from log 12 to log  1   bondarenko trigger 0
0copy    60143  nd-143         from log 12 to log  1   bondarenko trigger 0
0copy    60145  nd-145         from log 12 to log  1   bondarenko trigger 0
0copy    60147  nd-147         from log 12 to log  1   bondarenko trigger 0
0copy    61147  pm-147         from log 12 to log  1   bondarenko trigger 0
0copy    61148  pm-148         from log 12 to log  1   bondarenko trigger 0
0copy    62147  sm-147         from log 12 to log  1   bondarenko trigger 0
0copy    62149  sm-149         from log 12 to log  1   bondarenko trigger 0
0copy    62150  sm-150         from log 12 to log  1   bondarenko trigger 0
0copy    62151  sm-151         from log 12 to log  1   bondarenko trigger 0
0copy    62152  sm-152         from log 12 to log  1   bondarenko trigger 0
0copy    63153  eu-153         from log 12 to log  1   bondarenko trigger 0
0copy    63154  eu-154         from log 12 to log  1   bondarenko trigger 0
0copy    63155  eu-155         from log 12 to log  1   bondarenko trigger 0
0copy    64155  gd-155         from log 12 to log  1   bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1   bondarenko trigger 0
0copy    92235  uranium-235    from log 12 to log  1   bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1   bondarenko trigger 0
0copy    92238  uranium-238    from log 12 to log  1   bondarenko trigger 0
0copy    93237  neptunium-237  from log 12 to log  1   bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1   bondarenko trigger 0
0copy    94239  plutonium-239  from log 12 to log  1   bondarenko trigger 0
0copy    94240  plutonium-240  from log 12 to log  1   bondarenko trigger 0
0copy    94241  plutonium-241  from log 12 to log  1   bondarenko trigger 0
0copy    94242  plutonium-242  from log 12 to log  1   bondarenko trigger 0
0copy    95241  am-241 1056 sigo from log 12 to log  1   bondarenko trigger 0
0copy    95243  am-243 1057 218 from log 12 to log  1   bondarenko trigger 0
0copy    96244  curium-244     from log 12 to log  1   bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
            last updated      9/16/93
              l.m.petrie   -   ornl
        tape id                          4321        number of nuclides          66
```

number of neutron groups 27 number of gamma groups 0
first thermal group 15 logical unit 1

table of contents

1/v cross sections normalized to 1.0 at 0.0253 ev id 999
1/v cross sections normalized to 1.0 at 0.0253 ev id 66
hydrogen endf/b-iv mat 1269/thrml002 updated 10/13/89 id 1001
b-10 1273 218ngp 042375 p-3 293k id 5010
boron-11 endf/b-iv mat 1160 updated 10/13/89 id 5011
oxygen-16 endf/b-iv mat 1276 updated 10/13/89 id 8016
oxygen-16 endf/b-iv mat 1276 updated 10/13/89 id 6
kr-83 mt=102,103,103,105,106,107 updated 10/13/89 id 36083
kr-85 mt= 102 id 36085
sr-90 mt=102 updated 10/13/89 id 38090
y-89 mt=102 updated 10/13/89 id 39089
zr-93 mt= 102 id 40093
zr-94 mt=102 updated 10/13/89 id 40094
zr-95 mt=102 updated 10/13/89 id 40095
zircalloy endf/b-iv mat 1284 updated 10/13/89 id 40802
rb-94 mt=102 updated 10/13/89 id 41094
mo-95 mt=102 updated 10/13/89 id 42095
tc-99 mt=102 updated 10/13/89 id 43099
ru-101 mt=102 updated 10/13/89 id 44101
ru-106 mt=102 updated 10/13/89 id 44106
rh-103 mt=102 updated 10/13/89 id 45103
rh-105 mt= 102 id 45105
pd-105 mt=102 updated 10/13/89 id 46105
pd-108 mt=102 updated 10/13/89 id 46108
silver-109 endf/b-iv mat 1139 updated 10/13/89 id 47109
sb-124 mt=102 updated 10/13/89 id 51124
xe-131 mt=102,103,104,105,106 updated 10/13/89 id 54131
xe-132 mt=102,103,104,105,106 updated 10/13/89 id 54132
xenon-135 endf/b-iv mat 1294 updated 10/13/89 id 54135
xe-136 mt= 102, 103, 104, 105, 107 id 54136
cesium-133 endf/b-iv mat 1141 updated 10/13/89 id 55133
cs-134 mt=102 updated 10/13/89 id 55134
cs-135 mt= 102 id 55135
cs-137 mt=102 updated 10/13/89 id 55137
ba-136 mt=102 updated 10/13/89 id 56136
la-139 mt=102 updated 10/13/89 id 57139
ce-144 mt= 102 id 58144
pr-141 mt=102,103,104,105,106,107 updated 10/13/89 id 59141
pr-143 mt=102 updated 10/13/89 id 59143
nd-143 mt=102 updated 10/13/89 id 60143
nd-145 mt=102 updated 10/13/89 id 60145
nd-147 mt=102 updated 10/13/89 id 60147
pm-147 mt=102 updated 10/13/89 id 61147
pm-148 mt= 102 id 61148
sm-147 endf/b-v fission product updated 10/13/89 id 62147
sm-149 mt=102,103,107 updated 10/13/89 id 62149
sm-150 mt=102 updated 10/13/89 id 62150
sm-151 mt=102,103,104,105,106,107 updated 10/13/89 id 62151
sm-152 mt=102,103,104,105,106,107 updated 10/13/89 id 62152
eu-153 mt=102,103,104,105,106,107 updated 10/13/89 id 63153
eu-154 mt=102,103,104,105,106,107 updated 10/13/89 id 63154
eu-155 mt=102,103,104,105,106,107 updated 10/13/89 id 63155
gd-155 mt=102 updated 10/13/89 id 64155
u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5) id 92234
uranium-235 endf/b-iv mat 1261 updated 10/13/89 id 92235
u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5) id 92236
uranium-238 endf/b-iv mat 1262 updated 10/13/89 id 92238



```
      neptunium-237  endf/b-iv mat 1263          updated 10/13/89              id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    94238
      plutonium-239  endf/b-iv mat 1264          updated 10/13/89              id    94239
      plutonium-240  endf/b-iv mat 1265          updated 10/13/89              id    94240
      plutonium-241  endf/b-iv mat 1266          updated 10/13/89              id    94241
      plutonium-242  endf/b-iv mat 1161          updated 10/13/89              id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                              id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                               id    95243
      curium-244     endf/b-iv mat 1162          updated 10/13/89              id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
1              nn         nn  iiiiiiiiiiii   tttttttttttt     aaaaaaaaa    ww         ww  ll
               nnn        nn  iiiiiiiiiiii   tttttttttttt    aaaaaaaaaaa   ww         ww  ll
               nnnn       nn      ii            tt        aa        aa  ww         ww  ll
               nn nn      nn      ii            tt        aa        aa  ww         ww  ll
               nn  nn     nn      ii            tt        aa        aa  ww         ww  ll
               nn   nn    nn      ii            tt        aaaaaaaaaaaa  ww    w    ww  ll
               nn    nn   nn      ii            tt        aaaaaaaaaaaa  ww   www   ww  ll
               nn     nn  nn      ii            tt        aa        aa  ww  ww ww  ww  ll
               nn      nn nn      ii            tt        aa        aa  ww ww   ww ww  ll
               nn       nnn       ii            tt        aa        aa  wwww     wwww  ll
               nn        nn  iiiiiiiiiiii       tt        aa        aa  www       www  llllllllllll
               nn         nn  iiiiiiiiiiii       tt        aa        aa  ww         ww  llllllllllll
0

  dddddddddddd     aaaaaaaaa    w         w  iiiiiiiiiiii    sssssssssss
  dddddddddddd    aaaaaaaaaaa   w         w  iiiiiiiiiiii    sssssssssssss
  dd        dd  aa        aa  w         w      ii        ss        ss
  dd        dd  aa        aa  w         w      ii        ss
  dd        dd  aa        aa  w         w      ii        ss
  dd        dd  aaaaaaaaaaaa  w         w      ii        sssssssssssss
  dd        dd  aaaaaaaaaaaa   w       w       ii         sssssssssssss
  dd        dd  aa        aa     w    w        ii                  ss
  dd        dd  aa        aa      w  w         ii                  ss
  dd        dd  aa        aa       w w         ii        ss        ss
  dddddddddddd  aa        aa        ww     iiiiiiiiiiii   sssssssssssss
  dddddddddddd  aa        aa         v     iiiiiiiiiiii    sssssssssss
0

    0000000     22222222222          //       11       666666666666          //  99999999999   666666666666
   000000000    22222222222          //      111       666666666666          //  99999999999   666666666666
  00      00   22        22          //     1111       66                    //  99        99  66
  00      00            22          //       11       66                    //  99        99  66
  00      00            22          //       11       66                    //  99        99  66
  00      00          22           //       11       666666666666          //  99999999999   666666666666
  00      00        22             //       11       666666666666          //   99999999999  666666666666
  00      00      22               //       11       66        66          //            99  66        66
  00      00    22                 //       11       66        66          //            99  66        66
  00      00   22                  //       11       66        66          //            99  66        66
   000000000   22222222222          //     11111111   666666666666          //  99999999999   666666666666
    0000000    22222222222          //     11111111    666666666666          //  99999999999   666666666666
0

    0000000     99999999999                 5555555555555  5555555555555                  44    99999999999
   000000000    99999999999                 5555555555555  5555555555555                 444    99999999999
  00      00   99        99        :::      55             55             :::           4444    99        99
  00      00   99        99        :::      55             55             :::          44 44    99        99
  00      00   99        99        :::      55             55             :::         44  44    99        99
  00      00   99999999999                 555555555555   555555555555               44  44    99999999999
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  00      00            99        :::                 55             55      :::     44444444444            99
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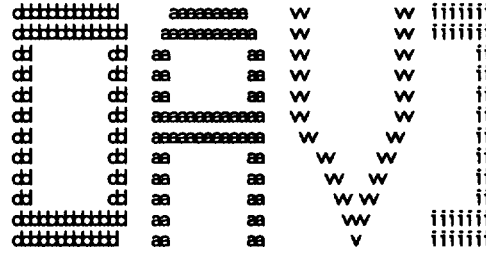

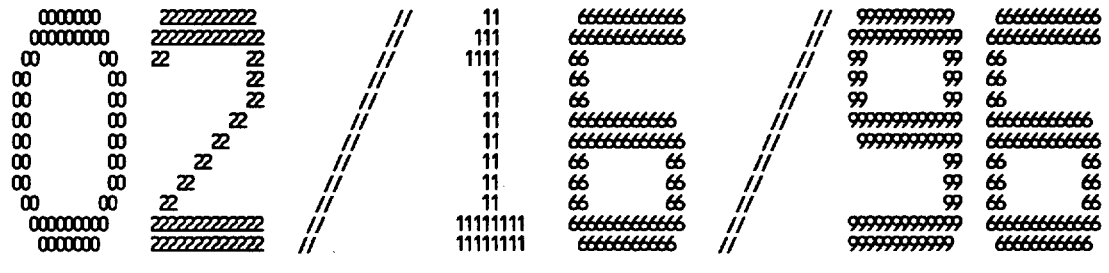

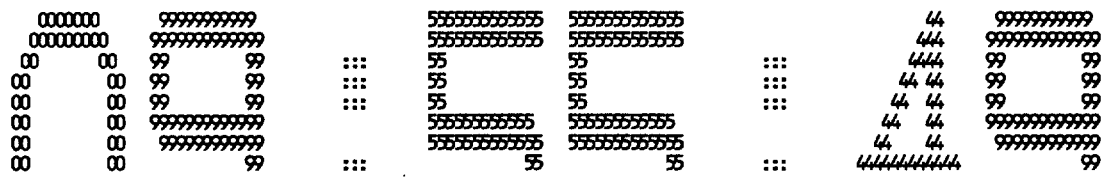

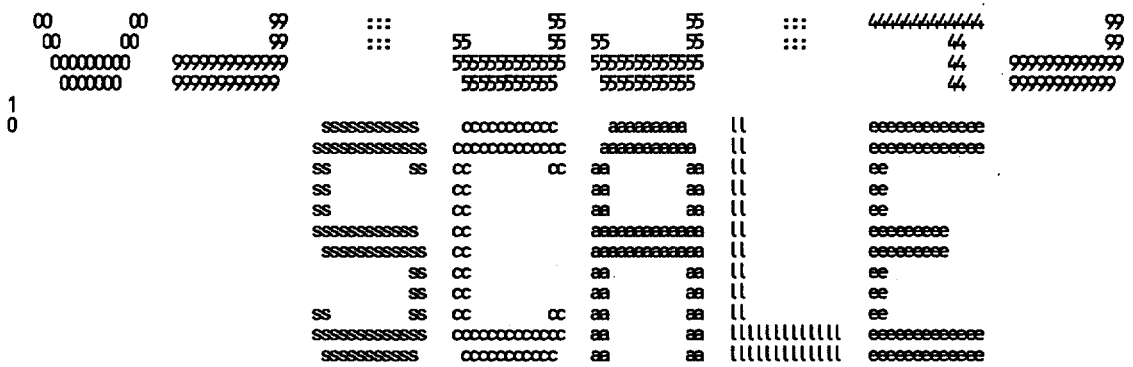

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  00       00          99       :::              55          55       :::      444444444444          99
   00     00           99       :::      55      55  55      55       :::             44           99
    000000000   9999999999999              5555555555555 5555555555555                  44   9999999999999
     0000000    999999999999                55555555555   55555555555                   44   999999999999
1
0                                 sssssssssss    cccccccccc    aaaaaaaaa    ll            eeeeeeeeeeeee
                                 ssssssssssssss  cccccccccccc  aaaaaaaaaaa   ll            eeeeeeeeeeeee
                                 ss        ss  cc        cc  aa        aa  ll            ee
                                 ss            cc            aa        aa  ll            ee
                                 ss            cc            aa        aa  ll            ee
                                 ssssssssssss  cc            aaaaaaaaaaaaa ll            eeeeeeeee
                                  ssssssssssss  cc            aaaaaaaaaaaaa ll            eeeeeeeee
                                          ss  cc            aa        aa  ll            ee
                                          ss  cc            aa        aa  ll            ee
                                 ss        ss  cc        cc  aa        aa  ll            ee
                                 ssssssssssssss  cccccccccccc  aa        aa  llllllllllllll  eeeeeeeeeeeee
                                  ssssssssssss   cccccccccc   aa        aa  llllllllllllll  eeeeeeeeeeeee
```
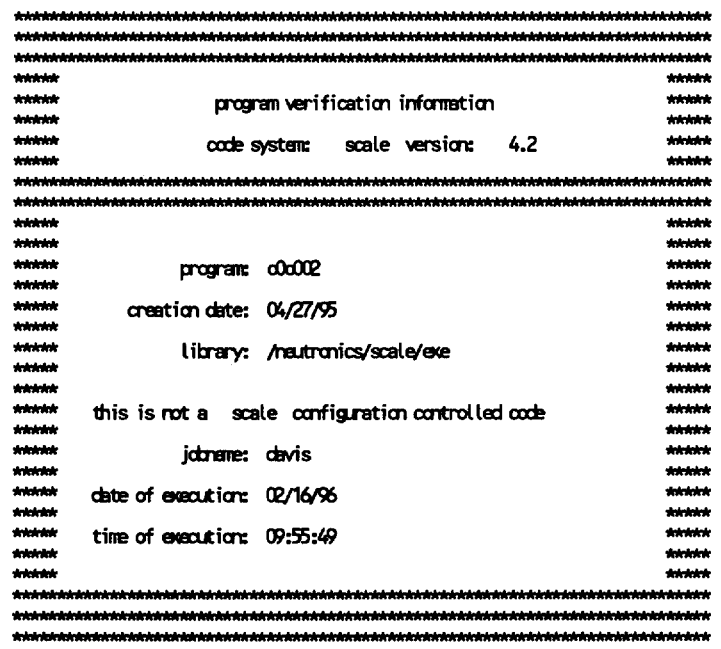

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****              program:  c0c002                                     *****
*****                                                                   *****
*****        creation date:  04/27/95                                   *****
*****                                                                   *****
*****              library:  /neutronics/scale/exe                      *****
*****                                                                   *****
*****                                                                   *****
*****    this is not a   scale  configuration controlled code           *****
*****                                                                   *****
*****              jobname:  davis                                      *****
*****                                                                   *****
*****    date of execution:  02/16/96                                   *****
*****                                                                   *****
*****    time of execution:  09:55:49                                   *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      9 entries.
0        1q array has     12 entries.
0select 65 nuclides from the master  library on logical  1
        0 nuclides from the working library on logical  2
        0 nuclides from the working library on logical  3
```



```
          to create the new working library on logical  4

        61 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has     65 entries.
0        3q array has    915 entries.
0        4q array has     65 entries.
0 general information concerning cross section library
    tape identification number                4321
    number of nuclides on tape                  66
    number of neutron energy groups             27
    first thermal neutron energy group          15
    number of gamma energy groups                0
0   direct access unit number  9 requires 117 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                          based on endf-b version 4 data with endf-b version 5 fission products
                            compiled for nrc      1/27/89
                               last updated      9/16/93
                                  l.m.petrie   -   ornl
0 nuclides from xsdrn tape
    1    1/v cross sections normalized to 1.0 at 0.0253 ev                                  999
    2     hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89                  1001
    3    b-10 1273 218ngp 042375 p-3 293k                                                  5010
    4     boron-11       endf/b-iv mat 1160             updated 10/13/89                  5011
    5     oxygen-16      endf/b-iv mat 1276             updated 10/13/89                  8016
    6     oxygen-16      endf/b-iv mat 1276             updated 10/13/89                     6
    7     kr-83          mt=102,103,103,105,106,107     updated 10/13/89                 36083
    8     kr-85            mt=  102                                                       36085
    9     sr-90          mt=102                         updated 10/13/89                 38090
   10      y-89          mt=102                         updated 10/13/89                 39089
   11     zr-93            mt=  102                                                       40093
   12     zr-94          mt=102                         updated 10/13/89                 40094
   13     zr-95          mt=102                         updated 10/13/89                 40095
   14     zircalloy      endf/b-iv mat 1284             updated 10/13/89                 40302
   15     nb-94          mt=102                         updated 10/13/89                 41094
   16     mo-95          mt=102                         updated 10/13/89                 42095
   17     tc-99          mt=102                         updated 10/13/89                 43099
   18     ru-101         mt=102                         updated 10/13/89                 44101
   19     ru-106         mt=102                         updated 10/13/89                 44106
   20     rh-103         mt=102                         updated 10/13/89                 45103
   21     rh-105           mt=  102                                                       45105
   22     pd-105         mt=102                         updated 10/13/89                 46105
   23     pd-108         mt=102                         updated 10/13/89                 46108
   24     silver-109     endf/b-iv mat 1139             updated 10/13/89                 47109
   25     sb-124         mt=102                         updated 10/13/89                 51124
   26     xe-131         mt=102,103,104,105,106         updated 10/13/89                 54131
   27     xe-132         mt=102,103,104,105,106         updated 10/13/89                 54132
   28     xenon-135      endf/b-iv mat 1294             updated 10/13/89                 54135
   29     xe-136           mt=  102, 103, 104, 105, 107                                   54136
   30     cesium-133     endf/b-iv mat 1141             updated 10/13/89                 55133
   31     cs-134         mt=102                         updated 10/13/89                 55134
   32     cs-135           mt=  102                                                       55135
   33     cs-137         mt=102                         updated 10/13/89                 55137
   34     ba-136         mt=102                         updated 10/13/89                 56136
   35     la-139         mt=102                         updated 10/13/89                 57139
   36     ce-144           mt=  102                                                       58144
   37     pr-141         mt=102,103,104,105,106,107     updated 10/13/89                 59141
   38     pr-143         mt=102                         updated 10/13/89                 59143
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   39    nd-143        mt=102                          updated 10/13/89          60143
   40    nd-145        mt=102                          updated 10/13/89          60145
   41    nd-147        mt=102                          updated 10/13/89          60147
   42    pm-147        mt=102                          updated 10/13/89          61147
   43    pm-148          mt=  102                                                61148
   44    sm-147        endf/b-v fission product        updated 10/13/89          62147
   45    sm-149        mt=102,103,107                  updated 10/13/89          62149
   46    sm-150        mt=102                          updated 10/13/89          62150
   47    sm-151        mt=102,103,104,105,106,107      updated 10/13/89          62151
   48    sm-152        mt=102,103,104,105,106,107      updated 10/13/89          62152
   49    eu-153        mt=102,103,104,105,106,107      updated 10/13/89          63153
   50    eu-154        mt=102,103,104,105,106,107      updated 10/13/89          63154
   51    eu-155        mt=102,103,104,105,106,107      updated 10/13/89          63155
   52    gd-155        mt=102                          updated 10/13/89          64155
   53   u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      92234
   54    uranium-235   endf/b-iv mat 1261              updated 10/13/89          92235
   55   u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      92236
   56    uranium-238   endf/b-iv mat 1262              updated 10/13/89          92238
   57    neptunium-237 endf/b-iv mat 1263              updated 10/13/89          93237
   58   pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      94238
   59    plutonium-239 endf/b-iv mat 1264              updated 10/13/89          94239
   60    plutonium-240 endf/b-iv mat 1265              updated 10/13/89          94240
   61    plutonium-241 endf/b-iv mat 1266              updated 10/13/89          94241
   62    plutonium-242 endf/b-iv mat 1161              updated 10/13/89          94242
   63   am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                            95241
   64   am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                             95243
   65    curium-244    endf/b-iv mat 1162              updated 10/13/89          96244
01/v cross sections normalized to 1.0 at 0.0253 ev                     999    temperature=   975.00
0 hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89       1001    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                     5010    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160             updated 10/13/89       5011    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276             updated 10/13/89       8016    temperature=   975.00
0 oxygen-16      endf/b-iv mat 1276             updated 10/13/89          6    temperature=   607.60
0 kr-83          mt=102,103,103,105,106,107     updated 10/13/89      36083    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    82.202          temperature(kelvin)       =   975.000
0potential scatter sigma  =     7.004          lumped nuclear density    = 1.5718290E-07
0spin factor (g)          =  4988.190          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.0863758E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 1.2120566E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11      -7.007637E-05    .000000E+00   -1.064840E-04
  12       2.169233E-02    .000000E+00    9.918883E-03
  13      -5.551231E-02    .000000E+00   -2.176956E-02
  14       4.784844E-05    .000000E+00   -1.725850E-05
0excess resonance integrals
0                resolved
0absorption      1.45215E+02
 fission          .00000E+00
- elapsed time    .00 min.
0 kr-85           mt=  102                                            36085    temperature=   975.00
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0 sr-90        mt=102                    updated 10/13/89          38090    temperature=  975.00
0 y-89         mt=102                    updated 10/13/89          39089    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   88.142          temperature(kelvin)      =   975.000
0potential scatter sigma  =    3.644          lumped nuclear density   = 5.5999971E-07
0spin factor (g)          =   78.664          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 3.0492819E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.933             sigma(per absorber atom)= 3.4020478E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   9     1.147057E-06    .000000E+00   1.964017E-04
  10    -8.969451E-07    .000000E+00  -2.405887E-06
0excess resonance integrals
0              resolved
0absorption   1.46522E-01
 fission       .00000E+00
- elapsed time    .00 min.
0 zr-93        mt=  102                                                40093    temperature=  975.00
0 zr-94        mt=102                    updated 10/13/89          40094    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   93.100          temperature(kelvin)      =   975.000
0potential scatter sigma  =    3.779          lumped nuclear density   = 1.9144359E-06
0spin factor (g)          =  180.853          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 8.9195828E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.933             sigma(per absorber atom)= 9.9514734E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   8     1.752696E-07    .000000E+00   1.280213E-04
   9    -2.652779E-06    .000000E+00  -2.404757E-04
0excess resonance integrals
0              resolved
0absorption   3.44332E-02
 fission       .00000E+00
- elapsed time    .00 min.
0 zr-95        mt=102                    updated 10/13/89          40095    temperature=  975.00
0 zircalloy    endf/b-iv mat 1284        updated 10/13/89          40302    temperature=  650.00
0resonance data for this nuclide
0mass number (a)          =   90.436          temperature(kelvin)      =   650.000
0potential scatter sigma  =    6.335          lumped nuclear density   = 4.2515602E-02
0spin factor (g)          =    1.079          lump dimension (a-bar)   = 5.4610002E-01
0inner radius             = 4.7878999E-01     dancoff correction (c)   = 5.0364637E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   8    -1.780696E-03    .000000E+00  -1.286907E+00
   9    -5.895373E-02    .000000E+00  -2.695297E+00
  10    -6.959935E-02    .000000E+00  -1.601321E+00
  11    -1.885957E-01    .000000E+00  -7.920912E-01
0excess resonance integrals
```

```
0                 resolved
0absorption       2.28539E-01
 fission           .00000E+00
- elapsed time    .02 min.
0 rb-94          mt=102                    updated 10/13/89          41094     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    93.101          temperature(kelvin)       =   975.000
0potential scatter sigma  =     3.779          lumped nuclear density    = 5.3619826E-13
0spin factor (g)          = 43808.801          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 3.1846371E+11
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 3.5530621E+11
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  13       1.043536E-02     .000000E+00    9.254236E-04
  14       9.836719E-03     .000000E+00   -4.064797E-04
0excess resonance integrals
0                 resolved
0absorption       9.15001E+01
 fission           .00000E+00
- elapsed time    .02 min.
0 mo-95          mt=102                    updated 10/13/89          42095     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    94.091          temperature(kelvin)       =   975.000
0potential scatter sigma  =     3.806          lumped nuclear density    = 2.5028831E-07
0spin factor (g)          =   607.724          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 6.8225200E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 7.6118050E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  10      -1.314701E-04     .000000E+00   -5.604130E-05
  11       9.917398E-05     .000000E+00   -1.432015E-04
  12      -6.555217E-02     .000000E+00   -7.786971E-02
  13       1.614598E-04     .000000E+00   -2.769205E-05
0excess resonance integrals
0                 resolved
0absorption       1.03129E+02
 fission           .00000E+00
- elapsed time    .02 min.
0 tc-99          mt=102                    updated 10/13/89          43099     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    98.150          temperature(kelvin)       =   975.000
0potential scatter sigma  =     6.000          lumped nuclear density    = 1.7770319E-06
0spin factor (g)          =  4527.940          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 9.6092641E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 1.0720943E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
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0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -2.032939E-03     .000000E+00    -9.781914E-04
  12      -3.433435E-04     .000000E+00    -3.992052E-06
  13      -3.315390E-02     .000000E+00    -1.799115E-03
  14      -7.441444E-01     .000000E+00    -2.450169E-02
  15       1.072025E-02     .000000E+00    -5.412184E-04
  16       4.836158E-03     .000000E+00    -2.802598E-04
  17       2.074484E-04     .000000E+00    -1.191909E-05
0excess resonance integrals
0                 resolved
0absorption      3.34362E+02
 fission          .00000E+00
- elapsed time    .03 min.
0 ru-101        mt=102                    updated 10/13/89            44101     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   100.039          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.965          lumped nuclear density   = 1.5672425E-06
0spin factor (g)          =   8785.290         lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.0895549E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 1.2156036E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -3.530341E-02     .000000E+00    -3.627792E-03
  12       3.445391E-02     .000000E+00     1.693120E-03
  13      -3.580828E-02     .000000E+00    -9.759386E-04
  14       2.380160E-04     .000000E+00    -4.197040E-05
0excess resonance integrals
0                 resolved
0absorption      7.99648E+01
 fission          .00000E+00
- elapsed time    .03 min.
0 ru-106        mt=102                    updated 10/13/89            44106     temperature=   975.00
0 rh-103        mt=102                    updated 10/13/89            45103     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   102.021          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.408          lumped nuclear density   = 4.5991399E-07
0spin factor (g)          =      .500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 3.7128616E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 4.1423959E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9       1.322986E-03     .000000E+00     2.155805E-03
  10      -1.406820E-03     .000000E+00    -2.137499E-03
  11      -4.716894E-04     .000000E+00    -6.202842E-04
  12       5.042953E-05     .000000E+00    -1.266816E-05
  13        .000000E+00     .000000E+00     .000000E+00
  14        .000000E+00     .000000E+00     .000000E+00
  15       2.330571E-01     .000000E+00     3.442109E-03
  16       4.040019E+01     .000000E+00    -2.952411E-02
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  17      -1.811418E+02     .000000E+00   -1.294069E-01
  18       8.811710E+01     .000000E+00    2.621465E-01
  19       1.161939E+01     .000000E+00   -1.825308E-03
  20       1.097992E+00     .000000E+00   -2.562609E-03
  21       2.166123E-01     .000000E+00    1.924473E-03
  22       2.583952E-01     .000000E+00    2.928509E-03
  23      -9.881767E-02     .000000E+00    1.799271E-03
0excess resonance integrals
0                  resolved
0absorption       1.16621E+03
 fission           .00000E+00
- elapsed time    .07 min.
0 rh-105           mt=  102                                          45105     temperature=   975.00
0 pd-105        mt=102                      updated 10/13/89          46105     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   104.004          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.069          lumped nuclear density   = 3.6650164E-07
0spin factor (g)          = 15210.000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 4.6591797E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 5.1981919E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  12      -4.449027E-02     .000000E+00   -3.682612E-04
  13       5.071309E-02     .000000E+00    4.354690E-04
  14       7.783609E-04     .000000E+00   -8.185214E-05
0excess resonance integrals
0                  resolved
0absorption       6.13337E+01
 fission           .00000E+00
- elapsed time    .07 min.
0 pd-108        mt=102                      updated 10/13/89          46108     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   106.977          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.146          lumped nuclear density   = 4.7424962E-08
0spin factor (g)          = 21175.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 3.6006290E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 4.0171793E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  11       1.170738E-04     .000000E+00    3.533151E-04
  12      -3.023156E-02     .000000E+00   -2.297723E-02
  13       6.979191E-03     .000000E+00    1.813165E-03
  14       8.561563E-02     .000000E+00   -3.205774E-05
  15      -1.840067E-01     .000000E+00    8.083946E-05
  16       2.946583E-04     .000000E+00   -9.255608E-06
0excess resonance integrals
0                  resolved
0absorption       2.14081E+02
 fission           .00000E+00
- elapsed time    .07 min.
```

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0 silver-109     endf/b-iv mat 1139          updated 10/13/89          47109     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  107.969              temperature(kelvin)      =   975.000
0potential scatter sigma  =    4.988              lumped nuclear density   = 2.9133252E-08
0spin factor (g)          = 1441.870              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995                 sigma(per absorber atom)= 5.8613330E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.953                 sigma(per absorber atom)= 6.5394200E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10      3.559254E-05     .000000E+00    8.195275E-05
  11      4.112723E-04     .000000E+00    2.008312E-04
  12     -6.966888E-01     .000000E+00   -3.053876E-02
  13      7.673391E-01     .000000E+00    3.380763E-02
  14      1.471428E-01     .000000E+00   -2.159336E-03
0excess resonance integrals
0                 resolved
0absorption      1.40385E+03
 fission          .00000E+00
- elapsed time    .08 min.
0 sb-124        mt=102                        updated 10/13/89          51124     temperature=  975.00
0 xe-131        mt=102,103,104,105,106        updated 10/13/89          54131     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  129.781              temperature(kelvin)      =   975.000
0potential scatter sigma  =    4.301              lumped nuclear density   = 7.4926834E-07
0spin factor (g)          =  246.825              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995                 sigma(per absorber atom)= 2.2790192E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.953                 sigma(per absorber atom)= 2.5426748E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9      9.295499E-08     .000000E+00    2.277645E-07
  10     -9.651885E-07     .000000E+00    8.448204E-06
  11     -1.101953E-04     .000000E+00   -1.165399E-04
  12     -3.101842E-03     .000000E+00   -2.983734E-04
  13     -6.808714E+00     .000000E+00   -1.607342E+01
  14      1.129630E-02     .000000E+00    1.579549E-02
0excess resonance integrals
0                 resolved
0absorption      8.32449E+02
 fission          .00000E+00
- elapsed time    .08 min.
0 xe-132        mt=102,103,104,105,106        updated 10/13/89          54132     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  130.771              temperature(kelvin)      =   975.000
0potential scatter sigma  =    4.301              lumped nuclear density   = 1.2684194E-06
0spin factor (g)          =  675.899              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995                 sigma(per absorber atom)= 1.3462400E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.953                 sigma(per absorber atom)= 1.5019841E+05
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0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9      -1.566102E-06     .000000E+00   -4.532205E-06
  10      -5.907378E-04     .000000E+00   -7.536434E-03
  11       3.346802E-08     .000000E+00   -9.308126E-07
0excess resonance integrals
0                resolved
0absorption      9.83393E-01
 fission          .0000E+00
- elapsed time    .08 min.
0 xenon-135     endf/b-iv mat 1294          updated 10/13/89              54135     temperature=  975.00
0 xe-136          mt=  102, 103, 104, 105, 107                            54136     temperature=  975.00
0 cesium-133    endf/b-iv mat 1141          updated 10/13/89              55133     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   131.764          temperature(kelvin)      =   975.000
0potential scatter sigma  =     7.100          lumped nuclear density   = 1.8287258E-06
0spin factor (g)          =   374.437          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995            sigma(per absorber atom)= 9.3376414E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051            sigma(per absorber atom)= 1.0015845E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9      -8.437516E-06     .000000E+00    9.105386E-06
  10      -1.919221E-04     .000000E+00   -4.047224E-04
  11      -9.040843E-03     .000000E+00   -1.602248E-02
  12      -1.364221E-02     .000000E+00   -1.943838E-03
  13      -2.195588E-02     .000000E+00   -1.204872E-03
  14      -1.053674E+00     .000000E+00   -4.706611E-02
  15       5.631141E-03     .000000E+00   -4.066079E-04
  16       2.777963E-03     .000000E+00   -2.215676E-04
  17       2.352220E-03     .000000E+00   -1.830804E-04
  18       2.215081E-03     .000000E+00   -1.679524E-04
  19       1.316858E-03     .000000E+00   -9.664818E-05
0excess resonance integrals
0                resolved
0absorption      3.66270E+02
 fission          .0000E+00
- elapsed time    .10 min.
0 cs-134        mt=102                      updated 10/13/89              55134     temperature=  975.00
0 cs-135          mt=  102                                                55135     temperature=  975.00
0 cs-137        mt=102                      updated 10/13/89              55137     temperature=  975.00
0 ba-136        mt=102                      updated 10/13/89              56136     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   134.737          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.835          lumped nuclear density   = 2.1983582E-09
0spin factor (g)          =  1247.690          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995            sigma(per absorber atom)= 7.7676008E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933            sigma(per absorber atom)= 8.6662208E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
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0group        res abs         res fiss        res scat
  10       1.385397E-06     .000000E+00    6.005004E-07
  11       2.594320E-05     .000000E+00    2.223017E-05
0excess resonance integrals
0                resolved
0absorption      1.38477E+00
 fission          .00000E+00
- elapsed time    .10 min.
0 la-139        mt=102                    updated 10/13/89          57139    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   137.713          temperature(kelvin)     =   975.000
0potential scatter sigma  =     4.906          lumped nuclear density  = 1.9145427E-06
0spin factor (g)          =   145.855          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 8.9190852E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 9.9509180E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9       5.121917E-05     .000000E+00    7.292469E-03
  10      -8.648757E-05     .000000E+00   -9.333951E-03
  11        .000000E+00     .000000E+00     .000000E+00
  12      -6.327806E-03     .000000E+00   -3.860514E-03
0excess resonance integrals
0                resolved
0absorption      8.14388E+00
 fission          .00000E+00
- elapsed time    .12 min.
0 ce-144         mt=  102                                            58144    temperature=  975.00
0 pr-141        mt=102,103,104,105,106,107   updated 10/13/89       59141    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   139.697          temperature(kelvin)     =   975.000
0potential scatter sigma  =     4.953          lumped nuclear density  = 9.0762717E-07
0spin factor (g)          =  1026.500          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.8813859E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 2.0990400E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  10      -3.350278E-04     .000000E+00   -1.134887E-02
  11      -5.860446E-03     .000000E+00   -7.827497E-02
  12      -7.141109E-05     .000000E+00   -5.150514E-06
0excess resonance integrals
0                resolved
0absorption      1.22945E+01
 fission          .00000E+00
- elapsed time    .12 min.
0 pr-143        mt=102                    updated 10/13/89          59143    temperature=  975.00
0 nd-143        mt=102                    updated 10/13/89          60143    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   141.682          temperature(kelvin)     =   975.000
0potential scatter sigma  =     5.000          lumped nuclear density  = 1.3160375E-06
0spin factor (g)          =  1964.850          lump dimension (a-bar)  = 4.6812201E-01
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0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995               sigma(per absorber atom)= 1.2975291E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.953               sigma(per absorber atom)= 1.4476378E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  10      -1.795914E-05      .000000E+00     2.725170E-05
  11      -3.079928E-02      .000000E+00    -3.612093E-01
  12      -1.958079E-02      .000000E+00    -9.719688E-03
0excess resonance integrals
0                  resolved
0absorption       5.16188E+01
 fission          .00000E+00
-  elapsed time    .12 min.
0 nd-145         mt=102                    updated 10/13/89              60145     temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =   143.668              temperature(kelvin)       =  975.000
0potential scatter sigma =     5.047              lumped nuclear density    = 1.1702858E-06
0spin factor (g)         =  1007.250              lump dimension (a-bar)    = 4.6812201E-01
0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995               sigma(per absorber atom)= 1.4591281E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.953               sigma(per absorber atom)= 1.6279319E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  10      -3.951190E-04      .000000E+00    -6.503459E-03
  11      -7.208139E-03      .000000E+00    -2.112537E-02
  12      -1.811622E-01      .000000E+00    -1.149293E+00
  13       9.661075E-05      .000000E+00     2.032320E-04
  14      -1.255845E-01      .000000E+00    -3.369452E-03
  15       5.915707E-03      .000000E+00    -4.636812E-04
  16       1.326696E-03      .000000E+00    -1.451393E-04
  17       9.642720E-04      .000000E+00    -1.064080E-04
  18       8.539658E-04      .000000E+00    -9.313533E-05
  19       7.634105E-04      .000000E+00    -8.069882E-05
  20       2.839218E-05      .000000E+00    -2.919774E-06
0excess resonance integrals
0                  resolved
0absorption       2.09875E+02
 fission          .00000E+00
-  elapsed time    .13 min.
0 nd-147         mt=102                    updated 10/13/89              60147     temperature=   975.00
0 pm-147         mt=102                    updated 10/13/89              61147     temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =   145.653              temperature(kelvin)       =  975.000
0potential scatter sigma =     5.093              lumped nuclear density    = 5.2525246E-07
0spin factor (g)         = 21589.500              lump dimension (a-bar)    = 4.6812201E-01
0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995               sigma(per absorber atom)= 3.2510022E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.953               sigma(per absorber atom)= 3.6271047E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
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0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  12       -2.040409E-02     .000000E+00    -7.208588E-03
  13       -5.404604E-03     .000000E+00    -5.833069E-04
  14       -1.221971E+01     .000000E+00    -5.349689E+00
  15        4.140149E-02     .000000E+00     6.998098E-03
  16        1.698019E-02     .000000E+00     1.746873E-03
  17        1.369755E-02     .000000E+00     1.150426E-03
  18        1.253780E-02     .000000E+00     9.649097E-04
  19        6.999617E-04     .000000E+00     5.070222E-05
0excess resonance integrals
0                 resolved
0absorption      2.10647E+03
 fission          .00000E+00
-  elapsed time    .13 min.
0 pm-148          mt=  102                                          61148    temperature=  975.00
0 sm-147       endf/b-v fission product       updated 10/13/89      62147    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 1.3014213E-08
0spin factor (g)          =      .000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.3121015E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 1.4639962E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11        2.967257E-01     .000000E+00     1.149734E+00
  12        1.258913E+00     .000000E+00    -1.239840E+00
  13       -1.807624E+00     .000000E+00    -4.074593E-01
  14       -6.597064E-02     .000000E+00     1.964657E-03
  15        3.121567E-01     .000000E+00    -1.931211E-03
  16        7.287992E-03     .000000E+00    -3.738814E-04
  17        4.281415E-03     .000000E+00    -2.401535E-04
  18        3.510378E-03     .000000E+00    -1.997170E-04
  19        2.910571E-03     .000000E+00    -1.649401E-04
  20        8.435346E-04     .000000E+00    -4.627653E-05
0excess resonance integrals
0                 resolved
0absorption      7.25125E+02
 fission          .00000E+00
-  elapsed time    .15 min.
                          thermal scattering matrix number   3 at a temperature of    900.03 was selected.
0 sm-149       mt=102,103,107              updated 10/13/89      62149    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   147.638          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.260          lumped nuclear density   = 6.3574589E-08
0spin factor (g)          = 10407.900          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 2.6859740E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 2.9967095E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
```

```
  11      8.546689E-03     .000000E+00   3.071200E-02
  12     -5.072578E-02     .000000E+00  -1.737960E-01
  13      2.521316E-02     .000000E+00   3.150472E-03
  14      2.713762E-02     .000000E+00  -5.009187E-03
0excess resonance integrals
0                resolved
0absorption      8.04371E+02
 fission          .00000E+00
- elapsed time    .15 min.
0 sm-150        mt=102                    updated 10/13/89            62150     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   148.629          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.162          lumped nuclear density   = 2.6025995E-07
0spin factor (g)          =  4376.420          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 6.5611206E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 7.3201650E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
  10     -1.683061E-04     .000000E+00  -1.057799E-03
  11     -1.614389E-03     .000000E+00  -2.032840E-02
  12     -4.985373E-03     .000000E+00  -1.511098E-03
  13     -4.439732E-01     .000000E+00  -3.559171E-01
  14      1.066893E-04     .000000E+00  -6.433339E-05
0excess resonance integrals
0                resolved
0absorption      2.94529E+02
 fission          .00000E+00
- elapsed time    .15 min.
0 sm-151        mt=102,103,104,105,106,107    updated 10/13/89            62151     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   149.623          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.185          lumped nuclear density   = 1.0395211E-07
0spin factor (g)          =  7574.703          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.6429926E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 1.8330675E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
  14     -5.597873E-02     .000000E+00  -1.154314E-02
  15      1.502008E+01     .000000E+00   7.627277E-02
  16     -2.169632E+01     .000000E+00  -6.130017E-02
  17      1.743943E+02     .000000E+00   8.344538E-01
  18     -3.199297E+02     .000000E+00  -1.775551E+00
  19      6.259717E+01     .000000E+00   3.869825E-01
  20      1.142084E+00     .000000E+00  -1.454869E-04
  21     -7.117520E-02     .000000E+00   1.244099E-02
  22      6.952579E-02     .000000E+00   3.838905E-03
  23     -1.091952E-02     .000000E+00   3.374090E-04
0excess resonance integrals
0                resolved
0absorption      2.05794E+03
```

```
 fission          .00000E+00
- elapsed time    .15 min.
0 sm-152        mt=102,103,104,105,106,107     updated 10/13/89              62152     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   150.615              temperature(kelvin)       =   975.000
0potential scatter sigma  =     5.208              lumped nuclear density    = 1.1669065E-07
0spin factor (g)          =   863.594              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995                sigma(per absorber atom)= 1.4633536E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933                sigma(per absorber atom)= 1.6326464E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9      2.403188E-06     .000000E+00     1.159107E-04
  10     -6.514932E-06     .000000E+00    -7.579467E-04
  11     -8.335952E-04     .000000E+00    -3.378294E-03
  12     -7.662735E-03     .000000E+00    -2.555129E-02
  13      4.286544E-02     .000000E+00     1.043012E-01
  14     -8.078294E+00     .000000E+00    -1.606656E+01
0excess resonance integrals
0                resolved
0absorption      2.89993E+03
 fission          .00000E+00
- elapsed time    .17 min.
0 eu-153        mt=102,103,104,105,106,107     updated 10/13/89              63153     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   151.607              temperature(kelvin)       =   975.000
0potential scatter sigma  =     9.731              lumped nuclear density    = 5.5470167E-08
0spin factor (g)          = 12265.900              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995                sigma(per absorber atom)= 3.0784060E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933                sigma(per absorber atom)= 3.4345413E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  12     -2.597126E-01     .000000E+00    -5.056223E-02
  13     -2.789283E-02     .000000E+00     2.309569E-03
  14     -4.507691E-01     .000000E+00     5.321742E-03
  15      3.539744E+00     .000000E+00    -1.128380E-02
  16     -3.288790E+00     .000000E+00     8.160900E-03
  17      1.505626E-01     .000000E+00    -3.437863E-03
  18      7.726877E-02     .000000E+00    -2.231234E-03
  19      5.055485E-02     .000000E+00    -1.541142E-03
  20     -1.253799E-01     .000000E+00    -1.275125E-03
0excess resonance integrals
0                resolved
0absorption      1.35650E+03
 fission          .00000E+00
- elapsed time    .18 min.
0 eu-154        mt=102,103,104,105,106,107     updated 10/13/89              63154     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   152.601              temperature(kelvin)       =   975.000
0potential scatter sigma  =     9.731              lumped nuclear density    = 1.6191551E-09
0spin factor (g)          = 19135.801              lump dimension (a-bar)    = 4.6812201E-01
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0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995               sigma(per absorber atom)= 1.0546222E+08
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.953               sigma(per absorber atom)= 1.1766295E+08
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -3.844891E-01     .000000E+00   -6.008866E-02
  13      -2.935247E-01     .000000E+00   -2.422147E-02
  14       3.601668E-01     .000000E+00    1.521403E-02
  15       2.296982E-01     .000000E+00    2.126992E-02
  16       7.321141E+00     .000000E+00    9.281096E-02
  17      -1.436011E+02     .000000E+00   -1.894634E+00
  18       1.138777E+02     .000000E+00    1.860143E+00
  19      -1.014543E+02     .000000E+00    1.187191E+00
0excess resonance integrals
0                 resolved
0absorption      2.13732E+03
 fission          .00000E+00
- elapsed time    .18 min.
0 eu-155        mt=102,103,104,105,106,107    updated 10/13/89          63155    temperature=  975.00
0 gd-155        mt=102                        updated 10/13/89          64155    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   153.592             temperature(kelvin)     =   975.000
0potential scatter sigma =     5.277             lumped nuclear density  = 1.0298096E-10
0spin factor (g)         = 12700.100             lump dimension (a-bar)  = 4.6812201E-01
0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995               sigma(per absorber atom)= 1.6691342E+09
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.933               sigma(per absorber atom)= 1.8510764E+09
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -1.439253E+00     .000000E+00   -1.839414E-01
  13       1.541435E+00     .000000E+00    1.985424E-01
  14       2.192417E-01     .000000E+00    9.810260E-03
  15      -3.289537E-01     .000000E+00    4.624879E-05
  16       1.477360E+00     .000000E+00   -4.148879E-03
  17       1.568659E-01     .000000E+00   -1.479158E-03
  18       9.605154E-02     .000000E+00   -1.078060E-03
  19       6.295321E-02     .000000E+00   -8.026583E-04
  20       1.670435E-02     .000000E+00    1.626720E-04
  21        .000000E+00     .000000E+00     .000000E+00
  22        .000000E+00     .000000E+00     .000000E+00
  23        .000000E+00     .000000E+00     .000000E+00
  24        .000000E+00     .000000E+00     .000000E+00
  25      -2.127644E+03     .000000E+00   -1.621878E+00
  26      -5.205572E+03     .000000E+00    1.961425E+00
  27      -1.659929E+03     .000000E+00    7.392391E-01
0excess resonance integrals
0                 resolved
0absorption      3.97086E+04
 fission          .00000E+00
- elapsed time    .20 min.
0u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                 92234    temperature=  975.00
0resonance data for this nuclide
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0mass number (a)          =  232.029          temperature(kelvin)      =  975.000
0potential scatter sigma  =   10.021          lumped nuclear density   = 5.4537390E-06
0spin factor (g)          = 6948.450          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 3.1310574E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.985             sigma(per absorber atom)= 3.4922141E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11     -2.611689E-02    .000000E+00   -7.612181E-02
  12     -2.126682E-01    .000000E+00   -8.919528E-02
  13      7.759202E-04    .000000E+00   -6.469444E-04
  14     -2.071877E+01    .000000E+00   -3.392051E+00
0excess resonance integrals
0                resolved
0absorption     5.79095E+02
 fission        .00000E+00
-  elapsed time    .20 min.
0 uranium-235   endf/b-iv mat 1261          updated 10/13/89          92235     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =  233.025          temperature(kelvin)      =  975.000
0potential scatter sigma  =   11.500          lumped nuclear density   = 6.5764709E-04
0spin factor (g)          = 15171.100         lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 2.5965250E+02
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  238.049             sigma(per absorber atom)= 2.7865057E+02
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  12     -2.678189E+00   -1.667779E+00   -6.244083E-02
  13     -9.037070E+00   -4.490606E+00   -1.940758E-01
  14     -7.249037E+00   -4.421912E+00   -4.915668E-02
0excess resonance integrals
0                resolved
0absorption     2.05799E+02
 fission        1.22777E+02
-  elapsed time    .22 min.
0u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      92236     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =  234.017          temperature(kelvin)      =  975.000
0potential scatter sigma  =   10.995          lumped nuclear density   = 9.3700974E-06
0spin factor (g)          = 6328.450          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 1.8223898E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.954             sigma(per absorber atom)= 2.0528641E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11     -4.831673E-02    .000000E+00   -1.159989E-01
  12     -2.168180E-01    .000000E+00   -1.716520E-01
  13     -5.450143E-02    .000000E+00   -3.220878E-03
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  14      -9.747294E+00     .000000E+00   -8.535867E-01
0excess resonance integrals
0                  resolved
0absorption       3.21073E+02
 fission           .0000E+00
- elapsed time     .22 min.
0 uranium-238   endf/b-iv mat 1262          updated 10/13/89          92238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.006          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density   = 2.2047726E-02
0spin factor (g)          =   666.527          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 7.7450018E+00
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   235.041              sigma(per absorber atom)= 3.3347785E-01
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9      -3.951845E-02     .000000E+00   -4.057914E-01
  10      -1.027710E+00   -1.758659E-05   -6.491040E+00
  11      -9.712980E+00     .000000E+00   -2.690844E+01
  12      -4.305748E+01     .000000E+00   -4.999686E+01
  13      -5.402344E+01     .000000E+00   -1.769432E+01
  14      -1.045186E+02     .000000E+00   -6.060695E+00
0excess resonance integrals
0                  resolved
0absorption       1.79540E+01
 fission          5.08833E-04
- elapsed time     .23 min.
0 neptunium-237  endf/b-iv mat 1263          updated 10/13/89          93237     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   235.012          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.500          lumped nuclear density   = 1.4503298E-07
0spin factor (g)          = 10100.800          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.1773851E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.2628999E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      -6.300456E-02   -1.849998E-06   -7.370356E-03
  12       4.587611E-02   -7.972195E-05    9.659518E-03
  13       4.458425E-02    9.277667E-05    1.734402E-03
  14       1.792238E-02    1.408681E-06   -5.424600E-04
0excess resonance integrals
0                  resolved
0absorption       2.93257E+02
 fission          1.38610E-01
- elapsed time     .27 min.
0pu-238 1050 sigo=5+4 new-klacs p-3 298k f-1/e-m(1.+5)                        94238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.167          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.890          lumped nuclear density   = 1.7291568E-09
0spin factor (g)          = 13130.600          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
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0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 9.8753152E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.0592570E+08
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11       4.118560E-04    7.149554E-05    3.083266E-04
  12       3.330833E-04    4.031993E-05    1.176153E-04
  13       4.169017E-01    7.581078E-02   -9.003851E-03
  14      -3.821986E-01   -6.987093E-02    8.538968E-03
0excess resonance integrals
0                  resolved
0absorption       8.25559E+01
 fission          9.08580E+00
- elapsed time     .27 min.
0 plutonium-239  endf/b-iv mat 1264          updated 10/13/89          94239     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.999          temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.200          lumped nuclear density    = 1.5953416E-05
0spin factor (g)          =  6435.710          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.0703645E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.1481062E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -3.307465E-02   -1.302456E-02   -1.037173E-02
  12      -3.050663E-01   -1.139565E-01   -4.043588E-02
  13      -1.019066E+00   -6.017618E-01   -1.484912E-02
  14      -3.148845E-01   -1.654496E-01   -3.384406E-03
0excess resonance integrals
0                  resolved
0absorption       3.17688E+02
 fission          1.78181E+02
- elapsed time     .28 min.
0 plutonium-240  endf/b-iv mat 1265          updated 10/13/89          94240     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   237.992          temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density    = 4.3919763E-07
0spin factor (g)          =   669.244          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 3.8879919E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 4.1703809E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9      -1.008772E-05    1.570376E-07    5.930599E-05
  10      -4.365462E-05   -3.644221E-06   -2.292318E-04
  11      -2.966929E-03   -1.695186E-05   -4.080039E-03
  12      -4.489477E-02   -2.454242E-04   -4.435376E-02
  13      -4.563926E-03   -2.798445E-05   -3.368801E-04
  14        .000000E+00     .000000E+00     .000000E+00
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  15       1.759898E-02   3.358843E-06   3.504733E-03
  16       3.373545E+00   6.438560E-04   4.311619E-01
  17       5.702000E+02   1.088252E-01   5.169532E+01
  18      -2.762740E+03  -5.272812E-01  -2.215981E+02
  19       1.044371E+03   1.995229E-01   7.936691E+01
  20      -9.244925E+01  -1.764435E-02   1.799040E+00
0excess resonance integrals
0                resolved
0absorption      8.26108E+03
 fission         2.60355E+00
- elapsed time    .30 min.
0 plutonium-241  endf/b-iv mat 1266          updated 10/13/89          94241     temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =  238.978          temperature(kelvin)      =  975.000
0potential scatter sigma =   10.939          lumped nuclear density   = 3.2676517E-08
0spin factor (g)         = 16402.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995          sigma(per absorber atom)= 5.2257610E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  238.051          sigma(per absorber atom)= 5.6053140E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  12      1.372528E-02   1.225321E-02   6.796907E-04
  13     -2.650113E-02  -2.718522E-02  -1.892098E-03
  14      6.810925E-02   6.103687E-02   1.410021E-03
  15      1.801013E-02   1.614665E-02  -4.659224E-04
0excess resonance integrals
0                resolved
0absorption      5.09537E+02
 fission         4.27107E+02
- elapsed time    .32 min.
0 plutonium-242  endf/b-iv mat 1161          updated 10/13/89          94242     temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =  240.145          temperature(kelvin)      =  975.000
0potential scatter sigma =   10.694          lumped nuclear density   = 2.8698505E-10
0spin factor (g)         = 6606.710          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995          sigma(per absorber atom)= 5.9501248E+08
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  238.051          sigma(per absorber atom)= 6.3822893E+08
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11      1.679452E-04   .000000E+00   2.904724E-04
  12      1.326794E-03   .000000E+00   1.980113E-03
  13      1.259602E-04   .000000E+00   4.977790E-06
  14      8.150859E-02   .000000E+00   1.527816E-02
  15      5.440519E-01   .000000E+00   5.107752E-03
  16      4.034123E-02   .000000E+00  -3.459572E-03
  17      1.550421E-02   .000000E+00  -1.848309E-03
  18      1.112563E-02   .000000E+00  -1.430716E-03
0excess resonance integrals
0                resolved
0absorption      1.11244E+03
 fission          .00000E+00
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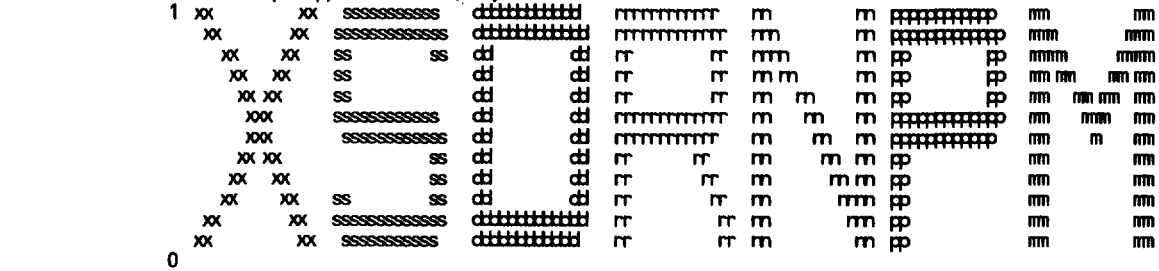
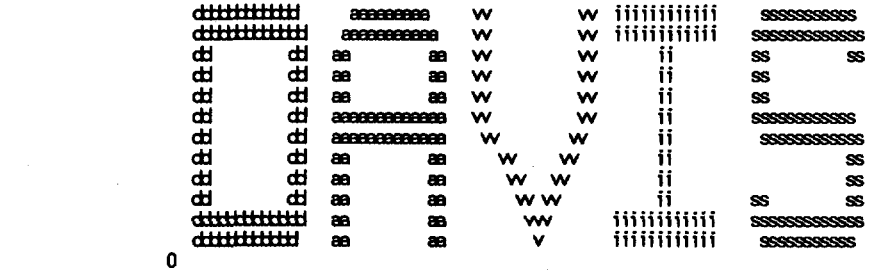
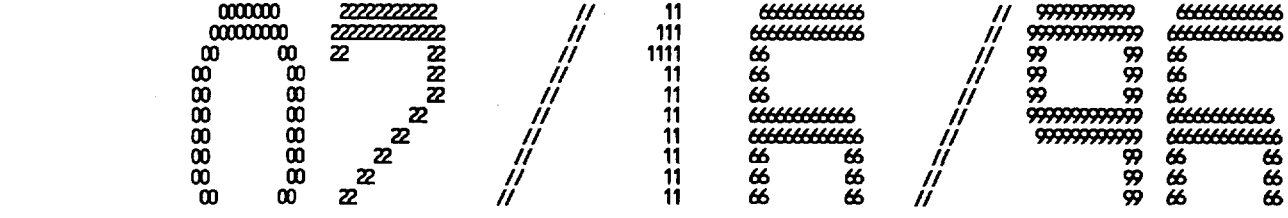
- elapsed time    .32 min.
0am-241 1056 sigp=5+4 new+lacs 218ngp p-3 293k                    95241    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   238.950          temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.511          lumped nuclear density   = 8.4826070E-11
0spin factor (g)          = 82058.203          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 2.0130666E+09
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 2.1592673E+09
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  13      4.924914E-01    1.213001E-02    4.968112E-03
  14     -4.283253E-01   -1.106702E-02   -4.417266E-03
0excess resonance integrals
0                resolved
0absorption     1.95478E+02
 fission        1.07615E+00
- elapsed time    .32 min.
0am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                     95243    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   240.940          temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.511          lumped nuclear density   = 1.7620729E-12
0spin factor (g)          = 82052.602          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 9.6908411E+10
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 1.0894698E+11
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  13     -6.599347E-03    .000000E+00    4.388259E-04
  14      2.233646E-02    .000000E+00    2.374189E-04
0excess resonance integrals
0                resolved
0absorption     1.60152E+02
 fission        .00000E+00
- elapsed time    .32 min.
0 curium-244     endf/b-iv mat 1162          updated 10/13/89      96244    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   242.133          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.320          lumped nuclear density   = 1.1760777E-14
0spin factor (g)          =  5251.150          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.4519421E+13
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 1.5573983E+13
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      2.589577E-04    7.085153E-06    3.064246E-04
  12      7.070909E-04    3.316986E-05    1.405958E-04
  13      2.721885E-03    1.336778E-04    7.128943E-04
```

```
  14      8.471698E-02   5.068537E-03   1.607083E-02
0excess resonance integrals
0                 resolved
0absorption       6.13904E+02
 fission          3.54222E+01
- elapsed time    .33 min.
- elapsed time    .33 min.
1     this xsdrn working tape was created 02/16/96 at 09:55:49
      the title of the parent case is as follows
      scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
         tape id                          4321        number of nuclides                  65
         number of neutron groups           27        number of gamma groups               0
         first thermal group                15        logical unit                         4
                                  table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id      999
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89             id     1001
       b-10 1273 218ngp 042375 p-3 293k                                           id     5010
        boron-11       endf/b-iv mat 1160            updated 10/13/89             id     5011
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id     8016
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id        6
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89             id    36083
        kr-85            mt=  102                                                 id    36085
        sr-90          mt=102                        updated 10/13/89             id    38090
         y-89          mt=102                        updated 10/13/89             id    39089
        zr-93            mt=  102                                                 id    40093
        zr-94          mt=102                        updated 10/13/89             id    40094
        zr-95          mt=102                        updated 10/13/89             id    40095
        zircalloy      endf/b-iv mat 1284            updated 10/13/89             id    40302
        nb-94          mt=102                        updated 10/13/89             id    41094
        mo-95          mt=102                        updated 10/13/89             id    42095
        tc-99          mt=102                        updated 10/13/89             id    43099
        ru-101         mt=102                        updated 10/13/89             id    44101
        ru-106         mt=102                        updated 10/13/89             id    44106
        rh-103         mt=102                        updated 10/13/89             id    45103
        rh-105           mt=  102                                                 id    45105
        pd-105         mt=102                        updated 10/13/89             id    46105
        pd-108         mt=102                        updated 10/13/89             id    46108
        silver-109     endf/b-iv mat 1139            updated 10/13/89             id    47109
        sb-124         mt=102                        updated 10/13/89             id    51124
        xe-131         mt=102,103,104,105,106        updated 10/13/89             id    54131
        xe-132         mt=102,103,104,105,106        updated 10/13/89             id    54132
        xenon-135      endf/b-iv mat 1294            updated 10/13/89             id    54135
        xe-136           mt=  102, 103, 104, 105, 107                             id    54136
        cesium-133     endf/b-iv mat 1141            updated 10/13/89             id    55133
        cs-134         mt=102                        updated 10/13/89             id    55134
        cs-135           mt=  102                                                 id    55135
        cs-137         mt=102                        updated 10/13/89             id    55137
        ba-136         mt=102                        updated 10/13/89             id    56136
        la-139         mt=102                        updated 10/13/89             id    57139
        ce-144           mt=  102                                                 id    58144
        pr-141         mt=102,103,104,105,106,107    updated 10/13/89             id    59141
        pr-143         mt=102                        updated 10/13/89             id    59143
        nd-143         mt=102                        updated 10/13/89             id    60143
        nd-145         mt=102                        updated 10/13/89             id    60145
        nd-147         mt=102                        updated 10/13/89             id    60147
        pm-147         mt=102                        updated 10/13/89             id    61147
        pm-148           mt=  102                                                 id    61148
        sm-147         endf/b-v fission product      updated 10/13/89             id    62147
```



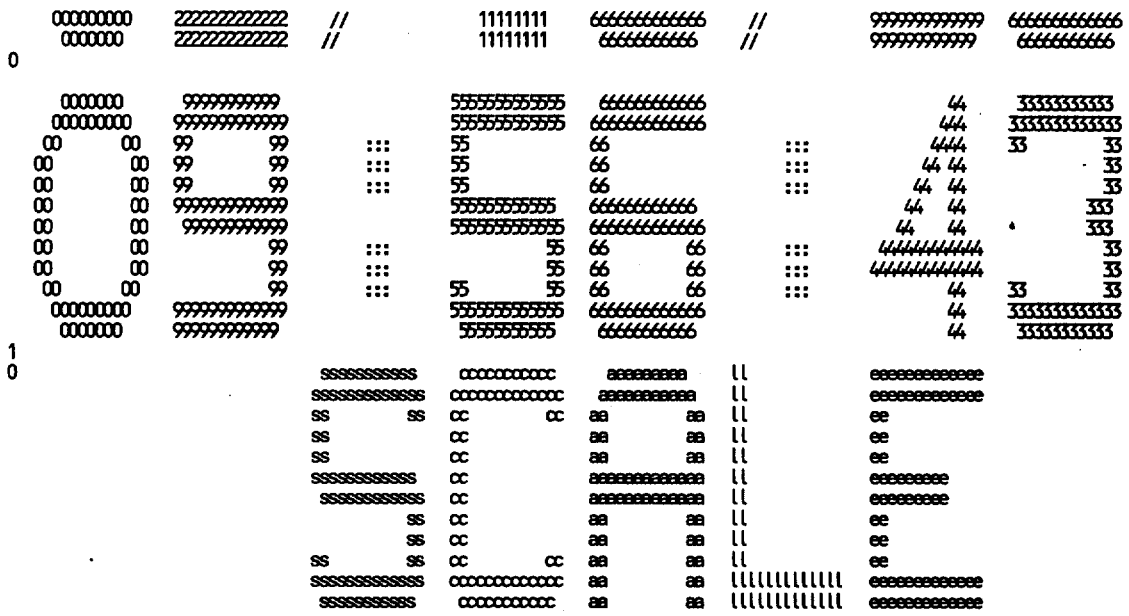




```
        sm-149        mt=102,103,107                  updated 10/13/89          id    62149
        sm-150        mt=102                          updated 10/13/89          id    62150
        sm-151        mt=102,103,104,105,106,107      updated 10/13/89          id    62151
        sm-152        mt=102,103,104,105,106,107      updated 10/13/89          id    62152
        eu-153        mt=102,103,104,105,106,107      updated 10/13/89          id    63153
        eu-154        mt=102,103,104,105,106,107      updated 10/13/89          id    63154
        eu-155        mt=102,103,104,105,106,107      updated 10/13/89          id    63155
        gd-155        mt=102                          updated 10/13/89          id    64155
       u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     id    92234
        uranium-235   endf/b-iv mat 1261              updated 10/13/89          id    92235
       u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     id    92236
        uranium-238   endf/b-iv mat 1262              updated 10/13/89          id    92238
        neptunium-237 endf/b-iv mat 1263              updated 10/13/89          id    93237
       pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    94238
        plutonium-239 endf/b-iv mat 1264              updated 10/13/89          id    94239
        plutonium-240 endf/b-iv mat 1265              updated 10/13/89          id    94240
        plutonium-241 endf/b-iv mat 1266              updated 10/13/89          id    94241
        plutonium-242 endf/b-iv mat 1161              updated 10/13/89          id    94242
       am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                           id    95241
       am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                            id    95243
        curium-244    endf/b-iv mat 1162              updated 10/13/89          id    96244
0        tape copy used      0 i/o's, and took     .00 seconds
1 xx        xx  sssssssssss  dddddddddd  rrrrrrrrrrr  rn        rn  pppppppppp  mm        mm
   xx      xx  sssssssssssss dddddddddd  rrrrrrrrrrr  rnn       rn  pppppppppp  mmm       mmm
     xx    xx  ss        ss  dd       dd  rr       rr  rnnn      rn  pp       pp  mmmm     mmmm
      xx  xx   ss            dd       dd  rr       rr  rn rn     rn  pp       pp  mm mm   mm mm
       xx xx   ss            dd       dd  rr       rr  rn  rn    rn  pp       pp  mm  mm mm  mm
        xxx     sssssssssssss dd       dd  rrrrrrrrrrr  rn   rn   rn  pppppppppp  mm   mmm   mm
        xxx      sssssssssssss dd       dd  rrrrrrrrrrr  rn    rn  rn  pppppppppp  mm    m    mm
       xx xx              ss  dd       dd  rr      rr   rn     rn rn  pp          mm         mm
      xx  xx              ss  dd       dd  rr       rr  rn      rn rn  pp          mm         mm
     xx    xx  ss        ss  dd       dd  rr        rr  rn       rnn  pp          mm         mm
   xx      xx  sssssssssssss dddddddddd  rr         rr  rn        rnn  pp          mm         mm
  xx        xx  sssssssssss  dddddddddd  rr         rr  rn         rn  pp          mm         mm
0

  dddddddddd    aaaaaaaaa   w         w  iiiiiiiiiiii   sssssssssss
  dddddddddd   aaaaaaaaaaa  w         w  iiiiiiiiiiii   sssssssssssss
  dd       dd  aa        aa  w         w      ii        ss        ss
  dd       dd  aa        aa  w         w      ii        ss
  dd       dd  aa        aa  w         w      ii        ss
  dd       dd  aaaaaaaaaaaaa w         w      ii        sssssssssss
  dd       dd  aaaaaaaaaaaaa  w       w       ii         sssssssssss
  dd       dd  aa        aa    w     w        ii                  ss
  dd       dd  aa        aa     w   w         ii                  ss
  dd       dd  aa        aa      w w          ii        ss        ss
  dddddddddd   aa        aa       ww      iiiiiiiiiiii   sssssssssssss
  dddddddddd   aa        aa        v      iiiiiiiiiiii    sssssssssss
0

    0000000     22222222222          //      11      666666666666          //  99999999999   666666666666
   000000000    2222222222222        //     111      6666666666666         //  9999999999999  6666666666666
  00      00   22        22          //    1111      66                    //  99        99  66
  00       00            22         //       11      66                    //  99        99  66
  00       00            22        //        11      66                   //  99        99  66
  00       00          22         //         11      666666666666        //   9999999999999  666666666666
  00       00        22          //          11      6666666666666       //    999999999999  6666666666666
  00       00      22           //           11      66        66       //              99  66        66
  00       00    22            //            11      66        66      //               99  66        66
   00      00   22            //             11      66        66     //                99  66        66
```




```
*****************************************************************
*****************************************************************
*****************************************************************
*****                                                       *****
*****                program verification information       *****
*****                                                       *****
*****                code system:  scale  version:  4.2     *****
*****                                                       *****
*****************************************************************
*****************************************************************
*****                                                       *****
*****                                                       *****
*****          program:  c0c001                             *****
*****                                                       *****
*****     creation date:  04/27/95                          *****
*****                                                       *****
*****          library:  /neutronics/scale/exe              *****
*****                                                       *****
*****                                                       *****
*****  this is not a  scale  configuration controlled code  *****
*****                                                       *****
*****          jobname:  davis                              *****
*****                                                       *****
*****  date of execution:  02/16/96                         *****
*****                                                       *****
*****  time of execution:  09:56:43                         *****
```

```
                    *****                                                                  *****
                    *****                                                                  *****
                    ***********************************************************************
                    ***********************************************************************
                    ***********************************************************************
1
                    80 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0      -1q array has     1 entries.
0       1q array has    15 entries.
0       2q array has    10 entries.
0       3q array has    12 entries.
0       4q array has     9 entries.
0       5q array has    12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                   80 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0general problem description data block
0                          general problem data

 ige  1/2/3 = plane/cylinder/sphere      2       isn  quadrature order                  8
 izm  number of zones                    4       isct order of scattering               3
 im   number of special intervals       24       ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1       iim  inner iteration maximum          20
 ibr  right boundary condition           3       iom  outer iteration maximum          25
 mxx  number of mixtures                 3       iclc -1/0/n--flat res/sn/opt           0
 ms   mixing table length               65       ith  0/1 = forward/adjoint             0
 igm  number of energy groups           27       iflu not used(always wgtd)             0
 nng  number of neutron groups          27       iprt -2/-1/0/n=mixture xsec print     -2
 ngg  number of gamma groups             0       id1  0/1/2/3=no/prt nd/pch n/both     53
 iftg number of first thermal group     15       ipbt -1/0/1=none/fine/all bal. prt     0
0                          special options

 ifg  0/1 = none/weighting calculation   1       ipn  0/1/2 diff. coef. param           0
 iqm  volumetric sources (0/n=no/yes)    0       idfm 0/1 = none/density factors 38*    1
 ipm  boundary sources (0/n=no/yes)      0       iaz  0/n = none/n activities by zone   0
 ifn  0/1/2 = input 33*/34*/use last    53       iai  0/1=none/activities by interval   0
 itmx maximum time (minutes)            10       ifct 0/1=no/yes upscatter scaling      0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0       ipvt 0/1/2=no/k/alpha parametric srch  0
 isx  broad group fluxes                 0       isen outer iteration acceleration      0
 ibln activity data unit                 0       nbnd band rebaln parameter             0
 jbkl 0/1/2 buckling geometry            0
0                          weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1       ihtf total xsect psn in brd gp tables  3
 igmf number of broad groups            27       ndsf psn g-g or file number            4
 itp  0/10/20/30/40 0/c/e/ac/a           0       nusf table length or max order         4
 ipp  -2/-1/0/n=wgted xsect print       -2       msom extra 1-d x-sect positions        0
 iap  -1/n anisn xsect print            -1
0                          floating point parameters

 eps  overall convergence       1.00000E-04      dy   cyl/pla ht for buckling    .00000E+00
 ptc  point convergence         1.00000E-04      dz   plane depth for buckling   .00000E+00
 xnf  normalization factor      1.00000E+00      vsc  void streaming correction  .00000E+00
 ev   eigenvalue guess           .00000E+00      pv   ipvt=1/2--k/alpha         1.00000E+00
 evm  eigenvalue modifier        .00000E+00      eql  ev change eps for search  1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00      xrpm new param mod for search  7.50000E-01
     this case will require      2535 locations for mixing
     this case has been allocated 200000 locations
1                   80 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0      13q array has    65 entries.
0      14q array has    65 entries.
```

0 15q array has 65 entries.
0 data block 2 (mixing table, etc.)

	nuclides on tape	cccc identification	mixture	mixing table component	atom density	extra xsect id's
1	999		1	92235	6.57647E-04	
2	1001		1	92234	5.45374E-06	
3	5010		1	92236	9.37010E-06	
4	5011		1	92238	2.20477E-02	
5	8016		1	8016	4.55359E-02	
6	6		3	6	2.09710E-02	
7	36083		1	36083	1.57183E-07	
8	36085		1	36085	7.63106E-08	
9	38090		1	38090	1.70684E-06	
10	39089		1	39089	5.60000E-07	
11	40093		1	42095	2.50288E-07	
12	40094		1	40093	1.24307E-06	
13	40095		1	40094	1.91444E-06	
14	40802		1	40095	1.29359E-06	
15	41094		1	41094	5.36198E-13	
16	42095		1	43099	1.77703E-06	
17	43099		1	45103	4.59914E-07	
18	44101		1	45105	1.10044E-08	
19	44106		1	44101	1.56724E-06	
20	45103		1	44106	1.80396E-07	
21	45105		1	46105	3.66502E-07	
22	46105		1	46108	4.74250E-08	
23	46108		1	47109	2.91333E-08	
24	47109		1	51124	9.07937E-12	
25	51124		1	54131	7.49268E-07	
26	54131		1	54132	1.26842E-06	
27	54132		1	54135	6.32256E-09	
28	54135		1	54136	3.00300E-06	
29	54136		1	55134	8.18674E-09	
30	55133		1	55135	9.06121E-07	
31	55134		1	55137	1.90508E-06	
32	55135		1	56136	2.19836E-09	
33	55137		1	57139	1.91454E-06	
34	56136		1	59141	9.07627E-07	
35	57139		1	59143	4.07108E-07	
36	58144		1	58144	1.48288E-06	
37	59141		1	60143	1.31604E-06	
38	59143		1	60145	1.17029E-06	
39	60143		1	61147	5.25252E-07	
40	60145		1	61148	1.26721E-09	
41	60147		1	60147	1.34940E-07	
42	61147		1	62147	1.30142E-08	
43	61148		1	62149	6.35746E-08	
44	62147		1	62150	2.60260E-07	
45	62149		1	62151	1.03932E-07	
46	62150		1	62152	1.16691E-07	
47	62151		1	64155	1.02921E-10	
48	62152		1	63153	5.54702E-08	
49	63153		1	63154	1.61916E-09	
50	63154		1	63155	1.09678E-08	
51	63155		2	40802	4.25156E-02	
52	64155		3	1001	4.19420E-02	
53	92234		3	5010	3.81515E-06	
54	92235		3	5011	1.54884E-05	
55	92236		1	55133	1.82872E-06	
56	92238		1	95237	1.45033E-07	

57	95237	1	94238	1.72916E-09
58	94238	1	94239	1.59534E-05
59	94239	1	94240	4.39198E-07
60	94240	1	94241	3.26765E-08
61	94241	1	94242	2.86985E-10
62	94242	1	95241	8.48261E-11
63	95241	1	95243	1.76207E-12
64	95243	1	96244	1.17608E-14
65	96244	1	999	1.00000E-20

- elapsed time .00 min.
0 21649 locations will be used
0 35q array has 25 entries.
0 36q array has 24 entries.
0 38q array has 24 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 80 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	2	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	3	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	4	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	5	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	6	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	7	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	8	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	9	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	10	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	11	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01036E+07	12	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69395E+06	13	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	14	0	14	1.00000E+00	
15	3.04999E+00	1.50080E+01	2.10601E+06	15	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	16	0	16	1.00000E+00	
17	1.29999E+00	1.58557E+01	1.52545E+06	17	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	18	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	19	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	20	0	20	1.00000E+00	
21	4.00000E-01	1.70344E+01	8.17974E+05	21	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	22	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86953E+05	23	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	24	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	25	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	26	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	27	0	27	1.00000E+00	
28	1.00000E-05	2.76310E+01						

1 80 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0	mixture by zone	order p(l) by zone	activity table matl no.	reaction	quadrature constants weights	directions	refl direc	wt x cos
1	1	3			0	-2.79004E-01	3	0
2	1	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	2	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	3	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28593E-02
7					5.55953E-02	2.31301E-01	6	1.28593E-02

8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02
16					0	-9.83052E-01	24	0
17					4.53365E-02	-9.64143E-01	24	-4.37099E-02
18					4.53365E-02	-8.17361E-01	23	-3.70655E-02
19					4.53365E-02	-5.46143E-01	22	-2.47597E-02
20					4.53365E-02	-1.91780E-01	21	-8.69444E-03
21					4.53365E-02	1.91780E-01	20	8.69444E-03
22					4.53365E-02	5.46143E-01	19	2.47597E-02
23					4.53365E-02	8.17361E-01	18	3.70655E-02
24					4.53365E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83052E-01	-4.49528E-01	8.36885E-01	5.00703E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20262E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20262E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17256E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17256E-01
22	5.46143E-01	-4.49528E-01	-3.20262E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20262E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.29551E-02	1	0	2.10906E-03	1.00000E+00	0	
2	2.59102E-02	4.33406E-02	1	1.62798E-01	9.49318E-03	1.00000E+00	0	
3	6.07710E-02	8.75100E-02	1	3.81835E-01	2.94045E-02	1.00000E+00	0	
4	1.14249E-01	1.74155E-01	1	7.17848E-01	1.31104E-01	1.00000E+00	0	
5	2.34061E-01	2.93967E-01	1	1.47065E+00	2.21299E-01	1.00000E+00		
6	3.53873E-01	3.80612E-01	1	2.22345E+00	1.27890E-01	1.00000E+00		
7	4.07351E-01	4.24781E-01	1	2.55946E+00	9.30429E-02	1.00000E+00		
8	4.42212E-01	4.55167E-01	1	2.77850E+00	7.41004E-02	1.00000E+00		
9	4.68122E-01	4.68814E-01	2	2.94130E+00	4.07946E-03	0		
10	4.69507E-01	4.71481E-01	2	2.95000E+00	1.16988E-02	0		
11	4.73456E-01	4.75431E-01	2	2.97481E+00	1.17968E-02	0		
12	4.77405E-01	4.78098E-01	2	2.99962E+00	4.16023E-03	0		
13	4.78790E-01	4.83159E-01	3	3.00833E+00	2.65268E-02	1.00000E+00		
14	4.87528E-01	4.99987E-01	3	3.06323E+00	7.82768E-02	1.00000E+00		
15	5.12445E-01	5.24903E-01	3	3.21979E+00	8.21777E-02	1.00000E+00		
16	5.37362E-01	5.41731E-01	3	3.37634E+00	2.97427E-02	1.00000E+00		

17	5.46100E-01	5.53513E-01	4	3.43125E+00	5.15631E-02	1.00000E+00
18	5.60926E-01	5.70900E-01	4	3.52440E+00	7.15548E-02	1.00000E+00
19	5.80874E-01	5.96175E-01	4	3.64974E+00	1.14628E-01	1.00000E+00
20	6.11475E-01	6.45755E-01	4	3.84201E+00	2.78169E-01	1.00000E+00
21	6.80034E-01	7.14313E-01	4	4.27278E+00	3.07702E-01	1.00000E+00
22	7.48592E-01	7.63893E-01	4	4.70854E+00	1.46875E-01	1.00000E+00
23	7.79193E-01	7.89167E-01	4	4.89582E+00	9.89116E-02	1.00000E+00
24	7.99141E-01	8.06554E-01	4	5.02115E+00	7.51357E-02	1.00000E+00
25	8.13968E-01			5.11431E+00		

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	147	2.05396E-05	1.15254E+00	-1.69535E-01	1.00000E+00	-5.15655E-02	.00000E+00	.0000
2	224	-1.01925E-05	1.16913E+00	-8.23960E-04	-1.94420E-02	-4.23725E-03	.00000E+00	.0000
3	284	9.99778E-06	1.17018E+00	-6.02814E-05	-1.40603E-03	-7.20483E-04	.00000E+00	.0000
4	330	-9.17736E-06	1.17066E+00	-8.10909E-06	-2.39247E-04	-1.18746E-04	.00000E+00	.0167
5	358	-1.26134E-05	1.17074E+00	-1.63350E-06	-3.91102E-05	-1.71441E-05	.00000E+00	.0167

grp	to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	1	1	4.99248E-08	24	1.00000E+00	1
2	2	1	1	5.87108E-08	24	1.00000E+00	1
3	3	1	1	5.47128E-08	24	1.00000E+00	1
4	4	1	1	5.34388E-08	24	1.00000E+00	1
5	5	1	1	5.75189E-08	24	1.00000E+00	1
6	6	1	1	3.76123E-08	24	1.00000E+00	1
7	7	1	1	2.81291E-08	24	1.00000E+00	1
8	8	1	1	6.92915E-09	24	1.00000E+00	1
9	9	1	2	3.52378E-09	24	1.00000E+00	1
10	10	1	1	3.58770E-09	24	1.00000E+00	1
11	11	1	1	3.62354E-09	24	1.00000E+00	1
12	12	1	2	8.81806E-10	24	1.00000E+00	1
13	13	1	24	1.33697E-09	24	1.00000E+00	1
14	14	1	24	1.52826E-09	24	1.00000E+00	1
15	15	1	24	2.88251E-05	24	9.99989E-01	1
16	16	1	24	3.60887E-05	24	9.99995E-01	1
17	17	1	24	4.82099E-05	24	9.99997E-01	1
18	18	1	24	5.34901E-05	24	9.99998E-01	1
19	19	1	24	4.87907E-05	24	9.99994E-01	1
20	20	1	24	4.32702E-05	24	9.99978E-01	1
21	21	1	18	2.04876E-05	24	9.99950E-01	1
22	22	1	24	3.74352E-05	24	9.99995E-01	1
23	23	1	24	2.78780E-06	24	1.00000E+00	1
24	24	1	24	1.01146E-05	24	1.00000E+00	1
25	25	1	24	1.09008E-05	24	1.00000E+00	1
26	26	1	1	5.53232E-06	21	1.00000E+00	2
27	27	1	2	1.83599E-06	24	1.00000E+00	2

6	385	3.06809E-07	1.17058E+00	-2.09826E-07	-5.63458E-06	-2.91083E-06	.00000E+00	.0167

final monitor

lambda 1.17058E+00 production/absorption 1.17058E+00 angular flux on 16

- elapsed time .02 min.

1 80 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.29551E-02	.00000E+00	2.10906E-03	3.43615E-03
2	1	2.59102E-02	4.33406E-02	1.62798E-01	9.49318E-03	1.54601E-02
3	1	6.07710E-02	8.75100E-02	3.81835E-01	2.94045E-02	4.79692E-02
4	1	1.14249E-01	1.74155E-01	7.17848E-01	1.31104E-01	2.15784E-01
5	1	2.34061E-01	2.99367E-01	1.47065E+00	2.21299E-01	3.72264E-01
6	1	3.53873E-01	3.80612E-01	2.22345E+00	1.27890E-01	2.20345E-01
7	1	4.07351E-01	4.24781E-01	2.55946E+00	9.30429E-02	1.63191E-01
8	1	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02	1.32131E-01

9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07946E-03	.00000E+00
10	2	4.69507E-01	4.71481E-01	2.95000E+00	1.16988E-02	.00000E+00
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	2	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.65268E-02	.00000E+00
14	3	4.87528E-01	4.99987E-01	3.06329E+00	7.82768E-02	.00000E+00
15	3	5.12445E-01	5.24903E-01	3.21979E+00	8.21777E-02	.00000E+00
16	3	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02	.00000E+00
17	4	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02	.00000E+00
18	4	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	4	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01	.00000E+00
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01	.00000E+00
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	4	7.48592E-01	7.63893E-01	4.70354E+00	1.46875E-01	.00000E+00
23	4	7.79195E-01	7.89167E-01	4.89582E+00	9.89116E-02	.00000E+00
24	4	7.99141E-01	8.06554E-01	5.02115E+00	7.51357E-02	.00000E+00
25		8.13968E-01		5.11431E+00		

1 80 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.69674E-01	1.30668E+00	1.66967E+00	1.03835E+00	1.57396E+00	3.03068E+00	2.90513E+00	2.07895E+00
2	1.69735E-01	1.30730E+00	1.67050E+00	1.03885E+00	1.57467E+00	3.03199E+00	2.90580E+00	2.07901E+00
3	1.69679E-01	1.30668E+00	1.66971E+00	1.03837E+00	1.57386E+00	3.03036E+00	2.90476E+00	2.07882E+00
4	1.69293E-01	1.30244E+00	1.66423E+00	1.03502E+00	1.56852E+00	3.01978E+00	2.89839E+00	2.07777E+00
5	1.68296E-01	1.29157E+00	1.65033E+00	1.02656E+00	1.55512E+00	2.99359E+00	2.88272E+00	2.07517E+00
6	1.67150E-01	1.27921E+00	1.63471E+00	1.01712E+00	1.54025E+00	2.96494E+00	2.86565E+00	2.07230E+00
7	1.66239E-01	1.26955E+00	1.62269E+00	1.00995E+00	1.52908E+00	2.94381E+00	2.85316E+00	2.07014E+00
8	1.65338E-01	1.26016E+00	1.61118E+00	1.00318E+00	1.51870E+00	2.92453E+00	2.84187E+00	2.06810E+00
9	1.64845E-01	1.25508E+00	1.60501E+00	9.99591E-01	1.51324E+00	2.91449E+00	2.83604E+00	2.06703E+00
10	1.64743E-01	1.25405E+00	1.60378E+00	9.98899E-01	1.51224E+00	2.91269E+00	2.83505E+00	2.06688E+00
11	1.64593E-01	1.25258E+00	1.60200E+00	9.97908E-01	1.51081E+00	2.91015E+00	2.83364E+00	2.06655E+00
12	1.64493E-01	1.25160E+00	1.60083E+00	9.97264E-01	1.50985E+00	2.90851E+00	2.83274E+00	2.06637E+00
13	1.64309E-01	1.24978E+00	1.59863E+00	9.96024E-01	1.50807E+00	2.90506E+00	2.83080E+00	2.06599E+00
14	1.63808E-01	1.24462E+00	1.59214E+00	9.92187E-01	1.50224E+00	2.89374E+00	2.82435E+00	2.06495E+00
15	1.63245E-01	1.23836E+00	1.58378E+00	9.86869E-01	1.49382E+00	2.87704E+00	2.81472E+00	2.06333E+00
16	1.62970E-01	1.23490E+00	1.57878E+00	9.83399E-01	1.48805E+00	2.86546E+00	2.80799E+00	2.06232E+00
17	1.62838E-01	1.23291E+00	1.57568E+00	9.81070E-01	1.48410E+00	2.85749E+00	2.80331E+00	2.06318E+00
18	1.62664E-01	1.23034E+00	1.57171E+00	9.78099E-01	1.47903E+00	2.84750E+00	2.79742E+00	2.06305E+00
19	1.62447E-01	1.22728E+00	1.56710E+00	9.74735E-01	1.47334E+00	2.83632E+00	2.79084E+00	2.06282E+00
20	1.62158E-01	1.22333E+00	1.56124E+00	9.70519E-01	1.46625E+00	2.82243E+00	2.78267E+00	2.06251E+00
21	1.61958E-01	1.22057E+00	1.55712E+00	9.67535E-01	1.46122E+00	2.81259E+00	2.77694E+00	2.06241E+00
22	1.61960E-01	1.22045E+00	1.55683E+00	9.67253E-01	1.46070E+00	2.81158E+00	2.77651E+00	2.06264E+00
23	1.62033E-01	1.22129E+00	1.55795E+00	9.67983E-01	1.46188E+00	2.81388E+00	2.77800E+00	2.06292E+00
24	1.62118E-01	1.22229E+00	1.55931E+00	9.68881E-01	1.46334E+00	2.81674E+00	2.77981E+00	2.06319E+00

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58454E+00	1.44189E+00	1.29989E+00	7.95191E-01	6.73673E-01	5.99085E-01	3.73113E-01	2.08434E-01
2	1.58446E+00	1.44179E+00	1.29968E+00	7.92959E-01	6.73465E-01	5.98803E-01	3.73083E-01	2.08416E-01
3	1.58465E+00	1.44201E+00	1.30015E+00	7.93504E-01	6.73904E-01	5.99453E-01	3.73158E-01	2.08453E-01
4	1.58570E+00	1.44327E+00	1.30282E+00	7.94569E-01	6.76417E-01	6.03118E-01	3.73574E-01	2.08661E-01
5	1.58834E+00	1.44636E+00	1.30939E+00	8.04134E-01	6.82618E-01	6.12205E-01	3.74578E-01	2.09167E-01
6	1.59128E+00	1.44973E+00	1.31658E+00	8.12464E-01	6.89433E-01	6.22251E-01	3.75660E-01	2.09718E-01
7	1.59350E+00	1.45220E+00	1.32188E+00	8.18639E-01	6.94474E-01	6.29737E-01	3.76439E-01	2.10120E-01
8	1.59561E+00	1.45444E+00	1.32670E+00	8.24308E-01	6.99094E-01	6.36633E-01	3.77134E-01	2.10484E-01
9	1.59673E+00	1.45560E+00	1.32920E+00	8.27254E-01	7.01495E-01	6.40219E-01	3.77490E-01	2.10672E-01
10	1.59693E+00	1.45579E+00	1.32960E+00	8.27728E-01	7.01889E-01	6.40796E-01	3.77550E-01	2.10704E-01
11	1.59722E+00	1.45606E+00	1.33017E+00	8.28405E-01	7.02452E-01	6.41621E-01	3.77636E-01	2.10751E-01
12	1.59741E+00	1.45624E+00	1.33054E+00	8.28844E-01	7.02817E-01	6.42155E-01	3.77692E-01	2.10781E-01
13	1.59779E+00	1.45659E+00	1.33130E+00	8.29739E-01	7.03562E-01	6.43245E-01	3.77806E-01	2.10842E-01
14	1.59883E+00	1.45774E+00	1.33372E+00	8.32537E-01	7.05894E-01	6.46658E-01	3.78173E-01	2.11034E-01
15	1.59999E+00	1.45936E+00	1.33713E+00	8.36398E-01	7.09112E-01	6.51361E-01	3.78693E-01	2.11300E-01

16	1.60055E+00	1.46044E+00	1.33958E+00	8.38889E-01	7.11186E-01	6.54389E-01	3.79037E-01	2.11472E-01
17	1.60085E+00	1.46125E+00	1.34106E+00	8.40719E-01	7.12677E-01	6.56595E-01	3.79226E-01	2.11579E-01
18	1.60130E+00	1.46234E+00	1.34334E+00	8.43220E-01	7.14696E-01	6.59601E-01	3.79438E-01	2.11711E-01
19	1.60187E+00	1.46359E+00	1.34596E+00	8.46099E-01	7.17027E-01	6.63068E-01	3.79686E-01	2.11868E-01
20	1.60266E+00	1.46517E+00	1.34927E+00	8.49769E-01	7.19994E-01	6.67486E-01	3.79990E-01	2.12062E-01
21	1.60324E+00	1.46630E+00	1.35164E+00	8.52384E-01	7.22084E-01	6.70617E-01	3.80144E-01	2.12176E-01
22	1.60331E+00	1.46641E+00	1.35187E+00	8.52613E-01	7.22221E-01	6.70862E-01	3.80060E-01	2.12148E-01
23	1.60315E+00	1.46613E+00	1.35127E+00	8.51933E-01	7.21629E-01	6.70019E-01	3.79917E-01	2.12080E-01
24	1.60295E+00	1.46578E+00	1.35063E+00	8.51094E-01	7.20913E-01	6.68989E-01	3.79772E-01	2.12008E-01

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.05268E-02	7.49131E-02	1.42844E-01	4.65014E-01	1.38200E-01	2.70211E-01	8.38324E-01	5.89345E-01
2	9.05094E-02	7.48906E-02	1.42816E-01	4.64916E-01	1.38139E-01	2.70062E-01	8.37865E-01	5.88943E-01
3	9.05404E-02	7.49325E-02	1.42866E-01	4.65095E-01	1.38264E-01	2.70428E-01	8.38903E-01	5.90084E-01
4	9.07239E-02	7.51788E-02	1.43168E-01	4.66152E-01	1.38983E-01	2.72672E-01	8.44796E-01	5.96305E-01
5	9.11771E-02	7.57893E-02	1.43908E-01	4.68756E-01	1.40768E-01	2.77553E-01	8.59375E-01	6.11777E-01
6	9.16742E-02	7.64622E-02	1.44715E-01	4.71604E-01	1.42738E-01	2.83190E-01	8.75511E-01	6.28988E-01
7	9.20415E-02	7.69620E-02	1.45307E-01	4.73699E-01	1.44203E-01	2.87409E-01	8.87496E-01	6.41911E-01
8	9.23782E-02	7.74224E-02	1.45846E-01	4.75614E-01	1.45563E-01	2.91311E-01	8.98527E-01	6.53909E-01
9	9.25535E-02	7.76624E-02	1.46126E-01	4.76609E-01	1.46255E-01	2.93342E-01	9.04257E-01	6.60159E-01
10	9.25852E-02	7.77023E-02	1.46173E-01	4.76775E-01	1.46368E-01	2.93660E-01	9.05154E-01	6.61095E-01
11	9.26256E-02	7.7759E-02	1.46240E-01	4.77013E-01	1.46528E-01	2.94114E-01	9.06432E-01	6.62428E-01
12	9.26530E-02	7.77960E-02	1.46284E-01	4.77167E-01	1.46632E-01	2.94408E-01	9.07256E-01	6.63287E-01
13	9.27091E-02	7.78712E-02	1.46373E-01	4.77482E-01	1.46845E-01	2.95008E-01	9.08942E-01	6.65042E-01
14	9.28844E-02	7.81064E-02	1.46653E-01	4.78464E-01	1.47514E-01	2.96878E-01	9.14195E-01	6.70452E-01
15	9.31269E-02	7.84295E-02	1.47057E-01	4.79809E-01	1.48440E-01	2.99426E-01	9.21358E-01	6.77688E-01
16	9.32790E-02	7.86367E-02	1.47285E-01	4.80667E-01	1.49037E-01	3.01047E-01	9.25852E-01	6.82169E-01
17	9.33886E-02	7.87900E-02	1.47461E-01	4.81258E-01	1.49502E-01	3.02316E-01	9.29604E-01	6.86272E-01
18	9.35372E-02	7.90012E-02	1.47701E-01	4.82151E-01	1.50157E-01	3.04134E-01	9.35210E-01	6.92730E-01
19	9.37094E-02	7.92450E-02	1.47979E-01	4.83151E-01	1.50915E-01	3.06256E-01	9.41902E-01	7.00510E-01
20	9.39283E-02	7.95560E-02	1.48333E-01	4.84433E-01	1.51890E-01	3.09008E-01	9.50809E-01	7.10988E-01
21	9.40794E-02	7.97776E-02	1.48581E-01	4.85339E-01	1.52599E-01	3.11027E-01	9.57573E-01	7.19156E-01
22	9.40854E-02	7.97972E-02	1.48593E-01	4.85402E-01	1.52682E-01	3.11273E-01	9.58629E-01	7.20707E-01
23	9.40389E-02	7.97402E-02	1.48519E-01	4.85148E-01	1.52519E-01	3.10816E-01	9.57321E-01	7.19412E-01
24	9.39841E-02	7.96700E-02	1.48432E-01	4.84842E-01	1.52311E-01	3.10233E-01	9.55576E-01	7.17566E-01

0 int.	grp. 25	grp. 26	grp. 27
1	2.40405E-01	1.43372E-01	1.82493E-02
2	2.40239E-01	1.43274E-01	1.82530E-02
3	2.40861E-01	1.43880E-01	1.84376E-02
4	2.44117E-01	1.46888E-01	1.92662E-02
5	2.52227E-01	1.54414E-01	2.13758E-02
6	2.61299E-01	1.62936E-01	2.38511E-02
7	2.68161E-01	1.69485E-01	2.58564E-02
8	2.74583E-01	1.75708E-01	2.78589E-02
9	2.77939E-01	1.78980E-01	2.89520E-02
10	2.78423E-01	1.79417E-01	2.90634E-02
11	2.79113E-01	1.80039E-01	2.92262E-02
12	2.79557E-01	1.80439E-01	2.93375E-02
13	2.80460E-01	1.81253E-01	2.95635E-02
14	2.83203E-01	1.83702E-01	3.02317E-02
15	2.86775E-01	1.86840E-01	3.10579E-02
16	2.88913E-01	1.88679E-01	3.15188E-02
17	2.91054E-01	1.90865E-01	3.22314E-02
18	2.94591E-01	1.94675E-01	3.33314E-02
19	2.98899E-01	1.99300E-01	3.50636E-02
20	3.04769E-01	2.05594E-01	3.70554E-02
21	3.09447E-01	2.10726E-01	3.87006E-02
22	3.10461E-01	2.12085E-01	3.91892E-02
23	3.09846E-01	2.11579E-01	3.91320E-02
24	3.08903E-01	2.10742E-01	3.89481E-02

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.15908E-02	.00000E+00	1.21481E-02	1.00810E-02	3.09144E-03	1.06192E-02	9.98828E-01
2	.00000E+00	1.89806E-01	2.22135E-03	1.64506E-01	6.53231E-02	1.34789E-02	1.13236E-01	1.00004E+00
3	.00000E+00	2.15143E-01	2.57551E-02	1.60145E-01	8.06667E-02	1.55694E-02	1.44661E-01	1.00001E+00
4	.00000E+00	1.24340E-01	3.85958E-02	1.04853E-01	6.77161E-02	7.45523E-03	8.77619E-02	1.00001E+00
5	.00000E+00	1.65620E-01	6.76914E-02	2.58969E-01	9.47629E-02	4.48859E-03	1.33862E-01	9.99991E-01
6	.00000E+00	1.79580E-01	1.34188E-01	6.53717E-01	5.44423E-02	7.15425E-03	2.52157E-01	1.00008E+00
7	.00000E+00	8.90899E-02	9.82803E-02	7.45598E-01	3.63447E-02	7.81134E-03	1.43213E-01	1.00001E+00
8	.00000E+00	1.37510E-02	4.25657E-02	6.31132E-01	2.14716E-02	1.42741E-02	2.05686E-02	1.00004E+00
9	.00000E+00	9.98454E-04	2.16931E-02	5.34415E-01	2.06194E-02	2.35072E-02	-2.14347E-02	9.99991E-01
10	.00000E+00	7.41661E-05	2.06412E-02	4.57425E-01	1.06386E-02	3.65472E-02	-2.64710E-02	1.00001E+00
11	.00000E+00	5.83497E-06	1.06395E-02	4.17259E-01	8.09771E-03	5.88987E-02	-5.63515E-02	1.00001E+00
12	.00000E+00	4.09897E-07	8.09775E-03	2.36125E-01	9.33482E-03	6.36837E-02	-6.49171E-02	9.99956E-01
13	.00000E+00	6.50880E-08	9.33483E-03	1.74619E-01	6.16570E-03	5.70097E-02	-5.38409E-02	1.00001E+00
14	.00000E+00	1.28987E-08	6.16570E-03	1.51883E-01	7.54330E-03	7.76143E-02	-7.89921E-02	1.00000E+00
15	.00000E+00	1.45770E-09	7.63279E-03	8.56730E-02	8.97342E-03	6.76299E-03	-8.10665E-03	1.00019E+00
16	.00000E+00	4.28030E-10	9.15994E-03	4.36836E-02	9.79747E-03	3.75713E-03	-4.40072E-03	1.00015E+00
17	.00000E+00	1.37847E-10	8.04885E-03	1.55153E-02	7.96427E-03	4.15374E-03	-4.07002E-03	1.00007E+00
18	.00000E+00	9.86942E-11	7.52836E-03	1.23595E-02	7.32564E-03	5.68849E-03	-5.48621E-03	1.00008E+00
19	.00000E+00	1.39533E-10	9.29628E-03	2.71943E-02	1.00349E-02	5.78997E-03	-6.52959E-03	1.00005E+00
20	.00000E+00	2.26894E-10	1.18167E-02	1.11290E-01	1.04966E-02	2.43915E-02	-2.30741E-02	1.00008E+00
21	.00000E+00	3.32100E-11	1.03831E-02	2.65557E-01	1.02679E-02	1.60485E-02	-1.59358E-02	1.00009E+00
22	.00000E+00	3.85312E-11	1.45623E-02	5.95232E-02	1.33542E-02	4.58394E-02	-4.46336E-02	1.00004E+00
23	.00000E+00	3.68400E-11	1.90099E-02	2.03773E-01	2.23190E-02	1.26400E-01	-1.29720E-01	1.00007E+00
24	.00000E+00	1.00274E-11	2.66695E-02	1.36172E-01	2.62370E-02	1.37548E-01	-1.37123E-01	1.00005E+00
25	.00000E+00	2.93536E-12	2.23268E-02	5.08687E-02	1.66509E-02	7.66285E-02	-7.09556E-02	1.00008E+00
26	.00000E+00	2.05829E-12	1.08445E-02	3.48524E-02	7.38309E-03	6.92194E-02	-6.57597E-02	1.00002E+00
27	.00000E+00	4.90502E-13	2.30870E-03	5.10900E-03	1.23604E-03	1.91515E-02	-1.80791E-02	1.00001E+00
28	.00000E+00	1.00000E+00	6.45248E-01	5.51537E+00	6.45248E-01	9.31963E-01	7.01984E-02	1.00002E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*df**2	total flux
1	1.64872E-01	1.06192E-02	1.69616E-01	.00000E+00	2.17299E-03	2.53617E-03	.00000E+00	1.15498E-01
2	1.25535E+00	1.13236E-01	1.30607E+00	.00000E+00	1.77724E-05	1.17400E-02	.00000E+00	8.85265E-01
3	1.60534E+00	1.44661E-01	1.66886E+00	.00000E+00	.00000E+00	1.45464E-02	.00000E+00	1.13131E+00
4	9.99774E-01	8.77619E-02	1.05787E+00	.00000E+00	.00000E+00	6.30671E-03	.00000E+00	7.03842E-01
5	1.51350E+00	1.33862E-01	1.57324E+00	.00000E+00	.00000E+00	1.87378E-03	.00000E+00	1.06612E+00
6	2.91497E+00	2.52157E-01	3.02952E+00	.00000E+00	.00000E+00	1.71699E-03	.00000E+00	2.05246E+00
7	2.83630E+00	1.43213E-01	2.90439E+00	.00000E+00	.00000E+00	1.77358E-03	.00000E+00	1.97960E+00
8	2.06708E+00	2.05686E-02	2.07885E+00	.00000E+00	.00000E+00	1.87589E-03	.00000E+00	1.42777E+00
9	1.59668E+00	-2.14347E-02	1.58463E+00	.00000E+00	.00000E+00	2.58585E-03	.00000E+00	1.09438E+00
10	1.45555E+00	-2.64710E-02	1.44202E+00	.00000E+00	.00000E+00	5.50833E-03	.00000E+00	9.96724E-01
11	1.32909E+00	-5.63515E-02	1.30015E+00	.00000E+00	.00000E+00	1.13991E-02	.00000E+00	9.03560E-01
12	8.27128E-01	-6.49171E-02	7.98485E-01	.00000E+00	.00000E+00	1.44411E-02	.00000E+00	5.56077E-01
13	7.01391E-01	-5.38409E-02	6.73925E-01	.00000E+00	.00000E+00	1.36448E-02	.00000E+00	4.71964E-01
14	6.40057E-01	-7.89921E-02	5.99437E-01	.00000E+00	.00000E+00	9.68757E-03	.00000E+00	4.24473E-01
15	3.77476E-01	-8.10665E-03	3.73156E-01	.00000E+00	.00000E+00	2.44874E-03	.00000E+00	2.58186E-01
16	2.10664E-01	-4.40072E-03	2.08456E-01	.00000E+00	.00000E+00	1.63364E-03	.00000E+00	1.44160E-01
17	9.25454E-02	-4.07002E-03	9.05465E-02	.00000E+00	.00000E+00	2.42217E-03	.00000E+00	6.29174E-02
18	7.76516E-02	-5.48621E-03	7.49389E-02	.00000E+00	.00000E+00	3.14991E-03	.00000E+00	5.23772E-02
19	1.46114E-01	-6.52959E-03	1.42876E-01	.00000E+00	.00000E+00	3.90643E-03	.00000E+00	9.93090E-02
20	4.76573E-01	-2.30741E-02	4.65135E-01	.00000E+00	.00000E+00	1.72471E-02	.00000E+00	3.23551E-01
21	1.46231E-01	-1.59358E-02	1.38279E-01	.00000E+00	.00000E+00	1.11861E-02	.00000E+00	9.74988E-02
22	2.98258E-01	-4.46336E-02	2.70401E-01	.00000E+00	.00000E+00	3.11145E-02	.00000E+00	1.92774E-01
23	9.04014E-01	-1.29720E-01	8.38888E-01	.00000E+00	.00000E+00	8.70385E-02	.00000E+00	5.96454E-01
24	6.59905E-01	-1.37123E-01	5.89883E-01	.00000E+00	.00000E+00	9.44123E-02	.00000E+00	4.26370E-01
25	2.77809E-01	-7.09556E-02	2.40658E-01	.00000E+00	.00000E+00	5.47217E-02	.00000E+00	1.76407E-01
26	1.78862E-01	-6.57597E-02	1.43568E-01	.00000E+00	.00000E+00	5.03591E-02	.00000E+00	1.08950E-01
27	2.88995E-02	-1.80791E-02	1.82834E-02	.00000E+00	.00000E+00	1.40471E-02	.00000E+00	1.55307E-02
28	2.37771E+01	7.01982E-02	2.37569E+01	.00000E+00	2.19078E-03	4.75264E-01	.00000E+00	1.63635E+01

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.98023E-08	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.08616E-07	1.00000E+00
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.45286E-07	1.00001E+00
9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.79397E-08	1.00000E+00
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.98023E-08	1.00000E+00
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.23517E-08	1.00000E+00
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.58794E-08	9.99999E-01
14	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.23517E-08	1.00000E+00
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.32831E-09	9.99999E-01
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-4.65661E-10	1.00000E+00
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86265E-09	1.00000E+00
19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	6.98492E-09	9.99999E-01
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.11759E-08	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
22	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86265E-08	1.00000E+00
23	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.98023E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86265E-09	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.88710E-07	9.99996E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dr**2	total flux
1	1.64468E-01	1.06192E-02	1.64872E-01	1.06192E-02	.00000E+00	.00000E+00	.00000E+00	5.22576E-03
2	1.25135E+00	1.13236E-01	1.25535E+00	1.13236E-01	.00000E+00	.00000E+00	.00000E+00	3.97743E-02
3	1.60054E+00	1.44661E-01	1.60534E+00	1.44661E-01	.00000E+00	.00000E+00	.00000E+00	5.08681E-02
4	9.97103E-01	8.77619E-02	9.99774E-01	8.77619E-02	.00000E+00	.00000E+00	.00000E+00	3.16846E-02
5	1.50966E+00	1.33862E-01	1.51350E+00	1.33862E-01	.00000E+00	.00000E+00	.00000E+00	4.79687E-02
6	2.90810E+00	2.52157E-01	2.91497E+00	2.52157E-01	.00000E+00	.00000E+00	.00000E+00	9.23949E-02
7	2.85252E+00	1.43213E-01	2.83630E+00	1.43213E-01	.00000E+00	.00000E+00	.00000E+00	8.99488E-02
8	2.06632E+00	2.05684E-02	2.05708E+00	2.05685E-02	.00000E+00	.00000E+00	.00000E+00	6.55870E-02
9	1.59745E+00	-2.14347E-02	1.59668E+00	-2.14347E-02	.00000E+00	.00000E+00	.00000E+00	5.06834E-02
10	1.45628E+00	-2.64710E-02	1.45555E+00	-2.64710E-02	.00000E+00	.00000E+00	.00000E+00	4.62042E-02
11	1.33063E+00	-5.63516E-02	1.32909E+00	-5.63515E-02	.00000E+00	.00000E+00	.00000E+00	4.22042E-02
12	8.28954E-01	-6.49171E-02	8.27128E-01	-6.49171E-02	.00000E+00	.00000E+00	.00000E+00	2.62789E-02
13	7.02909E-01	-5.38409E-02	7.01391E-01	-5.38409E-02	.00000E+00	.00000E+00	.00000E+00	2.22835E-02
14	6.42288E-01	-7.89922E-02	6.40067E-01	-7.89921E-02	.00000E+00	.00000E+00	.00000E+00	2.03488E-02
15	3.77708E-01	-8.10666E-03	3.77476E-01	-8.10665E-03	.00000E+00	.00000E+00	.00000E+00	1.19830E-02
16	2.10788E-01	-4.40071E-03	2.10664E-01	-4.40072E-03	.00000E+00	.00000E+00	.00000E+00	6.68749E-03
17	9.26597E-02	-4.07002E-03	9.25454E-02	-4.07002E-03	.00000E+00	.00000E+00	.00000E+00	2.93882E-03
18	7.78049E-02	-5.48621E-03	7.76516E-02	-5.48621E-03	.00000E+00	.00000E+00	.00000E+00	2.46680E-03
19	1.46295E-01	-6.52938E-03	1.46114E-01	-6.52939E-03	.00000E+00	.00000E+00	.00000E+00	4.63990E-03
20	4.77214E-01	-2.30741E-02	4.76673E-01	-2.30741E-02	.00000E+00	.00000E+00	.00000E+00	1.51343E-02
21	1.46665E-01	-1.59358E-02	1.46231E-01	-1.59358E-02	.00000E+00	.00000E+00	.00000E+00	4.64755E-03
22	2.94481E-01	-4.46335E-02	2.95258E-01	-4.46335E-02	.00000E+00	.00000E+00	.00000E+00	9.32655E-03
23	9.07457E-01	-1.29720E-01	9.04014E-01	-1.29720E-01	.00000E+00	.00000E+00	.00000E+00	2.87454E-02
24	6.63497E-01	-1.37125E-01	6.59905E-01	-1.37125E-01	.00000E+00	.00000E+00	.00000E+00	2.10010E-02
25	2.79666E-01	-7.09556E-02	2.77809E-01	-7.09556E-02	.00000E+00	.00000E+00	.00000E+00	8.84671E-03
26	1.80538E-01	-6.57597E-02	1.78862E-01	-6.57597E-02	.00000E+00	.00000E+00	.00000E+00	5.70365E-03
27	2.93651E-02	-1.80791E-02	2.88995E-02	-1.80791E-02	.00000E+00	.00000E+00	.00000E+00	9.24742E-04
28	2.37727E+01	7.01985E-02	2.37771E+01	7.01982E-02	.00000E+00	.00000E+00	.00000E+00	7.54501E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance

1	.00000E+00	.00000E+00	.00000E+00	3.62496E-03	2.71736E-03	1.39254E-05	-2.63436E-03	1.00001E+00
2	.00000E+00	.00000E+00	4.74582E-04	2.54975E-02	1.82960E-02	5.06557E-05	-1.78724E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.58577E-03	4.97845E-02	1.57413E-02	1.36164E-04	-1.32907E-02	9.99993E-01
4	.00000E+00	.00000E+00	5.06014E-03	4.19433E-02	5.43075E-03	1.02966E-04	-4.73171E-04	9.99996E-01
5	.00000E+00	.00000E+00	1.09180E-02	8.14928E-02	5.15380E-03	1.51820E-04	5.61206E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.82985E-02	2.34914E-01	3.20958E-03	3.19886E-04	1.47696E-02	9.99999E-01
7	.00000E+00	.00000E+00	1.22080E-02	2.35097E-01	1.18172E-03	3.44620E-04	1.06818E-02	9.99999E-01
8	.00000E+00	.00000E+00	2.15095E-03	1.58434E-01	7.62887E-03	2.94644E-04	-5.77305E-03	1.00002E+00
9	.00000E+00	.00000E+00	7.66186E-03	1.05053E-01	8.75736E-04	1.10776E-03	5.67863E-03	9.99989E-01
10	.00000E+00	.00000E+00	8.76903E-04	8.53690E-02	8.47009E-04	8.33680E-04	-8.03752E-04	9.99999E-01
11	.00000E+00	.00000E+00	8.47070E-04	7.67891E-02	8.67220E-04	1.33241E-03	-1.35254E-03	1.00000E+00
12	.00000E+00	.00000E+00	8.67226E-04	4.66546E-02	8.67993E-04	4.15380E-05	-4.29358E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.67995E-04	3.95734E-02	8.07270E-04	6.00838E-05	6.29574E-07	1.00000E+00
14	.00000E+00	.00000E+00	8.07271E-04	3.63942E-02	6.85853E-04	9.69374E-05	2.44528E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.30555E-04	2.07804E-02	8.50473E-04	8.34515E-05	-2.08013E-04	9.99961E-01
16	.00000E+00	.00000E+00	9.55570E-04	1.11020E-02	9.61779E-04	5.23149E-05	-5.82626E-05	9.99952E-01
17	.00000E+00	.00000E+00	1.07193E-03	4.26381E-03	1.04955E-03	2.57586E-05	-3.23355E-06	9.99972E-01
18	.00000E+00	.00000E+00	1.10994E-03	3.38014E-03	1.09143E-03	2.31470E-05	-4.51598E-06	9.99982E-01
19	.00000E+00	.00000E+00	1.10250E-03	7.31065E-03	1.07862E-03	4.73630E-05	-2.32426E-05	9.99969E-01
20	.00000E+00	.00000E+00	1.31433E-03	2.62568E-02	1.11627E-03	1.95222E-04	3.60049E-06	9.99969E-01
21	.00000E+00	.00000E+00	1.48515E-03	6.82438E-03	1.63010E-03	7.51837E-05	-2.20054E-04	9.99996E-01
22	.00000E+00	.00000E+00	2.05471E-03	1.50265E-02	2.00823E-03	1.75085E-04	-1.18259E-04	9.99995E-01
23	.00000E+00	.00000E+00	2.80913E-03	4.88464E-02	3.58614E-03	7.39733E-04	-1.51678E-03	1.00000E+00
24	.00000E+00	.00000E+00	4.36243E-03	3.38682E-02	4.64790E-03	7.88947E-04	-1.07452E-03	1.00000E+00
25	.00000E+00	.00000E+00	4.17635E-03	1.29484E-02	3.33275E-03	4.40410E-04	4.03121E-04	1.00000E+00
26	.00000E+00	.00000E+00	1.73460E-03	9.34854E-03	1.23543E-03	4.08214E-04	9.09269E-05	1.00000E+00
27	.00000E+00	.00000E+00	3.58235E-04	1.74948E-03	9.01397E-07	1.27959E-04	2.29368E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.69000E-02	1.42233E+00	8.69001E-02	8.06988E-03	-7.97013E-03	9.99987E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.62916E-01	7.98487E-03	1.64468E-01	1.06192E-02	9.70886E-05	.00000E+00	.00000E+00	3.54432E-02
2	1.23411E+00	9.53635E-02	1.25135E+00	1.13236E-01	.00000E+00	.00000E+00	.00000E+00	2.69072E-01
3	1.57756E+00	1.31370E-01	1.60054E+00	1.44661E-01	.00000E+00	.00000E+00	.00000E+00	3.44143E-01
4	9.82490E-01	8.72887E-02	9.97103E-01	8.77619E-02	.00000E+00	.00000E+00	.00000E+00	2.14434E-01
5	1.48654E+00	1.39474E-01	1.50966E+00	1.33862E-01	.00000E+00	.00000E+00	.00000E+00	3.24614E-01
6	2.86231E+00	2.66927E-01	2.90810E+00	2.52157E-01	.00000E+00	.00000E+00	.00000E+00	6.25230E-01
7	2.80614E+00	1.53895E-01	2.85252E+00	1.43213E-01	.00000E+00	.00000E+00	.00000E+00	6.10998E-01
8	2.06323E+00	1.47954E-02	2.06632E+00	2.05684E-02	.00000E+00	.00000E+00	.00000E+00	4.47411E-01
9	1.60065E+00	-1.57561E-02	1.59745E+00	-2.14347E-02	.00000E+00	.00000E+00	.00000E+00	3.46624E-01
10	1.46073E+00	-2.72748E-02	1.45628E+00	-2.64710E-02	.00000E+00	.00000E+00	.00000E+00	3.16110E-01
11	1.33997E+00	-5.77041E-02	1.33063E+00	-5.63516E-02	.00000E+00	.00000E+00	.00000E+00	2.89433E-01
12	8.39532E-01	-6.49595E-02	8.28954E-01	-6.49171E-02	.00000E+00	.00000E+00	.00000E+00	1.80863E-01
13	7.11721E-01	-5.38402E-02	7.02909E-01	-5.38409E-02	.00000E+00	.00000E+00	.00000E+00	1.53344E-01
14	6.55170E-01	-7.89677E-02	6.42288E-01	-7.89922E-02	.00000E+00	.00000E+00	.00000E+00	1.40672E-01
15	3.79130E-01	-8.30968E-03	3.77708E-01	-8.10666E-03	.00000E+00	.00000E+00	.00000E+00	8.20179E-02
16	2.11517E-01	-4.45898E-03	2.10788E-01	-4.40071E-03	.00000E+00	.00000E+00	.00000E+00	4.57660E-02
17	9.33183E-02	-4.07325E-03	9.26597E-02	-4.07002E-03	.00000E+00	.00000E+00	.00000E+00	2.01571E-02
18	7.86898E-02	-5.49073E-03	7.78049E-02	-5.48621E-03	.00000E+00	.00000E+00	.00000E+00	1.69636E-02
19	1.47348E-01	-6.55263E-03	1.46295E-01	-6.52938E-03	.00000E+00	.00000E+00	.00000E+00	3.18261E-02
20	4.80895E-01	-2.30705E-02	4.77214E-01	-2.30741E-02	.00000E+00	.00000E+00	.00000E+00	1.03945E-01
21	1.49198E-01	-1.61558E-02	1.46665E-01	-1.59558E-02	.00000E+00	.00000E+00	.00000E+00	3.20735E-02
22	3.01460E-01	-4.47518E-02	2.94481E-01	-4.46335E-02	.00000E+00	.00000E+00	.00000E+00	6.46242E-02
23	9.26991E-01	-1.31237E-01	9.07457E-01	-1.29720E-01	.00000E+00	.00000E+00	.00000E+00	1.98922E-01
24	6.85279E-01	-1.38197E-01	6.63497E-01	-1.37123E-01	.00000E+00	.00000E+00	.00000E+00	1.46108E-01
25	2.85428E-01	-7.05525E-02	2.79666E-01	-7.09556E-02	.00000E+00	.00000E+00	.00000E+00	6.17675E-02
26	1.89113E-01	-6.56687E-02	1.80538E-01	-6.57597E-02	.00000E+00	.00000E+00	.00000E+00	4.01536E-02
27	3.16252E-02	-1.78497E-02	2.93651E-02	-1.80791E-02	.00000E+00	.00000E+00	.00000E+00	6.64039E-03
28	2.37450E+01	6.22278E-02	2.37727E+01	7.01985E-02	9.70886E-05	.00000E+00	.00000E+00	5.14925E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	5.72781E-03	7.58123E-03	4.04045E-04	-7.98488E-03	9.99951E-01

2	.00000E+00	.00000E+00	4.34996E-03	7.50659E-02	9.86603E-02	1.05707E-03	-9.53634E-02	9.99960E-01
3	.00000E+00	.00000E+00	4.67764E-02	6.84700E-02	1.78146E-01	5.38166E-06	-1.31370E-01	9.99977E-01
4	.00000E+00	.00000E+00	6.96142E-02	4.56654E-02	1.56902E-01	3.21769E-06	-8.72888E-02	9.99988E-01
5	.00000E+00	.00000E+00	1.29023E-01	1.48202E-01	2.68496E-01	3.76761E-06	-1.39474E-01	9.99991E-01
6	.00000E+00	.00000E+00	2.73845E-01	4.54992E-01	5.40761E-01	1.14694E-05	-2.66927E-01	9.99998E-01
7	.00000E+00	.00000E+00	5.51870E-01	7.94828E-01	7.05749E-01	2.53405E-05	-1.53895E-01	9.99987E-01
8	.00000E+00	.00000E+00	7.35003E-01	9.99998E-01	7.49818E-01	4.69686E-05	-1.47955E-02	9.99912E-01
9	.00000E+00	.00000E+00	7.40128E-01	9.14701E-01	7.24358E-01	9.57646E-05	1.57562E-02	9.99889E-01
10	.00000E+00	.00000E+00	7.21161E-01	8.63250E-01	6.95750E-01	2.10931E-04	2.72748E-02	9.99896E-01
11	.00000E+00	.00000E+00	6.98851E-01	8.02573E-01	6.40743E-01	4.55760E-04	5.77041E-02	9.99941E-01
12	.00000E+00	.00000E+00	5.57956E-01	4.18480E-01	4.92393E-01	5.95448E-04	6.49595E-02	9.99979E-01
13	.00000E+00	.00000E+00	4.88335E-01	3.38116E-01	4.33612E-01	8.98113E-04	5.39402E-02	9.99969E-01
14	.00000E+00	.00000E+00	4.69922E-01	3.26044E-01	3.89484E-01	1.47558E-03	7.89677E-02	9.99888E-01
15	.00000E+00	.00000E+00	2.53052E-01	1.29949E-01	2.43446E-01	1.29478E-03	8.31182E-03	9.99994E-01
16	.00000E+00	.00000E+00	1.68031E-01	5.52184E-02	1.62679E-01	8.95839E-04	4.46062E-03	9.99986E-01
17	.00000E+00	.00000E+00	8.70353E-02	1.58602E-02	8.25198E-02	4.43013E-04	4.07423E-03	9.99991E-01
18	.00000E+00	.00000E+00	7.74593E-02	1.30975E-02	7.15674E-02	4.00739E-04	5.49168E-03	9.99993E-01
19	.00000E+00	.00000E+00	1.30693E-01	3.71582E-02	1.23325E-01	8.14468E-04	6.55422E-03	9.99925E-01
20	.00000E+00	.00000E+00	3.21996E-01	2.61426E-01	2.95577E-01	3.34455E-03	2.30752E-02	9.99995E-01
21	.00000E+00	.00000E+00	1.55439E-01	5.30859E-02	1.37971E-01	1.31411E-03	1.61487E-02	1.00003E+00
22	.00000E+00	.00000E+00	3.00632E-01	1.62439E-01	2.52791E-01	3.08767E-03	4.47558E-02	9.99992E-01
23	.00000E+00	.00000E+00	7.35845E-01	9.00933E-01	5.91619E-01	1.29886E-02	1.31236E-01	1.00000E+00
24	.00000E+00	.00000E+00	7.57086E-01	7.83301E-01	6.04637E-01	1.42006E-02	1.38195E-01	1.00001E+00
25	.00000E+00	.00000E+00	4.86811E-01	3.17308E-01	4.08211E-01	8.04795E-03	7.05515E-02	1.00000E+00
26	.00000E+00	.00000E+00	3.83619E-01	3.35838E-01	3.10191E-01	7.75853E-03	6.56678E-02	1.00000E+00
27	.00000E+00	.00000E+00	1.27163E-01	7.00078E-02	1.06650E-01	2.66383E-03	1.78498E-02	9.99999E-01
28	.00000E+00	.00000E+00	9.47164E+00	9.39168E+00	9.47164E+00	6.25415E-02	-6.22249E-02	9.99967E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dd**2	total flux
1	1.62161E-01	-9.49344E-09	1.62916E-01	7.98487E-03	4.19263E-10	.00000E+00	.00000E+00	1.85594E-01
2	1.22281E+00	1.00706E-07	1.23411E+00	9.53635E-02	.00000E+00	.00000E+00	.00000E+00	1.40005E+00
3	1.56001E+00	-9.95787E-09	1.57756E+00	1.31370E-01	.00000E+00	.00000E+00	.00000E+00	1.78668E+00
4	9.69351E-01	-4.15396E-08	9.82490E-01	8.72887E-02	.00000E+00	.00000E+00	.00000E+00	1.11059E+00
5	1.46411E+00	-7.27154E-08	1.48654E+00	1.39474E-01	.00000E+00	.00000E+00	.00000E+00	1.67782E+00
6	2.81824E+00	-5.61769E-09	2.86231E+00	2.66927E-01	.00000E+00	.00000E+00	.00000E+00	3.22968E+00
7	2.78075E+00	-1.58678E-07	2.80614E+00	1.53895E-01	.00000E+00	.00000E+00	.00000E+00	3.18459E+00
8	2.06332E+00	-1.54147E-07	2.06523E+00	1.47954E-02	.00000E+00	.00000E+00	.00000E+00	2.36081E+00
9	1.60284E+00	9.33769E-08	1.60066E+00	-1.57561E-02	.00000E+00	.00000E+00	.00000E+00	1.83437E+00
10	1.46559E+00	3.18761E-08	1.46073E+00	-2.72748E-02	.00000E+00	.00000E+00	.00000E+00	1.67703E+00
11	1.35014E+00	1.97993E-08	1.33997E+00	-5.77041E-02	.00000E+00	.00000E+00	.00000E+00	1.54447E+00
12	8.50654E-01	-1.33726E-10	8.39532E-01	-6.49595E-02	.00000E+00	.00000E+00	.00000E+00	9.72774E-01
13	7.20541E-01	-1.23753E-08	7.11721E-01	-5.38402E-02	.00000E+00	.00000E+00	.00000E+00	8.24166E-01
14	6.68451E-01	3.14674E-08	6.55170E-01	-7.89677E-02	.00000E+00	.00000E+00	.00000E+00	7.64154E-01
15	3.79703E-01	2.14114E-06	3.79130E-01	-8.30968E-03	.00000E+00	.00000E+00	.00000E+00	4.34834E-01
16	2.11973E-01	1.64051E-06	2.11517E-01	-4.45898E-03	.00000E+00	.00000E+00	.00000E+00	2.42686E-01
17	9.39554E-02	9.74090E-07	9.33183E-02	-4.07525E-03	.00000E+00	.00000E+00	.00000E+00	1.07508E-01
18	7.96330E-02	9.57096E-07	7.86898E-02	-5.49073E-03	.00000E+00	.00000E+00	.00000E+00	9.10705E-02
19	1.48386E-01	1.59252E-06	1.47348E-01	-6.55263E-03	.00000E+00	.00000E+00	.00000E+00	1.69782E-01
20	4.84690E-01	4.64083E-06	4.80895E-01	-2.30705E-02	.00000E+00	.00000E+00	.00000E+00	5.54503E-01
21	1.52209E-01	-7.15299E-06	1.49198E-01	-1.61558E-02	.00000E+00	.00000E+00	.00000E+00	1.73914E-01
22	3.09925E-01	3.96618E-06	3.01460E-01	-4.47518E-02	.00000E+00	.00000E+00	.00000E+00	3.53887E-01
23	9.54642E-01	-1.09747E-06	9.26991E-01	-1.31237E-01	.00000E+00	.00000E+00	.00000E+00	1.08924E+00
24	7.16562E-01	-2.49207E-06	6.85279E-01	-1.38197E-01	.00000E+00	.00000E+00	.00000E+00	8.15240E-01
25	3.08383E-01	-1.02446E-06	2.89428E-01	-7.05525E-02	.00000E+00	.00000E+00	.00000E+00	3.49800E-01
26	2.10268E-01	-8.84297E-07	1.89113E-01	-6.56687E-02	.00000E+00	.00000E+00	.00000E+00	2.36552E-01
27	3.88360E-02	1.29718E-07	3.16232E-02	-1.78497E-02	.00000E+00	.00000E+00	.00000E+00	4.28482E-02
28	2.37882E+01	3.21612E-06	2.37450E+01	6.22278E-02	4.19263E-10	.00000E+00	.00000E+00	2.72146E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.15908E-02	.00000E+00	2.15009E-02	2.05796E-02	3.50941E-03	-9.49344E-09	9.98825E-01
2	.00000E+00	1.89806E-01	7.04589E-03	2.65070E-01	1.82279E-01	1.45866E-02	1.00706E-07	1.00002E+00

3	.00000E+00	2.15143E-01	7.51173E-02	2.78400E-01	2.74554E-01	1.57110E-02	-9.95787E-09	9.99986E-01
4	.00000E+00	1.24340E-01	1.13270E-01	1.92461E-01	2.30049E-01	7.56141E-03	-4.15396E-08	1.00000E+00
5	.00000E+00	1.65620E-01	2.07433E-01	4.88664E-01	3.68413E-01	4.64417E-03	-7.27154E-08	9.99989E-01
6	.00000E+00	1.79580E-01	4.26327E-01	1.34362E+00	5.98413E-01	7.48561E-03	-5.61769E-09	1.00001E+00
7	.00000E+00	8.90899E-02	6.62359E-01	1.77552E+00	7.43275E-01	8.18130E-03	-1.58678E-07	9.99990E-01
8	.00000E+00	1.37510E-02	7.79720E-01	1.78956E+00	7.78918E-01	1.46157E-02	-1.54147E-07	9.99921E-01
9	.00000E+00	9.98454E-04	7.69483E-01	1.55417E+00	7.45854E-01	2.47108E-02	9.33769E-08	9.99895E-01
10	.00000E+00	7.41661E-05	7.42679E-01	1.40604E+00	7.05236E-01	3.75918E-02	3.18761E-08	9.99900E-01
11	.00000E+00	5.83497E-06	7.10348E-01	1.29662E+00	6.49708E-01	6.06868E-02	1.97995E-08	9.99942E-01
12	.00000E+00	4.09897E-07	5.66901E-01	7.01260E-01	5.02596E-01	6.43206E-02	-1.33726E-10	9.99974E-01
13	.00000E+00	6.50880E-08	4.98538E-01	5.52309E-01	4.40686E-01	5.79679E-02	-1.25753E-08	9.99971E-01
14	.00000E+00	1.28987E-08	4.76895E-01	5.14321E-01	3.97713E-01	7.91868E-02	3.14674E-08	9.99989E-01
15	.00000E+00	1.45770E-09	2.61415E-01	2.36402E-01	2.53270E-01	8.14122E-03	2.14114E-06	1.00000E+00
16	.00000E+00	4.28030E-10	1.78143E-01	1.10004E-01	1.73438E-01	4.70329E-03	1.64051E-06	9.99999E-01
17	.00000E+00	1.37847E-10	9.61571E-02	3.56398E-02	9.15337E-02	4.62251E-03	9.74090E-07	1.00000E+00
18	.00000E+00	9.86942E-11	8.60976E-02	2.88571E-02	7.99845E-02	6.11237E-03	9.57096E-07	9.99997E-01
19	.00000E+00	1.39533E-10	1.41091E-01	7.16631E-02	1.34438E-01	6.65180E-03	1.59252E-06	9.99997E-01
20	.00000E+00	2.26894E-10	3.35127E-01	3.98972E-01	3.07190E-01	2.79313E-02	4.64089E-06	1.00000E+00
21	.00000E+00	3.32100E-11	1.67307E-01	8.64159E-02	1.49869E-01	1.74378E-02	-7.15299E-06	1.00005E+00
22	.00000E+00	3.85312E-11	3.17259E-01	2.36989E-01	2.68153E-01	4.91022E-02	3.96618E-06	9.99998E-01
23	.00000E+00	3.68400E-11	7.57664E-01	1.15355E+00	6.17524E-01	1.40128E-01	-1.09747E-06	1.00002E+00
24	.00000E+00	1.00274E-11	7.88068E-01	9.53341E-01	6.36522E-01	1.52537E-01	-2.49207E-06	1.00002E+00
25	.00000E+00	2.93536E-12	5.13315E-01	3.81120E-01	4.28195E-01	8.51169E-02	-1.02446E-06	1.00001E+00
26	.00000E+00	2.05829E-12	3.96198E-01	3.80039E-01	3.18810E-01	7.73861E-02	-8.84297E-07	1.00001E+00
27	.00000E+00	4.90502E-13	1.29830E-01	7.68663E-02	1.07887E-01	2.19433E-02	1.29718E-07	1.00000E+00
28	.00000E+00	1.00000E+00	1.02038E+01	1.63294E+01	1.02038E+01	1.00257E+00	3.20340E-06	9.99974E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.62161E-01	-9.49344E-09	1.69616E-01	.00000E+00	2.27008E-03	2.53617E-03	.00000E+00	3.41756E-01
2	1.22281E+00	1.00706E-07	1.30607E+00	.00000E+00	1.77724E-05	1.17400E-02	.00000E+00	2.59416E+00
3	1.56001E+00	-9.95787E-09	1.66886E+00	.00000E+00	.00000E+00	1.45464E-02	.00000E+00	3.31300E+00
4	9.69351E-01	-4.15396E-08	1.03787E+00	.00000E+00	.00000E+00	6.30671E-03	.00000E+00	2.06056E+00
5	1.46411E+00	-7.27154E-08	1.57324E+00	.00000E+00	.00000E+00	1.87378E-03	.00000E+00	3.11652E+00
6	2.81824E+00	-5.61769E-09	3.02952E+00	.00000E+00	.00000E+00	1.71699E-03	.00000E+00	5.99977E+00
7	2.78075E+00	-1.58678E-07	2.90439E+00	.00000E+00	.00000E+00	1.77358E-03	.00000E+00	5.86513E+00
8	2.05332E+00	-1.54147E-07	2.07885E+00	.00000E+00	.00000E+00	1.87589E-03	.00000E+00	4.30158E+00
9	1.60284E+00	9.33769E-08	1.58463E+00	.00000E+00	.00000E+00	2.58686E-03	.00000E+00	3.32605E+00
10	1.46559E+00	3.18761E-08	1.44202E+00	.00000E+00	.00000E+00	5.50833E-03	.00000E+00	3.03607E+00
11	1.35014E+00	1.97993E-08	1.30015E+00	.00000E+00	.00000E+00	1.13391E-02	.00000E+00	2.77967E+00
12	8.50654E-01	-1.33726E-10	7.93485E-01	.00000E+00	.00000E+00	1.44411E-02	.00000E+00	1.73599E+00
13	7.20541E-01	-1.23753E-08	6.73925E-01	.00000E+00	.00000E+00	1.36448E-02	.00000E+00	1.47178E+00
14	6.68451E-01	3.14674E-08	5.99437E-01	.00000E+00	.00000E+00	9.68757E-03	.00000E+00	1.34965E+00
15	3.79703E-01	2.14114E-06	3.73156E-01	.00000E+00	.00000E+00	2.44874E-03	.00000E+00	7.87020E-01
16	2.11973E-01	1.64051E-06	2.08456E-01	.00000E+00	.00000E+00	1.63364E-03	.00000E+00	4.39800E-01
17	9.39556E-02	9.74090E-07	9.05465E-02	.00000E+00	.00000E+00	2.42217E-03	.00000E+00	1.95522E-01
18	7.96330E-02	9.57096E-07	7.49389E-02	.00000E+00	.00000E+00	3.14991E-03	.00000E+00	1.62878E-01
19	1.48386E-01	1.59252E-06	1.42876E-01	.00000E+00	.00000E+00	3.90643E-03	.00000E+00	3.05558E-01
20	4.84690E-01	4.64083E-06	4.65135E-01	.00000E+00	.00000E+00	1.72471E-02	.00000E+00	9.97033E-01
21	1.52205E-01	-7.15299E-06	1.38279E-01	.00000E+00	.00000E+00	1.11861E-02	.00000E+00	3.08133E-01
22	3.09925E-01	3.96618E-06	2.70401E-01	.00000E+00	.00000E+00	3.11145E-02	.00000E+00	6.20613E-01
23	9.54642E-01	-1.09747E-06	8.38888E-01	.00000E+00	.00000E+00	8.70385E-02	.00000E+00	1.91336E+00
24	7.16562E-01	-2.49207E-06	5.89883E-01	.00000E+00	.00000E+00	9.44123E-02	.00000E+00	1.40871E+00
25	3.08383E-01	-1.02446E-06	2.40658E-01	.00000E+00	.00000E+00	5.47217E-02	.00000E+00	5.98821E-01
26	2.10268E-01	-8.84297E-07	1.43568E-01	.00000E+00	.00000E+00	5.03591E-02	.00000E+00	3.91359E-01
27	3.88360E-02	1.29718E-07	1.82834E-02	.00000E+00	.00000E+00	1.40471E-02	.00000E+00	6.59440E-02
28	2.37882E+01	3.21612E-06	2.37569E+01	.00000E+00	2.28786E-03	4.73264E-01	.00000E+00	4.94819E+01

- elapsed time .02 min.
0direct access unit 9 requires 516 blocks of length 1456 for cross section weighting.
1 transport cross section weighting function

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.28201E-03	2.45111E-02	3.14747E-02	1.91341E-02	2.98150E-02	5.59903E-02	3.19026E-02	4.59996E-03

2	3.56976E-03	3.80654E-02	4.86293E-02	2.95021E-02	4.49991E-02	8.47653E-02	4.81425E-02	6.91430E-03
3	2.90064E-03	3.24762E-02	4.29348E-02	2.71977E-02	4.24442E-02	8.05892E-02	4.61187E-02	5.51826E-03
4	1.00127E-03	1.19508E-02	1.64580E-02	1.09506E-02	1.74601E-02	3.34190E-02	1.93421E-02	1.97977E-03
5	1.66181E-03	1.86404E-02	2.46721E-02	1.56208E-02	2.44024E-02	4.65789E-02	2.67257E-02	3.29008E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.79708E-03	5.93129E-03	1.25953E-02	1.44534E-02	1.19970E-02	1.75072E-02	1.83347E-03	9.86573E-04
2	7.20549E-03	8.89850E-03	1.89432E-02	2.18226E-02	1.80992E-02	2.65540E-02	2.72512E-03	1.47934E-03
3	5.80105E-03	8.34660E-03	1.77139E-02	2.01774E-02	1.67294E-02	2.45408E-02	2.54984E-03	1.37622E-03
4	1.93844E-03	3.39517E-03	7.19347E-03	8.10473E-03	6.75643E-03	9.87134E-03	1.10883E-03	5.81428E-04
5	3.36643E-03	4.83346E-03	1.02540E-02	1.16707E-02	9.70110E-03	1.41787E-02	1.52319E-03	8.11876E-04

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.06648E-04	1.21812E-03	1.46287E-03	5.15797E-03	3.53078E-03	9.85200E-03	2.87242E-02	3.01170E-02
2	1.36818E-03	1.84425E-03	2.19492E-03	7.75647E-03	5.35673E-03	1.50040E-02	4.36069E-02	4.60956E-02
3	1.26507E-03	1.70526E-03	2.05242E-03	7.16904E-03	4.98443E-03	1.38862E-02	4.05360E-02	4.27688E-02
4	5.12890E-04	6.84691E-04	8.26263E-04	2.90886E-03	2.01327E-03	5.59257E-03	1.66466E-02	1.74718E-02
5	7.34486E-04	9.85068E-04	1.18528E-03	4.16750E-03	2.87553E-03	8.00844E-03	2.35398E-02	2.47246E-02

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	1.54907E-02	1.41313E-02	3.69046E-03	3.83591E-01
2	2.38526E-02	2.21059E-02	6.07750E-03	5.85578E-01
3	2.19868E-02	2.04189E-02	5.58307E-03	5.39751E-01
4	8.89766E-03	8.13641E-03	2.04488E-03	2.17222E-01
5	1.26692E-02	1.16111E-02	3.01905E-03	3.11448E-01

1 80 d, sas2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp

0cell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.67760E-01	1.28589E+00	1.64329E+00	1.02237E+00	1.54860E+00	2.98131E+00	2.87547E+00	2.07391E+00
2	1.64667E-01	1.25332E+00	1.60285E+00	9.98405E-01	1.51153E+00	2.91143E+00	2.83435E+00	2.06669E+00
3	1.63541E-01	1.24154E+00	1.58793E+00	9.89434E-01	1.49782E+00	2.88491E+00	2.81924E+00	2.06443E+00
4	1.62157E-01	1.22324E+00	1.56105E+00	9.70342E-01	1.46593E+00	2.82182E+00	2.78242E+00	2.06268E+00
5	1.64192E-01	1.24633E+00	1.59169E+00	9.89966E-01	1.49729E+00	2.88251E+00	2.81782E+00	2.06664E+00

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58964E+00	1.44780E+00	1.31247E+00	8.07731E-01	6.85553E-01	6.16570E-01	3.75028E-01	2.09401E-01
2	1.59707E+00	1.45595E+00	1.32988E+00	8.28065E-01	7.02170E-01	6.41207E-01	3.77593E-01	2.10727E-01
3	1.59958E+00	1.45858E+00	1.33549E+00	8.34530E-01	7.07555E-01	6.49085E-01	3.78444E-01	2.11172E-01
4	1.60271E+00	1.46525E+00	1.34942E+00	8.49926E-01	7.20086E-01	6.67653E-01	3.79980E-01	2.12039E-01
5	1.59796E+00	1.45864E+00	1.33545E+00	8.34033E-01	7.07086E-01	6.48420E-01	3.78113E-01	2.11056E-01

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.13908E-02	7.60806E-02	1.44252E-01	4.69975E-01	1.41622E-01	2.80015E-01	8.66382E-01	6.19525E-01
2	9.26043E-02	7.77306E-02	1.46207E-01	4.76894E-01	1.46448E-01	2.93886E-01	9.05789E-01	6.61758E-01
3	9.30083E-02	7.82729E-02	1.46851E-01	4.79156E-01	1.47992E-01	2.98187E-01	9.17860E-01	6.74141E-01
4	9.39316E-02	7.95696E-02	1.48341E-01	4.84477E-01	1.51951E-01	3.09195E-01	9.51684E-01	7.12287E-01
5	9.29749E-02	7.82526E-02	1.46801E-01	4.79011E-01	1.48058E-01	2.98165E-01	9.19349E-01	6.76797E-01

Ozone	grp. 25	grp. 26	grp. 27
1	2.56240E-01	1.58255E-01	2.25591E-02
2	2.78766E-01	1.79726E-01	2.91393E-02
3	2.85006E-01	1.85275E-01	3.05398E-02
4	3.05625E-01	2.06679E-01	3.74371E-02
5	2.86734E-01	1.88023E-01	3.16819E-02

0flux disadvantage factors (zone average/cell average-flux)

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.02173E+00	1.03175E+00	1.03242E+00	1.03273E+00	1.03427E+00	1.03428E+00	1.02046E+00	1.00852E+00
2	1.00289E+00	1.00561E+00	1.00704E+00	1.00853E+00	1.00951E+00	1.01003E+00	1.00587E+00	1.00003E+00
3	9.96033E-01	9.96160E-01	9.97640E-01	9.99463E-01	1.00036E+00	1.00084E+00	1.00050E+00	9.98931E-01
4	9.87602E-01	9.81476E-01	9.80751E-01	9.80178E-01	9.79067E-01	9.78946E-01	9.87437E-01	9.98084E-01
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	9.94795E-01	9.92567E-01	9.82790E-01	9.68463E-01	9.69547E-01	9.50880E-01	9.91842E-01	9.92158E-01
2	9.99446E-01	9.98141E-01	9.95830E-01	9.92844E-01	9.93047E-01	9.88875E-01	9.98625E-01	9.98444E-01

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     3 1.00089E+00 9.99962E-01 1.00003E+00 1.00060E+00 1.00066E+00 1.00108E+00 1.00087E+00 1.00055E+00
     4 1.00298E+00 1.00453E+00 1.01046E+00 1.01906E+00 1.01838E+00 1.02966E+00 1.00478E+00 1.00466E+00
     5 1.00000E+00 1.00000E+00 1.00000E+00 1.00000E+00 1.00000E+00 1.00000E+00 1.00000E+00 1.00000E+00
Ozone  grp. 17    grp. 18    grp. 19    grp. 20    grp. 21    grp. 22    grp. 23    grp. 24
     1 9.82963E-01 9.72245E-01 9.82634E-01 9.81136E-01 9.56658E-01 9.39129E-01 9.42489E-01 9.15083E-01
     2 9.96014E-01 9.93330E-01 9.95952E-01 9.95581E-01 9.89253E-01 9.85650E-01 9.85358E-01 9.77779E-01
     3 1.00036E+00 1.00026E+00 1.00034E+00 1.00030E+00 9.99689E-01 1.00007E+00 9.98490E-01 9.96076E-01
     4 1.01029E+00 1.01683E+00 1.01049E+00 1.01141E+00 1.02643E+00 1.03700E+00 1.03528E+00 1.05244E+00
     5 1.00000E+00 1.00000E+00 1.00000E+00 1.00000E+00 1.00000E+00 1.00000E+00 1.00000E+00 1.00000E+00
Ozone  grp. 25    grp. 26    grp. 27
     1 8.93651E-01 8.41680E-01 7.12051E-01
     2 9.72210E-01 9.55872E-01 9.19745E-01
     3 9.93969E-01 9.85385E-01 9.67109E-01
     4 1.06588E+00 1.09922E+00 1.18166E+00
     5 1.00000E+00 1.00000E+00 1.00000E+00
Ocell averaged currents

Ozone  grp. 1     grp. 2     grp. 3     grp. 4     grp. 5     grp. 6     grp. 7     grp. 8
     1 2.28201E-03 2.45111E-02 3.14747E-02 1.91341E-02 2.93150E-02 5.59903E-02 3.19026E-02 4.59996E-03
     2 3.56976E-03 3.80654E-02 4.86259E-02 2.95021E-02 4.49991E-02 8.47653E-02 4.81425E-02 6.91430E-03
     3 2.90064E-03 3.24762E-02 4.29348E-02 2.71977E-02 4.24442E-02 8.05892E-02 4.61187E-02 5.51826E-03
     4 1.00127E-03 1.19508E-02 1.64580E-02 1.09506E-02 1.74601E-02 3.34190E-02 1.95421E-02 1.97977E-03
     5 1.66181E-03 1.86404E-02 2.46721E-02 1.56208E-02 2.44024E-02 4.65789E-02 2.67257E-02 3.29008E-03
Ozone  grp. 9     grp. 10    grp. 11    grp. 12    grp. 13    grp. 14    grp. 15    grp. 16
     1 4.79708E-03 5.93129E-03 1.25953E-02 1.44534E-02 1.19970E-02 1.75072E-02 1.83347E-03 9.86573E-04
     2 7.20549E-03 8.89850E-03 1.89432E-02 2.18226E-02 1.80992E-02 2.65540E-02 2.72512E-03 1.47934E-03
     3 5.80105E-03 8.34660E-03 1.77139E-02 2.01774E-02 1.67294E-02 2.45408E-02 2.54984E-03 1.37622E-03
     4 1.93844E-03 3.39517E-03 7.19347E-03 8.10473E-03 6.75643E-03 9.87134E-03 1.10883E-03 5.81428E-04
     5 3.36643E-03 4.83346E-03 1.02540E-02 1.16707E-02 9.70110E-03 1.41787E-02 1.52319E-03 8.11876E-04
Ozone  grp. 17    grp. 18    grp. 19    grp. 20    grp. 21    grp. 22    grp. 23    grp. 24
     1 9.06648E-04 1.21812E-03 1.46287E-03 5.15797E-03 3.53076E-03 9.85200E-03 2.87242E-02 3.01170E-02
     2 1.36818E-03 1.84425E-03 2.19492E-03 7.75647E-03 5.35673E-03 1.50040E-02 4.36069E-02 4.60956E-02
     3 1.26507E-03 1.70526E-03 2.05242E-03 7.16904E-03 4.98443E-03 1.38862E-02 4.05360E-02 4.27688E-02
     4 5.12890E-04 6.84691E-04 8.26263E-04 2.90886E-03 2.01327E-03 5.59257E-03 1.66466E-02 1.74718E-02
     5 7.34486E-04 9.85069E-04 1.18528E-03 4.16750E-03 2.87553E-03 8.00844E-03 2.35398E-02 2.47246E-02
Ozone  grp. 25    grp. 26    grp. 27
     1 1.54907E-02 1.41313E-02 3.69046E-03
     2 2.38526E-02 2.21059E-02 6.07750E-03
     3 2.19868E-02 2.04189E-02 5.58307E-03
     4 8.89766E-03 8.13641E-03 2.04488E-03
     5 1.26692E-02 1.16111E-02 3.01905E-03
Ozone      volume      vol. fraction

     1    6.88443E-01    3.30753E-01
     2    3.17352E-02    1.52468E-02
     3    2.16724E-01    1.04122E-01
     4    1.14454E+00    5.49878E-01
     5    2.08144E+00    1.00000E+00
 - elapsed time    .03 min.
Orequested parm=halt8,skipcellwt,skipshipdata
  pass= 1, exec halts after pass   8
```
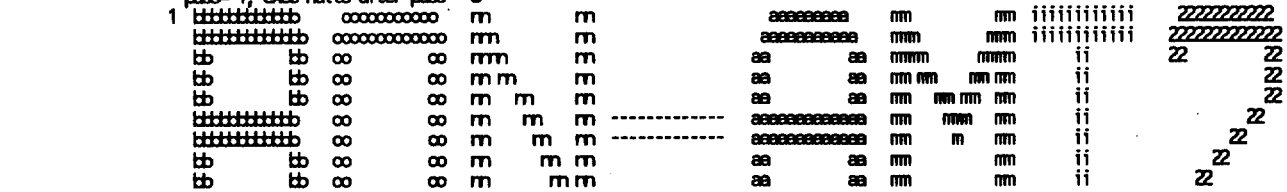
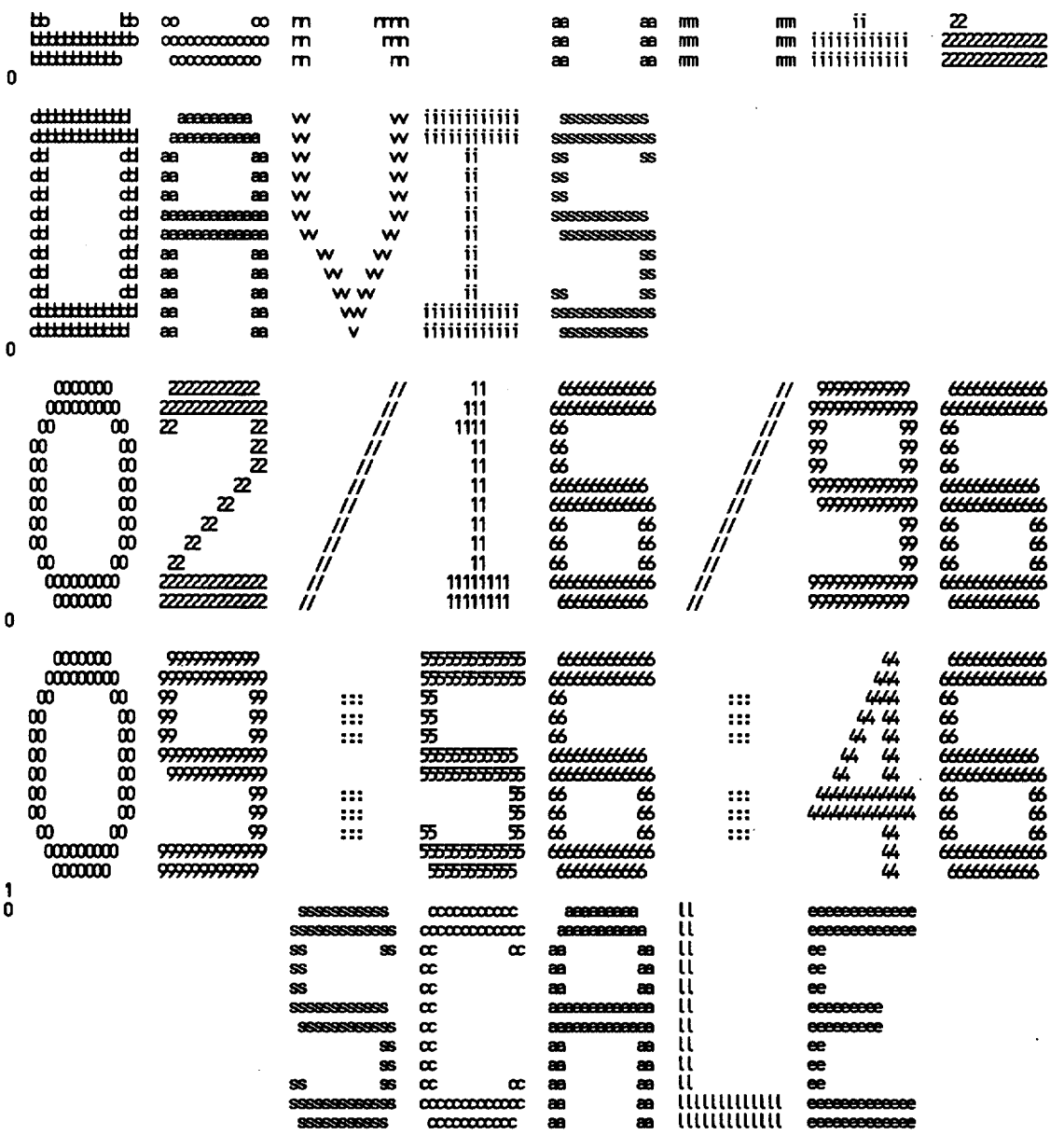





```
*******************************************************************************
*******************************************************************************
*******************************************************************************
*****                                                                     *****
*****                  program verification information                *****
*****                                                                     *****
*****                  code system:    scale  version:    4.2          *****
*****                                                                     *****
*******************************************************************************
*******************************************************************************
*****                                                                     *****
*****                                                                     *****
*****              program:  c0c008                                       *****
*****                                                                     *****
*****         creation date:  04/27/95                                    *****
*****                                                                     *****
*****              library:  /neutronics/scale/exe                        *****
*****                                                                     *****
*****                                                                     *****
*****     this is not a   scale  configuration controlled code            *****
*****                                                                     *****
*****              jobname:  davis                                        *****
*****                                                                     *****
*****     date of execution:  02/16/96                                    *****
*****                                                                     *****
*****     time of execution:  09:56:46                                    *****
*****                                                                     *****
*****                                                                     *****
*******************************************************************************
*******************************************************************************
*******************************************************************************
```

```
1
0      -1q array has      1 entries.
0       0q array has      4 entries.
0       1q array has      6 entries.
0       2q array has      2 entries.
1logical assignments
0master library   12
 working library  17
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere                2
0izm--number of zones or material regions                       4
0ms--mixing table length                                       70
0ibl--shielded cross section edit option (0/1--no/yes)          0
0ibr--bondarenko factor edit option (0/1--no/yes)               0
0issopt--dancoff factor option                                  0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0       3q array has     70 entries.
0       4q array has     70 entries.
0       5q array has     70 entries.
0       6q array has      4 entries.
0       7q array has      4 entries.
0       8q array has      4 entries.
0       9q array has      4 entries.
```

0 10q array has 70 entries.
0 11q array has 4 entries.
0 m i x i n g t a b l e

0entry	mixture	isotope	number density	new identifier
1	3	8016	2.09710E-02	201
2	3	1001	4.19420E-02	202
3	3	5010	3.81515E-06	203
4	3	5011	1.54884E-05	204
5	2	40302	4.25156E-02	205
6	1	92235	2.17519E-04	200006
7	1	92234	1.80384E-06	200007
8	1	92236	3.09919E-06	200008
9	1	92238	7.29235E-03	200009
10	1	8016	1.50611E-02	200010
11	1	8016	1.15315E-02	200011
12	1	36083	5.19887E-08	200012
13	1	36085	2.52399E-08	200013
14	1	38090	5.64542E-07	200014
15	1	39089	1.85221E-07	200015
16	1	42095	8.27836E-08	200016
17	1	40093	4.11148E-07	200017
18	1	40094	6.33205E-07	200018
19	1	40095	4.27857E-07	200019
20	1	41094	1.77349E-13	200020
21	1	43099	5.87758E-07	200021
22	1	45103	1.52118E-07	200022
23	1	45105	3.63974E-09	200023
24	1	44101	5.18370E-07	200024
25	1	44106	5.96664E-08	200025
26	1	46105	1.21221E-07	200026
27	1	46108	1.56859E-08	200027
28	1	47109	9.63590E-09	200028
29	1	51124	3.00303E-12	200029
30	1	54131	2.47825E-07	200030
31	1	54132	4.19533E-07	200031
32	1	54135	2.09120E-09	200032
33	1	54136	9.95252E-07	200033
34	1	55134	2.70779E-09	200034
35	1	55135	2.99702E-07	200035
36	1	55137	6.30110E-07	200036
37	1	56136	7.27113E-10	200037
38	1	57139	6.33240E-07	200038
39	1	59141	3.00200E-07	200039
40	1	59143	1.34650E-07	200040
41	1	58144	4.90451E-07	200041
42	1	60143	4.35283E-07	200042
43	1	60145	3.87075E-07	200043
44	1	61147	1.73729E-07	200044
45	1	61148	4.19133E-10	200045
46	1	60147	4.46317E-08	200046
47	1	62147	4.30449E-09	200047
48	1	62149	2.10275E-08	200048
49	1	62150	8.60817E-08	200049
50	1	62151	3.43758E-08	200050
51	1	62152	3.85958E-08	200051
52	1	64155	3.40414E-11	200052
53	1	63153	1.83469E-08	200053
54	1	63154	5.35540E-10	200054
55	1	63155	3.62762E-09	200055
56	1	40302	4.42681E-03	200056

57	1	1001	2.30630E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	6.04856E-07	200060
61	1	95237	4.79701E-08	200061
62	1	94238	5.71923E-10	200062
63	1	94239	5.27664E-06	200063
64	1	94240	1.45266E-07	200064
65	1	94241	1.08078E-08	200065
66	1	94242	9.49211E-11	200066
67	1	95241	2.80565E-11	200067
68	1	95243	5.82811E-13	200068
69	1	96244	3.88991E-15	200069
70	1	999	3.30753E-21	200070

0geometry and material description

0zone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.32460E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.29352E+01	0
3	3	8.14000E-01	6.07600E+02	3.54862E+00	0
4	1	2.96100E+00	9.75000E+02	2.32883E-01	0

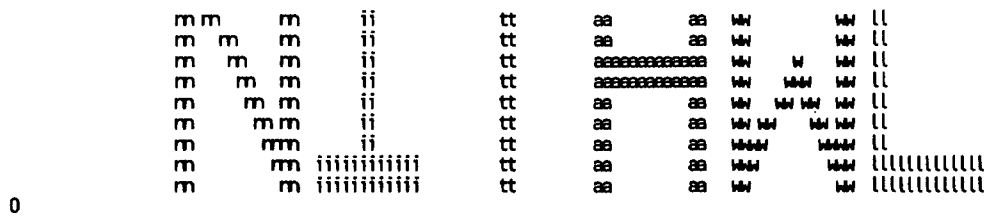
8067 locations of 200000 available are required to make a new master containing the self-shielded values

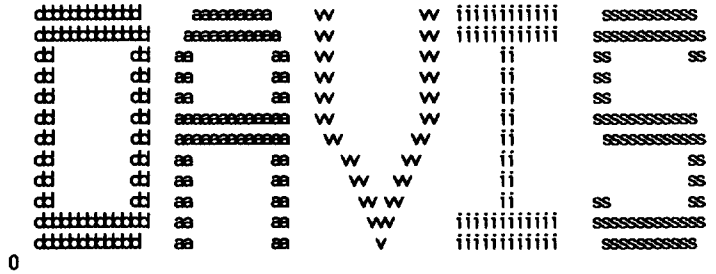
0no nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

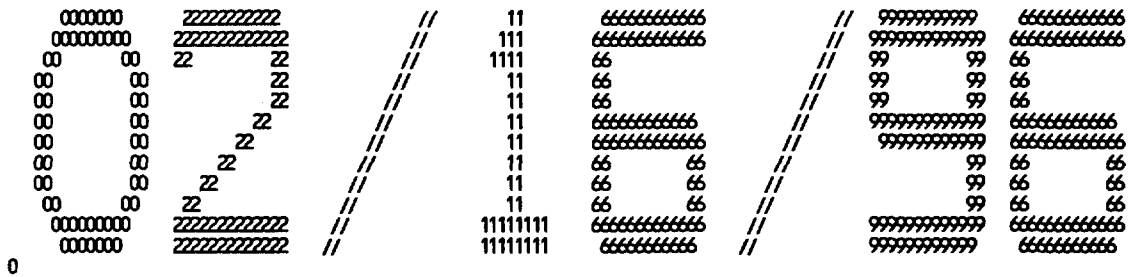
0copy	999	1/v cross sectio	from log 12	to log 1	bondarenko	trigger 0
0copy	1001	hydrogen	from log 12	to log 18	bondarenko	trigger 0
0copy	1001	hydrogen	from log 18	to log 1	bondarenko	trigger 0
0copy	1001	hydrogen	from log 18	to log 1	bondarenko	trigger 0
0copy	5010	b-10 1273 218hgp	from log 12	to log 18	bondarenko	trigger 0
0copy	5010	b-10 1273 218hgp	from log 18	to log 1	bondarenko	trigger 0
0copy	5010	b-10 1273 218hgp	from log 18	to log 1	bondarenko	trigger 0
0copy	5011	boron-11	from log 12	to log 18	bondarenko	trigger 0
0copy	5011	boron-11	from log 18	to log 1	bondarenko	trigger 0
0copy	5011	boron-11	from log 18	to log 1	bondarenko	trigger 0
0copy	8016	oxygen-16	from log 12	to log 18	bondarenko	trigger 0
0copy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
0copy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
0copy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
0copy	36083	kr-83	from log 12	to log 1	bondarenko	trigger 0
0copy	36085	kr-85	from log 12	to log 1	bondarenko	trigger 0
0copy	38090	sr-90	from log 12	to log 1	bondarenko	trigger 0
0copy	39089	y-89	from log 12	to log 1	bondarenko	trigger 0
0copy	40093	zr-93	from log 12	to log 1	bondarenko	trigger 0
0copy	40094	zr-94	from log 12	to log 1	bondarenko	trigger 0
0copy	40095	zr-95	from log 12	to log 1	bondarenko	trigger 0
0copy	40302	zircalloy	from log 12	to log 18	bondarenko	trigger 0
0copy	40302	zircalloy	from log 18	to log 1	bondarenko	trigger 0
0copy	40302	zircalloy	from log 18	to log 1	bondarenko	trigger 0
0copy	41094	nb-94	from log 12	to log 1	bondarenko	trigger 0
0copy	42095	mo-95	from log 12	to log 1	bondarenko	trigger 0
0copy	43099	tc-99	from log 12	to log 1	bondarenko	trigger 0
0copy	44101	ru-101	from log 12	to log 1	bondarenko	trigger 0
0copy	44106	ru-106	from log 12	to log 1	bondarenko	trigger 0
0copy	45103	rh-103	from log 12	to log 1	bondarenko	trigger 0
0copy	45105	rh-105	from log 12	to log 1	bondarenko	trigger 0
0copy	46105	pd-105	from log 12	to log 1	bondarenko	trigger 0
0copy	46108	pd-108	from log 12	to log 1	bondarenko	trigger 0
0copy	47109	silver-109	from log 12	to log 1	bondarenko	trigger 0
0copy	51124	sb-124	from log 12	to log 1	bondarenko	trigger 0
0copy	54131	xe-131	from log 12	to log 1	bondarenko	trigger 0
0copy	54132	xe-132	from log 12	to log 1	bondarenko	trigger 0
0copy	54135	xenon-135	from log 12	to log 1	bondarenko	trigger 0

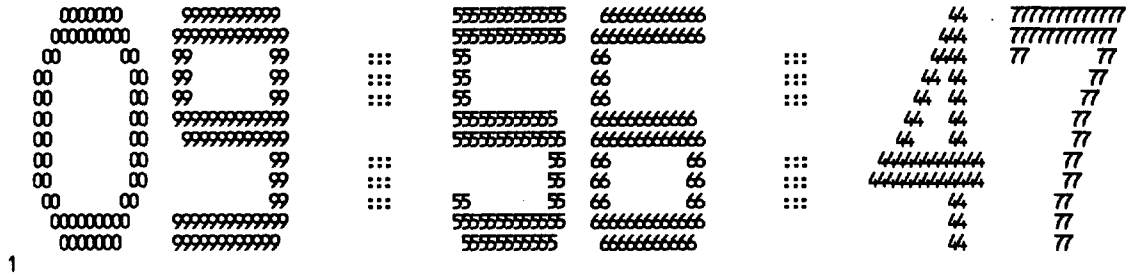
```
0copy    54136  xe-136          from log 12 to log  1    bondarenko trigger 0
0copy    55133  cesium-133      from log 12 to log  1    bondarenko trigger 0
0copy    55134  cs-134          from log 12 to log  1    bondarenko trigger 0
0copy    55135  cs-135          from log 12 to log  1    bondarenko trigger 0
0copy    55137  cs-137          from log 12 to log  1    bondarenko trigger 0
0copy    56136  ba-136          from log 12 to log  1    bondarenko trigger 0
0copy    57139  la-139          from log 12 to log  1    bondarenko trigger 0
0copy    58144  ce-144          from log 12 to log  1    bondarenko trigger 0
0copy    59141  pr-141          from log 12 to log  1    bondarenko trigger 0
0copy    59143  pr-143          from log 12 to log  1    bondarenko trigger 0
0copy    60143  nd-143          from log 12 to log  1    bondarenko trigger 0
0copy    60145  nd-145          from log 12 to log  1    bondarenko trigger 0
0copy    60147  nd-147          from log 12 to log  1    bondarenko trigger 0
0copy    61147  pm-147          from log 12 to log  1    bondarenko trigger 0
0copy    61148  pm-148          from log 12 to log  1    bondarenko trigger 0
0copy    62147  sm-147          from log 12 to log  1    bondarenko trigger 0
0copy    62149  sm-149          from log 12 to log  1    bondarenko trigger 0
0copy    62150  sm-150          from log 12 to log  1    bondarenko trigger 0
0copy    62151  sm-151          from log 12 to log  1    bondarenko trigger 0
0copy    62152  sm-152          from log 12 to log  1    bondarenko trigger 0
0copy    63153  eu-153          from log 12 to log  1    bondarenko trigger 0
0copy    63154  eu-154          from log 12 to log  1    bondarenko trigger 0
0copy    63155  eu-155          from log 12 to log  1    bondarenko trigger 0
0copy    64155  gd-155          from log 12 to log  1    bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92235  uranium-235     from log 12 to log  1    bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92238  uranium-238     from log 12 to log  1    bondarenko trigger 0
0copy    93237  neptunium-237   from log 12 to log  1    bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1    bondarenko trigger 0
0copy    94239  plutonium-239   from log 12 to log  1    bondarenko trigger 0
0copy    94240  plutonium-240   from log 12 to log  1    bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1    bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1    bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1    bondarenko trigger 0
0copy    95243  am-243 1057 218 from log 12 to log  1    bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1    bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc      1/27/89
             last updated      9/16/93
                l.m.petrie   -   ornl
        tape id                          4321        number of nuclides                  70
        number of neutron groups           27        number of gamma groups               0
        first thermal group                15        logical unit                         1
                                  table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id   200070
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89             id      202
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89             id   200057
       b-10 1273 218ngp 042375 p-3 293k                                           id      203
       b-10 1273 218ngp 042375 p-3 293k                                           id   200058
        boron-11       endf/b-iv mat 1160            updated 10/13/89             id      204
        boron-11       endf/b-iv mat 1160            updated 10/13/89             id   200059
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id      201
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id   200010
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id   200011
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89             id   200012
        kr-85             mt=  102                                                id   200013
        sr-90          mt=102                        updated 10/13/89             id   200014
         y-89          mt=102                        updated 10/13/89             id   200015
```

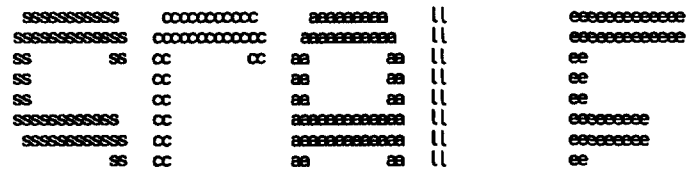
```
      zr-93          mt=  102                                                  id   200017
      zr-94        mt=102                      updated 10/13/89                id   200018
      zr-95        mt=102                      updated 10/13/89                id   200019
      zircalloy    endf/b-iv mat 1284          updated 10/13/89                id      205
      zircalloy    endf/b-iv mat 1284          updated 10/13/89                id   200056
      nb-94        mt=102                      updated 10/13/89                id   200020
      mo-95        mt=102                      updated 10/13/89                id   200016
      tc-99        mt=102                      updated 10/13/89                id   200021
      ru-101       mt=102                      updated 10/13/89                id   200024
      ru-106       mt=102                      updated 10/13/89                id   200025
      rh-103       mt=102                      updated 10/13/89                id   200022
      rh-105         mt=  102                                                  id   200023
      pd-105       mt=102                      updated 10/13/89                id   200026
      pd-108       mt=102                      updated 10/13/89                id   200027
      silver-109   endf/b-iv mat 1139          updated 10/13/89                id   200028
      sb-124       mt=102                      updated 10/13/89                id   200029
      xe-131       mt=102,103,104,105,106      updated 10/13/89                id   200030
      xe-132       mt=102,103,104,105,106      updated 10/13/89                id   200031
      xenon-135    endf/b-iv mat 1294          updated 10/13/89                id   200032
      xe-136         mt=  102, 103, 104, 105, 107                              id   200033
      cesium-133   endf/b-iv mat 1141          updated 10/13/89                id   200060
      cs-134       mt=102                      updated 10/13/89                id   200034
      cs-135         mt=  102                                                  id   200035
      cs-137       mt=102                      updated 10/13/89                id   200036
      ba-136       mt=102                      updated 10/13/89                id   200037
      la-139       mt=102                      updated 10/13/89                id   200038
      ce-144         mt=  102                                                  id   200041
      pr-141       mt=102,103,104,105,106,107  updated 10/13/89                id   200039
      pr-143       mt=102                      updated 10/13/89                id   200040
      nd-143       mt=102                      updated 10/13/89                id   200042
      nd-145       mt=102                      updated 10/13/89                id   200043
      nd-147       mt=102                      updated 10/13/89                id   200046
      pm-147       mt=102                      updated 10/13/89                id   200044
      pm-148         mt=  102                                                  id   200045
      sm-147       endf/b-v fission product    updated 10/13/89                id   200047
      sm-149       mt=102,103,107              updated 10/13/89                id   200048
      sm-150       mt=102                      updated 10/13/89                id   200049
      sm-151       mt=102,103,104,105,106,107  updated 10/13/89                id   200050
      sm-152       mt=102,103,104,105,106,107  updated 10/13/89                id   200051
      eu-153       mt=102,103,104,105,106,107  updated 10/13/89                id   200053
      eu-154       mt=102,103,104,105,106,107  updated 10/13/89                id   200054
      eu-155       mt=102,103,104,105,106,107  updated 10/13/89                id   200055
      gd-155       mt=102                      updated 10/13/89                id   200052
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id   200007
      uranium-235  endf/b-iv mat 1261          updated 10/13/89                id   200006
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id   200008
      uranium-238  endf/b-iv mat 1262          updated 10/13/89                id   200009
      neptunium-237 endf/b-iv mat 1263         updated 10/13/89                id   200061
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      id   200062
      plutonium-239 endf/b-iv mat 1264         updated 10/13/89                id   200063
      plutonium-240 endf/b-iv mat 1265         updated 10/13/89                id   200064
      plutonium-241 endf/b-iv mat 1266         updated 10/13/89                id   200065
      plutonium-242 endf/b-iv mat 1161         updated 10/13/89                id   200066
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                             id   200067
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                              id   200068
      curium-244   endf/b-iv mat 1162          updated 10/13/89                id   200069
0      tape copy used     0 i/o's, and took     .00 seconds
1            nn         nn  iiiiiiiiiiii   tttttttttttt     aaaaaaaaa    ww        ww  ll
             nnn        nn  iiiiiiiiiiii   tttttttttttt    aaaaaaaaaaa   ww        ww  ll
             nnnn       nn      ii             tt         aa         aa  ww        ww  ll
```











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                 m    m m     ii          tt      aaaaaaaaaaaa  ww  www  ww  ll
                 m     m m    ii          tt      aa      aa  ww  ww ww ww  ll
                 m      mm    ii          tt      aa      aa  ww ww   ww ww  ll
                 m       mm   ii          tt      aa      aa  wwww    wwww  ll
                 m        mm iiiiiiiiiiii  tt      aa      aa  www      www  llllllllllll
                 m         m iiiiiiiiiiii  tt      aa      aa  ww       ww  llllllllllll
0

  ddddddddddd    aaaaaaaa   w       w iiiiiiiiiiii   sssssssssss
  ddddddddddd   aaaaaaaaaa  w       w iiiiiiiiiiii  sssssssssssss
  dd       dd  aa       aa  w       w     ii       ss       ss
  dd       dd  aa       aa  w       w     ii       ss
  dd       dd  aa       aa  w       w     ii       ss
  dd       dd  aaaaaaaaaaaa  w       w     ii       sssssssssssss
  dd       dd  aaaaaaaaaaaa   w     w     ii        sssssssssssss
  dd       dd  aa       aa    w   w      ii                ss
  dd       dd  aa       aa     w  w      ii                ss
  dd       dd  aa       aa      w w      ii       ss       ss
  ddddddddddd  aa       aa       ww   iiiiiiiiiiii  sssssssssssss
  ddddddddddd  aa       aa        v   iiiiiiiiiiii   sssssssssss
0

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 00        00            22        //      11      66                    //  99        99  66
 00        00            22        //      11      66                    //  99        99  66
 00        00          22         //      11      666666666666          //  9999999999999  666666666666
 00        00        22          //       11      666666666666          //   999999999999  6666666666666
 00        00      22           //        11      66        66          //            99  66        66
 00        00    22            //         11      66        66          //            99  66        66
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   000000000   99999999999              555555555555  666666666666                 444   777777777777
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 00        00  99        99     :::     55            66                  :::      44 44            77
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 00        00  99999999999              555555555555  666666666666               44   44          77
 00        00   999999999999             555555555555  666666666666              44    44          77
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    0000000    999999999999              5555555555   66666666666                  44         77
1
0                         sssssssssss   cccccccccc    aaaaaaaa   ll          eeeeeeeeeeeee
                         sssssssssssss cccccccccccc  aaaaaaaaaa  ll          eeeeeeeeeeeee
                         ss       ss  cc        cc  aa       aa  ll          ee
                         ss           cc            aa       aa  ll          ee
                         ss           cc            aa       aa  ll          ee
                         sssssssssss  cc            aaaaaaaaaaaa  ll          eeeeeeeee
                          sssssssssss cc            aaaaaaaaaaaa  ll          eeeeeeeee
                                   ss  cc            aa       aa  ll          ee
```

```
                ss  cc          aa      aa  ll          ee
        ss      ss  cc      cc  aa      aa  ll          ee
        sssssssssssss  cccccccccccc  aa      aa  llllllllllll  eeeeeeeeeeeee
         sssssssssss   cccccccccc   aa      aa  llllllllllll  eeeeeeeeeeeee
```

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:   scale  version:   4.2                *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****             program:  c0c002                                      *****
*****                                                                   *****
*****        creation date:  04/27/95                                   *****
*****                                                                   *****
*****             library:  /neutronics/scale/exe                       *****
*****                                                                   *****
*****                                                                   *****
*****    this is not a   scale  configuration controlled code           *****
*****                                                                   *****
*****             jobname:  davis                                       *****
*****                                                                   *****
*****    date of execution:  02/16/96                                   *****
*****                                                                   *****
*****    time of execution:  09:56:47                                   *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
```

```
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has     12 entries.
0select  5 nuclides from the master  library on logical  1
        65 nuclides from the working library on logical  3
         0 nuclides from the working library on logical  0
           to create the new working library on logical  4

         1 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has     70 entries.
0        3q array has     15 entries.
0        4q array has      5 entries.
0 general information concerning cross section library
    tape identification number              4349
    number of nuclides on tape                65
    number of neutron energy groups           27
    first thermal neutron energy group        15
```

```
    number of gamma energy groups                0
0   direct access unit number  9 requires  72 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                          based on endf-b version 4 data with endf-b version 5 fission products
                            compiled for nrc      1/27/89
                              last updated        9/16/93
                                l.m.petrie   -    ornl
- work tape   4349

 xsdrn weighted tape--parent case entitled--   80 d, sas2h: babcock wilcox 15x15,
  3.00wt%, 20gwd/mtu burn high temp



0 nuclides from xsdrn tape
     1    hydrogen        endf/b-iv mat 1269/thrm1002    updated 10/13/89              202
     2   b-10 1273 218ngp 042375 p-3 293k                                               203
     3    boron-11        endf/b-iv mat 1160             updated 10/13/89              204
     4    oxygen-16       endf/b-iv mat 1276             updated 10/13/89              201
     5    zircalloy       endf/b-iv mat 1284             updated 10/13/89              205
0 nuclides from work tape
     6   1/v cross sections normalized to 1.0 at 0.0253 ev                               999
     7    hydrogen        endf/b-iv mat 1269/thrm1002    updated 10/13/89             1001
     8   b-10 1273 218ngp 042375 p-3 293k                                              5010
     9    boron-11        endf/b-iv mat 1160             updated 10/13/89             5011
    10    oxygen-16       endf/b-iv mat 1276             updated 10/13/89             8016
    11    oxygen-16       endf/b-iv mat 1276             updated 10/13/89                6
    12    kr-83           mt=102,103,103,105,106,107     updated 10/13/89            36083
    13    kr-85             mt=  102                                                  36085
    14    sr-90           mt=102                         updated 10/13/89            38090
    15     y-89           mt=102                         updated 10/13/89            39089
    16    zr-93             mt=  102                                                  40093
    17    zr-94           mt=102                         updated 10/13/89            40094
    18    zr-95           mt=102                         updated 10/13/89            40095
    19    zircalloy       endf/b-iv mat 1284             updated 10/13/89            40802
    20    nb-94           mt=102                         updated 10/13/89            41094
    21    mo-95           mt=102                         updated 10/13/89            42095
    22    tc-99           mt=102                         updated 10/13/89            43099
    23    ru-101          mt=102                         updated 10/13/89            44101
    24    ru-106          mt=102                         updated 10/13/89            44106
    25    rh-103          mt=102                         updated 10/13/89            45103
    26    rh-105            mt=  102                                                  45105
    27    pd-105          mt=102                         updated 10/13/89            46105
    28    pd-108          mt=102                         updated 10/13/89            46108
    29    silver-109      endf/b-iv mat 1139             updated 10/13/89            47109
    30    sb-124          mt=102                         updated 10/13/89            51124
    31    xe-131          mt=102,103,104,105,106         updated 10/13/89            54131
    32    xe-132          mt=102,103,104,105,106         updated 10/13/89            54132
    33    xenon-135       endf/b-iv mat 1294             updated 10/13/89            54135
    34    xe-136            mt=  102, 103, 104, 105, 107                              54136
    35    cesium-133      endf/b-iv mat 1141             updated 10/13/89            55133
    36    cs-134          mt=102                         updated 10/13/89            55134
    37    cs-135            mt=  102                                                  55135
    38    cs-137          mt=102                         updated 10/13/89            55137
    39    ba-136          mt=102                         updated 10/13/89            56136
    40    la-139          mt=102                         updated 10/13/89            57139
    41    ce-144            mt=  102                                                  58144
    42    pr-141          mt=102,103,104,105,106,107     updated 10/13/89            59141
    43    pr-143          mt=102                         updated 10/13/89            59143
```

```
   44    nd-143        mt=102                        updated 10/13/89          60143
   45    nd-145        mt=102                        updated 10/13/89          60145
   46    nd-147        mt=102                        updated 10/13/89          60147
   47    pm-147        mt=102                        updated 10/13/89          61147
   48    pm-148          mt=  102                                              61148
   49    sm-147        endf/b-v fission product      updated 10/13/89          62147
   50    sm-149        mt=102,103,107                updated 10/13/89          62149
   51    sm-150        mt=102                        updated 10/13/89          62150
   52    sm-151        mt=102,103,104,105,106,107    updated 10/13/89          62151
   53    sm-152        mt=102,103,104,105,106,107    updated 10/13/89          62152
   54    eu-153        mt=102,103,104,105,106,107    updated 10/13/89          63153
   55    eu-154        mt=102,103,104,105,106,107    updated 10/13/89          63154
   56    eu-155        mt=102,103,104,105,106,107    updated 10/13/89          63155
   57    gd-155        mt=102                        updated 10/13/89          64155
   58   u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    92234
   59    uranium-235   endf/b-iv mat 1261            updated 10/13/89          92235
   60   u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    92236
   61    uranium-238   endf/b-iv mat 1262            updated 10/13/89          92238
   62    neptunium-237 endf/b-iv mat 1263            updated 10/13/89          93237
   63   pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    94238
   64    plutonium-239 endf/b-iv mat 1264            updated 10/13/89          94239
   65    plutonium-240 endf/b-iv mat 1265            updated 10/13/89          94240
   66    plutonium-241 endf/b-iv mat 1266            updated 10/13/89          94241
   67    plutonium-242 endf/b-iv mat 1161            updated 10/13/89          94242
   68   am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                          95241
   69   am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           95243
   70    curium-244    endf/b-iv mat 1162            updated 10/13/89          96244
0 hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          202    temperature=  607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                         203    temperature=  607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160            updated 10/13/89          204    temperature=  607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276            updated 10/13/89          201    temperature=  607.60
0 zircalloy      endf/b-iv mat 1284            updated 10/13/89          205    temperature=  650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)      =   650.000
0potential scatter sigma  =     6.385          lumped nuclear density   = 4.2515602E-02
0spin factor (g)          =     1.079          lump dimension (a-bar)   = 6.7309999E-01
0inner radius             = 6.3246000E-01      dancoff correction (c)   = 1.6805907E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   8      -1.156752E-03    .000000E+00   -7.806033E-01
   9      -4.625978E-02    .000000E+00   -2.073270E+00
  10      -5.962230E-02    .000000E+00   -1.351984E+00
  11      -1.761672E-01    .000000E+00   -7.350731E-01
0excess resonance integrals
0                 resolved
0absorption      2.92402E-01
 fission          .00000E+00
-  elapsed time    .00 min.
-  elapsed time    .02 min.
1     this xsdrn working tape was created 02/16/96 at 09:56:47
      the title of the parent case is as follows
      xsdrn weighted tape--parent case entitled--   80 d, sas2h: babcock wilcox 15x15,
       3.00wt%, 20gwd/mtu burn high temp

         tape id                          8670        number of nuclides                70
```

number of neutron groups 27 number of gamma groups 0
first thermal group 15 logical unit 4

table of contents

hydrogen	endf/b-iv mat 1269/thrm1002	updated 10/13/89	id	202
b-10 1273 218grp 042375 p-3 293k			id	203
boron-11	endf/b-iv mat 1160	updated 10/13/89	id	204
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	201
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id	205
1/v cross sections normalized to 1.0 at 0.0253 ev			id	999
hydrogen	endf/b-iv mat 1269/thrm1002	updated 10/13/89	id	1001
b-10 1273 218grp 042375 p-3 293k			id	5010
boron-11	endf/b-iv mat 1160	updated 10/13/89	id	5011
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	8016
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	6
kr-83	mt=102,103,103,105,106,107	updated 10/13/89	id	36083
kr-85	mt= 102		id	36085
sr-90	mt=102	updated 10/13/89	id	38090
y-89	mt=102	updated 10/13/89	id	39089
zr-93	mt= 102		id	40093
zr-94	mt=102	updated 10/13/89	id	40094
zr-95	mt=102	updated 10/13/89	id	40095
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id	40302
nb-94	mt=102	updated 10/13/89	id	41094
mo-95	mt=102	updated 10/13/89	id	42095
tc-99	mt=102	updated 10/13/89	id	43099
ru-101	mt=102	updated 10/13/89	id	44101
ru-106	mt=102	updated 10/13/89	id	44106
rh-103	mt=102	updated 10/13/89	id	45103
rh-105	mt= 102		id	45105
pd-105	mt=102	updated 10/13/89	id	46105
pd-108	mt=102	updated 10/13/89	id	46108
silver-109	endf/b-iv mat 1139	updated 10/13/89	id	47109
sb-124	mt=102	updated 10/13/89	id	51124
xe-131	mt=102,103,104,105,106	updated 10/13/89	id	54131
xe-132	mt=102,103,104,105,106	updated 10/13/89	id	54132
xenon-135	endf/b-iv mat 1294	updated 10/13/89	id	54135
xe-136	mt= 102, 103, 104, 105, 107		id	54136
cesium-133	endf/b-iv mat 1141	updated 10/13/89	id	55133
cs-134	mt=102	updated 10/13/89	id	55134
cs-135	mt= 102		id	55135
cs-137	mt=102	updated 10/13/89	id	55137
ba-136	mt=102	updated 10/13/89	id	56136
la-139	mt=102	updated 10/13/89	id	57139
ce-144	mt= 102		id	58144
pr-141	mt=102,103,104,105,106,107	updated 10/13/89	id	59141
pr-143	mt=102	updated 10/13/89	id	59143
nd-143	mt=102	updated 10/13/89	id	60143
nd-145	mt=102	updated 10/13/89	id	60145
nd-147	mt=102	updated 10/13/89	id	60147
pm-147	mt=102	updated 10/13/89	id	61147
pm-148	mt= 102		id	61148
sm-147	endf/b-v fission product	updated 10/13/89	id	62147
sm-149	mt=102,103,107	updated 10/13/89	id	62149
sm-150	mt=102	updated 10/13/89	id	62150
sm-151	mt=102,103,104,105,106,107	updated 10/13/89	id	62151
sm-152	mt=102,103,104,105,106,107	updated 10/13/89	id	62152
eu-153	mt=102,103,104,105,106,107	updated 10/13/89	id	63153
eu-154	mt=102,103,104,105,106,107	updated 10/13/89	id	63154
eu-155	mt=102,103,104,105,106,107	updated 10/13/89	id	63155
gd-155	mt=102	updated 10/13/89	id	64155

```
      u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id   92234
       uranium-235   endf/b-iv mat 1261          updated 10/13/89            id   92235
      u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id   92236
       uranium-238   endf/b-iv mat 1262          updated 10/13/89            id   92238
       neptunium-237 endf/b-iv mat 1263          updated 10/13/89            id   93237
      pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                   id   94238
       plutonium-239 endf/b-iv mat 1264          updated 10/13/89            id   94239
       plutonium-240 endf/b-iv mat 1265          updated 10/13/89            id   94240
       plutonium-241 endf/b-iv mat 1266          updated 10/13/89            id   94241
       plutonium-242 endf/b-iv mat 1161          updated 10/13/89            id   94242
      am-241 1056 sigo=5+4 newxlacs 218grp p-3 293k                          id   95241
      am-243 1057 218 gp wt f-1/e-m 090576 p3 293k                           id   95243
       curium-244    endf/b-iv mat 1162          updated 10/13/89            id   96244
0       tape copy used      0 i/o's, and took     .00 seconds
1 xx         xx  sssssssssss   ddddddddddd  rrrrrrrrrrr   mm         mm  ppppppppppp   mm         mm
   xx       xx  sssssssssssss  ddddddddddd  rrrrrrrrrrrr  mm         mm  ppppppppppp  mmm         mmm
    xx     xx   ss         ss  dd        dd  rr        rr  mmm        mm  pp        pp  mmmm       mmmm
     xx   xx    ss             dd        dd  rr        rr  mm mm      mm  pp        pp  mm mm     mm mm
      xx xx     ss             dd        dd  rr        rr  mm  mm     mm  pp        pp  mm  mm   mm  mm
       xxx       sssssssssss   dd        dd  rrrrrrrrrrr   mm   mm    mm  ppppppppppp  mm   mmm   mm
       xxx        sssssssssss  dd        dd  rrrrrrrrrrr   mm    mm   mm  ppppppppppp  mm    m    mm
      xx xx              ss    dd        dd  rr       rr   mm     mm  mm  pp            mm         mm
     xx   xx             ss    dd        dd  rr        rr  mm      mm mm  pp            mm         mm
    xx     xx    ss       ss   dd        dd  rr         rr mm       mmm  pp            mm         mm
   xx       xx   sssssssssssss  ddddddddddd  rr         rr mm        mm  pp            mm         mm
  xx         xx   sssssssssss   ddddddddddd  rr         rr mm        mm  pp            mm         mm
0

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  dd        dd  aa        aa  w         w      ii        ss
  dd        dd  aa        aa  w         w      ii        ss
  dd        dd  aaaaaaaaaaaa  w         w      ii        sssssssssss
  dd        dd  aaaaaaaaaaaa   w       w       ii         sssssssssss
  dd        dd  aa        aa    w     w        ii                 ss
  dd        dd  aa        aa     w   w         ii                 ss
  dd        dd  aa        aa      w w          ii        ss       ss
  ddddddddddd   aa        aa       ww      iiiiiiiiiii  sssssssssssss
  ddddddddddd   aa        aa        v      iiiiiiiiiii   sssssssssss
0

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   00000000    2222222222222      //       111      66666666666        //   999999999999 66666666666
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 00        00            222   //         11      66               //     99        99 66
 00        00            222  //          11      66              //      99        99 66
 00        00           222   //          11      666666666666   //       999999999999 666666666666
 00        00         222     //          11      666666666666  //        999999999999 666666666666
 00        00       222       //          11      66        66  //                99 66        66
 00        00     222         //          11      66        66  //                99 66        66
  00      00   222           //           11      66        66  //                99 66        66
   00000000   2222222222222 //          11111111  666666666666 //        999999999999 666666666666
    000000    2222222222222 //           11111111   66666666666 //         99999999999  66666666666
0

    000000    999999999          555555555555  66666666666                  44   88888888888
   00000000   999999999999       555555555555  66666666666                444   88888888888
  00      00  99        99   :::  55            66            :::         4444   88        88
 00        00 99        99   :::  55            66            :::        44 44   88        88
```

```
0       0q array has     11 entries.
0       1q array has     15 entries.
0       2q array has     10 entries.
0       3q array has     12 entries.
0       4q array has      9 entries.
0       5q array has     12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                      80 d, second part of sas2h pass to make library
0general problem description data block
0                              general problem data

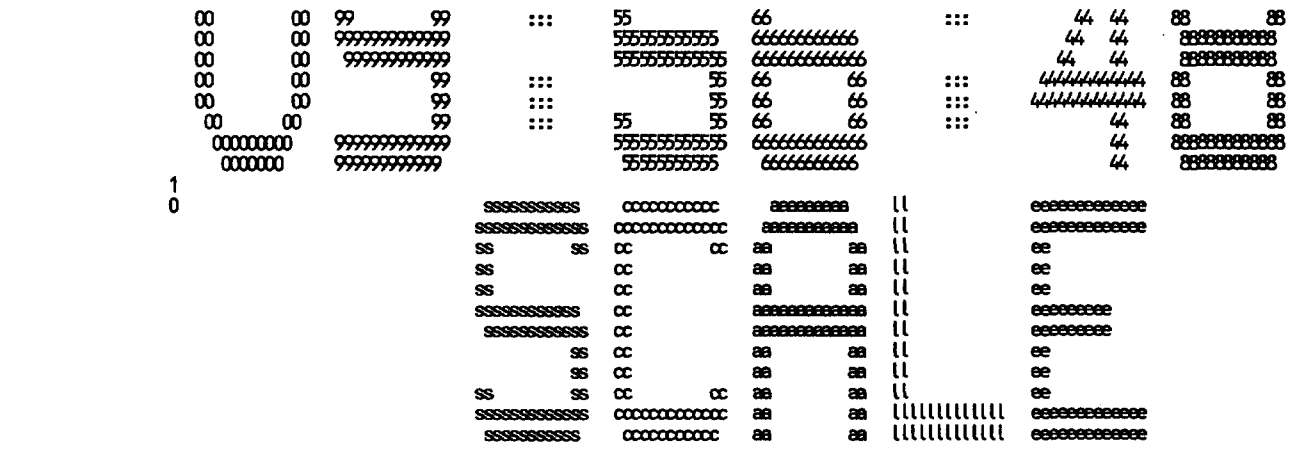
 ige  1/2/3 = plane/cylinder/sphere      2       isn  quadrature order                  8
 izm  number of zones                    4       isct order of scattering               3
 im   number of spacial intervals       28       ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1       iim  inner iteration maximum          20
 ibr  right boundary condition           3       icm  outer iteration maximum          25
 mxx  number of mixtures                 3       iclc -1/0/n--flat res/sn/opt           0
 ms   mixing table length               70       ith  0/1 = forward/adjoint             0
 igm  number of energy groups           27       iflu not used(always wgtd)             0
 nng  number of neutron groups          27       iprt -2/-1/0/n=mixture xsec print     -2
 ngg  number of gamma groups             0       id1  0/1/2/3=no/prt nd/pch n/both     14
 iftg number of first thermal group     15       ipbt -1/0/1=none/fine/all bal. prt     0
0                              special options

 ifg  0/1 = none/weighting calculation   1       ipn  0/1/2 diff. coef. param           0
 iqm  volumetric sources (0/n=no/yes)    0       idfm 0/1 = none/density factors 38*    0
 ipm  boundary sources (0/n=no/yes)      0       iaz  0/n = none/n activities by zone   0
 ifn  0/1/2 = input 33*/34*/use last    14       iai  0/1=none/activities by interval   0
 itmx maximum time (minutes)            10       ifct 0/1=no/yes upscatter scaling      0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0       ipvt 0/1/2=no/k/alpha parametric srch  0
 isx  broad group fluxes                 0       isen outer iteration acceleration      0
 ibln activity data unit                 0       nbnd band rebaln parameter             0
 jbkl 0/1/2 buckling geometry            0
0                              weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1       ihtf total xsect psn in brd gp tables  3
 igmf number of broad groups             3       ndsf psn g-g or file number            4
 itp  0/10/20/30/40 0/c/e/ac/a           0       nusf table length or max order         6
 ipp  -2/-1/0/n=wgted xsect print       -2       msom extra 1-d x-sect positions        0
 iap  -1/n anisn xsect print            -1
0                              floating point parameters

 eps  overall convergence       1.00000E-04      dy   cyl/pla ht for buckling    .00000E+00
 ptc  point convergence         1.00000E-04      dz   plane depth for buckling  2.00000E+02
 xnf  normalization factor      1.00000E+00      vsc  void streaming correction  .00000E+00
 ev   eigenvalue guess           .00000E+00      pv   ipvt=1/2--k/alpha         1.00000E+00
 evm  eigenvalue modifier        .00000E+00      eql  ev change eps for search  1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00      xrpm new param mod for search  7.50000E-01
     this case will require      2611 locations for mixing
     this case has been allocated 200000 locations
1                      80 d, second part of sas2h pass to make library
0       13q array has     70 entries.
0       14q array has     70 entries.
0       15q array has     70 entries.
0                              data block 2 (mixing table, etc.)
0     nuclides        cccc                                mixing table                                extra
       on tape    identification                 mixture   component     atom density              xsect id's
     1    202                                      3          201        2.09710E-02
     2    203                                      3          202        4.19420E-02
     3    204                                      3          203        3.81515E-06
```

4	201	3	204	1.54884E-05
5	205	2	205	4.25156E-02
6	999	1	92235	2.17519E-04
7	1001	1	92234	1.80884E-06
8	5010	1	92236	3.09919E-06
9	5011	1	92238	7.29235E-05
10	8016	1	8016	1.50611E-02
11	6	1	6	1.15315E-02
12	36083	1	36083	5.19887E-08
13	36085	1	36085	2.52399E-08
14	38090	1	38090	5.64542E-07
15	39089	1	39089	1.85221E-07
16	40093	1	42095	8.27834E-08
17	40094	1	40093	4.11148E-07
18	40095	1	40094	6.33205E-07
19	40802	1	40095	4.27857E-07
20	41094	1	41094	1.77349E-13
21	42095	1	43099	5.87758E-07
22	43099	1	45103	1.52118E-07
23	44101	1	45105	3.63974E-09
24	44106	1	44101	5.18370E-07
25	45103	1	44106	5.96664E-08
26	45105	1	46105	1.21221E-07
27	46105	1	46108	1.56859E-08
28	46108	1	47109	9.63590E-09
29	47109	1	51124	3.00303E-12
30	51124	1	54131	2.47823E-07
31	54131	1	54132	4.19533E-07
32	54132	1	54135	2.09120E-09
33	54135	1	54136	9.95252E-07
34	54136	1	55134	2.70779E-09
35	55133	1	55135	2.99702E-07
36	55134	1	55137	6.30110E-07
37	55135	1	56136	7.27113E-10
38	55137	1	57139	6.35240E-07
39	56136	1	59141	3.00200E-07
40	57139	1	59143	1.34650E-07
41	58144	1	58144	4.90451E-07
42	59141	1	60143	4.35283E-07
43	59143	1	60145	3.87075E-07
44	60143	1	61147	1.73729E-07
45	60145	1	61148	4.19133E-10
46	60147	1	60147	4.46317E-08
47	61147	1	62147	4.30449E-09
48	61148	1	62149	2.10275E-08
49	62147	1	62150	8.60817E-08
50	62149	1	62151	3.43758E-08
51	62150	1	62152	3.85958E-08
52	62151	1	64155	3.40414E-11
53	62152	1	63153	1.83469E-08
54	63153	1	63154	5.35540E-10
55	63154	1	63155	3.62762E-09
56	63155	1	40802	4.42681E-05
57	64155	1	1001	2.30630E-02
58	92234	1	5010	2.09787E-06
59	92235	1	5011	8.51673E-06
60	92236	1	55133	6.04866E-07
61	92238	1	95257	4.79701E-08
62	95257	1	94238	5.71925E-10
63	94238	1	94239	5.27664E-06



```
  00        00  99        99      :::     55            66                  :::          44  44    88        88
  00        00  9999999999999             555555555555  666666666666                     44  44     88888888888
  00        00   999999999999             555555555555  666666666666                    44   44     88888888888
  00        00            99      :::              55  66        66      :::      444444444444  88        88
  00        00            99      :::              55  66        66      :::      444444444444  88        88
   00      00            99      :::     55       55  66        66      :::              44    88        88
    000000000   9999999999999             555555555555  666666666666                     44    8888888888888
     0000000    999999999999              55555555555   66666666666                     44     88888888888
1
0                                 ssssssssssss   cccccccccccc    aaaaaaaaa    ll            eeeeeeeeeeeee
                                 ssssssssssssss  cccccccccccccc  aaaaaaaaaaa   ll            eeeeeeeeeeeee
                                 ss        ss  cc        cc  aa        aa  ll            ee
                                 ss            cc            aa        aa  ll            ee
                                 ss            cc            aa        aa  ll            ee
                                 ssssssssssss  cc            aaaaaaaaaaaaa  ll            eeeeeeeee
                                  ssssssssssss  cc            aaaaaaaaaaaaa  ll            eeeeeeeee
                                           ss  cc            aa        aa  ll            ee
                                           ss  cc            aa        aa  ll            ee
                                 ss        ss  cc        cc  aa        aa  ll            ee
                                 ssssssssssssss  cccccccccccccc  aa        aa  llllllllllllll  eeeeeeeeeeeee
                                  ssssssssssss   cccccccccccc    aa        aa  llllllllllllll  eeeeeeeeeeeee
```

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****              program:  c0c001                                     *****
*****                                                                   *****
*****         creation date:  04/27/95                                  *****
*****                                                                   *****
*****              library:  /neutronics/scale/exe                      *****
*****                                                                   *****
*****                                                                   *****
*****     this is not a   scale  configuration controlled code          *****
*****                                                                   *****
*****              jobname:  davis                                      *****
*****                                                                   *****
*****     date of execution:  02/16/96                                  *****
*****                                                                   *****
*****     time of execution:  09:56:48                                  *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
                 80 d, second part of sas2h pass to make library
0       -1q array has     1 entries.
```

64	94239	1	94240	1.45266E-07	
65	94240	1	94241	1.08078E-08	
66	94241	1	94242	9.49211E-11	
67	94242	1	95241	2.80565E-11	
68	95241	1	95243	5.82811E-13	
69	95243	1	96244	3.88991E-15	
70	96244	1	999	3.30753E-21	

- elapsed time .00 min.
0 24259 locations will be used
0 35q array has 29 entries.
0 36q array has 28 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 80 d, second part of ses2h pass to make library
neutron group parameters

0

gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40969E-01	2.88737E+09	1	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	1	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	1	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	1	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	2	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	2	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	2	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	2	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	2	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	2	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01086E+07	2	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	2	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	2	0	14	1.00000E+00	
15	3.04999E+00	1.50030E+01	2.10601E+06	2	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	2	0	16	1.00000E+00	
17	1.29999E+00	1.58557E+01	1.52545E+06	2	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	2	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	2	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	2	0	20	1.00000E+00	
21	4.00000E-01	1.70344E+01	8.17974E+05	3	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	3	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86933E+05	3	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	3	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	3	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	3	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	3	0	27	1.00000E+00	
28	1.00000E-05	2.76310E+01						

1 80 d, second part of ses2h pass to make library
0

	mixture by zone	order p(l) by zone	activity table matl no.	activity table reaction	quadrature constants weights	quadrature constants directions	quadrature constants refl direc	quadrature constants wt x cos
1	3	3			0	-2.79004E-01	3	0
2	2	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	3	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	1	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28598E-02
7					5.55953E-02	2.31301E-01	6	1.28598E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02

11				5.22844E-02	-6.01588E-01	14	-3.14537E-02
12				5.22844E-02	-2.20196E-01	13	-1.15128E-02
13				5.22844E-02	2.20196E-01	12	1.15128E-02
14				5.22844E-02	6.01588E-01	11	3.14537E-02
15				5.22844E-02	8.21784E-01	10	4.29665E-02
16				0	-9.83032E-01	24	0
17				4.53355E-02	-9.64143E-01	24	-4.37099E-02
18				4.53355E-02	-8.17361E-01	23	-3.70555E-02
19				4.53355E-02	-5.46143E-01	22	-2.47597E-02
20				4.53355E-02	-1.91780E-01	21	-8.69444E-03
21				4.53355E-02	1.91780E-01	20	8.69444E-03
22				4.53355E-02	5.46143E-01	19	2.47597E-02
23				4.53355E-02	8.17361E-01	18	3.70555E-02
24				4.53355E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83032E-01	-4.49528E-01	8.36885E-01	5.00708E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20862E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20862E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17234E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17234E-01
22	5.46143E-01	-4.49528E-01	-3.20862E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20862E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.97644E-02	1	0	4.90881E-03		0	
2	3.95287E-02	5.92931E-02	1	2.48366E-01	1.47264E-02		0	
3	7.90575E-02	1.18586E-01	1	4.96733E-01	5.89057E-02		0	
4	1.58115E-01	1.97644E-01	1	9.93466E-01	9.81762E-02		0	
5	2.37172E-01	2.76701E-01	1	1.49020E+00	1.37447E-01			
6	3.16230E-01	3.55759E-01	1	1.98693E+00	1.76717E-01			
7	3.95288E-01	4.34816E-01	1	2.48366E+00	2.15988E-01			
8	4.74345E-01	5.13874E-01	1	2.98040E+00	2.55258E-01			
9	5.53403E-01	5.73167E-01	1	3.47713E+00	1.42355E-01			
10	5.92931E-01	6.12696E-01	1	3.72550E+00	1.52173E-01			
11	6.32460E-01	6.42620E-01	2	3.97386E+00	8.20460E-02			
12	6.52780E-01	6.62940E-01	2	4.10154E+00	8.46405E-02			
13	6.73100E-01	6.96583E-01	3	4.22921E+00	2.05562E-01			
14	7.20067E-01	7.43550E-01	3	4.52431E+00	2.19422E-01			
15	7.67053E-01	7.90517E-01	3	4.81941E+00	2.33282E-01			
16	8.14000E-01	8.62795E-01	4	5.11451E+00	5.29051E-01			
17	9.11591E-01	9.60386E-01	4	5.72769E+00	5.88891E-01			
18	1.00918E+00	1.10677E+00	4	6.34088E+00	1.35731E+00			
19	1.20436E+00	1.30195E+00	4	7.56724E+00	1.59667E+00			

20	1.39955E+00	1.49714E+00	4	8.79360E+00	1.83603E+00
21	1.59473E+00	1.69232E+00	4	1.00200E+01	2.07540E+00
22	1.78991E+00	1.88750E+00	4	1.12463E+01	2.31476E+00
23	1.98509E+00	2.08268E+00	4	1.24727E+01	2.55412E+00
24	2.18027E+00	2.27786E+00	4	1.36991E+01	2.79349E+00
25	2.37545E+00	2.47305E+00	4	1.49254E+01	3.03285E+00
26	2.57064E+00	2.66823E+00	4	1.61518E+01	3.27221E+00
27	2.76582E+00	2.81461E+00	4	1.73781E+01	1.72587E+00
28	2.86341E+00	2.91220E+00	4	1.79913E+01	1.78571E+00
29	2.96100E+00			1.86045E+01	

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	214	-7.06698E-06	1.15443E+00	-1.71280E-01	1.00000E+00	-4.60674E-02	.00000E+00	.0000
2	311	-1.00740E-08	1.17067E+00	-7.90221E-04	-2.27080E-02	-3.84405E-03	.00000E+00	.0167
3	385	-5.23615E-08	1.17198E+00	-4.52431E-05	-1.70393E-03	-6.85077E-04	.00000E+00	.0167
4	439	2.42396E-07	1.17221E+00	-3.01259E-06	-3.08065E-04	-1.27030E-04	.00000E+00	.0167
5	480	3.75332E-06	1.17220E+00	2.97588E-07	-5.87089E-05	-2.53117E-05	.00000E+00	.0167

grp to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	17	4.33775E-06	28	1.00000E+00	1
2	1	17	5.27413E-06	28	1.00000E+00	1
3	1	17	4.89446E-06	28	1.00000E+00	1
4	1	17	4.78465E-06	28	1.00000E+00	1
5	1	17	4.99087E-06	28	1.00000E+00	1
6	1	17	3.40179E-06	28	1.00000E+00	1
7	1	24	1.68467E-06	28	1.00000E+00	2
8	1	3	3.67338E-07	20	1.00000E+00	2
9	1	27	7.98624E-06	28	9.99992E-01	3
10	1	26	1.20169E-06	28	1.00000E+00	3
11	1	26	2.62173E-06	28	1.00000E+00	3
12	1	26	1.32747E-06	28	9.99999E-01	3
13	1	26	1.73455E-06	28	1.00000E+00	3
14	1	25	5.12378E-07	28	1.00000E+00	3
15	1	2	2.87106E-05	28	9.99968E-01	2
16	1	2	3.53844E-05	28	9.99970E-01	2
17	1	2	4.43141E-05	28	9.99972E-01	2
18	1	26	7.66225E-05	18	9.99988E-01	3
19	1	2	4.23971E-05	28	9.99916E-01	3
20	1	2	3.49095E-05	28	9.99951E-01	3
21	1	25	5.28731E-05	28	9.99953E-01	3
22	1	24	2.65468E-05	28	9.99967E-01	3
23	1	1	3.77642E-05	28	9.99964E-01	4
24	1	1	4.99425E-05	9	1.00008E+00	4
25	1	1	5.76682E-05	8	1.00008E+00	5
26	1	1	4.33597E-05	6	1.00008E+00	6
27	1	1	4.07989E-05	5	1.00002E+00	8

6	507	-4.34097E-06	1.17232E+00	2.72614E-07	-1.20606E-05	-5.80553E-06	.00000E+00	.0167

final monitor lambda 1.17226E+00 production/absorption 1.18767E+00 angular flux on 16

- elapsed time .02 min.

1 80 d, second part of sas2h pass to make library

0 int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1	3.95287E-02	5.92931E-02	2.48366E-01	1.47264E-02	.00000E+00
3	1	7.90575E-02	1.18586E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1	1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1	2.37172E-01	2.76701E-01	1.49020E+00	1.37447E-01	.00000E+00
6	1	3.16230E-01	3.55759E-01	1.98693E+00	1.76717E-01	.00000E+00
7	1	3.95288E-01	4.34816E-01	2.48366E+00	2.15988E-01	.00000E+00

8	1	4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1	5.53408E-01	5.73167E-01	3.47713E+00	1.42365E-01	.00000E+00
10	1	5.92931E-01	6.12698E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2	6.32460E-01	6.42620E-01	3.97386E+00	8.20460E-02	.00000E+00
12	2	6.52780E-01	6.62940E-01	4.10154E+00	8.46405E-02	.00000E+00
13	3	6.73100E-01	6.96583E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3	7.20067E-01	7.43550E-01	4.52431E+00	2.19422E-01	.00000E+00
15	3	7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4	8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.66053E-02
17	4	9.11591E-01	9.60386E-01	5.72769E+00	5.88891E-01	2.89895E-02
18	4	1.00918E+00	1.10677E+00	6.34088E+00	1.35731E+00	6.55135E-02
19	4	1.20436E+00	1.30195E+00	7.56724E+00	1.59667E+00	7.55684E-02
20	4	1.39955E+00	1.49714E+00	8.79360E+00	1.83603E+00	8.57156E-02
21	4	1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	9.59189E-02
22	4	1.78991E+00	1.88750E+00	1.12463E+01	2.31476E+00	1.06180E-01
23	4	1.98509E+00	2.08268E+00	1.24727E+01	2.55412E+00	1.16508E-01
24	4	2.18027E+00	2.27786E+00	1.36991E+01	2.79349E+00	1.26917E-01
25	4	2.37545E+00	2.47305E+00	1.49254E+01	3.03285E+00	1.37423E-01
26	4	2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.48057E-01
27	4	2.76582E+00	2.81461E+00	1.73781E+01	1.72587E+00	7.80634E-02
28	4	2.86341E+00	2.91220E+00	1.79913E+01	1.78571E+00	8.08029E-02
29		2.96100E+00		1.86045E+01		

1 80 d, second part of sas2h pass to make library

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.20007E-02	8.81879E-02	1.11134E-01	6.85422E-02	1.02384E-01	1.92570E-01	1.92962E-01	1.46870E-01
2	1.19959E-02	8.81379E-02	1.11069E-01	6.85039E-02	1.02333E-01	1.92483E-01	1.92922E-01	1.46865E-01
3	1.19965E-02	8.81504E-02	1.11091E-01	6.85218E-02	1.02367E-01	1.92553E-01	1.92975E-01	1.46876E-01
4	1.20027E-02	8.82287E-02	1.11202E-01	6.86000E-02	1.02497E-01	1.92797E-01	1.93132E-01	1.46905E-01
5	1.20140E-02	8.83665E-02	1.11396E-01	6.87329E-02	1.02714E-01	1.93197E-01	1.93382E-01	1.46948E-01
6	1.20295E-02	8.85562E-02	1.11663E-01	6.89161E-02	1.03012E-01	1.93748E-01	1.93722E-01	1.47005E-01
7	1.20491E-02	8.87990E-02	1.12007E-01	6.91539E-02	1.03401E-01	1.94468E-01	1.94166E-01	1.47075E-01
8	1.20727E-02	8.91023E-02	1.12444E-01	6.94610E-02	1.03908E-01	1.95407E-01	1.94746E-01	1.47158E-01
9	1.20925E-02	8.93690E-02	1.12835E-01	6.97426E-02	1.04377E-01	1.96278E-01	1.95284E-01	1.47227E-01
10	1.21061E-02	8.95781E-02	1.13161E-01	6.99904E-02	1.04798E-01	1.97067E-01	1.95773E-01	1.47275E-01
11	1.21174E-02	8.97514E-02	1.13435E-01	7.01985E-02	1.05152E-01	1.97744E-01	1.96193E-01	1.47319E-01
12	1.21297E-02	8.98808E-02	1.13607E-01	7.03067E-02	1.05322E-01	1.98083E-01	1.96397E-01	1.47363E-01
13	1.21556E-02	9.01151E-02	1.13875E-01	7.04445E-02	1.05514E-01	1.98425E-01	1.96590E-01	1.47432E-01
14	1.21937E-02	9.04891E-02	1.14325E-01	7.06998E-02	1.05890E-01	1.99089E-01	1.96973E-01	1.47523E-01
15	1.22384E-02	9.09702E-02	1.14945E-01	7.10861E-02	1.06489E-01	2.00167E-01	1.97605E-01	1.47624E-01
16	1.23080E-02	9.17412E-02	1.15953E-01	7.17309E-02	1.07508E-01	2.02017E-01	1.98704E-01	1.47798E-01
17	1.23768E-02	9.25100E-02	1.16963E-01	7.23797E-02	1.08543E-01	2.03921E-01	1.99865E-01	1.47989E-01
18	1.24318E-02	9.31359E-02	1.17794E-01	7.29176E-02	1.09415E-01	2.05568E-01	2.00880E-01	1.48194E-01
19	1.24800E-02	9.36939E-02	1.18543E-01	7.34055E-02	1.10214E-01	2.07109E-01	2.01856E-01	1.48406E-01
20	1.25085E-02	9.40314E-02	1.19003E-01	7.37079E-02	1.10716E-01	2.08102E-01	2.02501E-01	1.48562E-01
21	1.25265E-02	9.42497E-02	1.19306E-01	7.39077E-02	1.11050E-01	2.08782E-01	2.02952E-01	1.48679E-01
22	1.25381E-02	9.43952E-02	1.19508E-01	7.40417E-02	1.11277E-01	2.09253E-01	2.03270E-01	1.48766E-01
23	1.25455E-02	9.44863E-02	1.19640E-01	7.41302E-02	1.11428E-01	2.09575E-01	2.03491E-01	1.48829E-01
24	1.25499E-02	9.45423E-02	1.19721E-01	7.41846E-02	1.11522E-01	2.09780E-01	2.03634E-01	1.48871E-01
25	1.25518E-02	9.45684E-02	1.19761E-01	7.42109E-02	1.11568E-01	2.09886E-01	2.03709E-01	1.48893E-01
26	1.25515E-02	9.45660E-02	1.19759E-01	7.42101E-02	1.11568E-01	2.09894E-01	2.03714E-01	1.48893E-01
27	1.25499E-02	9.45463E-02	1.19733E-01	7.41926E-02	1.11540E-01	2.09839E-01	2.03678E-01	1.48880E-01
28	1.25475E-02	9.45169E-02	1.19693E-01	7.41657E-02	1.11494E-01	2.09747E-01	2.03615E-01	1.48859E-01

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.15786E-01	1.06908E-01	1.00573E-01	6.52162E-02	5.58645E-02	5.37128E-02	2.92968E-02	1.63189E-02
2	1.15787E-01	1.06909E-01	1.00577E-01	6.52211E-02	5.58693E-02	5.37195E-02	2.92989E-02	1.63198E-02
3	1.15785E-01	1.06900E-01	1.00564E-01	6.51973E-02	5.58475E-02	5.36886E-02	2.92928E-02	1.63168E-02
4	1.15780E-01	1.06878E-01	1.00506E-01	6.51399E-02	5.57953E-02	5.36142E-02	2.92777E-02	1.63095E-02
5	1.15773E-01	1.06844E-01	1.00429E-01	6.50524E-02	5.57160E-02	5.35012E-02	2.92552E-02	1.62987E-02
6	1.15762E-01	1.06797E-01	1.00324E-01	6.49335E-02	5.56088E-02	5.33480E-02	2.92255E-02	1.62844E-02

7	1.15749E-01	1.06736E-01	1.00187E-01	6.47777E-02	5.54691E-02	5.31477E-02	2.91880E-02	1.62662E-02
8	1.15734E-01	1.06653E-01	1.00004E-01	6.45724E-02	5.52852E-02	5.28845E-02	2.91407E-02	1.62431E-02
9	1.15723E-01	1.06578E-01	9.98331E-02	6.43809E-02	5.51164E-02	5.26394E-02	2.90983E-02	1.62220E-02
10	1.15722E-01	1.06503E-01	9.96748E-02	6.42066E-02	5.49629E-02	5.24168E-02	2.90612E-02	1.62033E-02
11	1.15726E-01	1.06446E-01	9.95495E-02	6.40698E-02	5.48409E-02	5.22410E-02	2.90286E-02	1.61874E-02
12	1.15721E-01	1.06426E-01	9.95026E-02	6.40162E-02	5.47906E-02	5.21705E-02	2.90107E-02	1.61794E-02
13	1.15676E-01	1.06398E-01	9.94385E-02	6.39343E-02	5.47189E-02	5.20657E-02	2.89958E-02	1.61719E-02
14	1.15604E-01	1.06332E-01	9.92926E-02	6.37569E-02	5.45679E-02	5.18421E-02	2.89710E-02	1.61581E-02
15	1.15526E-01	1.06223E-01	9.90538E-02	6.34778E-02	5.43319E-02	5.14910E-02	2.89336E-02	1.61368E-02
16	1.15417E-01	1.06043E-01	9.86582E-02	6.30188E-02	5.39425E-02	5.09106E-02	2.88651E-02	1.60995E-02
17	1.15320E-01	1.05865E-01	9.82629E-02	6.25589E-02	5.35479E-02	5.03276E-02	2.87834E-02	1.60576E-02
18	1.15249E-01	1.05715E-01	9.79247E-02	6.21664E-02	5.32016E-02	4.98267E-02	2.86955E-02	1.60147E-02
19	1.15194E-01	1.05576E-01	9.76092E-02	6.18006E-02	5.28732E-02	4.93581E-02	2.86025E-02	1.59702E-02
20	1.15167E-01	1.05488E-01	9.74052E-02	6.15643E-02	5.26560E-02	4.90535E-02	2.85325E-02	1.59372E-02
21	1.15154E-01	1.05428E-01	9.72633E-02	6.13999E-02	5.25026E-02	4.88407E-02	2.84791E-02	1.59121E-02
22	1.15147E-01	1.05385E-01	9.71623E-02	6.12829E-02	5.23920E-02	4.86886E-02	2.84386E-02	1.58932E-02
23	1.15143E-01	1.05356E-01	9.70905E-02	6.11997E-02	5.23128E-02	4.85803E-02	2.84085E-02	1.58791E-02
24	1.15141E-01	1.05336E-01	9.70416E-02	6.11431E-02	5.22588E-02	4.85065E-02	2.83880E-02	1.58696E-02
25	1.15139E-01	1.05323E-01	9.70124E-02	6.11095E-02	5.22269E-02	4.84630E-02	2.83765E-02	1.58643E-02
26	1.15136E-01	1.05319E-01	9.70080E-02	6.10986E-02	5.22178E-02	4.84500E-02	2.83748E-02	1.58635E-02
27	1.15134E-01	1.05321E-01	9.70089E-02	6.11054E-02	5.22257E-02	4.84600E-02	2.83799E-02	1.58660E-02
28	1.15132E-01	1.05327E-01	9.70244E-02	6.11239E-02	5.22449E-02	4.84854E-02	2.83889E-02	1.58704E-02

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.31416E-03	6.28415E-03	1.15899E-02	3.81663E-02	1.26128E-02	2.73563E-02	9.12864E-02	7.43944E-02
2	7.31463E-03	6.28463E-03	1.15906E-02	3.81688E-02	1.26136E-02	2.73575E-02	9.12810E-02	7.43780E-02
3	7.31273E-03	6.28239E-03	1.15875E-02	3.81570E-02	1.26059E-02	2.73323E-02	9.11607E-02	7.42348E-02
4	7.30814E-03	6.27699E-03	1.15800E-02	3.81304E-02	1.25884E-02	2.72752E-02	9.08965E-02	7.39269E-02
5	7.30120E-03	6.26879E-03	1.15687E-02	3.80904E-02	1.25619E-02	2.71896E-02	9.05045E-02	7.34707E-02
6	7.29188E-03	6.25768E-03	1.15536E-02	3.80366E-02	1.25261E-02	2.70745E-02	8.99823E-02	7.28624E-02
7	7.27981E-03	6.24314E-03	1.15339E-02	3.79670E-02	1.24794E-02	2.69256E-02	8.93148E-02	7.20875E-02
8	7.26409E-03	6.22408E-03	1.15085E-02	3.78766E-02	1.24181E-02	2.67329E-02	8.84762E-02	7.11118E-02
9	7.24956E-03	6.20628E-03	1.14849E-02	3.77931E-02	1.23611E-02	2.65557E-02	8.77206E-02	7.02385E-02
10	7.23640E-03	6.19002E-03	1.14637E-02	3.77178E-02	1.23089E-02	2.63970E-02	8.70657E-02	6.94840E-02
11	7.22574E-03	6.17713E-03	1.14466E-02	3.76581E-02	1.22688E-02	2.62773E-02	8.65867E-02	6.89588E-02
12	7.22114E-03	6.17202E-03	1.14393E-02	3.76339E-02	1.22549E-02	2.62367E-02	8.64410E-02	6.88264E-02
13	7.21535E-03	6.16471E-03	1.14299E-02	3.76004E-02	1.22331E-02	2.61653E-02	8.61574E-02	6.84937E-02
14	7.20335E-03	6.14886E-03	1.14104E-02	3.75294E-02	1.21830E-02	2.60056E-02	8.55260E-02	6.77303E-02
15	7.18440E-03	6.12363E-03	1.13799E-02	3.74187E-02	1.21029E-02	2.57598E-02	8.46024E-02	6.66314E-02
16	7.15294E-03	6.08227E-03	1.13295E-02	3.72579E-02	1.19738E-02	2.53680E-02	8.31925E-02	6.49957E-02
17	7.12061E-03	6.04095E-03	1.12776E-02	3.70535E-02	1.18464E-02	2.49785E-02	8.17641E-02	6.33730E-02
18	7.09124E-03	6.00519E-03	1.12299E-02	3.68869E-02	1.17362E-02	2.46359E-02	8.03982E-02	6.18414E-02
19	7.06259E-03	5.97137E-03	1.11831E-02	3.67222E-02	1.16321E-02	2.43078E-02	7.90229E-02	6.03115E-02
20	7.04285E-03	5.94904E-03	1.11509E-02	3.66098E-02	1.15632E-02	2.40869E-02	7.80410E-02	5.92308E-02
21	7.02854E-03	5.93321E-03	1.11275E-02	3.65279E-02	1.15141E-02	2.39274E-02	7.73044E-02	5.84282E-02
22	7.01799E-03	5.92177E-03	1.11102E-02	3.64674E-02	1.14784E-02	2.38099E-02	7.67450E-02	5.78252E-02
23	7.01085E-03	5.91357E-03	1.10976E-02	3.64233E-02	1.14524E-02	2.37257E-02	7.63259E-02	5.73753E-02
24	7.00515E-03	5.90799E-03	1.10891E-02	3.63929E-02	1.14344E-02	2.36625E-02	7.60230E-02	5.70501E-02
25	7.00220E-03	5.90474E-03	1.10842E-02	3.63750E-02	1.14230E-02	2.36238E-02	7.58233E-02	5.68316E-02
26	7.00159E-03	5.90388E-03	1.10831E-02	3.63692E-02	1.14189E-02	2.36073E-02	7.57263E-02	5.67154E-02
27	7.00267E-03	5.90487E-03	1.10842E-02	3.63738E-02	1.14203E-02	2.36089E-02	7.57175E-02	5.66895E-02
28	7.00481E-03	5.90691E-03	1.10876E-02	3.63846E-02	1.14254E-02	2.36232E-02	7.57680E-02	5.67266E-02

0 int.	grp. 25	grp. 26	grp. 27
1	3.35491E-02	2.41530E-02	4.58300E-03
2	3.35367E-02	2.41390E-02	4.57960E-03
3	3.34582E-02	2.40695E-02	4.56537E-03
4	3.32911E-02	2.39225E-02	4.53517E-03
5	3.30435E-02	2.37031E-02	4.48942E-03
6	3.27127E-02	2.34075E-02	4.42663E-03
7	3.22914E-02	2.30277E-02	4.34423E-03
8	3.17630E-02	2.25476E-02	4.23750E-03

9	3.12927E-02	2.21183E-02	4.14064E-03
10	3.08925E-02	2.17501E-02	4.05691E-03
11	3.06246E-02	2.15126E-02	4.00616E-03
12	3.05676E-02	2.14770E-02	4.00288E-03
13	3.05768E-02	2.12995E-02	3.95515E-03
14	2.99393E-02	2.08753E-02	3.83931E-03
15	2.98249E-02	2.02711E-02	3.66548E-03
16	2.84310E-02	1.94025E-02	3.40967E-03
17	2.75585E-02	1.85863E-02	3.19073E-03
18	2.67431E-02	1.78654E-02	3.02957E-03
19	2.59347E-02	1.71748E-02	2.88633E-03
20	2.53719E-02	1.67161E-02	2.80122E-03
21	2.49590E-02	1.63925E-02	2.74490E-03
22	2.46528E-02	1.61607E-02	2.70646E-03
23	2.44265E-02	1.59957E-02	2.67950E-03
24	2.42641E-02	1.58762E-02	2.66089E-03
25	2.41547E-02	1.57977E-02	2.64862E-03
26	2.40957E-02	1.57524E-02	2.64158E-03
27	2.40756E-02	1.57364E-02	2.63892E-03
28	2.40875E-02	1.57398E-02	2.63880E-03

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	4.67418E-04	6.18667E-04	5.15140E-05	-6.70150E-04	9.99954E-01
2	.00000E+00	.00000E+00	3.54979E-04	5.98670E-03	7.86842E-03	1.71078E-04	-7.68424E-03	9.99965E-01
3	.00000E+00	.00000E+00	3.73267E-03	5.39824E-03	1.40451E-02	9.16518E-05	-1.04088E-02	9.99979E-01
4	.00000E+00	.00000E+00	5.50156E-03	3.57677E-03	1.22894E-02	4.17406E-05	-6.82947E-03	9.99990E-01
5	.00000E+00	.00000E+00	1.01507E-02	1.14906E-02	2.08174E-02	4.95177E-05	-1.07161E-02	9.99995E-01
6	.00000E+00	.00000E+00	2.13613E-02	3.44665E-02	4.09657E-02	8.42157E-05	-1.96866E-02	1.00000E+00
7	.00000E+00	.00000E+00	4.21313E-02	6.09411E-02	5.41112E-02	6.11923E-05	-1.20405E-02	9.99989E-01
8	.00000E+00	.00000E+00	5.63106E-02	7.82920E-02	5.87049E-02	3.63776E-05	-2.42543E-03	9.99912E-01
9	.00000E+00	.00000E+00	5.77444E-02	7.25311E-02	5.74379E-02	2.92432E-05	2.83608E-04	9.99889E-01
10	.00000E+00	.00000E+00	5.70217E-02	6.90297E-02	5.54756E-02	3.59889E-05	1.51609E-03	9.99895E-01
11	.00000E+00	.00000E+00	5.57675E-02	6.53938E-02	5.22079E-02	5.49886E-05	3.50803E-03	9.99939E-01
12	.00000E+00	.00000E+00	4.52797E-02	3.49926E-02	4.11731E-02	6.02716E-05	4.04730E-03	9.99978E-01
13	.00000E+00	.00000E+00	4.04451E-02	2.85751E-02	3.66456E-02	8.46484E-05	3.71606E-03	9.99968E-01
14	.00000E+00	.00000E+00	3.94298E-02	2.84635E-02	3.40018E-02	1.37365E-04	5.29107E-03	9.99888E-01
15	.00000E+00	.00000E+00	2.17987E-02	1.09582E-02	2.05290E-02	1.13699E-04	1.15599E-03	9.99999E-01
16	.00000E+00	.00000E+00	1.43326E-02	4.64962E-03	1.36982E-02	7.75404E-05	5.56898E-04	9.99998E-01
17	.00000E+00	.00000E+00	7.39742E-03	1.34898E-03	7.01844E-03	3.86148E-05	3.40339E-04	1.00000E+00
18	.00000E+00	.00000E+00	6.58663E-03	1.12750E-03	6.16090E-03	3.52800E-05	3.90472E-04	9.99998E-01
19	.00000E+00	.00000E+00	1.11382E-02	3.17060E-03	1.05229E-02	7.10121E-05	5.44186E-04	1.00001E+00
20	.00000E+00	.00000E+00	2.75750E-02	2.24821E-02	2.54191E-02	2.95214E-04	1.86249E-03	1.00001E+00
21	.00000E+00	.00000E+00	1.36786E-02	4.77690E-03	1.24269E-02	1.19797E-04	1.13166E-03	1.00001E+00
22	.00000E+00	.00000E+00	2.77871E-02	1.55070E-02	2.41322E-02	2.97848E-04	3.35652E-03	1.00003E+00
23	.00000E+00	.00000E+00	7.46213E-02	9.26697E-02	6.08537E-02	1.34524E-03	1.24176E-02	1.00006E+00
24	.00000E+00	.00000E+00	8.09249E-02	8.68198E-02	6.70169E-02	1.57951E-03	1.23240E-02	1.00005E+00
25	.00000E+00	.00000E+00	5.39521E-02	3.66998E-02	4.72144E-02	9.32754E-04	5.80328E-03	1.00003E+00
26	.00000E+00	.00000E+00	4.30580E-02	4.09199E-02	3.77950E-02	9.46340E-04	4.31571E-03	1.00002E+00
27	.00000E+00	.00000E+00	1.45827E-02	8.87213E-03	1.35158E-02	3.37707E-04	7.29229E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.32664E-01	8.29607E-01	8.32664E-01	7.17836E-03	-7.16596E-03	9.99985E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.21126E-02	-6.70150E-04	1.20047E-02	.00000E+00	3.42140E-11	.00000E+00	1.85418E-05	1.51455E-02
2	8.96886E-02	-7.68424E-03	8.82302E-02	.00000E+00	.00000E+00	.00000E+00	8.67742E-05	1.11658E-01
3	1.13340E-01	-1.04088E-02	1.11189E-01	.00000E+00	.00000E+00	.00000E+00	9.12276E-05	1.40863E-01
4	7.01303E-02	-6.82947E-03	6.85763E-02	.00000E+00	.00000E+00	.00000E+00	4.14886E-05	8.69880E-02
5	1.05089E-01	-1.07161E-02	1.02436E-01	.00000E+00	.00000E+00	.00000E+00	4.92256E-05	1.30087E-01
6	1.97518E-01	-1.96866E-02	1.92654E-01	.00000E+00	.00000E+00	.00000E+00	8.33469E-05	2.44654E-01
7	1.96054E-01	-1.20405E-02	1.93005E-01	.00000E+00	.00000E+00	.00000E+00	5.92494E-05	2.44169E-01
8	1.47259E-01	-2.42543E-03	1.46877E-01	.00000E+00	.00000E+00	.00000E+00	3.27003E-05	1.84833E-01

9	1.15724E-01	2.83608E-04	1.15786E-01	.00000E+00	.00000E+00	.00000E+00	2.16496E-05	1.45456E-01
10	1.06461E-01	1.51609E-03	1.08904E-01	.00000E+00	.00000E+00	.00000E+00	1.91219E-05	1.34104E-01
11	9.95833E-02	3.50808E-03	1.00565E-01	.00000E+00	.00000E+00	.00000E+00	1.78532E-05	1.25844E-01
12	6.41067E-02	4.04730E-03	6.52073E-02	.00000E+00	.00000E+00	.00000E+00	1.04812E-05	8.13417E-02
13	5.48750E-02	3.71606E-03	5.58661E-02	.00000E+00	.00000E+00	.00000E+00	8.74662E-06	6.96523E-02
14	5.22897E-02	5.29107E-03	5.37011E-02	.00000E+00	.00000E+00	.00000E+00	8.54748E-06	6.67104E-02
15	2.90406E-02	1.15599E-03	2.92941E-02	.00000E+00	.00000E+00	.00000E+00	4.51451E-06	3.66681E-02
16	1.61929E-02	5.56898E-04	1.63177E-02	.00000E+00	.00000E+00	.00000E+00	2.27539E-06	2.04352E-02
17	7.22892E-03	3.40339E-04	7.31343E-03	.00000E+00	.00000E+00	.00000E+00	9.35884E-07	9.14376E-03
18	6.18067E-03	3.90472E-04	6.28528E-03	.00000E+00	.00000E+00	.00000E+00	7.82806E-07	7.83982E-03
19	1.14517E-02	5.44186E-04	1.15888E-02	.00000E+00	.00000E+00	.00000E+00	1.51584E-06	1.44870E-02
20	3.76758E-02	1.86249E-03	3.81635E-02	.00000E+00	.00000E+00	.00000E+00	5.58922E-06	4.76861E-02
21	1.22791E-02	1.13166E-03	1.26109E-02	.00000E+00	.00000E+00	.00000E+00	1.43628E-06	1.56642E-02
22	2.63063E-02	3.35632E-03	2.73504E-02	.00000E+00	.00000E+00	.00000E+00	3.08835E-06	3.37833E-02
23	8.66904E-02	1.24176E-02	9.12651E-02	.00000E+00	.00000E+00	.00000E+00	9.24094E-06	1.12039E-01
24	6.90572E-02	1.23240E-02	7.43776E-02	.00000E+00	.00000E+00	.00000E+00	5.53871E-06	9.03598E-02
25	3.06675E-02	5.80528E-03	3.35434E-02	.00000E+00	.00000E+00	.00000E+00	1.91586E-06	4.04585E-02
26	2.15422E-02	4.31571E-03	2.41510E-02	.00000E+00	.00000E+00	.00000E+00	1.00795E-06	2.88225E-02
27	4.00971E-03	7.29229E-04	4.58520E-03	.00000E+00	.00000E+00	.00000E+00	1.18640E-07	5.43018E-03
28	1.78254E+00	-7.16597E-03	1.78983E+00	.00000E+00	3.42140E-11	.00000E+00	5.86915E-04	2.24432E+00

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.06683E-04	1.54985E-04	2.32426E-06	-1.51733E-04	1.00001E+00
2	.00000E+00	.00000E+00	2.70590E-05	1.41871E-03	1.01799E-03	1.36646E-05	-1.00462E-03	1.00000E+00
3	.00000E+00	.00000E+00	1.44709E-04	2.73739E-03	8.65533E-04	2.00311E-05	-7.40822E-04	9.99997E-01
4	.00000E+00	.00000E+00	2.80440E-04	2.29053E-03	2.98675E-04	1.30164E-05	-2.91355E-05	9.99998E-01
5	.00000E+00	.00000E+00	6.04168E-04	4.40881E-03	2.78508E-04	1.68152E-05	3.08803E-04	1.00000E+00
6	.00000E+00	.00000E+00	1.00673E-03	1.23951E-02	1.69352E-04	2.70462E-05	8.10288E-04	1.00000E+00
7	.00000E+00	.00000E+00	6.64586E-04	1.25898E-02	6.32829E-05	2.68055E-05	5.74487E-04	1.00000E+00
8	.00000E+00	.00000E+00	1.16608E-04	9.20138E-03	4.43061E-04	2.20963E-05	-3.48580E-04	1.00001E+00
9	.00000E+00	.00000E+00	4.44876E-04	6.35212E-03	5.29519E-05	7.66192E-05	3.15312E-04	9.99990E-01
10	.00000E+00	.00000E+00	5.30161E-05	4.97750E-03	4.98865E-05	5.92153E-05	-5.55899E-05	1.00000E+00
11	.00000E+00	.00000E+00	4.95888E-05	4.44113E-03	5.01560E-05	8.97438E-05	-9.05024E-05	9.99998E-01
12	.00000E+00	.00000E+00	5.01563E-05	2.75369E-03	5.12315E-05	5.65744E-06	-6.73952E-06	1.00000E+00
13	.00000E+00	.00000E+00	5.12316E-05	2.35797E-03	4.81010E-05	6.31812E-06	-3.18396E-06	9.99999E-01
14	.00000E+00	.00000E+00	4.81010E-05	2.25132E-03	4.24263E-05	8.59768E-06	-2.92389E-06	1.00000E+00
15	.00000E+00	.00000E+00	4.50612E-05	1.22556E-03	5.01583E-05	6.34690E-06	-1.14108E-05	9.99972E-01
16	.00000E+00	.00000E+00	5.64361E-05	6.54372E-04	5.66892E-05	3.87836E-06	-4.11121E-06	9.99967E-01
17	.00000E+00	.00000E+00	6.34504E-05	2.54690E-04	6.26925E-05	1.89523E-06	-1.12472E-06	9.99974E-01
18	.00000E+00	.00000E+00	6.63330E-05	2.05079E-04	6.62190E-05	1.70739E-06	-1.58354E-06	9.99978E-01
19	.00000E+00	.00000E+00	6.68473E-05	4.38134E-04	6.46427E-05	3.39981E-06	-1.17876E-06	9.99973E-01
20	.00000E+00	.00000E+00	8.08044E-05	1.58663E-03	6.74533E-05	1.36408E-05	-7.37724E-07	9.99973E-01
21	.00000E+00	.00000E+00	9.36267E-05	4.34878E-04	1.08877E-04	5.39066E-06	-1.56213E-05	9.99984E-01
22	.00000E+00	.00000E+00	1.38921E-04	1.01766E-03	1.36006E-04	1.31399E-05	-1.02203E-05	9.99999E-01
23	.00000E+00	.00000E+00	2.04742E-04	3.54102E-03	2.59970E-04	5.78859E-05	-1.13147E-04	1.00001E+00
24	.00000E+00	.00000E+00	3.32536E-04	2.66196E-03	3.65313E-04	6.53416E-05	-9.82163E-05	1.00001E+00
25	.00000E+00	.00000E+00	3.37536E-04	1.06910E-03	2.75171E-04	3.78339E-05	2.44845E-05	1.00001E+00
26	.00000E+00	.00000E+00	1.43187E-04	8.34158E-04	1.10256E-04	3.74471E-05	-4.51738E-06	1.00000E+00
27	.00000E+00	.00000E+00	3.19642E-05	1.75859E-04	9.06089E-08	1.30472E-05	1.88212E-05	1.00001E+00
28	.00000E+00	.00000E+00	5.20201E-03	8.24763E-02	5.20201E-03	6.48854E-04	-6.43502E-04	1.00002E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.21372E-02	-8.21883E-04	1.21126E-02	-6.70150E-04	5.53566E-06	.00000E+00	1.53028E-06	2.02085E-03
2	8.99465E-02	-8.68886E-03	8.96896E-02	-7.68424E-03	.00000E+00	.00000E+00	1.08461E-05	1.49713E-02
3	1.13684E-01	-1.11446E-02	1.13340E-01	-1.04038E-02	.00000E+00	.00000E+00	1.25442E-05	1.89226E-02
4	7.03469E-02	-6.85860E-03	7.01303E-02	-6.82947E-03	.00000E+00	.00000E+00	7.39337E-06	1.17105E-02
5	1.05379E-01	-1.04073E-02	1.05089E-01	-1.07161E-02	.00000E+00	.00000E+00	8.61102E-06	1.75419E-02
6	1.98195E-01	-1.88763E-02	1.97518E-01	-1.96866E-02	.00000E+00	.00000E+00	1.01676E-05	3.29900E-02
7	1.96462E-01	-1.14660E-02	1.96054E-01	-1.20405E-02	.00000E+00	.00000E+00	8.35054E-06	3.27199E-02
8	1.47387E-01	-2.77401E-03	1.47299E-01	-2.42543E-03	.00000E+00	.00000E+00	5.27090E-06	2.45599E-02
9	1.15714E-01	5.98921E-04	1.15724E-01	2.83608E-04	.00000E+00	.00000E+00	4.57838E-06	1.92896E-02

10	1.06420E-01	1.46050E-03	1.06461E-01	1.51609E-03	.00000E+00	.00000E+00	4.90000E-06	1.77414E-02
11	9.94894E-02	3.41753E-03	9.95833E-02	3.50803E-03	.00000E+00	.00000E+00	4.74984E-06	1.65896E-02
12	6.39995E-02	4.04056E-03	6.41067E-02	4.04730E-03	.00000E+00	.00000E+00	3.20575E-06	1.06750E-02
13	5.47744E-02	3.71288E-03	5.48750E-02	3.71606E-03	.00000E+00	.00000E+00	2.73804E-06	9.13697E-03
14	5.21479E-02	5.28815E-03	5.22893E-02	5.29107E-03	.00000E+00	.00000E+00	2.60121E-06	8.70188E-03
15	2.90048E-02	1.14458E-03	2.90406E-02	1.15599E-03	.00000E+00	.00000E+00	1.42518E-06	4.85717E-03
16	1.61768E-02	5.52787E-04	1.61929E-02	5.56898E-04	.00000E+00	.00000E+00	7.94814E-07	2.69754E-03
17	7.21972E-03	3.39215E-04	7.22892E-03	3.40339E-04	.00000E+00	.00000E+00	3.54979E-07	1.20404E-03
18	6.17045E-03	3.88889E-04	6.18067E-03	3.90472E-04	.00000E+00	.00000E+00	3.03010E-07	1.02921E-03
19	1.14371E-02	5.43008E-04	1.14517E-02	5.44186E-04	.00000E+00	.00000E+00	5.61302E-07	1.90757E-03
20	3.76275E-02	1.86175E-03	3.76758E-02	1.86249E-03	.00000E+00	.00000E+00	1.84404E-06	6.27505E-03
21	1.22513E-02	1.11604E-03	1.22791E-02	1.13166E-03	.00000E+00	.00000E+00	5.99633E-07	2.04386E-03
22	2.62251E-02	3.34610E-03	2.63063E-02	3.35632E-03	.00000E+00	.00000E+00	1.28234E-06	4.37663E-03
23	8.63991E-02	1.23045E-02	8.66904E-02	1.24178E-02	.00000E+00	.00000E+00	4.21031E-06	1.44205E-02
24	6.87923E-02	1.22258E-02	6.90572E-02	1.23240E-02	.00000E+00	.00000E+00	3.33238E-06	1.14833E-02
25	3.05535E-02	5.82776E-03	3.06675E-02	5.80528E-03	.00000E+00	.00000E+00	1.47116E-06	5.09988E-03
26	2.14711E-02	4.31119E-03	2.15422E-02	4.31571E-03	.00000E+00	.00000E+00	1.02264E-06	3.58265E-03
27	4.00315E-03	7.48050E-04	4.00971E-03	7.29225E-04	.00000E+00	.00000E+00	1.84689E-07	6.67496E-04
28	1.78341E+00	-7.80948E-03	1.78254E+00	-7.16597E-03	5.53566E-06	.00000E+00	1.04873E-04	2.97196E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.47800E-04	3.27983E-04	2.73099E-05	-3.55276E-04	9.99985E-01
2	.00000E+00	.00000E+00	1.88190E-04	3.19562E-03	4.20005E-03	9.13191E-05	-4.10303E-03	9.99988E-01
3	.00000E+00	.00000E+00	1.99211E-03	2.88600E-03	7.50880E-03	4.89988E-05	-5.56552E-03	9.99991E-01
4	.00000E+00	.00000E+00	2.94020E-03	1.91515E-03	6.58025E-03	2.23496E-05	-3.66233E-03	9.99995E-01
5	.00000E+00	.00000E+00	5.43012E-03	6.16245E-03	1.11645E-02	2.65566E-05	-5.76088E-03	9.99996E-01
6	.00000E+00	.00000E+00	1.14440E-02	1.84788E-02	2.19622E-02	4.51512E-05	-1.05634E-02	1.00000E+00
7	.00000E+00	.00000E+00	2.25827E-02	3.23786E-02	2.87498E-02	3.25120E-05	-6.19951E-03	9.99998E-01
8	.00000E+00	.00000E+00	2.99704E-02	4.11358E-02	3.08444E-02	1.91133E-05	-8.90349E-04	9.99919E-01
9	.00000E+00	.00000E+00	3.04027E-02	3.79442E-02	3.00483E-02	1.52984E-05	3.42473E-04	9.99892E-01
10	.00000E+00	.00000E+00	2.98641E-02	3.60235E-02	2.89502E-02	1.87810E-05	8.98221E-04	9.99900E-01
11	.00000E+00	.00000E+00	2.91219E-02	3.39510E-02	2.71052E-02	2.85488E-05	1.98999E-03	9.99945E-01
12	.00000E+00	.00000E+00	2.35342E-02	1.80424E-02	2.12291E-02	3.10764E-05	2.27449E-03	9.99982E-01
13	.00000E+00	.00000E+00	2.09068E-02	1.47265E-02	1.88857E-02	4.36246E-05	1.97811E-03	9.99974E-01
14	.00000E+00	.00000E+00	2.03424E-02	1.45453E-02	1.73754E-02	7.01955E-05	2.89710E-03	9.99990E-01
15	.00000E+00	.00000E+00	1.11751E-02	5.69812E-03	1.06749E-02	5.91223E-05	4.41088E-04	1.00000E+00
16	.00000E+00	.00000E+00	7.39560E-03	2.41959E-03	7.12886E-03	4.03509E-05	2.26916E-04	9.99998E-01
17	.00000E+00	.00000E+00	3.82636E-03	6.99233E-04	3.63808E-03	2.00164E-05	1.68248E-04	1.00000E+00
18	.00000E+00	.00000E+00	3.40758E-03	5.81734E-04	3.17871E-03	1.82027E-05	2.10671E-04	9.99998E-01
19	.00000E+00	.00000E+00	5.75858E-03	1.64318E-03	5.45357E-03	3.68023E-05	2.68262E-04	1.00001E+00
20	.00000E+00	.00000E+00	1.42494E-02	1.16418E-02	1.31626E-02	1.51834E-04	9.34789E-04	1.00001E+00
21	.00000E+00	.00000E+00	7.04013E-03	2.44308E-03	6.35558E-03	6.12685E-05	6.25242E-04	1.00000E+00
22	.00000E+00	.00000E+00	1.41662E-02	7.84643E-03	1.22107E-02	1.50709E-04	1.80448E-03	1.00001E+00
23	.00000E+00	.00000E+00	3.72310E-02	4.64951E-02	3.05321E-02	6.74946E-04	6.02222E-03	1.00004E+00
24	.00000E+00	.00000E+00	3.99739E-02	4.27423E-02	3.29351E-02	7.77611E-04	6.20128E-03	1.00004E+00
25	.00000E+00	.00000E+00	2.64138E-02	1.78287E-02	2.29366E-02	4.53130E-04	3.02337E-03	1.00002E+00
26	.00000E+00	.00000E+00	2.09760E-02	1.94328E-02	1.79488E-02	4.49415E-04	2.57752E-03	1.00001E+00
27	.00000E+00	.00000E+00	7.06032E-03	4.10187E-03	6.24878E-03	1.56133E-04	6.55396E-04	1.00000E+00
28	.00000E+00	.00000E+00	4.27394E-01	4.25207E-01	4.27394E-01	3.57088E-03	-3.56223E-03	9.99981E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.22635E-02	-1.17716E-03	1.21372E-02	-8.21883E-04	1.81384E-11	.00000E+00	9.82987E-06	8.02929E-03
2	9.12460E-02	-1.27919E-02	8.99466E-02	-8.68886E-03	.00000E+00	.00000E+00	4.63188E-05	5.96012E-02
3	1.15305E-01	-1.67102E-02	1.13684E-01	-1.11446E-02	.00000E+00	.00000E+00	4.87719E-05	7.53082E-02
4	7.13148E-02	-1.05209E-02	7.03469E-02	-6.85860E-03	.00000E+00	.00000E+00	2.22147E-05	4.65769E-02
5	1.06847E-01	-1.61682E-02	1.05379E-01	-1.04073E-02	.00000E+00	.00000E+00	2.63999E-05	6.97662E-02
6	2.00812E-01	-2.94397E-02	1.98195E-01	-1.88763E-02	.00000E+00	.00000E+00	4.46854E-05	1.31168E-01
7	1.97984E-01	-1.76653E-02	1.96462E-01	-1.14660E-02	.00000E+00	.00000E+00	3.14798E-05	1.29729E-01
8	1.47678E-01	-3.66436E-03	1.47387E-01	-2.77401E-03	.00000E+00	.00000E+00	1.71812E-05	9.71141E-02
9	1.15482E-01	9.41398E-04	1.15714E-01	5.98921E-04	.00000E+00	.00000E+00	1.13259E-05	7.60946E-02
10	1.06157E-01	2.35872E-03	1.06420E-01	1.46050E-03	.00000E+00	.00000E+00	9.97886E-06	6.99826E-02

11	9.89099E-02	5.40752E-03	9.94894E-02	3.41753E-03	.00000E+00	.00000E+00	9.26896E-06	6.53352E-02
12	6.33108E-02	6.31505E-03	6.39995E-02	4.04056E-03	.00000E+00	.00000E+00	5.40416E-06	4.19403E-02
13	5.41914E-02	5.69099E-03	5.47744E-02	3.71288E-03	.00000E+00	.00000E+00	4.50767E-06	3.58962E-02
14	5.12812E-02	8.18524E-03	5.21479E-02	5.28815E-03	.00000E+00	.00000E+00	4.36788E-06	3.40899E-02
15	2.89128E-02	1.58566E-03	2.90048E-02	1.14458E-03	.00000E+00	.00000E+00	2.34749E-06	1.90670E-02
16	1.61246E-02	7.79704E-04	1.61768E-02	5.52787E-04	.00000E+00	.00000E+00	1.18408E-06	1.06342E-02
17	7.17317E-03	5.07462E-04	7.21972E-03	3.39215E-04	.00000E+00	.00000E+00	4.85125E-07	4.73976E-03
18	6.10852E-03	5.99560E-04	6.17045E-03	3.88889E-04	.00000E+00	.00000E+00	4.03889E-07	4.04496E-03
19	1.13620E-02	8.11270E-04	1.14371E-02	5.43008E-04	.00000E+00	.00000E+00	7.85590E-07	7.50798E-03
20	3.73541E-02	2.79654E-03	3.76275E-02	1.86175E-03	.00000E+00	.00000E+00	2.89424E-06	2.46931E-02
21	1.20552E-02	1.73928E-03	1.22513E-02	1.11604E-03	.00000E+00	.00000E+00	7.34564E-07	8.01127E-03
22	2.56141E-02	5.15059E-03	2.62251E-02	3.34610E-03	.00000E+00	.00000E+00	1.56268E-06	1.70941E-02
23	8.40664E-02	1.83267E-02	8.63991E-02	1.23045E-02	.00000E+00	.00000E+00	4.63645E-06	5.62131E-02
24	6.59934E-02	1.84271E-02	6.87923E-02	1.22258E-02	.00000E+00	.00000E+00	2.72678E-06	4.44851E-02
25	2.89696E-02	8.85113E-03	3.05335E-02	5.82776E-03	.00000E+00	.00000E+00	9.30720E-07	1.96546E-02
26	1.99179E-02	6.88871E-03	2.14711E-02	4.31119E-03	.00000E+00	.00000E+00	4.78674E-07	1.36878E-02
27	3.55929E-03	1.40345E-03	4.00315E-03	7.48050E-04	.00000E+00	.00000E+00	5.48513E-08	2.51055E-03
28	1.77999E+00	-1.13717E-02	1.78341E+00	-7.80948E-03	1.81384E-11	.00000E+00	3.10960E-04	1.17298E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.16003E-02	.00000E+00	2.00624E-02	1.90161E-02	3.55152E-03	1.17714E-03	9.98896E-01
2	.00000E+00	1.89845E-01	6.57451E-03	2.45171E-01	1.68596E-01	1.50450E-02	1.27917E-02	1.00002E+00
3	.00000E+00	2.15153E-01	6.95018E-02	2.55257E-01	2.51731E-01	1.62167E-02	1.67100E-02	9.99989E-01
4	.00000E+00	1.24336E-01	1.04064E-01	1.75766E-01	2.10093E-01	7.78570E-03	1.05208E-02	1.00000E+00
5	.00000E+00	1.65607E-01	1.90083E-01	4.43992E-01	3.34282E-01	5.24419E-03	1.61679E-02	9.99990E-01
6	.00000E+00	1.79557E-01	3.88650E-01	1.19090E+00	5.30394E-01	8.36588E-03	2.94394E-02	1.00001E+00
7	.00000E+00	8.90750E-02	5.92130E-01	1.56491E+00	6.55110E-01	8.43674E-03	1.76660E-02	9.99989E-01
8	.00000E+00	1.37484E-02	6.89104E-01	1.57535E+00	6.85681E-01	1.35633E-02	3.66444E-03	9.99919E-01
9	.00000E+00	9.98261E-04	6.77797E-01	1.37018E+00	6.57554E-01	2.22558E-02	-9.46345E-04	9.99900E-01
10	.00000E+00	7.41517E-05	6.54661E-01	1.24308E+00	6.23498E-01	3.36628E-02	-2.35799E-03	9.99897E-01
11	.00000E+00	5.83383E-06	6.27678E-01	1.15489E+00	5.78688E-01	5.44398E-02	-5.40594E-03	9.99939E-01
12	.00000E+00	4.09818E-07	5.04172E-01	6.31192E-01	4.52379E-01	5.81215E-02	-6.31550E-03	9.99975E-01
13	.00000E+00	6.50753E-08	4.47028E-01	5.01330E-01	3.99918E-01	5.28143E-02	-5.69044E-03	9.99970E-01
14	.00000E+00	1.28962E-08	4.31015E-01	4.73474E-01	3.66127E-01	7.30776E-02	-8.18508E-03	9.99988E-01
15	.00000E+00	1.45741E-09	2.39208E-01	2.17654E-01	2.33184E-01	7.60760E-03	-1.58942E-03	1.00002E+00
16	.00000E+00	4.27947E-10	1.63478E-01	1.01394E-01	1.59863E-01	4.39423E-03	-7.82303E-04	1.00002E+00
17	.00000E+00	1.37820E-10	8.83870E-02	3.29388E-02	8.45978E-02	4.29620E-03	-5.09881E-04	1.00002E+00
18	.00000E+00	9.86750E-11	7.92269E-02	2.67303E-02	7.41409E-02	5.68515E-03	-5.98836E-04	9.99996E-01
19	.00000E+00	1.39505E-10	1.29972E-01	6.64083E-02	1.24581E-01	6.20269E-03	-8.15618E-04	1.00004E+00
20	.00000E+00	2.26850E-10	3.09741E-01	3.71921E-01	2.86362E-01	2.61725E-02	-2.80546E-03	1.00004E+00
21	.00000E+00	3.32036E-11	1.57289E-01	8.21225E-02	1.42423E-01	1.66057E-02	-1.74392E-03	1.00003E+00
22	.00000E+00	3.85237E-11	3.05675E-01	2.32134E-01	2.62659E-01	4.81644E-02	-5.15478E-03	1.00002E+00
23	.00000E+00	3.68329E-11	7.57959E-01	1.18160E+00	6.32537E-01	1.43741E-01	-1.83410E-02	1.00003E+00
24	.00000E+00	1.00254E-11	8.08964E-01	1.00077E+00	6.67141E-01	1.60245E-01	-1.84294E-02	1.00001E+00
25	.00000E+00	2.93479E-12	5.34122E-01	4.03112E-01	4.52903E-01	9.00686E-02	-8.85264E-03	1.00001E+00
26	.00000E+00	2.05789E-12	4.13185E-01	4.02923E-01	3.38007E-01	8.20655E-02	-6.88947E-03	1.00001E+00
27	.00000E+00	4.90406E-13	1.35879E-01	8.12775E-02	1.14078E-01	2.32046E-02	-1.40358E-03	1.00000E+00
28	.00000E+00	1.00000E+00	9.50655E+00	1.50459E+01	9.50554E+00	9.91034E-01	1.13207E-02	9.99979E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.25460E-02	-1.82671E-08	1.22635E-02	-1.17716E-03	2.11820E-03	2.36649E-03	2.76897E-04	3.18892E-01
2	9.44986E-02	-2.12016E-07	9.12460E-02	-1.27919E-02	1.64382E-05	1.08586E-02	1.55345E-03	2.39941E+00
3	1.19668E-01	-2.14495E-07	1.15305E-01	-1.67102E-02	.00000E+00	1.33372E-02	1.81172E-03	3.03761E+00
4	7.41490E-02	-1.59579E-07	7.13148E-02	-1.05209E-02	.00000E+00	5.75964E-03	8.80201E-04	1.88181E+00
5	1.11466E-01	-2.99055E-07	1.08847E-01	-1.61682E-02	.00000E+00	1.70018E-03	1.03027E-03	2.82779E+00
6	2.09690E-01	-3.15309E-07	2.00812E-01	-2.94397E-02	.00000E+00	1.52183E-03	1.73113E-03	5.31780E+00
7	2.03574E-01	7.19751E-07	1.97984E-01	-1.76653E-02	.00000E+00	1.56320E-03	1.22589E-03	5.16943E+00
8	1.48846E-01	8.91858E-08	1.47678E-01	-3.66436E-03	.00000E+00	1.65134E-03	6.97159E-04	3.78668E+00
9	1.15132E-01	-4.95225E-06	1.15482E-01	9.41398E-04	.00000E+00	2.28061E-03	4.70483E-04	2.95229E+00
10	1.05331E-01	7.30195E-07	1.06157E-01	2.35872E-03	.00000E+00	4.86990E-03	4.27889E-04	2.68418E+00
11	9.70350E-02	1.57992E-06	9.89099E-02	5.40752E-03	.00000E+00	1.00996E-02	3.86187E-04	2.47582E+00

12	6.11364E-02	-4.48833E-07	6.33108E-02	6.31505E-03	.00000E+00	1.29982E-02	2.27518E-04	1.56254E+00
13	5.22575E-02	5.56128E-07	5.41914E-02	5.69099E-03	.00000E+00	1.23853E-02	1.96952E-04	1.33591E+00
14	4.85024E-02	1.64006E-07	5.12812E-02	8.18524E-03	.00000E+00	8.91818E-03	1.79823E-04	1.24246E+00
15	2.83957E-02	-3.75582E-06	2.89128E-02	1.58566E-03	.00000E+00	2.25454E-03	1.12053E-04	7.24604E-01
16	1.58735E-02	-2.59897E-06	1.61246E-02	7.79704E-04	.00000E+00	1.50578E-03	5.90541E-05	4.04918E-01
17	7.00632E-03	-1.51869E-06	7.17317E-03	5.07462E-04	.00000E+00	2.23863E-03	2.39567E-05	1.78658E-01
18	5.90814E-03	7.23973E-07	6.10852E-03	5.99560E-04	.00000E+00	2.91977E-03	1.93466E-05	1.50978E-01
19	1.10906E-02	-4.34831E-06	1.13620E-02	8.11270E-04	.00000E+00	3.61999E-03	3.86401E-05	2.83152E-01
20	3.63989E-02	-8.92089E-06	3.73541E-02	2.79654E-03	.00000E+00	1.60777E-02	1.35090E-04	9.29430E-01
21	1.14295E-02	-4.63980E-06	1.20552E-02	1.73928E-03	.00000E+00	1.06308E-02	3.41892E-05	2.92824E-01
22	2.36338E-02	-4.17178E-06	2.56141E-02	5.15059E-03	.00000E+00	3.04770E-02	6.83018E-05	6.07898E-01
23	7.58090E-02	-1.42541E-05	8.40664E-02	1.85267E-02	.00000E+00	8.91544E-02	2.06240E-04	1.95988E+00
24	5.67570E-02	-2.29032E-06	6.59934E-02	1.84271E-02	.00000E+00	9.91094E-02	1.19408E-04	1.47880E+00
25	2.40987E-02	-1.50983E-06	2.89696E-02	8.85113E-03	.00000E+00	5.78799E-02	4.03110E-05	6.31259E-01
26	1.57444E-02	-7.66454E-07	1.99179E-02	6.88871E-03	.00000E+00	5.33914E-02	1.96715E-05	4.14925E-01
27	2.63900E-03	-1.38607E-07	3.55929E-03	1.40345E-03	.00000E+00	1.48532E-02	2.00523E-06	6.97283E-02
28	1.76861E+00	-5.10214E-05	1.77999E+00	-1.13717E-02	2.13464E-03	4.74422E-01	1.19738E-02	4.50999E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.16003E-02	.00000E+00	2.09843E-02	2.01177E-02	3.63266E-03	-1.82671E-08	9.98894E-01
2	.00000E+00	1.89845E-01	7.14474E-03	2.55772E-01	1.81682E-01	1.53211E-02	-2.12016E-07	1.00001E+00
3	.00000E+00	2.15153E-01	7.53713E-02	2.66279E-01	2.74150E-01	1.63774E-02	-2.14495E-07	9.99988E-01
4	.00000E+00	1.24336E-01	1.12786E-01	1.83549E-01	2.29259E-01	7.86281E-03	-1.59579E-07	1.00000E+00
5	.00000E+00	1.65607E-01	2.06268E-01	4.65449E-01	3.66542E-01	5.33708E-03	-2.99055E-07	9.99990E-01
6	.00000E+00	1.79557E-01	4.22462E-01	1.25624E+00	5.93489E-01	8.52229E-03	-3.15309E-07	1.00001E+00
7	.00000E+00	8.90750E-02	6.57509E-01	1.67082E+00	7.38034E-01	8.55725E-03	7.19751E-07	9.99989E-01
8	.00000E+00	1.37484E-02	7.75501E-01	1.70398E+00	7.75673E-01	1.36407E-02	8.91858E-08	9.99918E-01
9	.00000E+00	9.98261E-04	7.66389E-01	1.48700E+00	7.45093E-01	2.23769E-02	-4.95225E-06	9.99869E-01
10	.00000E+00	7.41517E-05	7.41600E-01	1.35311E+00	7.07973E-01	3.37767E-02	7.30195E-07	9.99897E-01
11	.00000E+00	5.83383E-06	7.12616E-01	1.25867E+00	6.58052E-01	5.46125E-02	1.57992E-06	9.99939E-01
12	.00000E+00	4.09818E-07	5.73086E-01	6.86982E-01	5.14852E-01	5.82185E-02	-4.48833E-07	9.99975E-01
13	.00000E+00	6.50753E-08	5.08432E-01	5.46990E-01	4.55498E-01	5.29488E-02	5.56128E-07	9.99969E-01
14	.00000E+00	1.28962E-08	4.90855E-01	5.18734E-01	4.17547E-01	7.32957E-02	1.64006E-07	9.99988E-01
15	.00000E+00	1.45741E-09	2.72226E-01	2.35536E-01	2.64439E-01	7.78677E-03	-3.75582E-06	1.00002E+00
16	.00000E+00	4.27947E-10	1.85263E-01	1.09118E-01	1.80747E-01	4.51600E-03	-2.59897E-06	1.00002E+00
17	.00000E+00	1.37820E-10	9.96743E-02	3.52416E-02	9.53170E-02	4.35672E-03	-1.51869E-06	1.00002E+00
18	.00000E+00	9.86750E-11	8.92874E-02	2.86446E-02	8.35467E-02	5.74034E-03	7.23973E-07	9.99996E-01
19	.00000E+00	1.39505E-10	1.46936E-01	7.16602E-02	1.40622E-01	6.31390E-03	-4.34831E-06	1.00008E+00
20	.00000E+00	2.26850E-10	3.51646E-01	4.07631E-01	3.25011E-01	2.66312E-02	-8.92089E-06	1.00004E+00
21	.00000E+00	3.32035E-11	1.78102E-01	8.97774E-02	1.61310E-01	1.67921E-02	-4.63980E-06	1.00008E+00
22	.00000E+00	3.85237E-11	3.47768E-01	2.56505E-01	2.99138E-01	4.86261E-02	-4.17178E-06	1.00002E+00
23	.00000E+00	3.68329E-11	8.70016E-01	1.32430E+00	7.24183E-01	1.45819E-01	-1.42541E-05	1.00008E+00
24	.00000E+00	1.00254E-11	9.30196E-01	1.13300E+00	7.67516E-01	1.62668E-01	-2.29032E-06	1.00002E+00
25	.00000E+00	2.93479E-12	6.14825E-01	4.58709E-01	5.23329E-01	9.14923E-02	-1.50983E-06	1.00001E+00
26	.00000E+00	2.05789E-12	4.77362E-01	4.64110E-01	3.93861E-01	8.34987E-02	-7.66454E-07	1.00001E+00
27	.00000E+00	4.90406E-13	1.57554E-01	9.44273E-02	1.33843E-01	2.37115E-02	-1.38607E-07	1.00000E+00
28	.00000E+00	1.00000E+00	1.07708E+01	1.63832E+01	1.07708E+01	1.00243E+00	-5.09702E-05	9.99980E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.25460E-02	-1.82671E-08	1.20047E-02	.00000E+00	2.12374E-03	2.36649E-03	3.06799E-04	3.44088E-01
2	9.44988E-02	-2.12016E-07	8.82302E-02	.00000E+00	1.64382E-05	1.08586E-02	1.69738E-03	2.58564E+00
3	1.19668E-01	-2.14495E-07	1.11189E-01	.00000E+00	.00000E+00	1.33372E-02	1.96426E-03	3.27270E+00
4	7.41490E-02	-1.59579E-07	6.85763E-02	.00000E+00	.00000E+00	5.75964E-03	9.51298E-04	2.02709E+00
5	1.11466E-01	-2.99055E-07	1.02435E-01	.00000E+00	.00000E+00	1.70018E-03	1.11451E-03	3.04519E+00
6	2.09690E-01	-3.15309E-07	1.92654E-01	.00000E+00	.00000E+00	1.52183E-03	1.86953E-03	5.72661E+00
7	2.03574E-01	7.19751E-07	1.93005E-01	.00000E+00	.00000E+00	1.56320E-03	1.32497E-03	5.57605E+00
8	1.48864E-01	8.91858E-08	1.46877E-01	.00000E+00	.00000E+00	1.65134E-03	7.52311E-04	4.09518E+00
9	1.15132E-01	-4.95225E-06	1.15786E-01	.00000E+00	.00000E+00	2.28061E-03	5.08057E-04	3.17313E+00
10	1.05331E-01	7.30195E-07	1.06904E-01	.00000E+00	.00000E+00	4.86990E-03	4.61885E-04	2.90601E+00
11	9.70350E-02	1.57992E-06	1.00565E-01	.00000E+00	.00000E+00	1.00996E-02	4.18059E-04	2.68359E+00
12	6.11364E-02	-4.48833E-07	6.52073E-02	.00000E+00	.00000E+00	1.29982E-02	2.46609E-04	1.69650E+00

13	5.22575E-02	5.56128E-07	5.58561E-02	.00000E+00	.00000E+00	1.23853E-02	2.12925E-04	1.45060E+00
14	4.85024E-02	1.64006E-07	5.37011E-02	.00000E+00	.00000E+00	8.91818E-03	1.95339E-04	1.35196E+00
15	2.83957E-02	-3.75582E-06	2.92941E-02	.00000E+00	.00000E+00	2.25454E-03	1.20320E-04	7.85176E-01
16	1.58735E-02	-2.59897E-06	1.63177E-02	.00000E+00	.00000E+00	1.50578E-03	6.33084E-05	4.38685E-01
17	7.00632E-03	-1.51869E-06	7.31343E-03	.00000E+00	.00000E+00	2.23863E-03	2.57323E-05	1.93945E-01
18	5.90814E-03	7.23973E-07	6.28328E-03	.00000E+00	.00000E+00	2.91977E-03	2.08363E-05	1.63892E-01
19	1.10906E-02	-4.34831E-06	1.15888E-02	.00000E+00	.00000E+00	3.61999E-03	4.15029E-05	3.07055E-01
20	3.63959E-02	-8.92089E-06	3.81635E-02	.00000E+00	.00000E+00	1.60777E-02	1.45418E-04	1.00808E+00
21	1.14295E-02	-4.63980E-06	1.26109E-02	.00000E+00	.00000E+00	1.06308E-02	3.69596E-05	3.18544E-01
22	2.36338E-02	-4.17178E-06	2.73504E-02	.00000E+00	.00000E+00	3.04770E-02	7.42352E-05	6.63152E-01
23	7.58090E-02	-1.42541E-05	9.12651E-02	.00000E+00	.00000E+00	8.91544E-02	2.24328E-04	2.14255E+00
24	5.67570E-02	-2.29032E-06	7.43778E-02	.00000E+00	.00000E+00	9.91094E-02	1.31005E-04	1.62513E+00
25	2.40987E-02	-1.50985E-06	3.35434E-02	.00000E+00	.00000E+00	5.78792E-02	4.46288E-05	6.96472E-01
26	1.57444E-02	-7.66454E-07	2.41510E-02	.00000E+00	.00000E+00	5.33914E-02	2.21808E-05	4.61018E-01
27	2.63900E-03	-1.38607E-07	4.58320E-03	.00000E+00	.00000E+00	1.48532E-02	2.36341E-06	7.83366E-02
28	1.76861E+00	-5.10214E-05	1.78983E+00	.00000E+00	2.14017E-03	4.74422E-01	1.29765E-02	4.88144E+01

- elapsed time .02 min.
0direct access unit 9 requires 556 blocks of length 216 for cross section weighting.
1 transport cross section weighting function

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.07422E-03	4.92818E-03	5.24235E-03	2.49915E-03	3.18142E-03	5.53234E-03	3.72288E-03	1.74266E-03
2	6.54432E-04	4.85769E-03	5.73826E-03	3.43066E-03	4.29923E-03	6.17028E-03	4.34420E-03	2.14741E-03
3	1.10130E-03	5.34262E-03	5.82505E-03	2.90781E-03	3.86805E-03	6.79941E-03	4.39160E-03	1.82522E-03
4	7.56919E-04	4.19640E-03	4.89163E-03	2.38012E-03	2.82742E-03	4.80501E-03	3.32850E-03	1.79604E-03
5	7.79006E-04	4.26124E-03	4.95507E-03	2.40452E-03	2.87734E-03	4.89412E-03	3.37804E-03	1.79638E-03

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.11199E-03	1.01507E-03	1.09743E-03	8.72673E-04	7.78309E-04	9.94814E-04	3.12890E-04	1.54070E-04
2	1.78929E-03	1.95243E-03	2.04407E-03	1.59844E-03	1.40528E-03	1.64490E-03	6.25391E-04	3.39817E-04
3	1.12150E-03	1.05819E-03	1.30452E-03	1.21955E-03	1.09228E-03	1.49279E-03	3.71988E-04	1.83579E-04
4	1.19360E-03	1.09582E-03	1.03054E-03	6.77736E-04	6.01721E-04	6.37346E-04	3.11332E-04	1.61644E-04
5	1.19176E-03	1.09457E-03	1.04627E-03	7.05146E-04	6.26364E-04	6.80196E-04	3.14753E-04	1.62901E-04

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.62481E-05	7.76098E-05	1.22573E-04	4.32713E-04	2.03616E-04	5.85562E-04	2.17475E-03	2.10193E-03
2	1.61881E-04	1.52163E-04	2.56965E-04	8.53914E-04	3.61149E-04	9.59598E-04	3.43723E-03	3.26641E-03
3	1.01804E-04	1.12103E-04	1.63311E-04	5.70749E-04	3.11326E-04	9.14972E-04	3.29418E-03	3.27295E-03
4	6.92960E-05	6.03873E-05	1.11611E-04	3.87665E-04	1.27641E-04	3.18483E-04	1.14133E-03	9.51111E-04
5	7.09504E-05	6.29644E-05	1.14227E-04	3.96917E-04	1.36911E-04	3.48803E-04	1.25382E-03	1.07312E-03

0zone	grp. 25	grp. 26	grp. 27	grp. 28
1	9.76151E-04	6.98886E-04	1.06706E-04	4.18172E-02
2	1.53098E-03	1.12572E-03	1.94077E-04	5.53519E-02
3	1.56317E-03	1.18646E-03	2.22660E-04	5.16169E-02
4	4.02748E-04	2.45817E-04	3.04580E-05	3.45363E-02
5	4.63469E-04	2.94292E-04	3.95202E-05	3.54027E-02

1broad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.0000E+07	2.6301E+06	1.9627E+09	7.1654E-01
2	9.0000E+05	1.5044E+05	9.5300E+06	2.8346E-01
3	4.0000E-01	1.2789E-01	3.6950E+05	1.2407E-10
4	1.0000E-05			

1 80 d, second part of sas2h pass to make library
0cell averaged fluxes

0zone	grp. 1	grp. 2	grp. 3
1	3.85739E-01	1.14035E+00	2.59862E-01
2	3.90955E-01	1.14199E+00	2.50017E-01
3	3.95886E-01	1.14245E+00	2.45580E-01
4	4.11019E-01	1.14597E+00	2.14250E-01
5	4.09335E-01	1.14560E+00	2.17296E-01

0flux disadvantage factors (zone average/cell average-flux)

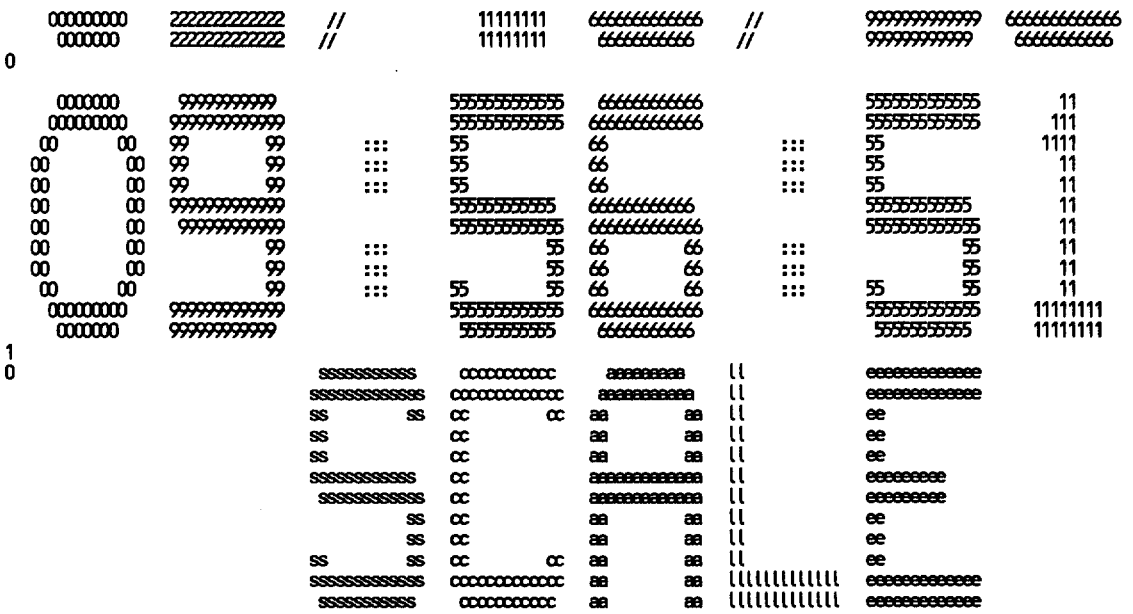
```
Ozone   grp. 1     grp. 2     grp. 3
    1 9.42357E-01 9.95413E-01 1.19589E+00
    2 9.55098E-01 9.96848E-01 1.15058E+00
    3 9.62260E-01 9.97251E-01 1.13016E+00
    4 1.00411E+00 1.00032E+00 9.85981E-01
    5 1.00000E+00 1.00000E+00 1.00000E+00
Ocell averaged currents

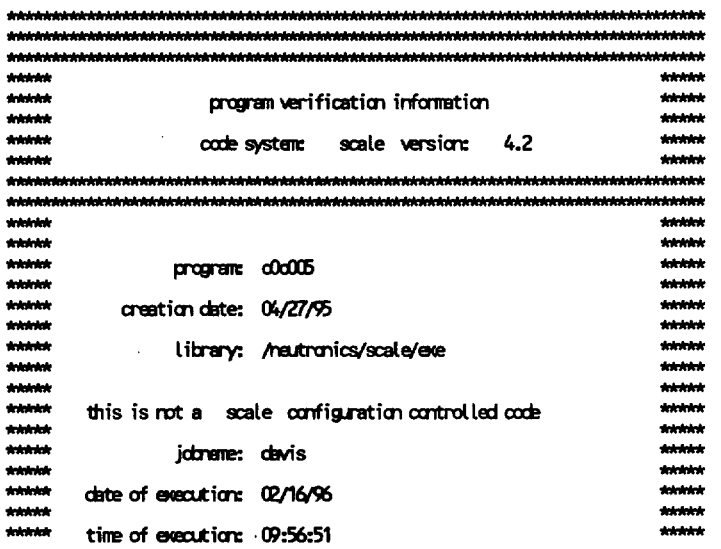
Ozone   grp. 1     grp. 2     grp. 3
    1 1.69253E-02 1.80443E-02 6.84760E-03
    2 1.89903E-02 2.54864E-02 1.08752E-02
    3 1.90448E-02 2.18064E-02 1.07657E-02
    4 1.50525E-02 1.62663E-02 3.21759E-03
    5 1.52572E-02 1.65356E-02 3.60993E-03
Ozone      volume     vol. fraction

   1    1.2566E+00    4.5623E-02
   2    1.6668E-01    6.0516E-03
   3    6.5826E-01    2.3898E-02
   4    2.5462E+01    9.2442E-01
   5    2.7544E+01    1.0000E+00
-  elapsed time    .03 min.
1  ccccccccccc    ccccccccccc  EEE         EEE  ppppppppppp  lll             eeeeeeeeeeee
   ccccccccccccc  ccccccccccccc EEE         EEE  ppppppppppppp lll            eeeeeeeeeeee
   ccc         ccc ooo       ooo EEE         EEE ppp       ppp lll            eee
   ccc             ooo       ooo EEE         EEE ppp       ppp lll            eee
   ccc             ooo       ooo EEE         EEE ppp       ppp lll            eee
   ccc             ooo       ooo EEE         EEE ppppppppppppp lll            eeeeeeeee
   ccc             ooo       ooo EEE         EEE ppppppppppp lll              eeeeeeeee
   ccc             ooo       ooo EEE         EEE ppp         lll              eee
   ccc             ooo       ooo EEE         EEE ppp         lll              eee
   ccc         ccc ooo       ooo EEE         EEE ppp         lll              eee
   ccccccccccccc  ccccccccccccc  EEEEEEEEEEEEEE  ppp         lllllllllllll    eeeeeeeeeeee
    ccccccccccc    ccccccccccc    EEEEEEEEEEEE   ppp         lllllllllllll    eeeeeeeeeeee
0

   ddddddddddd     aaaaaaaaa   w         w iiiiiiiiiiii   sssssssssss
   ddddddddddddd   aaaaaaaaaa  w         w iiiiiiiiiiii   sssssssssssss
   ddd         ddd aaa       aaa w         w     iii      sss       sss
   ddd         ddd aaa       aaa w         w     iii      sss
   ddd         ddd aaa       aaa w         w     iii      sss
   ddd         ddd aaaaaaaaaaaaa w         w     iii      sssssssssss
   ddd         ddd aaaaaaaaaaaaa  w       w      iii       sssssssssss
   ddd         ddd aaa       aaa   w   w  w      iii              sss
   ddd         ddd aaa       aaa    w  w  w      iii              sss
   ddd         ddd aaa       aaa     w w w      iii      sss     sss
   ddddddddddddd   aaa       aaa      www       iiiiiiiiiiii sssssssssssss
   ddddddddddd     aaa       aaa       v        iiiiiiiiiiii  sssssssssss
0

     000000     2222222222222          //     11     666666666666          //  999999999   666666666666
   00000000     2222222222222         //     111     666666666666         //  999999999   666666666666
  00     00     22         222       //     1111     66                   //  99      99  66
 00       00             222        //       11     66                   //  99      99  66
 00       00            222         //       11     66                   //  99      99  66
 00       00          222           //       11     666666666666         //  999999999   666666666666
 00       00        222             //       11     666666666666        //   999999999   666666666666
 00       00      222               //       11     66      666         //           99  66      666
 00       00    222                 //       11     66      666        //            99  66      666
  00     00    22                   //       11     66      666       //             99  66      666
```


0
1
0


program verification information
code system: scale version: 4.2
program: c0c005
creation date: 04/27/95
library: /neutronics/scale/exe
this is not a scale configuration controlled code
jobname: davis
date of execution: 02/16/96
time of execution: 09:56:51

```
                    *****                                                                  *****
                    *****                                                                  *****
                    ***********************************************************************
                    ***********************************************************************
                    ***********************************************************************
1
0       -1q array has      1 entries.
0        0q array has      1 entries.
0        0q array has      1 entries.
0        1q array has      1 entries.
0        1q array has      1 entries.
0        1q array has      1 entries.
0        1q array has      1 entries.
0        1q array has      1 entries.
0        2q array has      1 entries.
0         * core allocated to array-data (by -1$$ or default) was   200000 words. *
1          * broad 3-group flux weighting factors *
0
0                 therm =    .5092
0                 res   =    .3604
0                 fast  =   2.7315
0 user requested (see jadd) that only the nuclide transitions presently included in
0 origen library be updated.
1cross sections, available from ampx (normalized to thermal flux), barns

                    10010 to  10020  2.71089E-01
                    10010 tot-cap    2.71089E-01
                    50100 to  40100  1.94358E-02
                    50100 to  10010  1.94358E-02
                    50100 to  40090  2.86217E-03
                    50100 to  10020  2.86217E-03
                    50100 to  30070  3.11798E+03
                    50100 to  20040  3.11813E+03
                    50100 to  10030  7.24701E-02
                    50100 tot-cap    3.11808E+03
                    50110 to  50100  8.12321E-06
                    50110 to  50120  4.12119E-03
                    50110 to  40110  1.03660E-06
                    50110 to  10010  1.03660E-06
                    50110 to  40090  9.25064E-06
                    50110 to  10030  9.25064E-06
                    50110 to  30080  1.20762E-04
                    50110 to  20040  1.20762E-04
                    50110 tot-cap    4.26037E-03
                    80160 to  80170  1.44801E-04
                    80160 to  70160  7.10768E-05
                    80160 to  10010  7.10768E-05
                    80160 to  70150  1.34050E-05
                    80160 to  10020  1.34050E-05
                    80160 to  60130  2.04523E-02
                    80160 to  20040  2.04523E-02
                    80160 to  80161  3.11718E-03
                    80160 tot-cap    2.06816E-02
                   360830 to 360820  1.61398E-02
                   360830 to 360810  1.70396E-09
                   360830 to 360840  1.45243E+02
                   360830 to 350830  6.75101E-04
                   360830 to  10010  6.75101E-04
                   360830 to 350820  5.33053E-06
                   360830 to  10020  5.33053E-06
```

360830 to 350810 1.86312E-06
360830 to 10030 1.86312E-06
360830 to 340810 3.01531E-08
360830 to 20030 3.01531E-08
360830 to 340800 3.54617E-05
360830 to 20040 3.54517E-05
360830 tot-cap 1.45260E+02
360850 to 360860 1.30308E+00
360850 tot-cap 1.30308E+00
380900 to 380910 6.02302E-01
380900 tot-cap 6.02302E-01
390890 to 390900 9.32409E-01
390890 tot-cap 9.32409E-01
400930 to 400940 1.11829E+01
400930 tot-cap 1.11829E+01
400940 to 400950 1.57479E-01
400940 tot-cap 1.57479E-01
400950 to 400960 1.86408E+00
400950 tot-cap 1.86408E+00
410940 to 410950 3.29242E+01
410940 tot-cap 3.29242E+01
420950 to 420960 3.36517E+01
420950 tot-cap 3.36517E+01
430990 to 430980 4.89705E-05
430990 to 431000 7.76754E+01
430990 tot-cap 7.76808E+01
441010 to 441020 2.35436E+01
441010 tot-cap 2.35436E+01
441060 to 441070 7.21853E-01
441060 tot-cap 7.21853E-01
451080 to 451020 1.77353E-05
451080 to 451040 3.30609E+02
451080 tot-cap 3.30610E+02
451050 to 451060 7.72918E+03
451050 tot-cap 7.72918E+03
461050 to 461060 2.90735E+01
461050 tot-cap 2.90735E+01
461080 to 461090 5.74088E+01
461080 tot-cap 5.74088E+01
471090 to 471080 4.12423E-05
471090 to 471100 3.19744E+02
471090 to 461090 2.36885E-04
471090 to 10010 2.36885E-04
471090 to 451060 1.93998E-04
471090 to 20040 1.93998E-04
471090 to 471091 5.19478E-01
471090 tot-cap 3.19748E+02
511240 to 511250 1.04754E+01
511240 tot-cap 1.04754E+01
541310 to 541300 5.00077E-02
541310 to 541290 1.04567E-05
541310 to 541320 2.32235E+02
541310 to 531310 3.07430E-05
541310 to 10010 3.07430E-05
541310 to 531300 4.19565E-07
541310 to 10020 4.19865E-07
541310 to 531290 4.30016E-07
541310 to 10030 4.30016E-07
541310 to 521280 1.42920E-05
541310 to 20040 1.42920E-05

541310 tot-cap 2.32286E+02
541320 to 541310 8.07852E-03
541320 to 541300 1.71339E-05
541320 to 541330 8.02739E-01
541320 to 531320 6.21127E-06
541320 to 10010 6.21127E-06
541320 to 531310 2.60572E-07
541320 to 10020 2.60572E-07
541320 to 531300 3.50691E-08
541320 to 10030 3.50691E-08
541320 to 521290 7.59245E-07
541320 to 20040 7.59245E-07
541320 tot-cap 8.10842E-01
541350 to 541360 1.43961E+06
541350 tot-cap 1.43961E+06
541360 to 541350 1.38188E-02
541360 to 541340 4.22060E-05
541360 to 541370 1.16414E-01
541360 to 531360 2.55237E-07
541360 to 10010 2.55237E-07
541360 to 531350 9.50002E-08
541360 to 10020 9.50002E-08
541360 to 531340 2.14623E-08
541360 to 10030 2.14623E-08
541360 to 521330 2.14051E-07
541360 to 20040 2.14051E-07
541360 tot-cap 1.30276E-01
551330 to 551320 6.47110E-03
551330 to 551340 8.91954E+01
551330 to 541330 7.16967E-04
551330 to 10010 7.16967E-04
551330 to 531300 1.10582E-05
551330 to 20040 1.10582E-05
551330 tot-cap 8.92026E+01
551340 to 551350 1.19033E+02
551340 tot-cap 1.19033E+02
551350 to 551360 1.83684E+01
551350 tot-cap 1.83684E+01
551370 to 551380 1.98276E-01
551370 tot-cap 1.98276E-01
561360 to 561370 7.75574E-01
561360 tot-cap 7.75574E-01
571390 to 571400 7.38489E+00
571390 tot-cap 7.38489E+00
581440 to 581450 1.10831E+00
581440 tot-cap 1.10831E+00
591410 to 591400 4.63703E-03
591410 to 591390 1.33233E-06
591410 to 571370 2.00747E-06
591410 to 20040 4.15264E-05
591410 to 581400 1.41654E-05
591410 to 10010 4.06384E-05
591410 to 591420 1.08333E+01
591410 to 581410 3.82873E-05
591410 to 10020 1.18143E-05
591410 to 581390 1.23899E-06
591410 to 10030 1.23899E-06
591410 to 571390 1.19656E-08
591410 to 20030 1.19656E-08
591410 to 571380 3.95169E-05

591410	tot-cap	1.08381E+01
591430	to 591440	8.87636E+01
591430	tot-cap	8.87636E+01
601430	to 601420	7.10500E-02
601430	to 601410	7.24124E-06
601430	to 581390	1.61835E-05
601430	to 20040	4.51721E-04
601430	to 591420	3.03118E-06
601430	to 10010	3.14386E-05
601430	to 601440	1.93022E+02
601430	to 591430	3.02966E-05
601430	to 10020	1.88919E-06
601430	to 591410	2.72231E-06
601430	to 10030	2.72231E-06
601430	to 581410	1.30796E-08
601430	to 20030	1.30796E-08
601430	to 581400	4.35537E-04
601430	tot-cap	1.93094E+02
601450	to 601440	9.12502E-02
601450	to 601430	9.26545E-05
601450	to 581410	6.64915E-06
601450	to 20040	1.67466E-04
601450	to 591440	1.73670E-06
601450	to 10010	1.13346E-05
601450	to 601460	6.93315E+01
601450	to 591450	1.06419E-05
601450	to 10020	1.04397E-06
601450	to 591430	1.64584E-06
601450	to 10030	1.64584E-06
601450	to 581430	3.35093E-09
601450	to 20030	3.35093E-09
601450	to 581420	1.60817E-04
601450	tot-cap	6.94231E+01
601470	to 601480	1.60240E+02
601470	tot-cap	1.60240E+02
611470	to 611460	2.49119E-02
611470	to 611450	7.77289E-05
611470	to 591430	6.95141E-06
611470	to 20040	6.48065E-05
611470	to 601460	9.54605E-06
611470	to 10010	2.18569E-05
611470	to 611480	5.15641E+02
611470	to 601470	1.94799E-05
611470	to 10020	7.16905E-06
611470	to 601450	2.70677E-06
611470	to 10030	2.70677E-06
611470	to 591450	4.06970E-09
611470	to 20030	4.06970E-09
611470	to 591440	5.78551E-05
611470	tot-cap	5.15667E+02
611480	to 611490	1.11167E+04
611480	tot-cap	1.11167E+04
621470	to 621460	6.49974E-02
621470	to 621450	5.85168E-03
621470	to 601430	5.18407E-05
621470	to 20040	1.01687E-03
621470	to 611460	1.17959E-04
621470	to 10010	1.70031E-04
621470	to 621480	1.97780E+02
621470	to 611470	1.50150E-04

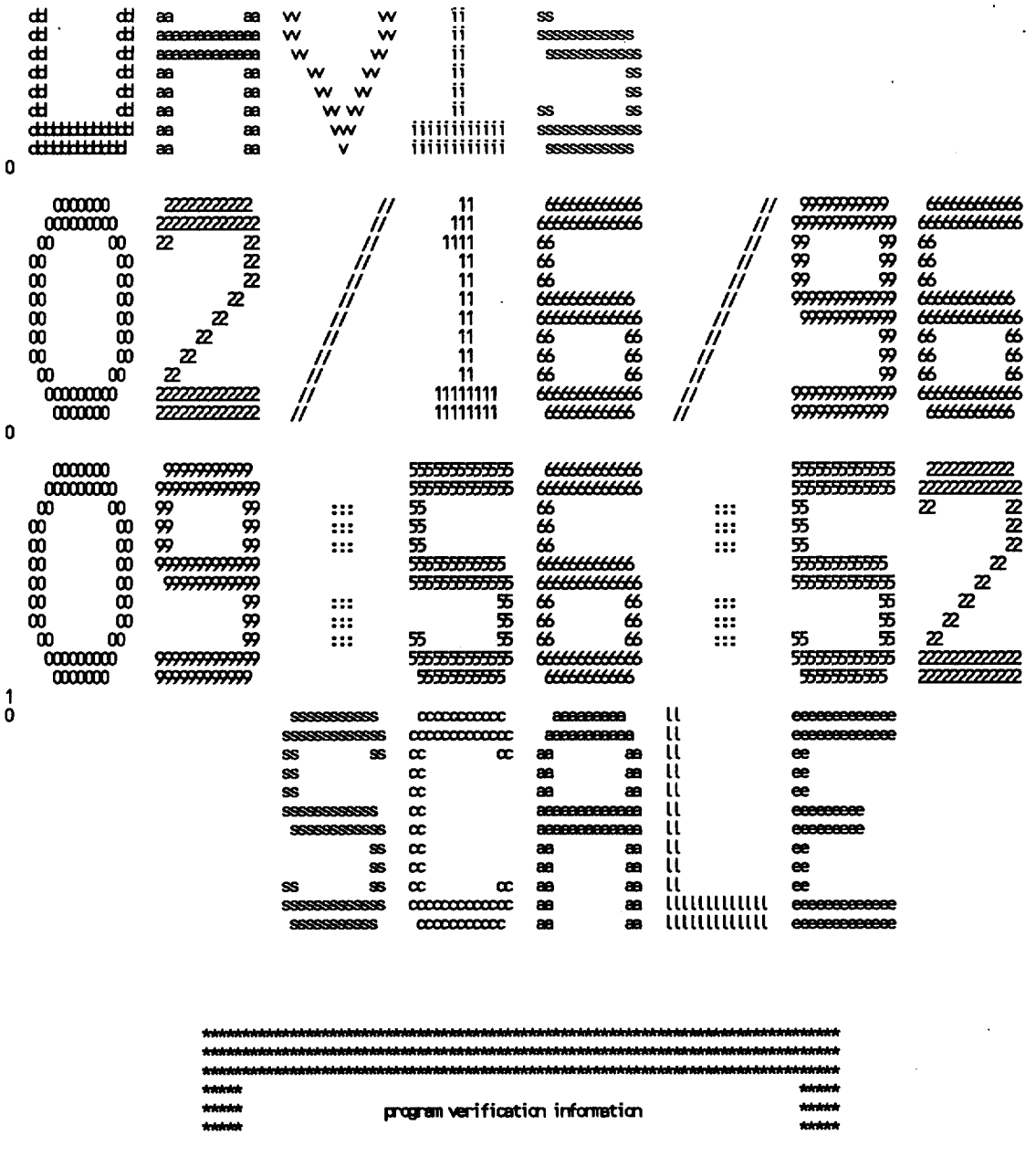
621470 to 10020 9.80571E-05
621470 to 611450 1.05291E-04
621470 to 10030 1.05291E-04
621470 to 601450 4.84463E-06
621470 to 20030 4.84463E-06
621470 to 601440 9.65032E-04
621470 to 621471 1.36059E+00
621470 tot-cap 1.97853E+02
621490 to 621480 3.67532E-02
621490 to 621470 2.91681E-05
621490 to 621500 4.45711E+04
621490 to 611490 3.82096E-04
621490 to 10010 3.82096E-04
621490 to 601460 3.82096E-04
621490 to 20040 3.82096E-04
621490 tot-cap 4.45711E+04
621500 to 621510 1.20427E+02
621500 tot-cap 1.20427E+02
621510 to 621500 1.23392E-01
621510 to 621490 1.09757E-04
621510 to 601470 1.24567E-05
621510 to 20040 9.77816E-05
621510 to 611500 1.50290E-06
621510 to 10010 1.17581E-05
621510 to 621520 4.75884E+03
621510 to 611510 1.08399E-05
621510 to 10020 5.84683E-07
621510 to 611490 1.06263E-06
621510 to 10030 1.06263E-06
621510 to 601490 1.09471E-09
621510 to 20030 1.09471E-09
621510 to 601480 8.53249E-05
621510 tot-cap 4.75896E+03
621520 to 621510 1.46977E-02
621520 to 621500 9.93126E-05
621520 to 601480 2.22102E-06
621520 to 20040 9.22918E-06
621520 to 611510 6.36616E-07
621520 to 10010 1.87864E-06
621520 to 621530 6.53500E+02
621520 to 611520 1.66881E-06
621520 to 10020 4.26789E-07
621520 to 611500 1.10998E-07
621520 to 10030 1.10998E-07
621520 to 601500 3.36386E-10
621520 to 20030 3.36386E-10
621520 to 601490 7.00816E-06
621520 tot-cap 6.53515E+02
631530 to 631520 1.42749E-02
631530 to 631510 2.13169E-05
631530 to 611490 3.60826E-05
631530 to 20040 5.10810E-04
631530 to 621520 5.98256E-06
631530 to 10010 5.10799E-05
631530 to 631540 5.45292E+02
631530 to 621530 4.90848E-05
631530 to 10020 3.93741E-06
631530 to 621510 8.81432E-07
631530 to 10030 8.81432E-07
631530 to 611510 2.01461E-08

631530 to 20030 2.01461E-08
631530 to 611500 4.74728E-04
631530 tot-cap 5.45307E+02
631540 to 631530 2.28202E-02
631540 to 631520 8.19747E-06
631540 to 611500 7.97057E-11
631540 to 20040 6.07772E-04
631540 to 621530 1.79461E-06
631540 to 10010 9.75262E-04
631540 to 631550 9.96274E+02
631540 to 621540 9.75261E-04
631540 to 10020 1.79362E-06
631540 to 621520 3.03935E-06
631540 to 10030 3.03935E-06
631540 to 611520 1.28796E-08
631540 to 20030 1.28796E-08
631540 to 611510 6.07772E-04
631540 tot-cap 9.96299E+02
631550 to 631540 1.87362E-02
631550 to 631530 5.24656E-05
631550 to 611510 1.41368E-06
631550 to 20040 6.95794E-06
631550 to 621540 2.86085E-06
631550 to 10010 6.02659E-06
631550 to 631560 2.48080E+03
631550 to 621550 4.63459E-06
631550 to 10020 1.46885E-06
631550 to 621530 4.86241E-07
631550 to 10030 4.86241E-07
631550 to 611530 1.10209E-10
631550 to 20030 1.10209E-10
631550 to 611520 5.54427E-06
631550 tot-cap 2.48082E+03
641550 to 641560 1.64517E+04
641550 tot-cap 1.64517E+04
922340 to 922330 4.90863E-03
922340 fission 3.60699E+00
922340 nu-sigf 9.47285E+00
922340 to 922320 7.11723E-05
922340 to 922350 1.61906E+02
922340 to 922341 2.44147E+00
922340 tot-cap 1.65518E+02
922350 to 922340 2.25517E-02
922350 fission 3.47364E+02
922350 nu-sigf 8.41025E+02
922350 to 922330 2.14395E-05
922350 to 922360 7.94250E+01
922350 to 922351 6.94449E-02
922350 tot-cap 4.26811E+02
922360 to 922350 2.50056E-02
922360 fission 1.53934E+00
922360 nu-sigf 4.22025E+00
922360 to 922340 3.33242E-04
922360 to 922370 6.81206E+01
922360 to 922361 2.67105E+00
922360 tot-cap 6.96853E+01
922380 to 922370 4.99532E-02
922380 fission 7.69022E-01
922380 nu-sigf 2.16235E+00
922380 to 922360 3.22753E-04

```
                922380 to 922390  7.22104E+00
                922380 tot-cap    8.04034E+00
                932370 to 932360  1.13851E-02
                932370 fission    4.18314E+00
                932370 nu-sigf    1.25870E+01
                932370 to 932350  4.35558E-05
                932370 to 932380  2.67252E+02
                932370 to 932371  6.26053E-01
                932370 tot-cap    2.71446E+02
                942380 to 942370  1.83000E-03
                942380 fission    1.92885E+01
                942380 nu-sigf    5.45744E+01
                942380 to 942360  1.02416E-05
                942380 to 942390  2.54526E+02
                942380 to 942381  2.43431E+00
                942380 tot-cap    2.73816E+02
                942390 to 942380  9.72084E-03
                942390 fission    8.63828E+02
                942390 nu-sigf    2.48533E+03
                942390 to 942370  1.64884E-05
                942390 to 942360  1.63452E-08
                942390 to 942400  4.90626E+02
                942390 tot-cap    1.35446E+03
                942400 to 942390  4.55751E-03
                942400 fission    4.91362E+00
                942400 nu-sigf    1.53359E+01
                942400 to 942380  4.44741E-05
                942400 to 942410  2.01524E+03
                942400 tot-cap    2.02016E+03
                942410 to 942400  5.82221E-02
                942410 fission    8.88807E+02
                942410 nu-sigf    2.60762E+03
                942410 to 942390  9.51621E-05
                942410 to 942420  2.95569E+02
                942410 tot-cap    1.18443E+03
                942420 to 942410  1.85790E-02
                942420 fission    3.62068E+00
                942420 nu-sigf    1.13521E+01
                942420 to 942400  2.25864E-04
                942420 to 942430  2.79175E+02
                942420 tot-cap    2.82814E+02
                952410 fission    1.12519E+01
                952410 nu-sigf    3.61820E+01
                952410 to 952420  9.97806E+02
                952410 tot-cap    1.00906E+03
                952430 fission    2.79863E+00
                952430 nu-sigf    9.38139E+00
                952430 to 952440  3.63841E+02
                952430 tot-cap    3.66634E+02
                962440 to 962430  4.46494E-03
                962440 fission    1.27444E+01
                962440 nu-sigf    4.26595E+01
                962440 to 962420  4.45261E-05
                962440 to 962450  1.19183E+02
                962440 to 962441  3.10608E+00
                962440 tot-cap    1.31952E+02
0the reaction  50100 to  30070 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
0the reaction  50100 to  40090 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
```

```
0the reaction  50110 to  40090 was not used, because  50110 is not in library., (in subr pool)
                                        in the search of library number 3
0the reaction  50100 to  40100 was not used, because  50100 is not in library., (in subr pool)
                                        in the search of library number 3
0the reaction  80160 to  80161 was not used, because  80161 is not in library., (in subr pool)
0the reaction 621470 to 621471 was not used, because 621471 is not in library., (in subr pool)
0the fission product transitions for  922340 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  922340 to 922341 was not used, because  922341 is not in library., (in subr pool)
0the reaction  922350 to 922351 was not used, because  922351 is not in library., (in subr pool)
0the fission product transitions for  922360 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  922360 to 922361 was not used, because  922361 is not in library., (in subr pool)
0the fission product transitions for  952370 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  952370 to 952371 was not used, because  952371 is not in library., (in subr pool)
0the fission product transitions for  942380 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  942380 to 942381 was not used, because  942381 is not in library., (in subr pool)
0the fission product transitions for  942400 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  942420 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952410 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952430 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  962440 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  962440 to 962441 was not used, because  962441 is not in library., (in subr pool)
1
0                          case completed.  date,   2/16/1996
0 * normal termination *
1  ooooooooooo   rrrrrrrrrrrr   iiiiiiiiiiii    gggggggggg   eeeeeeeeeeeee  mn        mn  sssssssssss
   ooooooooooooo rrrrrrrrrrrrr  iiiiiiiiiiii   ggggggggggggg eeeeeeeeeeeee  mnn       mn sssssssssssss
   oo        oo  rr        rr       ii        gg        gg  ee            mnnn      mn ss        ss
   oo        oo  rr        rr       ii        gg            ee            mn mn     mn ss
   oo        oo  rr        rr       ii        gg            ee            mn  mn    mn ss
   oo        oo  rrrrrrrrrrrrr      ii        gg   gggggg   eeeeeeeee      mn   mn   mn sssssssssssss
   oo        oo  rrrrrrrrrrrr       ii        gg   gggggg   eeeeeeeee      mn    mn  mn  sssssssssssss
   oo        oo  rr      rr         ii        gg        gg  ee            mn     mn mn           ss
   oo        oo  rr       rr        ii        gg        gg  ee            mn      mn mn           ss
   oo        oo  rr        rr       ii        gg        gg  ee            mn       mnn ss        ss
   ooooooooooooo rr         rr iiiiiiiiiiii   ggggggggggggg eeeeeeeeeeeee  mn        mn sssssssssssss
    ooooooooooo  rr         rr iiiiiiiiiiii    gggggggggg   eeeeeeeeeeeee  mn        mn  sssssssssss
0

   dddddddddddd    aaaaaaaaa    w        w iiiiiiiiiiii    sssssssssss
   dddddddddddd   aaaaaaaaaaa   w        w iiiiiiiiiiii   sssssssssssss
   dd        dd  aa        aa  w        w      ii        ss        ss
   dd        dd  aa        aa  w        w      ii        ss
```


program verification information

```
*****                code system:    scale  version:    4.2                *****
*****                                                                      *****
*****************************************************************************
*****************************************************************************
*****                                                                      *****
*****                                                                      *****
*****              program:  c0c004                                        *****
*****                                                                      *****
*****        creation date:  04/27/95                                      *****
*****                                                                      *****
*****              library:  /neutronics/scale/exe                         *****
*****                                                                      *****
*****                                                                      *****
*****    this is not a   scale  configuration controlled code              *****
*****                                                                      *****
*****              jobname:  davis                                         *****
*****                                                                      *****
*****    date of execution:  02/16/96                                      *****
*****                                                                      *****
*****    time of execution:  09:56:52                                      *****
*****                                                                      *****
*****                                                                      *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0        dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0            short-lived split test fraction, qxn =    9.1188E-04
0            half-norm of matrix used, axn =    7.0000E+00
0            4-place-accuracy-retention ratio, ratio4 =    6.4516E-13
0       1q array has     20 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       4q array has      1 entries.
0      54q array has     12 entries.
1library information...

        cross-section data taken from position number  1 of library on unit 33.

        pass   1
        pass   0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
        pass   1
        pass   0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
```

```
      ********************************************************************************
      *                                                                              *
      *                 prelim lwr origen-s binary working library--id = 1143        *
      *              made from modified card-image origen-s libraries of scale 4.2   *
      *            data from the light element, actinide, and fission product libraries *
      *              decay data, including gamma and total energy, are from endf/b-vi *
      *                                                                              *
      *            neutron flux spectrum factors and cross sections were produced from *
      *           the "presas2" case updating all nuclides on the scale "burnup" library *
      *                                                                              *
      *                        fission product yields are from endf/b-v              *
      *                                                                              *
      *                     photon libraries use an 18-energy-group structure        *
      *                    the photon data are from the master photon data base,     *
      *                      produced to include bremsstrahlung from uc2 matrix      *
      *                                                                              *
      *              see information above this box (if present) for later updates   *
      *                                                                              *
      ********************************************************************************
      *                                                                              *
0     ********************************************************************************
0               .other identification and sizes of library.
0                 data set name:  ft33f001
0               2/16/1996     date library was produced
0                  1697       total number of nuclides in library
                    689       number of light-element nuclides
                    129       number of actinide nuclides
                    879       number of fission product nuclides
0                  7985       number of nonzero off-diagonal matrix elements
0     ********************************************************************************
1
```

sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 1

power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.69E+13n/cm**2-sec

0 nuclide concentrations, gram atoms

basis = converted to atoms/(barn-cm)

	charge	40.0 d	80.0 d	120.0 d	160.0 d	160.0 d	200.0 d	240.0 d
u230	.00E+00	3.84E-23	1.13E-22	2.02E-22	3.02E-22	3.02E-22	4.15E-22	5.44E-22
u231	.00E+00	1.72E-21	3.78E-21	5.85E-21	8.19E-21	8.18E-21	1.07E-20	1.35E-20
u232	.00E+00	2.37E-14	4.88E-14	7.61E-14	1.07E-13	1.07E-13	1.42E-13	1.82E-13
u233	.00E+00	2.43E-12	4.74E-12	6.94E-12	9.03E-12	9.03E-12	1.10E-11	1.29E-11
u234	5.56E-06	5.50E-06	5.45E-06	5.40E-06	5.35E-06	5.35E-06	5.30E-06	5.25E-06
u235	6.92E-04	6.74E-04	6.58E-04	6.42E-04	6.26E-04	6.26E-04	6.11E-04	5.96E-04
u236	3.17E-06	6.35E-06	9.43E-06	1.24E-05	1.53E-05	1.53E-05	1.80E-05	2.07E-05
u237	.00E+00	2.10E-08	2.42E-08	2.69E-08	2.96E-08	2.96E-08	3.22E-08	3.47E-08
u238	2.21E-02	2.21E-02	2.20E-02	2.20E-02	2.20E-02	2.20E-02	2.20E-02	2.20E-02
u239	.00E+00	5.53E-09	5.49E-09	5.46E-09	5.43E-09	4.13E-09	5.41E-09	5.39E-09
u240	.00E+00	.00E+00	.00E+00	.00E+00	2.05E-40	2.05E-40	2.46E-39	1.71E-38
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	6.46E-17	3.27E-16	8.08E-16	1.51E-15	1.51E-15	2.45E-15	3.62E-15
np236m	.00E+00	1.08E-15	2.58E-15	4.25E-15	6.07E-15	6.04E-15	8.03E-15	1.01E-14
np236	.00E+00	4.47E-15	2.32E-14	5.84E-14	1.12E-13	1.12E-13	1.85E-13	2.79E-13
np237	.00E+00	6.29E-08	1.54E-07	2.56E-07	3.67E-07	3.67E-07	4.87E-07	6.16E-07
np238	.00E+00	7.56E-11	1.84E-10	3.04E-10	4.34E-10	4.33E-10	5.73E-10	7.23E-10
np239	.00E+00	7.99E-07	7.93E-07	7.88E-07	7.84E-07	7.84E-07	7.81E-07	7.78E-07
np240m	.00E+00	.00E+00	.00E+00	.00E+00	1.75E-42	1.75E-42	2.10E-41	1.44E-40
np240	.00E+00	1.32E-11	1.30E-11	1.28E-11	1.27E-11	1.15E-11	1.26E-11	1.25E-11
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	.00E+00	5.86E-15	3.08E-14	7.67E-14	1.46E-13	1.46E-13	2.39E-13	3.58E-13
pu237	.00E+00	3.37E-15	1.15E-14	2.18E-14	3.28E-14	3.28E-14	4.39E-14	5.48E-14
pu238	.00E+00	3.73E-10	1.99E-09	5.06E-09	9.70E-09	9.70E-09	1.60E-08	2.41E-08

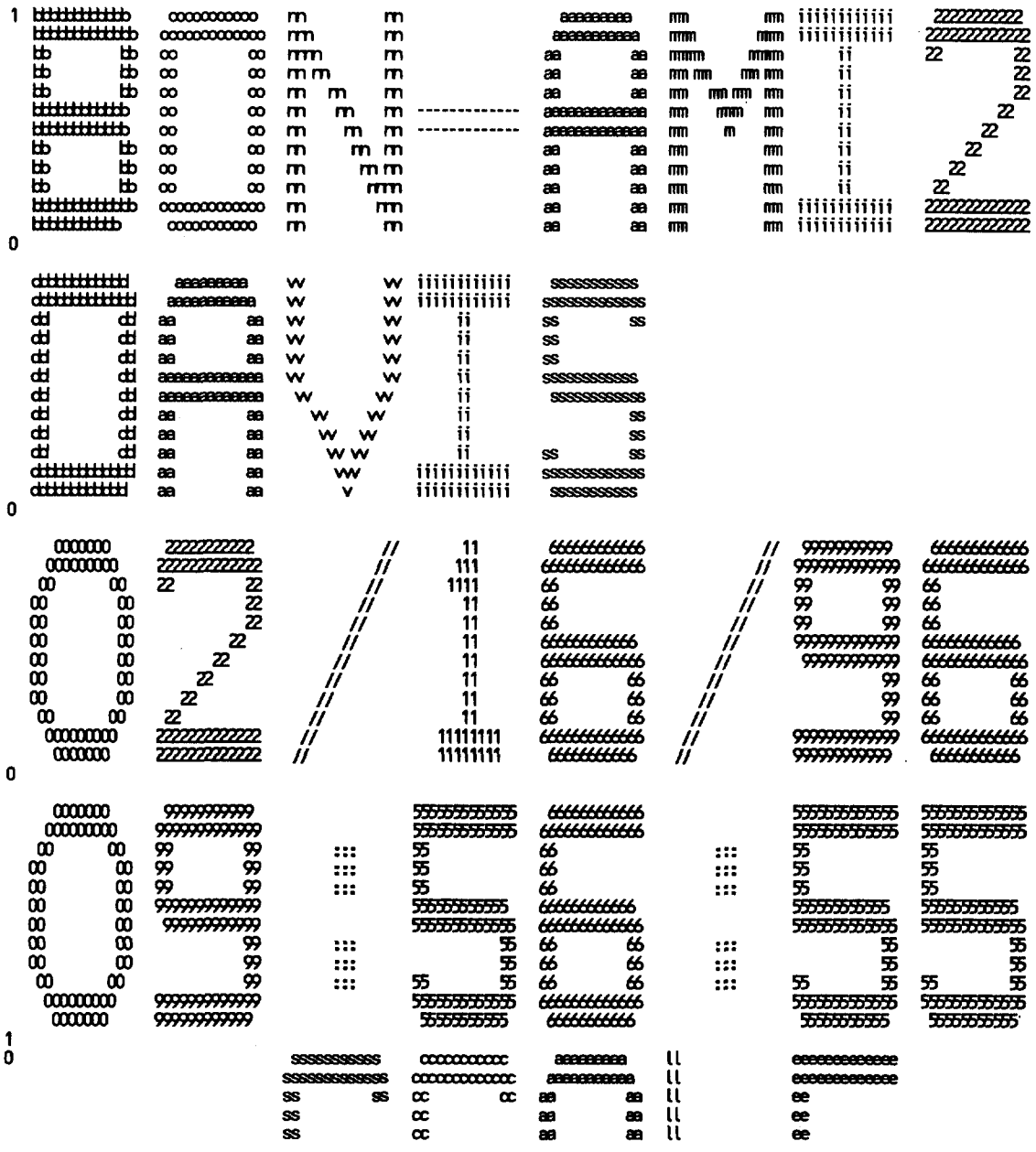
```
     pu239    .00E+00 8.27E-06 1.66E-05 2.42E-05 3.13E-05 3.13E-05 3.77E-05 4.37E-05
     pu240    .00E+00 1.24E-07 4.70E-07 9.91E-07 1.66E-06 1.66E-06 2.41E-06 3.25E-06
     pu241    .00E+00 5.06E-09 3.72E-08 1.16E-07 2.56E-07 2.56E-07 4.66E-07 7.51E-07
     pu242    .00E+00 2.30E-11 3.32E-10 1.56E-09 4.63E-09 4.63E-09 1.06E-08 2.07E-08
     pu243    .00E+00 2.82E-15 4.05E-14 1.90E-13 5.59E-13 5.47E-13 1.28E-12 2.48E-12
     pu244    .00E+00 3.86E-36 6.63E-33 5.11E-31 1.12E-29 1.12E-29 1.22E-28 8.52E-28
     pu245    .00E+00  .00E+00 5.04E-39 3.83E-37 8.34E-36 8.26E-36 9.05E-35 6.32E-34
     pu246    .00E+00 2.80E-45 7.04E-42 7.01E-40 1.79E-38 1.79E-38 2.17E-37 1.65E-36
     am239    .00E+00 9.95E-23 1.42E-21 6.64E-21 1.95E-20 1.93E-20 4.41E-20 8.52E-20
     am240    .00E+00 4.26E-20 6.10E-19 2.85E-18 8.36E-18 8.34E-18 1.90E-17 3.67E-17
     am241    .00E+00 6.90E-12 9.93E-11 4.66E-10 1.37E-09 1.37E-09 3.13E-09 6.05E-09
     am242m   .00E+00 1.30E-14 3.53E-13 2.39E-12 9.00E-12 9.00E-12 2.48E-11 5.57E-11
     am242    .00E+00 8.19E-15 1.17E-13 5.47E-13 1.60E-12 1.59E-12 3.64E-12 7.00E-12
     am243    .00E+00 7.80E-14 2.21E-12 1.57E-11 6.20E-11 6.20E-11 1.78E-10 4.19E-10
     am244m   .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00
     am244    .00E+00 2.54E-17 7.17E-16 5.04E-15 1.99E-14 1.97E-14 5.69E-14 1.33E-13
     am245    .00E+00 2.69E-40 4.52E-37 3.42E-35 7.35E-34 7.35E-34 7.88E-33 5.43E-32
     am246    .00E+00  .00E+00  .00E+00  .00E+00 4.26E-41 4.29E-41 5.44E-40 4.11E-39
     cm241    .00E+00 3.95E-26 3.89E-24 5.47E-23 3.43E-22 3.43E-22 1.39E-21 4.24E-21
     cm242    .00E+00 5.54E-14 1.53E-12 1.06E-11 4.07E-11 4.07E-11 1.14E-10 2.59E-10
     cm243    .00E+00 3.66E-17 1.99E-15 2.05E-14 1.05E-13 1.05E-13 3.65E-13 9.97E-13
     cm244    .00E+00 2.84E-16 1.59E-14 1.69E-13 8.95E-13 8.95E-13 3.23E-12 9.14E-12
     cm245    .00E+00 2.91E-19 3.21E-17 5.03E-16 3.51E-15 3.51E-15 1.56E-14 5.26E-14
     cm246    .00E+00 5.29E-22 1.16E-19 2.71E-18 2.51E-17 2.51E-17 1.40E-16 5.67E-16
     cm247    .00E+00 1.58E-25 6.84E-23 2.37E-21 2.91E-20 2.91E-20 2.02E-19 9.79E-19
     cm248    .00E+00 2.02E-28 1.74E-25 8.94E-24 1.46E-22 1.46E-22 1.27E-21 7.39E-21
1
     sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                    actinides        page   2
       power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.69E+13n/cm**2-sec
0                                                  nuclide concentrations, gram atoms
                                                   basis = converted to atoms/(barn-cm)
            charge   40.0 d  80.0 d  120.0 d  160.0 d  160.0 d  200.0 d  240.0 d
     cm249   .00E+00 1.21E-33 1.03E-30 5.25E-29 8.61E-28 7.79E-28 7.45E-27 4.32E-26
     cm250   .00E+00 9.51E-39 1.61E-35 1.23E-33 2.66E-32 2.66E-32 2.87E-31 2.00E-30
     cm251   .00E+00  .00E+00  .00E+00 3.06E-41 6.60E-40 4.51E-40 7.12E-39 4.95E-38
    totals  2.28E-02 2.28E-02 2.27E-02 2.27E-02 2.27E-02 2.27E-02 2.27E-02 2.27E-02
0    flux            1.71E+13 1.70E+13 1.69E+13 1.68E+13  .00E+00 1.67E+13 1.67E+13
0  .results on logical unit no. 71, position  1, for time step  7, subcase 1. (run position 1, case position 1)
    title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  2, for time step  5, subcase 1. (run position 1, case position 1)
    title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  3, for time step  4, subcase 1. (run position 1, case position 1)
    title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0     .terminated logical unit no. 71 with zero flag record.
1  * normal termination of execution *
0                                  table of contents for material tables
0                                    case or subcase printed      page

                                                    1              1

0ndset          33

          33          4          1         27          6          0          0          0          0          0
           0          0          0          0          0          2         -1       1698        690        130
         880       7955          0          5         99          2         16         96         18         18
          18          0         71
0       56q array has      2 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
```

```
0       56q array has       1 entries.
0       57q array has       3 entries.
0        1q array has      20 entries.
0        1q array has      10 entries.
     l90  97376
     l116  60826
     l32  33663 nudata (library) storage size
     l44  33734
     l103  75953
0       58q array has       4 entries.
0       60q array has       7 entries.
0       58q array has       7 entries.
0       66q array has       1 entries.
0       73q array has       4 entries.
0       74q array has       4 entries.
0       75q array has       4 entries.
     l140  66991
     used  101044 in size  200000
0jqpt            12
             0          0          0          0          0          0          0          0          0          0
             0          0
0therm            4
  5.091678E-01 3.604486E-01 2.731459E+00 1.000000E-31
0ncn              5
          7935         20          6         18       1697
0mm              19
             7          7          0          0          1          1          0          0          0          0
            21        100          4          4          3         74          4          1          0
0tconst           5
  8.640000E+04  .000000E+00  .000000E+00  .000000E+00 1.000000E-08
0mzero            4
             0        689        129        879
0pow              3
   .000000E+00  .000000E+00  .000000E+00
0 lirp            9
             6          0         51         26          2       3000       1000       1697         94
 n-gamma, fission and total mev/fission =            4.4180E+00 1.9429E+02 1.9871E+02
 start of interval flux =          1.71666E+13
 n-gamma, fission and total mev/fission =            4.8296E+00 1.9446E+02 1.9929E+02
 start of interval flux =          1.70387E+13
 n-gamma, fission and total mev/fission =            4.9047E+00 1.9462E+02 1.9955E+02
 start of interval flux =          1.69221E+13
 n-gamma, fission and total mev/fission =            5.0218E+00 1.9477E+02 1.9980E+02
 start of interval flux =          1.68318E+13
 start of interval flux =           .00000E+00
 n-gamma, fission and total mev/fission =            5.1263E+00 1.9491E+02 2.0004E+02
 start of interval flux =          1.67626E+13
 n-gamma, fission and total mev/fission =            5.2266E+00 1.9505E+02 2.0027E+02
 start of interval flux =          1.67123E+13
0 case or subcase    1  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       56q array has      20 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has      20 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has      20 entries.
0       56q array has      20 entries.
0requested parm=halt8,skipcellwt,skipshipdata
  pass= 2, exec halts after pass   8
```



```
sssssssssssss   cc            aaaaaaaaaaaaa  ll            eeeeeeeee
 sssssssssssss  cc            aaaaaaaaaaaaa  ll            eeeeeeeee
          ss    cc            aa        aa   ll            ee
          ss    cc            aa        aa   ll            ee
ss        ss    cc        cc  aa        aa   ll            ee
sssssssssssss   cccccccccccc  aa        aa   llllllllllll  eeeeeeeeeeeee
 sssssssssss     cccccccccc   aa        aa   llllllllllll  eeeeeeeeeeeee
```

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****              program:  c0c008                                     *****
*****                                                                   *****
*****        creation date:  04/27/95                                   *****
*****                                                                   *****
*****              library:  /neutronics/scale/exe                      *****
*****                                                                   *****
*****                                                                   *****
*****     this is not a   scale  configuration controlled code          *****
*****                                                                   *****
*****              jobname:  davis                                      *****
*****                                                                   *****
*****     date of execution:  02/16/96                                  *****
*****                                                                   *****
*****     time of execution:  09:56:55                                  *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
```

```
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has      6 entries.
0        2q array has      2 entries.
1logical assignments
0master library   12
 working library   0
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere              2
0izm--number of zones or material regions                     4
0ms--mixing table length                                     66
0ibl--shielded cross section edit option (0/1--no/yes)        0
0ibr--bondarenko factor edit option (0/1--no/yes)             0
0issopt--dancoff factor option                                0
```

```
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has      66 entries.
0        4q array has      66 entries.
0        5q array has      66 entries.
0        6q array has       4 entries.
0        7q array has       4 entries.
0        8q array has       4 entries.
0        9q array has       4 entries.
0       10q array has      66 entries.
0       11q array has       4 entries.
0m i x i n g   t a b l e
0entry  mixture   isotope   number density   new identifier
    1        1     92235    5.95891E-04          92235
    2        1     92234    5.24821E-06          92234
    3        1     92236    2.07230E-05          92236
    4        1     92238    2.20058E-02          92238
    5        1      8016    4.55359E-02           8016
    6        3      8016    2.09710E-02              6
    7        1     36083    4.52870E-07          36083
    8        1     36085    2.19160E-07          36085
    9        1     38090    4.90462E-06          38090
   10        1     39089    2.93210E-06          39089
   11        1     42095    2.67690E-06          42095
   12        1     40093    3.66334E-06          40093
   13        1     40094    5.64806E-06          40094
   14        1     40095    2.02113E-06          40095
   15        1     41094    1.92647E-12          41094
   16        1     43099    5.40899E-06          43099
   17        1     45103    2.34075E-06          45103
   18        1     45105    1.42341E-08          45105
   19        1     44101    4.73216E-06          44101
   20        1     44106    6.38003E-07          44106
   21        1     46105    1.32971E-06          46105
   22        1     46108    2.44774E-07          46108
   23        1     47109    1.71902E-07          47109
   24        1     51124    4.79820E-11          51124
   25        1     54131    2.48623E-06          54131
   26        1     54132    4.07046E-06          54132
   27        1     54135    6.51168E-09          54135
   28        1     54136    9.02456E-06          54136
   29        1     55134    8.14148E-08          55134
   30        1     55135    2.79804E-06          55135
   31        1     55137    5.70749E-06          55137
   32        1     56136    1.66625E-08          56136
   33        1     57139    5.70699E-06          57139
   34        1     59141    4.20358E-06          59141
   35        1     59143    4.03826E-07          59143
   36        1     58144    3.63429E-06          58144
   37        1     60143    4.64738E-06          60143
   38        1     60145    3.44985E-06          60145
   39        1     61147    1.63014E-06          61147
   40        1     61148    4.34751E-09          61148
   41        1     60147    1.34141E-07          60147
   42        1     62147    1.37482E-07          62147
   43        1     62149    6.87658E-08          62149
   44        1     62150    9.89583E-07          62150
   45        1     62151    2.22942E-07          62151
   46        1     62152    4.58639E-07          62152
   47        1     64155    4.46617E-10          64155
```

48	1	63153	2.02361E-07	63153
49	1	63154	1.57326E-08	63154
50	1	63155	3.12565E-08	63155
51	2	40802	4.25156E-02	40802
52	3	1001	4.19420E-02	1001
53	3	5010	3.81515E-06	5010
54	3	5011	1.54884E-05	5011
55	1	55133	5.85210E-06	55133
56	1	93237	6.15523E-07	93237
57	1	94238	2.41332E-08	94238
58	1	94239	4.36784E-05	94239
59	1	94240	3.25386E-06	94240
60	1	94241	7.50900E-07	94241
61	1	94242	2.06625E-08	94242
62	1	95241	6.04966E-09	95241
63	1	95243	4.19145E-10	95243
64	1	96244	9.13732E-12	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

0geometry and material description

0zone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05844E-01	0
2	4	4.78790E-01	2.93000E+02	5.49010E-01	0
3	2	5.46100E-01	6.50000E+02	.00000E+00	0
4	3	8.13968E-01	6.07600E+02	.00000E+00	0

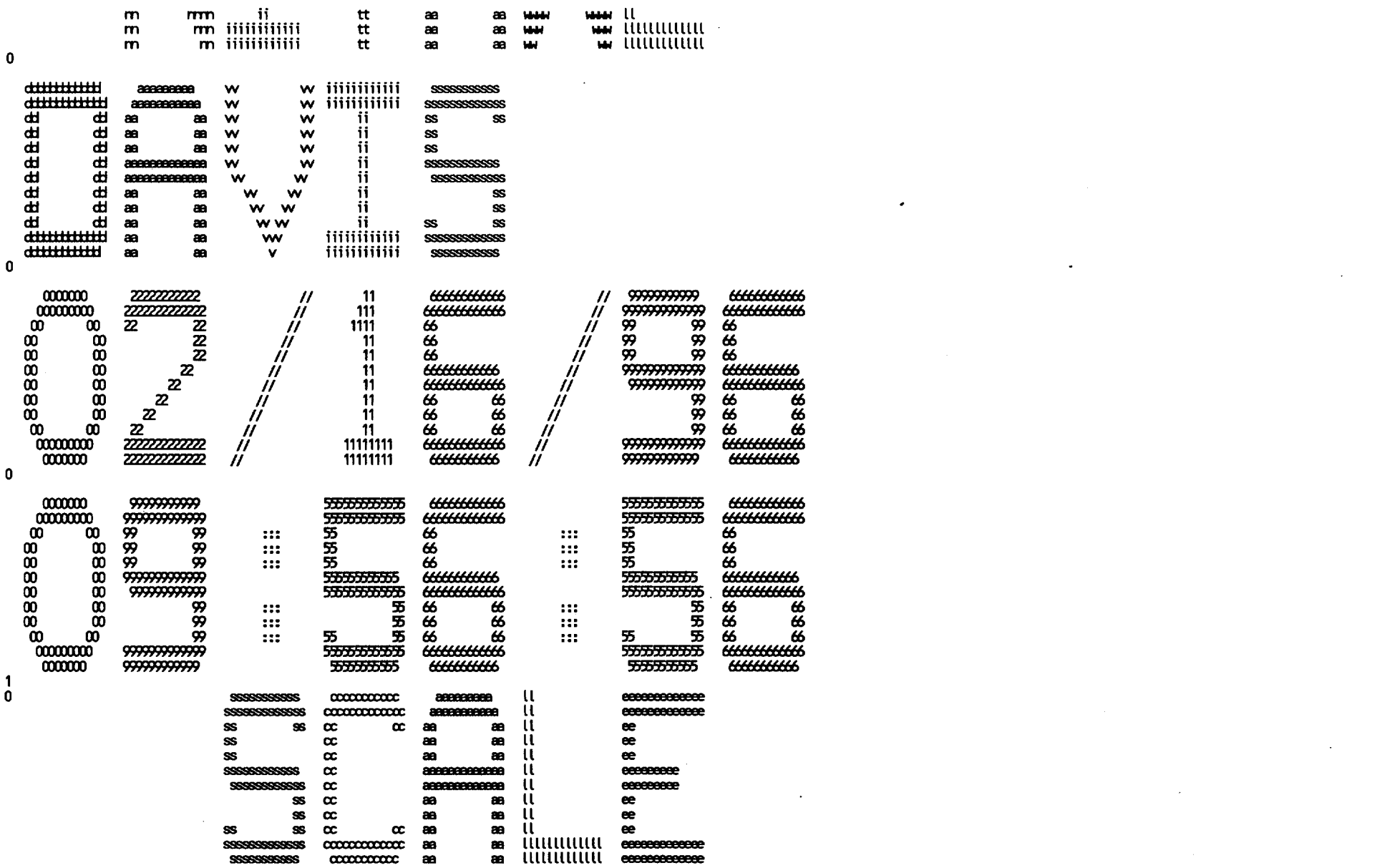
7711 locations of 200000 available are required to make a new master containing the self-shielded values

0no nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

0copy	999	1/v cross sectio	from lag 12	to lag 18	bondarenko trigger 0
0copy	999	1/v cross sectio	from lag 18	to lag 1	bondarenko trigger 0
0copy	999	1/v cross sectio	from lag 18	to lag 1	bondarenko trigger 0
0copy	1001	hydrogen	from lag 12	to lag 1	bondarenko trigger 0
0copy	5010	b-10 1273 218ngp	from lag 12	to lag 1	bondarenko trigger 0
0copy	5011	boron-11	from lag 12	to lag 1	bondarenko trigger 0
0copy	8016	oxygen-16	from lag 12	to lag 18	bondarenko trigger 0
0copy	8016	oxygen-16	from lag 18	to lag 1	bondarenko trigger 0
0copy	8016	oxygen-16	from lag 18	to lag 1	bondarenko trigger 0
0copy	36083	kr-83	from lag 12	to lag 1	bondarenko trigger 0
0copy	36085	kr-85	from lag 12	to lag 1	bondarenko trigger 0
0copy	38090	sr-90	from lag 12	to lag 1	bondarenko trigger 0
0copy	39089	y-89	from lag 12	to lag 1	bondarenko trigger 0
0copy	40093	zr-93	from lag 12	to lag 1	bondarenko trigger 0
0copy	40094	zr-94	from lag 12	to lag 1	bondarenko trigger 0
0copy	40095	zr-95	from lag 12	to lag 1	bondarenko trigger 0
0copy	40802	zircalloy	from lag 12	to lag 1	bondarenko trigger 0
0copy	41094	nb-94	from lag 12	to lag 1	bondarenko trigger 0
0copy	42095	mo-95	from lag 12	to lag 1	bondarenko trigger 0
0copy	43099	tc-99	from lag 12	to lag 1	bondarenko trigger 0
0copy	44101	ru-101	from lag 12	to lag 1	bondarenko trigger 0
0copy	44106	ru-106	from lag 12	to lag 1	bondarenko trigger 0
0copy	45103	rh-103	from lag 12	to lag 1	bondarenko trigger 0
0copy	45105	rh-105	from lag 12	to lag 1	bondarenko trigger 0
0copy	46105	pd-105	from lag 12	to lag 1	bondarenko trigger 0
0copy	46108	pd-108	from lag 12	to lag 1	bondarenko trigger 0
0copy	47109	silver-109	from lag 12	to lag 1	bondarenko trigger 0
0copy	51124	sb-124	from lag 12	to lag 1	bondarenko trigger 0
0copy	54131	xe-131	from lag 12	to lag 1	bondarenko trigger 0
0copy	54132	xe-132	from lag 12	to lag 1	bondarenko trigger 0
0copy	54135	xenon-135	from lag 12	to lag 1	bondarenko trigger 0
0copy	54136	xe-136	from lag 12	to lag 1	bondarenko trigger 0
0copy	55133	cesium-133	from lag 12	to lag 1	bondarenko trigger 0

```
0copy    55134  cs-134          from log 12 to log  1    bondarenko trigger 0
0copy    55135  cs-135          from log 12 to log  1    bondarenko trigger 0
0copy    55137  cs-137          from log 12 to log  1    bondarenko trigger 0
0copy    56136  ba-136          from log 12 to log  1    bondarenko trigger 0
0copy    57139  la-139          from log 12 to log  1    bondarenko trigger 0
0copy    58144  ce-144          from log 12 to log  1    bondarenko trigger 0
0copy    59141  pr-141          from log 12 to log  1    bondarenko trigger 0
0copy    59143  pr-143          from log 12 to log  1    bondarenko trigger 0
0copy    60143  nd-143          from log 12 to log  1    bondarenko trigger 0
0copy    60145  nd-145          from log 12 to log  1    bondarenko trigger 0
0copy    60147  nd-147          from log 12 to log  1    bondarenko trigger 0
0copy    61147  pm-147          from log 12 to log  1    bondarenko trigger 0
0copy    61148  pm-148          from log 12 to log  1    bondarenko trigger 0
0copy    62147  sm-147          from log 12 to log  1    bondarenko trigger 0
0copy    62149  sm-149          from log 12 to log  1    bondarenko trigger 0
0copy    62150  sm-150          from log 12 to log  1    bondarenko trigger 0
0copy    62151  sm-151          from log 12 to log  1    bondarenko trigger 0
0copy    62152  sm-152          from log 12 to log  1    bondarenko trigger 0
0copy    63153  eu-153          from log 12 to log  1    bondarenko trigger 0
0copy    63154  eu-154          from log 12 to log  1    bondarenko trigger 0
0copy    63155  eu-155          from log 12 to log  1    bondarenko trigger 0
0copy    64155  gd-155          from log 12 to log  1    bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92235  uranium-235     from log 12 to log  1    bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92238  uranium-238     from log 12 to log  1    bondarenko trigger 0
0copy    93237  neptunium-237   from log 12 to log  1    bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1    bondarenko trigger 0
0copy    94239  plutonium-239   from log 12 to log  1    bondarenko trigger 0
0copy    94240  plutonium-240   from log 12 to log  1    bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1    bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1    bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1    bondarenko trigger 0
0copy    95243  am-243 1057 218 from log 12 to log  1    bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1    bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
            last updated      9/16/93
              l.m.petrie   -   ornl
        tape id                          4321        number of nuclides              66
        number of neutron groups           27        number of gamma groups           0
        first thermal group                15        logical unit                     1
                                  table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                        id     999
       1/v cross sections normalized to 1.0 at 0.0253 ev                        id      66
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89           id    1001
       b-10 1273 218ngp 042375 p-3 293k                                         id    5010
        boron-11       endf/b-iv mat 1160            updated 10/13/89           id    5011
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89           id    8016
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89           id       6
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89           id   36083
        kr-85            mt=  102                                               id   36085
        sr-90          mt=102                        updated 10/13/89           id   38090
         y-89          mt=102                        updated 10/13/89           id   39089
        zr-93            mt=  102                                               id   40093
        zr-94          mt=102                        updated 10/13/89           id   40094
        zr-95          mt=102                        updated 10/13/89           id   40095
        zircalloy      endf/b-iv mat 1284            updated 10/13/89           id   40302
        nb-94          mt=102                        updated 10/13/89           id   41094
```

```
      mo-95          mt=102                          updated 10/13/89                id    42095
      tc-99          mt=102                          updated 10/13/89                id    43099
      ru-101         mt=102                          updated 10/13/89                id    44101
      ru-106         mt=102                          updated 10/13/89                id    44106
      rh-103         mt=102                          updated 10/13/89                id    45103
      rh-105           mt=  102                                                      id    45105
      pd-105         mt=102                          updated 10/13/89                id    46105
      pd-108         mt=102                          updated 10/13/89                id    46108
      silver-109     endf/b-iv mat 1139              updated 10/13/89                id    47109
      sb-124         mt=102                          updated 10/13/89                id    51124
      xe-131         mt=102,103,104,105,106          updated 10/13/89                id    54131
      xe-132         mt=102,103,104,105,106          updated 10/13/89                id    54132
      xenon-135      endf/b-iv mat 1294              updated 10/13/89                id    54135
      xe-136           mt=  102, 103, 104, 105, 107                                  id    54136
      cesium-133     endf/b-iv mat 1141              updated 10/13/89                id    55133
      cs-134         mt=102                          updated 10/13/89                id    55134
      cs-135           mt=  102                                                      id    55135
      cs-137         mt=102                          updated 10/13/89                id    55137
      ba-136         mt=102                          updated 10/13/89                id    56136
      la-139         mt=102                          updated 10/13/89                id    57139
      ce-144           mt=  102                                                      id    58144
      pr-141         mt=102,103,104,105,106,107      updated 10/13/89                id    59141
      pr-143         mt=102                          updated 10/13/89                id    59143
      nd-143         mt=102                          updated 10/13/89                id    60143
      nd-145         mt=102                          updated 10/13/89                id    60145
      nd-147         mt=102                          updated 10/13/89                id    60147
      pm-147         mt=102                          updated 10/13/89                id    61147
      pm-148           mt=  102                                                      id    61148
      sm-147         endf/b-v fission product        updated 10/13/89                id    62147
      sm-149         mt=102,103,107                  updated 10/13/89                id    62149
      sm-150         mt=102                          updated 10/13/89                id    62150
      sm-151         mt=102,103,104,105,106,107      updated 10/13/89                id    62151
      sm-152         mt=102,103,104,105,106,107      updated 10/13/89                id    62152
      eu-153         mt=102,103,104,105,106,107      updated 10/13/89                id    63153
      eu-154         mt=102,103,104,105,106,107      updated 10/13/89                id    63154
      eu-155         mt=102,103,104,105,106,107      updated 10/13/89                id    63155
      gd-155         mt=102                          updated 10/13/89                id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                             id    92234
      uranium-235    endf/b-iv mat 1261              updated 10/13/89                id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                             id    92236
      uranium-238    endf/b-iv mat 1262              updated 10/13/89                id    92238
      neptunium-237  endf/b-iv mat 1263              updated 10/13/89                id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                             id    94238
      plutonium-239  endf/b-iv mat 1264              updated 10/13/89                id    94239
      plutonium-240  endf/b-iv mat 1265              updated 10/13/89                id    94240
      plutonium-241  endf/b-iv mat 1266              updated 10/13/89                id    94241
      plutonium-242  endf/b-iv mat 1161              updated 10/13/89                id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                                   id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                                    id    95243
      curium-244     endf/b-iv mat 1162              updated 10/13/89                id    96244
0       tape copy used      0 i/o's, and took      .00 seconds
1              rn          rn  iiiiiiiiiiii    ttttttttttt      aaaaaaaaa     ww          ww  ll
               rnn         rn  iiiiiiiiiiii    ttttttttttt     aaaaaaaaaa     ww          ww  ll
               rnnn        rn       ii             tt         aa         aa   ww          ww  ll
               rn rn       rn       ii             tt         aa         aa   ww          ww  ll
               rn   rn     rn       ii             tt         aa         aa   ww          ww  ll
               rn    rn    rn       ii             tt         aaaaaaaaaaaaa   ww     w    ww  ll
               rn     rn   rn       ii             tt         aaaaaaaaaaaaa   ww    www   ww  ll
               rn      rn  rn       ii             tt         aa         aa   ww   ww ww  ww  ll
               rn       rn rn       ii             tt         aa         aa   ww ww    ww ww  ll
```



```
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************
                    *****                                                                      *****
                    *****                  program verification information                   *****
                    *****                                                                      *****
                    *****                  code system:    scale  version:    4.2             *****
                    *****                                                                      *****
                    ********************************************************************************
                    ********************************************************************************
                    *****                                                                      *****
                    *****                                                                      *****
                    *****              program:  c0c002                                        *****
                    *****                                                                      *****
                    *****          creation date:  04/27/95                                    *****
                    *****                                                                      *****
                    *****              library:  /neutronics/scale/exe                         *****
                    *****                                                                      *****
                    *****                                                                      *****
                    *****     this is not a   scale  configuration controlled code             *****
                    *****                                                                      *****
                    *****              jobname:  davis                                         *****
                    *****                                                                      *****
                    *****     date of execution:  02/16/96                                     *****
                    *****                                                                      *****
                    *****     time of execution:  09:56:56                                     *****
                    *****                                                                      *****
                    *****                                                                      *****
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************
1
0       -1q array has       1 entries.
0        0q array has       9 entries.
0        1q array has      12 entries.
0select 65 nuclides from the master  library on logical  1
         0 nuclides from the working library on logical  2
         0 nuclides from the working library on logical  3
           to create the new working library on logical  4

        61 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has      65 entries.
0        3q array has     915 entries.
0        4q array has      65 entries.
0 general information concerning cross section library
     tape identification number                  4321
     number of nuclides on tape                    66
     number of neutron energy groups               27
     first thermal neutron energy group            15
     number of gamma energy groups                  0
0   direct access unit number  9 requires 117 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                           based on endf-b version 4 data with endf-b version 5 fission products
                              compiled for nrc     1/27/89
```

last updated 9/16/93
l.m.petrie - ornl

0 nuclides from xsdrn tape

1	1/v cross sections normalized to 1.0 at 0.0253 ev			999
2	hydrogen	endf/b-iv mat 1269/thrm1002	updated 10/13/89	1001
3	b-10 1273 218grp 042375 p-3 293k			5010
4	boron-11	endf/b-iv mat 1160	updated 10/13/89	5011
5	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	8016
6	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	6
7	kr-83	mt=102,103,103,105,106,107	updated 10/13/89	36083
8	kr-85	mt= 102		36085
9	sr-90	mt=102	updated 10/13/89	38090
10	y-89	mt=102	updated 10/13/89	39089
11	zr-93	mt= 102		40093
12	zr-94	mt=102	updated 10/13/89	40094
13	zr-95	mt=102	updated 10/13/89	40095
14	zircalloy	endf/b-iv mat 1284	updated 10/13/89	40302
15	nb-94	mt=102	updated 10/13/89	41094
16	mo-95	mt=102	updated 10/13/89	42095
17	tc-99	mt=102	updated 10/13/89	43099
18	ru-101	mt=102	updated 10/13/89	44101
19	ru-106	mt=102	updated 10/13/89	44106
20	rh-103	mt=102	updated 10/13/89	45103
21	rh-105	mt= 102		45105
22	pd-105	mt=102	updated 10/13/89	46105
23	pd-108	mt=102	updated 10/13/89	46108
24	silver-109	endf/b-iv mat 1139	updated 10/13/89	47109
25	sb-124	mt=102	updated 10/13/89	51124
26	xe-131	mt=102,103,104,105,106	updated 10/13/89	54131
27	xe-132	mt=102,103,104,105,106	updated 10/13/89	54132
28	xenon-135	endf/b-iv mat 1294	updated 10/13/89	54135
29	xe-136	mt= 102, 103, 104, 105, 107		54136
30	cesium-133	endf/b-iv mat 1141	updated 10/13/89	55133
31	cs-134	mt=102	updated 10/13/89	55134
32	cs-135	mt= 102		55135
33	cs-137	mt=102	updated 10/13/89	55137
34	ba-136	mt=102	updated 10/13/89	56136
35	la-139	mt=102	updated 10/13/89	57139
36	ce-144	mt= 102		58144
37	pr-141	mt=102,103,104,105,106,107	updated 10/13/89	59141
38	pr-143	mt=102	updated 10/13/89	59143
39	nd-143	mt=102	updated 10/13/89	60143
40	nd-145	mt=102	updated 10/13/89	60145
41	nd-147	mt=102	updated 10/13/89	60147
42	pm-147	mt=102	updated 10/13/89	61147
43	pm-148	mt= 102		61148
44	sm-147	endf/b-v fission product	updated 10/13/89	62147
45	sm-149	mt=102,103,107	updated 10/13/89	62149
46	sm-150	mt=102	updated 10/13/89	62150
47	sm-151	mt=102,103,104,105,106,107	updated 10/13/89	62151
48	sm-152	mt=102,103,104,105,106,107	updated 10/13/89	62152
49	eu-153	mt=102,103,104,105,106,107	updated 10/13/89	63153
50	eu-154	mt=102,103,104,105,106,107	updated 10/13/89	63154
51	eu-155	mt=102,103,104,105,106,107	updated 10/13/89	63155
52	gd-155	mt=102	updated 10/13/89	64155
53	u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)			92234
54	uranium-235	endf/b-iv mat 1261	updated 10/13/89	92235
55	u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)			92236
56	uranium-238	endf/b-iv mat 1262	updated 10/13/89	92238
57	neptunium-237	endf/b-iv mat 1263	updated 10/13/89	93237

```
    58    pu-238 1050 sigp=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    94238
    59     plutonium-239  endf/b-iv mat 1264          updated 10/13/89           94239
    60     plutonium-240  endf/b-iv mat 1265          updated 10/13/89           94240
    61     plutonium-241  endf/b-iv mat 1266          updated 10/13/89           94241
    62     plutonium-242  endf/b-iv mat 1161          updated 10/13/89           94242
    63    am-241 1056 sigp=5+4 newxlacs 218ngp p-3 293k                           95241
    64    am-243 1057 218 gp wt f-1/e-m 090576 p3 293k                            95243
    65     curium-244     endf/b-iv mat 1162          updated 10/13/89           96244
01/v cross sections normalized to 1.0 at 0.0253 ev                      999     temperature=  975.00
0 hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89        1001    temperature=  607.60
                          thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042575 p-3 293k                                      5010    temperature=  607.60
                          thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160          updated 10/13/89           5011    temperature=  607.60
                          thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276          updated 10/13/89           8016    temperature=  975.00
0 oxygen-16      endf/b-iv mat 1276          updated 10/13/89              6    temperature=  607.60
0 kr-83          mt=102,103,103,105,106,107  updated 10/13/89          36083    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   82.202          temperature(kelvin)      =  975.000
0potential scatter sigma  =    7.004          lumped nuclear density   = 4.5287047E-07
0spin factor (g)          =  4988.190          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995          sigma(per absorber atom)= 3.7706078E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  237.953          sigma(per absorber atom)= 4.2068225E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11     -5.450051E-04     .0000000E+00  -7.029958E-04
  12      2.168358E-02     .0000000E+00   9.912749E-03
  13     -1.516420E-01     .0000000E+00  -4.953383E-02
  14      4.784648E-05     .0000000E+00  -1.725391E-05
0excess resonance integrals
0                resolved
0absorption      1.4510BE+02
 fission         .0000E+00
- elapsed time    .00 min.
0 kr-85          mt=  102                                              36085    temperature=  975.00
0 sr-90          mt=102                      updated 10/13/89          38090    temperature=  975.00
0  y-89          mt=102                      updated 10/13/89          39089    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   88.142          temperature(kelvin)      =  975.000
0potential scatter sigma  =    3.644          lumped nuclear density   = 2.9520956E-06
0spin factor (g)          =   78.664          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995          sigma(per absorber atom)= 5.8238108E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  237.953          sigma(per absorber atom)= 6.4975566E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   9      2.370156E-07     .0000000E+00   1.062742E-04
  10     -1.586452E-05     .0000000E+00  -4.463920E-05
0excess resonance integrals
0                resolved
```

```
0absorption       1.46497E-01
 fission           .00000E+00
- elapsed time    .00 min.
0 zr-93            mt=  102                                          40093     temperature=   975.00
0 zr-94          mt=102                    updated 10/13/89          40094     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    93.100          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.779          lumped nuclear density   = 5.6480576E-06
0spin factor (g)          =   180.853          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 3.0233348E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 3.3730988E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   8      -1.168889E-07     .000000E+00   -1.393906E-04
   9      -1.014232E-05     .000000E+00   -9.031245E-04
0excess resonance integrals
0                 resolved
0absorption       3.44197E-02
 fission           .00000E+00
- elapsed time    .00 min.
0 zr-95          mt=102                    updated 10/13/89          40095     temperature=   975.00
0 zircalloy      endf/b-iv mat 1284        updated 10/13/89          40302     temperature=   650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)      =   650.000
0potential scatter sigma  =     6.385          lumped nuclear density   = 4.2515602E-02
0spin factor (g)          =     1.079          lump dimension (a-bar)   = 5.4610002E-01
0inner radius             = 4.7878999E-01      dancoff correction (c)   = 5.0364637E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   8      -1.780596E-03     .000000E+00   -1.286907E+00
   9      -5.893373E-02     .000000E+00   -2.695297E+00
  10      -6.959935E-02     .000000E+00   -1.601321E+00
  11      -1.883937E-01     .000000E+00   -7.920912E-01
0excess resonance integrals
0                 resolved
0absorption       2.28539E-01
 fission           .00000E+00
- elapsed time    .02 min.
0 rb-94          mt=102                    updated 10/13/89          41094     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    93.101          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.779          lumped nuclear density   = 1.9264685E-12
0spin factor (g)          = 43808.801          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 8.8638710E+10
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 9.8893160E+10
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  13      1.043058E-02     .000000E+00    9.252687E-04
```

```
  14      9.836714E-03     .000000E+00   -4.064824E-04
0excess resonance integrals
0                 resolved
0absorption      9.15001E+01
 fission          .00000E+00
- elapsed time    .02 min.
0 mo-95          mt=102                    updated 10/13/89            42095     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   94.091            temperature(kelvin)     =  975.000
0potential scatter sigma  =    3.806            lumped nuclear density  = 2.6769019E-06
0spin factor (g)          =  607.724            lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00        dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995            sigma(per absorber atom)= 6.3790047E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  237.953            sigma(per absorber atom)= 7.1169805E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  10      -6.394451E-04     .000000E+00   -3.186197E-03
  11      -8.918543E-04     .000000E+00   -1.739890E-03
  12      -7.859523E-01     .000000E+00   -9.063395E-01
  13       1.608656E-04     .000000E+00   -2.672945E-05
0excess resonance integrals
0                 resolved
0absorption      1.02239E+02
 fission          .00000E+00
- elapsed time    .03 min.
0 tc-99          mt=102                    updated 10/13/89            43099     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   98.150            temperature(kelvin)     =  975.000
0potential scatter sigma  =    6.000            lumped nuclear density  = 5.4039870E-06
0spin factor (g)          = 4527.940            lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00        dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995            sigma(per absorber atom)= 3.1598834E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  237.953            sigma(per absorber atom)= 3.5254445E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -6.777676E-03     .000000E+00   -3.210475E-03
  12      -1.631648E-03     .000000E+00   -5.081438E-05
  13      -1.107964E-01     .000000E+00   -5.874954E-03
  14      -2.435848E+00     .000000E+00   -7.828959E-02
  15       1.071626E-02     .000000E+00   -5.407191E-04
  16       4.836187E-03     .000000E+00   -2.802631E-04
  17       2.074322E-04     .000000E+00   -1.191812E-05
0excess resonance integrals
0                 resolved
0absorption      3.32001E+02
 fission          .00000E+00
- elapsed time    .03 min.
0 ru-101         mt=102                    updated 10/13/89            44101     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  100.039            temperature(kelvin)     =  975.000
0potential scatter sigma  =    3.965            lumped nuclear density  = 4.7321578E-06
0spin factor (g)          = 8785.290            lump dimension (a-bar)  = 4.6812201E-01
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0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995              sigma(per absorber atom)= 3.6084953E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   237.933              sigma(per absorber atom)= 4.0259555E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  11      -3.553836E-02     .000000E+00   -3.639097E-03
  12      -9.755727E-04     .000000E+00   -5.808237E-03
  13      -1.229985E-01     .000000E+00   -3.321174E-03
  14       2.378476E-04     .000000E+00   -4.188966E-05
0excess resonance integrals
0                  resolved
0absorption       7.98180E+01
 fission           .00000E+00
-  elapsed time    .03 min.
0 ru-106        mt=102                        updated 10/13/89          44106     temperature=   975.00
0 rh-103        mt=102                        updated 10/13/89          45103     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   102.021              temperature(kelvin)       =   975.000
0potential scatter sigma  =     5.408              lumped nuclear density    = 2.3407463E-06
0spin factor (g)          =      .500              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995              sigma(per absorber atom)= 7.2950961E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   237.933              sigma(per absorber atom)= 8.1390531E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
   9       1.306869E-03     .000000E+00    2.105955E-03
  10      -1.898117E-03     .000000E+00   -2.778616E-03
  11      -4.338274E-03     .000000E+00   -3.986314E-03
  12      -2.262462E-05     .000000E+00   -1.475302E-05
  13        .000000E+00     .000000E+00     .000000E+00
  14        .000000E+00     .000000E+00     .000000E+00
  15       2.318858E-01     .000000E+00    3.405204E-03
  16       3.871956E+01     .000000E+00   -3.705610E-02
  17      -1.821079E+02     .000000E+00   -1.360483E-01
  18       8.788906E+01     .000000E+00    2.618830E-01
  19       1.158776E+01     .000000E+00   -1.741986E-03
  20       1.095437E+00     .000000E+00   -2.541037E-03
  21       2.166068E-01     .000000E+00    1.924626E-03
  22       2.583945E-01     .000000E+00    2.928515E-03
  23      -9.881276E-02     .000000E+00    1.799191E-03
0excess resonance integrals
0                  resolved
0absorption       1.16157E+03
 fission           .00000E+00
-  elapsed time    .07 min.
0 rh-105          mt=  102                                                45105     temperature=   975.00
0 pd-105        mt=102                        updated 10/13/89          46105     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   104.004              temperature(kelvin)       =   975.000
0potential scatter sigma  =     4.069              lumped nuclear density    = 1.3297126E-06
0spin factor (g)          = 15210.000              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
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0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.2841849E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.4327500E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  12      -4.677669E-02     .000000E+00   -5.586722E-04
  13       3.803558E-02     .000000E+00    2.126497E-04
  14       7.780862E-04     .000000E+00   -8.177772E-05
0excess resonance integrals
0                  resolved
0absorption       6.13159E+01
 fission           .00000E+00
-  elapsed time    .07 min.
0 pd-108        mt=102                    updated 10/13/89              46108     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   106.977              temperature(kelvin)       =   975.000
0potential scatter sigma  =     4.146              lumped nuclear density    = 2.4477444E-07
0spin factor (g)          = 21175.100              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 6.9762063E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 7.7832706E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11       1.170669E-04     .000000E+00    3.532981E-04
  12      -2.125912E-01     .000000E+00   -1.571068E-01
  13       6.960011E-03     .000000E+00    1.817820E-03
  14       8.561519E-02     .000000E+00   -3.206084E-05
  15      -1.840163E-01     .000000E+00    8.083916E-05
  16       2.946572E-04     .000000E+00   -9.255520E-06
0excess resonance integrals
0                  resolved
0absorption       2.13856E+02
 fission           .00000E+00
-  elapsed time    .07 min.
0 silver-109    endf/b-iv mat 1139          updated 10/13/89              47109     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   107.969              temperature(kelvin)       =   975.000
0potential scatter sigma  =     4.988              lumped nuclear density    = 1.7190207E-07
0spin factor (g)          =  1441.870              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 9.9335444E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.1082739E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  10       1.572875E-05     .000000E+00    5.607148E-05
  11      -2.958349E-04     .000000E+00   -3.086447E-04
  12      -7.000611E-01     .000000E+00   -3.096924E-02
  13       7.672952E-01     .000000E+00    3.380760E-02
  14      -1.276054E+00     .000000E+00   -1.330846E-01
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0excess resonance integrals
0                 resolved
0absorption       1.40192E+03
 fission           .00000E+00
- elapsed time    .08 min.
0 sb-124        mt=102                        updated 10/13/89          51124    temperature=  975.00
0 xe-131        mt=102,103,104,105,106        updated 10/13/89          54131    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   129.781          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.301          lumped nuclear density   = 2.4862286E-06
0spin factor (g)          =   246.825          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 6.8682219E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 7.6627938E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   9      -5.435217E-07    .000000E+00   -5.546435E-06
  10      -4.275769E-05    .000000E+00   -2.949953E-05
  11      -5.986983E-04    .000000E+00   -4.738494E-04
  12      -1.223367E-02    .000000E+00   -1.146901E-03
  13      -2.212901E+01    .000000E+00   -5.198911E+01
  14       1.114542E-02    .000000E+00    1.558993E-02
0excess resonance integrals
0                 resolved
0absorption       8.14574E+02
 fission           .00000E+00
- elapsed time    .08 min.
0 xe-132        mt=102,103,104,105,106        updated 10/13/89          54132    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   130.771          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.301          lumped nuclear density   = 4.0704567E-06
0spin factor (g)          =   675.899          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 4.1950988E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 4.6804223E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   9      -5.962792E-06    .000000E+00   -2.529266E-05
  10      -1.933940E-03    .000000E+00   -2.463120E-02
  11       3.344756E-08    .000000E+00   -9.288666E-07
0excess resonance integrals
0                 resolved
0absorption       9.81102E-01
 fission           .00000E+00
- elapsed time    .08 min.
0 xenon-135     endf/b-iv mat 1294            updated 10/13/89          54135    temperature=  975.00
0 xe-136          mt=  102, 103, 104, 105, 107                          54136    temperature=  975.00
0 cesium-133    endf/b-iv mat 1141            updated 10/13/89          55133    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   131.764          temperature(kelvin)      =   975.000
0potential scatter sigma  =     7.100          lumped nuclear density   = 5.8520964E-06
0spin factor (g)          =   374.437          lump dimension (a-bar)   = 4.6812201E-01
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0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995              sigma(per absorber atom)= 2.9179234E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   238.051              sigma(per absorber atom)= 3.1298555E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  9      -1.887062E-05     .000000E+00   -7.493133E-05
 10      -7.596672E-04     .000000E+00   -1.483612E-03
 11      -3.006341E-02     .000000E+00   -5.280977E-02
 12      -4.622045E-02     .000000E+00   -6.466606E-03
 13      -7.637489E-02     .000000E+00   -4.163851E-03
 14      -3.492669E+00     .000000E+00   -1.536146E-01
 15       5.629050E-03     .000000E+00   -4.052004E-04
 16       2.777937E-03     .000000E+00   -2.215569E-04
 17       2.352212E-03     .000000E+00   -1.830859E-04
 18       2.215046E-03     .000000E+00   -1.679641E-04
 19       1.316962E-03     .000000E+00   -9.669043E-05
0excess resonance integrals
0                 resolved
0absorption      3.62934E+02
 fission          .0000E+00
- elapsed time    .12 min.
0 cs-134        mt=102                    updated 10/13/89          55134    temperature=  975.00
0 cs-135          mt=  102                                          55135    temperature=  975.00
0 cs-137        mt=102                    updated 10/13/89          55137    temperature=  975.00
0 ba-136        mt=102                    updated 10/13/89          56136    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   134.737          temperature(kelvin)      =   975.000
0potential scatter sigma =     4.835          lumped nuclear density   = 1.6662506E-08
0spin factor (g)         =  1247.690          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995          sigma(per absorber atom)= 1.0248140E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   237.933          sigma(per absorber atom)= 1.1433728E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
 10       1.369930E-06     .000000E+00    5.943214E-07
 11       2.314354E-05     .000000E+00    1.988492E-05
0excess resonance integrals
0                 resolved
0absorption      1.38477E+00
 fission          .0000E+00
- elapsed time    .12 min.
0 la-139        mt=102                    updated 10/13/89          57139    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   137.713          temperature(kelvin)      =   975.000
0potential scatter sigma =     4.906          lumped nuclear density   = 5.7069874E-06
0spin factor (g)         =   145.855          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995          sigma(per absorber atom)= 2.9921162E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   237.933          sigma(per absorber atom)= 3.3382688E+04
0moderator-2 will be treated by the nordheim integral method.
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0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  9       3.805399E-05     .000000E+00    5.740214E-03
 10      -1.504161E-04     .000000E+00   -1.204486E-02
 11        .000000E+00     .000000E+00     .000000E+00
 12      -1.948691E-02     .000000E+00   -1.179694E-02
0excess resonance integrals
0                  resolved
0absorption       8.12762E+00
 fission           .00000E+00
- elapsed time    .12 min.
0 ce-144           mt=  102                                          58144     temperature=   975.00
0 pr-141        mt=102,103,104,105,106,107     updated 10/13/89       59141     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   139.697          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.953          lumped nuclear density   = 4.2035758E-06
0spin factor (g)          =  1026.500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 4.0622484E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 4.5322023E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
 10      -1.643180E-03     .000000E+00   -5.576479E-02
 11      -2.754610E-02     .000000E+00   -3.665692E-01
 12      -5.687621E-04     .000000E+00   -5.415349E-05
0excess resonance integrals
0                  resolved
0absorption       1.22546E+01
 fission           .00000E+00
- elapsed time    .13 min.
0 pr-143        mt=102                     updated 10/13/89       59143     temperature=   975.00
0 nd-143        mt=102                     updated 10/13/89       60143     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   141.682          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.000          lumped nuclear density   = 4.6473847E-06
0spin factor (g)          =  1964.860          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 3.6743180E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 4.0993934E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
 10      -4.982481E-05     .000000E+00    8.771327E-07
 11      -1.101106E-01     .000000E+00   -1.283758E+00
 12      -7.161235E-02     .000000E+00   -3.529003E-02
0excess resonance integrals
0                  resolved
0absorption       5.14195E+01
 fission           .00000E+00
- elapsed time    .13 min.
0 nd-145        mt=102                     updated 10/13/89       60145     temperature=   975.00
0resonance data for this nuclide
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0mass number (a)          =   143.668          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.047          lumped nuclear density   = 3.4498573E-06
0spin factor (g)          =  1007.250          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 4.9497613E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 5.5223902E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  10      -1.344789E-03    .000000E+00   -2.136374E-02
  11      -2.129543E-02    .000000E+00   -6.393525E-02
  12      -5.333031E-01    .000000E+00   -3.363911E+00
  13       9.642947E-05    .000000E+00    2.035074E-04
  14      -4.462860E-01    .000000E+00   -1.178288E-02
  15       5.911948E-03    .000000E+00   -4.630747E-04
  16       1.326684E-03    .000000E+00   -1.451429E-04
  17       9.642449E-04    .000000E+00   -1.063933E-04
  18       8.539560E-04    .000000E+00   -9.313719E-05
  19       7.633858E-04    .000000E+00   -8.069340E-05
  20       2.838788E-05    .000000E+00   -2.918880E-06
0excess resonance integrals
0                  resolved
0absorption       2.09006E+02
 fission           .00000E+00
- elapsed time     .15 min.
0 nd-147        mt=102                    updated 10/13/89          60147    temperature=   975.00
0 pm-147        mt=102                    updated 10/13/89          61147    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 1.6301379E-06
0spin factor (g)          = 21589.500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.0475168E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 1.1687021E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  12      -7.792760E-02    .000000E+00   -2.542797E-02
  13      -2.008160E-02    .000000E+00   -1.330387E-03
  14      -3.819863E+01    .000000E+00   -1.649132E+01
  15       4.136012E-02    .000000E+00    6.991183E-03
  16       1.698022E-02    .000000E+00    1.746796E-03
  17       1.369751E-02    .000000E+00    1.150444E-03
  18       1.253791E-02    .000000E+00    9.648220E-04
  19       6.998988E-04    .000000E+00    5.069710E-05
0excess resonance integrals
0                  resolved
0absorption       2.07270E+03
 fission           .00000E+00
- elapsed time     .15 min.
0 pm-148          mt=  102                                          61148    temperature=   975.00
0 sm-147        endf/b-v fission product  updated 10/13/89          62147    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
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0potential scatter sigma =    5.095          lumped nuclear density   = 1.3748208E-07
0spin factor (g)         =     .000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995          sigma(per absorber atom)= 1.2420506E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.953          sigma(per absorber atom)= 1.3857411E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11      2.942457E-01    .000000E+00    1.142727E+00
  12      1.226539E+00    .000000E+00   -1.271958E+00
  13     -1.998422E+00    .000000E+00   -5.783997E-01
  14     -9.921163E-02    .000000E+00    1.325926E-03
  15      3.120852E-01    .000000E+00   -1.928839E-03
  16      7.287928E-03    .000000E+00   -3.738814E-04
  17      4.281534E-03    .000000E+00   -2.401662E-04
  18      3.510477E-03    .000000E+00   -1.997241E-04
  19      2.910625E-03    .000000E+00   -1.649498E-04
  20      8.434717E-04    .000000E+00   -4.626269E-05
0excess resonance integrals
0              resolved
0absorption   7.24819E+02
 fission       .00000E+00
- elapsed time   .15 min.
                          thermal scattering matrix number  3 at a temperature of   900.03 was selected.
0 sm-149      mt=102,103,107          updated 10/13/89          62149    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =  147.638          temperature(kelvin)      =  975.000
0potential scatter sigma =    3.260          lumped nuclear density   = 6.8765765E-08
0spin factor (g)         = 10407.900          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995          sigma(per absorber atom)= 2.4832080E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.953          sigma(per absorber atom)= 2.7704858E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11      8.546665E-03    .000000E+00    3.071190E-02
  12     -5.175606E-02    .000000E+00   -1.756437E-01
  13      2.469983E-02    .000000E+00    3.072132E-03
  14      2.173088E-02    .000000E+00   -5.657746E-03
0excess resonance integrals
0              resolved
0absorption   8.04362E+02
 fission       .00000E+00
- elapsed time   .17 min.
0 sm-150      mt=102                  updated 10/13/89          62150    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =  148.629          temperature(kelvin)      =  975.000
0potential scatter sigma =    5.162          lumped nuclear density   = 9.8938278E-07
0spin factor (g)         = 4376.420          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995          sigma(per absorber atom)= 1.7259214E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.953          sigma(per absorber atom)= 1.9255902E+05
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0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  10      -3.977634E-04     .000000E+00   -3.346134E-03
  11      -7.212800E-03     .000000E+00   -8.334447E-02
  12      -2.322022E-02     .000000E+00   -7.025721E-03
  13      -1.750211E+00     .000000E+00   -1.382926E+00
  14       1.066729E-04     .000000E+00   -6.428760E-05
0excess resonance integrals
0                 resolved
0absorption      2.95014E+02
 fission          .00000E+00
- elapsed time    .17 min.
0 sm-151        mt=102,103,104,105,106,107     updated 10/13/89              62151     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   149.623              temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.185              lumped nuclear density   = 2.2294195E-07
0spin factor (g)          = 75574.703              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 7.6595794E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 8.5454788E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  14      -1.260789E-01     .000000E+00   -1.571515E-02
  15       1.495457E+01     .000000E+00    7.582636E-02
  16      -2.174609E+01     .000000E+00   -6.158413E-02
  17       1.740700E+02     .000000E+00    8.314693E-01
  18      -3.203416E+02     .000000E+00   -1.779017E+00
  19       6.257412E+01     .000000E+00    3.868963E-01
  20       1.141725E+00     .000000E+00   -1.430370E-04
  21      -7.117601E-02     .000000E+00    1.244101E-02
  22       6.952590E-02     .000000E+00    3.838911E-03
  23      -1.091934E-02     .000000E+00    3.374082E-04
0excess resonance integrals
0                 resolved
0absorption      2.05723E+03
 fission          .00000E+00
- elapsed time    .17 min.
0 sm-152        mt=102,103,104,105,106,107     updated 10/13/89              62152     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   150.615              temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.208              lumped nuclear density   = 4.5863854E-07
0spin factor (g)          =   863.594              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 3.7231869E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 4.1539156E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9       2.403099E-06     .000000E+00    1.159013E-04
  10      -2.977777E-04     .000000E+00   -5.161796E-03
  11      -4.910418E-03     .000000E+00   -1.886720E-02
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  12      -3.476394E-02     .000000E+00   -1.112866E-01
  13       4.267894E-02     .000000E+00    1.038350E-01
  14      -3.296637E+01     .000000E+00   -6.405277E+01
0excess resonance integrals
0                 resolved
0absorption       2.86785E+03
 fission           .0000E+00
- elapsed time     .18 min.
0 eu-153        mt=102,103,104,105,106,107     updated 10/13/89              63153     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   151.607              temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.731              lumped nuclear density   = 2.0236102E-07
0spin factor (g)          = 12265.900              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 8.4383688E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933              sigma(per absorber atom)= 9.4145881E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12      -2.642001E-01     .000000E+00   -5.146335E-02
  13      -4.666036E-02     .000000E+00    1.190590E-03
  14      -5.099637E-01     .000000E+00    4.398705E-03
  15       3.248557E+00     .000000E+00   -1.528816E-02
  16      -3.290308E+00     .000000E+00    8.160209E-03
  17       1.505621E-01     .000000E+00   -3.437866E-03
  18       7.726887E-02     .000000E+00   -2.231257E-03
  19       5.055489E-02     .000000E+00   -1.541136E-03
  20      -1.253800E-01     .000000E+00   -1.275099E-03
0excess resonance integrals
0                 resolved
0absorption       1.35617E+03
 fission           .0000E+00
- elapsed time     .18 min.
0 eu-154        mt=102,103,104,105,106,107     updated 10/13/89              63154     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   152.601              temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.731              lumped nuclear density   = 1.5732551E-08
0spin factor (g)          = 19135.801              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 1.0853910E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933              sigma(per absorber atom)= 1.2109579E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12      -3.850079E-01     .000000E+00   -6.016346E-02
  13      -2.952728E-01     .000000E+00   -2.428586E-02
  14       3.575466E-01     .000000E+00    1.516498E-02
  15       2.236522E-01     .000000E+00    2.124466E-02
  16       7.311881E+00     .000000E+00    9.277001E-02
  17      -1.436421E+02     .000000E+00   -1.894816E+00
  18       1.138535E+02     .000000E+00    1.859974E+00
  19      -1.014556E+02     .000000E+00    1.187201E+00
0excess resonance integrals
0                 resolved
```

```
0absorption       2.13726E+03
 fission           .00000E+00
- elapsed time     .20 min.
0 eu-155        mt=102,103,104,105,106,107     updated 10/13/89              63155     temperature=  975.00
0 gd-155        mt=102                         updated 10/13/89              64155     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   153.592              temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.277              lumped nuclear density   = 4.4661727E-10
0spin factor (g)          = 12700.100              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 3.8234010E+08
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953              sigma(per absorber atom)= 4.2657255E+08
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12      -1.439265E+00     .000000E+00    -1.839428E-01
  13       1.541370E+00     .000000E+00     1.985343E-01
  14       2.191864E-01     .000000E+00     9.809159E-03
  15      -3.299638E-01     .000000E+00     2.121291E-05
  16       1.477360E+00     .000000E+00    -4.148869E-03
  17       1.568660E-01     .000000E+00    -1.479107E-03
  18       9.605215E-02     .000000E+00    -1.078090E-03
  19       6.295375E-02     .000000E+00    -8.026877E-04
  20       1.670387E-02     .000000E+00     1.627052E-04
  21        .000000E+00     .000000E+00      .000000E+00
  22        .000000E+00     .000000E+00      .000000E+00
  23        .000000E+00     .000000E+00      .000000E+00
  24        .000000E+00     .000000E+00      .000000E+00
  25      -2.127682E+03     .000000E+00    -1.621909E+00
  26      -5.205600E+03     .000000E+00     1.961438E+00
  27      -1.699943E+03     .000000E+00     7.392455E-01
0excess resonance integrals
0                 resolved
0absorption       3.97076E+04
 fission           .00000E+00
- elapsed time     .20 min.
0u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                            92234     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   232.029              temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.021              lumped nuclear density   = 5.2482073E-06
0spin factor (g)          =  6948.450              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 3.2536768E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.985              sigma(per absorber atom)= 3.6289773E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11      -2.512538E-02     .000000E+00    -7.324254E-02
  12      -2.046605E-01     .000000E+00    -8.580936E-02
  13       7.759475E-04     .000000E+00    -6.470333E-04
  14      -1.997561E+01     .000000E+00    -3.270589E+00
0excess resonance integrals
0                 resolved
0absorption       5.80055E+02
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 fission          .00000E+00
- elapsed time    .22 min.
0 uranium-235    endf/b-iv mat 1261          updated 10/13/89          92235     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   233.025          temperature(kelvin)     =   975.000
0potential scatter sigma  =    11.500          lumped nuclear density  = 5.9589074E-04
0spin factor (g)          = 15171.100          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 2.8656207E+02
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.049          sigma(per absorber atom)= 3.0752908E+02
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12     -2.447811E+00   -1.524337E+00   -5.714441E-02
  13     -8.348241E+00   -4.150502E+00   -1.796663E-01
  14     -6.699653E+00   -4.094368E+00   -4.552142E-02
0excess resonance integrals
0                 resolved
0absorption      2.07551E+02
 fission         1.23750E+02
- elapsed time    .23 min.
0u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                          92236     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   234.017          temperature(kelvin)     =   975.000
0potential scatter sigma  =    10.995          lumped nuclear density  = 2.0722968E-05
0spin factor (g)          =  6328.490          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 8.2401172E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.934          sigma(per absorber atom)= 9.1917979E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11     -1.039277E-01    .000000E+00   -2.571796E-01
  12     -5.309988E-01    .000000E+00   -3.788066E-01
  13     -5.769046E-02    .000000E+00   -3.293442E-03
  14     -2.037627E+01    .000000E+00   -1.783048E+00
0excess resonance integrals
0                 resolved
0absorption      3.07348E+02
 fission          .00000E+00
- elapsed time    .23 min.
0 uranium-238    endf/b-iv mat 1262          updated 10/13/89          92238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.006          temperature(kelvin)     =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density  = 2.2005754E-02
0spin factor (g)          =   656.527          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 7.7597747E+00
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   235.041          sigma(per absorber atom)= 3.3411396E-01
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
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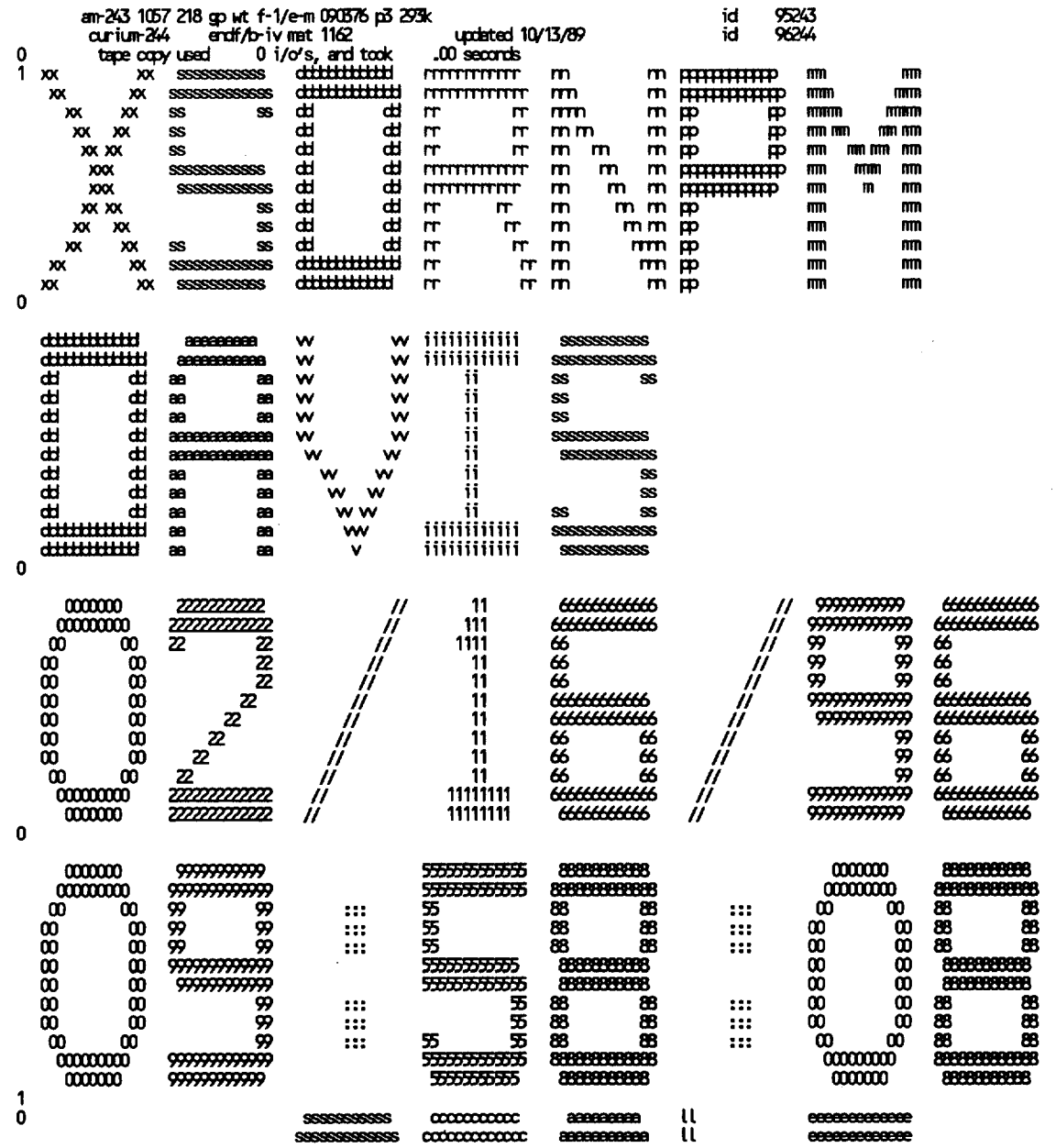
0group       res abs         res fiss        res scat
   9      -3.947995E-02     .000000E+00   -4.054367E-01
  10      -1.027122E+00    -1.755973E-05   -6.488024E+00
  11      -9.711375E+00     .000000E+00   -2.690508E+01
  12      -4.305445E+01     .000000E+00   -4.999392E+01
  13      -5.402042E+01     .000000E+00   -1.769342E+01
  14      -1.045127E+02     .000000E+00   -6.060392E+00
0excess resonance integrals
0                  resolved
0absorption       1.79715E+01
 fission          5.03877E-04
- elapsed time     .27 min.
0 neptunium-237  endf/b-iv mat 1263          updated 10/13/89          93237     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   235.012          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.500          lumped nuclear density   = 6.1552282E-07
0spin factor (g)          = 10100.800          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 2.7742219E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 2.9757166E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      -6.310233E-02    -1.891714E-06   -7.378057E-03
  12       4.218429E-02    -8.454046E-05    9.232542E-03
  13       3.188290E-02     9.189823E-05    1.176374E-03
  14       1.812240E-03    -4.420698E-07   -7.012343E-04
0excess resonance integrals
0                  resolved
0absorption       2.93217E+02
 fission          1.39601E-01
- elapsed time     .28 min.
0pu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                          94238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.167          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.890          lumped nuclear density   = 2.4133211E-08
0spin factor (g)          = 13130.600          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 7.0757130E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 7.5896300E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11       2.558166E-04     4.698395E-05    1.618825E-04
  12       2.251013E-04     2.790752E-05    6.807128E-05
  13       4.159104E-01     7.576818E-02   -9.090646E-03
  14      -3.822199E-01    -6.987483E-02    8.538971E-03
0excess resonance integrals
0                  resolved
0absorption       8.25544E+01
 fission          9.08569E+00
- elapsed time     .28 min.
0 plutonium-239  endf/b-iv mat 1264          updated 10/13/89          94239     temperature=   975.00
0resonance data for this nuclide
```

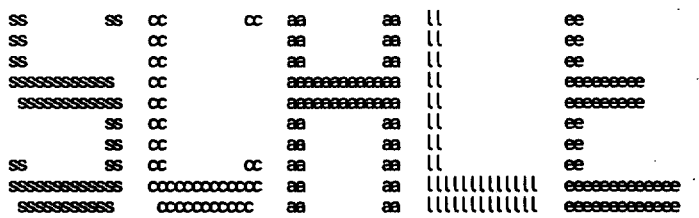
```
0mass number (a)          =  236.999          temperature(kelvin)      =  975.000
0potential scatter sigma  =   10.200          lumped nuclear density   = 4.3678352E-05
0spin factor (g)          = 6435.710          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 3.9094807E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  238.051             sigma(per absorber atom)= 4.1934307E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11     -9.177634E-02  -3.673252E-02  -2.851647E-02
  12     -8.298708E-01  -3.110823E-01  -1.095888E-01
  13     -2.744968E+00  -1.617178E+00  -4.145862E-02
  14     -8.716330E-01  -4.624437E-01  -8.125940E-03
0excess resonance integrals
0              resolved
0absorption   3.1424&E+02
 fission      1.7634&E+02
-  elapsed time    .30 min.
0 plutonium-240  endf/b-iv mat 1265          updated 10/13/89          94240     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =  237.992          temperature(kelvin)      =  975.000
0potential scatter sigma  =   10.599          lumped nuclear density   = 3.2538619E-06
0spin factor (g)          =  669.244          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 5.2479082E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  238.051             sigma(per absorber atom)= 5.6290699E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   9     -1.645389E-05  -9.641771E-08   1.595931E-05
  10     -7.262856E-04  -4.573095E-05  -3.344887E-03
  11     -2.478088E-02  -1.430572E-04  -3.309150E-02
  12     -3.513186E-01  -1.918701E-03  -3.392016E-01
  13     -4.186758E-02  -2.567179E-04  -3.054945E-03
  14      .000000E+00    .000000E+00    .000000E+00
  15      1.756127E-02   3.351644E-06   3.491331E-03
  16      3.297924E+00   6.294232E-04   4.201667E-01
  17      5.489325E+02   1.047662E-01   4.966195E+01
  18     -3.939466E+03  -7.518645E-01  -3.138248E+02
  19      9.648171E+02   1.841392E-01   7.365369E+01
  20     -9.268690E+01  -1.768951E-02   1.798660E+00
0excess resonance integrals
0              resolved
0absorption   7.2998E+03
 fission      2.4176&E+00
-  elapsed time    .33 min.
0 plutonium-241  endf/b-iv mat 1266          updated 10/13/89          94241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =  238.978          temperature(kelvin)      =  975.000
0potential scatter sigma  =   10.939          lumped nuclear density   = 7.5090043E-07
0spin factor (g)          = 16402.100         lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 2.2740656E+05
```

```
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 2.4392334E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12       1.261874E-02     1.123534E-02     6.726373E-04
  13      -7.312725E-02    -6.251993E-02    -3.190468E-03
  14       1.711866E-02     2.446088E-02     1.205490E-03
  15       1.800097E-02     1.613804E-02    -4.695504E-04
0excess resonance integrals
0                 resolved
0absorption      5.09404E+02
 fission         4.27006E+02
-  elapsed time    .33 min.
0 plutonium-242  endf/b-iv mat 1161          updated 10/13/89              94242     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   240.145          temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.694          lumped nuclear density    = 2.0662535E-08
0spin factor (g)          =  6606.710          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 8.2642175E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 8.8644570E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11       1.105956E-04     .000000E+00      1.365222E-04
  12       1.446949E-04     .000000E+00     -3.032951E-04
  13       1.216182E-04     .000000E+00      4.935473E-06
  14       8.150499E-02     .000000E+00      1.527700E-02
  15       1.234793E-01     .000000E+00     -2.843461E-02
  16       4.034068E-02     .000000E+00     -3.459403E-03
  17       1.550418E-02     .000000E+00     -1.848301E-03
  18       1.112553E-02     .000000E+00     -1.430647E-03
0excess resonance integrals
0                 resolved
0absorption      1.11217E+03
 fission          .00000E+00
-  elapsed time    .35 min.
0am-241 1056 sig=5+4 new(lacs 218ngp p-3 295k                                    95241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   238.950          temperature(kelvin)       =   975.000
0potential scatter sigma  =     9.511          lumped nuclear density    = 6.0496634E-09
0spin factor (g)          = 82058.203          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 2.8226312E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 3.0276420E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  13       4.923901E-01     1.212940E-02     4.962131E-03
  14      -4.288642E-01    -1.107121E-02    -4.428857E-03
0excess resonance integrals
0                 resolved
```

```
0absorption        1.93477E+02
 fission           1.07614E+00
- elapsed time     .35 min.
0am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                          95243     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   240.940          temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.511          lumped nuclear density   = 4.1914475E-10
0spin factor (g)          = 82052.602          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 4.0740029E+08
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 4.3699021E+08
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  13      -6.604232E-03    .000000E+00    4.386608E-04
  14       2.231602E-02    .000000E+00    2.371130E-04
0excess resonance integrals
0                  resolved
0absorption        1.60152E+02
 fission           .00000E+00
- elapsed time     .35 min.
0 curium-244     endf/b-iv mat 1162          updated 10/13/89          96244     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   242.133          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.320          lumped nuclear density   = 9.1373150E-12
0spin factor (g)          =  5251.150          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.8688168E+10
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 2.0045511E+10
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11       2.582341E-04    7.064275E-06    3.053164E-04
  12       6.932982E-04    3.252501E-05    1.372209E-04
  13       2.720734E-03    1.336612E-04    7.128655E-04
  14       8.467852E-02    5.066236E-03    1.605748E-02
0excess resonance integrals
0                  resolved
0absorption        6.13904E+02
 fission           3.54222E+01
- elapsed time     .35 min.
- elapsed time     .35 min.
1     this xsdrn working tape was created 02/16/96 at 09:56:57
      the title of the parent case is as follows
      scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
         tape id                          4321        number of nuclides                  65
         number of neutron groups           27        number of gamma groups               0
         first thermal group                15        logical unit                         4
                                  table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id      999
        hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89             id     1001
       b-10 1273 218ngp 042375 p-3 293k                                            id     5010
```

boron-11	endf/b-iv mat 1160	updated 10/13/89	id 5011
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id 8016
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id 6
kr-83	mt=102,103,103,105,106,107	updated 10/13/89	id 36083
kr-85	mt= 102		id 36085
sr-90	mt=102	updated 10/13/89	id 38090
y-89	mt=102	updated 10/13/89	id 39089
zr-93	mt= 102		id 40093
zr-94	mt=102	updated 10/13/89	id 40094
zr-95	mt=102	updated 10/13/89	id 40095
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id 40302
nb-94	mt=102	updated 10/13/89	id 41094
mo-95	mt=102	updated 10/13/89	id 42095
tc-99	mt=102	updated 10/13/89	id 43099
ru-101	mt=102	updated 10/13/89	id 44101
ru-106	mt=102	updated 10/13/89	id 44106
rh-103	mt=102	updated 10/13/89	id 45103
rh-105	mt= 102		id 45105
pd-105	mt=102	updated 10/13/89	id 46105
pd-108	mt=102	updated 10/13/89	id 46108
silver-109	endf/b-iv mat 1139	updated 10/13/89	id 47109
sb-124	mt=102	updated 10/13/89	id 51124
xe-131	mt=102,103,104,105,106	updated 10/13/89	id 54131
xe-132	mt=102,103,104,105,106	updated 10/13/89	id 54132
xenon-135	endf/b-iv mat 1294	updated 10/13/89	id 54135
xe-136	mt= 102, 103, 104, 105, 107		id 54136
cesium-133	endf/b-iv mat 1141	updated 10/13/89	id 55133
cs-134	mt=102	updated 10/13/89	id 55134
cs-135	mt= 102		id 55135
cs-137	mt=102	updated 10/13/89	id 55137
ba-136	mt=102	updated 10/13/89	id 56136
la-139	mt=102	updated 10/13/89	id 57139
ce-144	mt= 102		id 58144
pr-141	mt=102,103,104,105,106,107	updated 10/13/89	id 59141
pr-143	mt=102	updated 10/13/89	id 59143
nd-143	mt=102	updated 10/13/89	id 60143
nd-145	mt=102	updated 10/13/89	id 60145
nd-147	mt=102	updated 10/13/89	id 60147
pm-147	mt=102	updated 10/13/89	id 61147
pm-148	mt= 102		id 61148
sm-147	endf/b-v fission product	updated 10/13/89	id 62147
sm-149	mt=102,103,107	updated 10/13/89	id 62149
sm-150	mt=102	updated 10/13/89	id 62150
sm-151	mt=102,103,104,105,106,107	updated 10/13/89	id 62151
sm-152	mt=102,103,104,105,106,107	updated 10/13/89	id 62152
eu-153	mt=102,103,104,105,106,107	updated 10/13/89	id 63153
eu-154	mt=102,103,104,105,106,107	updated 10/13/89	id 63154
eu-155	mt=102,103,104,105,106,107	updated 10/13/89	id 63155
gd-155	mt=102	updated 10/13/89	id 64155
u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)			id 92234
uranium-235	endf/b-iv mat 1261	updated 10/13/89	id 92235
u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)			id 92236
uranium-238	endf/b-iv mat 1262	updated 10/13/89	id 92238
neptunium-237	endf/b-iv mat 1263	updated 10/13/89	id 93237
pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)			id 94238
plutonium-239	endf/b-iv mat 1264	updated 10/13/89	id 94239
plutonium-240	endf/b-iv mat 1265	updated 10/13/89	id 94240
plutonium-241	endf/b-iv mat 1266	updated 10/13/89	id 94241
plutonium-242	endf/b-iv mat 1161	updated 10/13/89	id 94242
am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k			id 95241


am-243 1057 218 gp wt f-1/e-m 090576 p3 295k
id 95243
curium-244 endf/b-iv mat 1162
updated 10/13/89
id 96244
tape copy used 0 i/o's, and took .00 seconds




```
**********************************************************************
**********************************************************************
**********************************************************************
*****                                                            *****
*****                program verification information             *****
*****                                                            *****
*****               code system:  scale  version:  4.2           *****
*****                                                            *****
**********************************************************************
**********************************************************************
*****                                                            *****
*****                                                            *****
*****           program:  c0c001                                 *****
*****                                                            *****
*****      creation date:  04/27/95                              *****
*****                                                            *****
*****           library:  /neutronics/scale/exe                  *****
*****                                                            *****
*****                                                            *****
*****   this is not a  scale  configuration controlled code      *****
*****                                                            *****
*****           jobname:  davis                                  *****
*****                                                            *****
*****   date of execution:  02/16/96                             *****
*****                                                            *****
*****   time of execution:  09:58:08                             *****
*****                                                            *****
*****                                                            *****
**********************************************************************
**********************************************************************
**********************************************************************
1
                    240 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gvd/mtu burn high temp
0      -1q array has      1 entries.
0       1q array has     15 entries.
0       2q array has     10 entries.
0       3q array has     12 entries.
0       4q array has      9 entries.
0       5q array has     12 entries.
0direct access unit  9 requires    12 blocks of length  704 for cross section mixing.
1                    240 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gvd/mtu burn high temp
0general problem description data block
0                          general problem data

 igm  1/2/3 = plane/cylinder/sphere       2        isn  quadrature order                 8
```

```
 izm  number of zones                    4      isct order of scattering              3
 im   number of special intervals       24      ievt 0/1/2/3/4/5/6=o/k/alpha/c/z/r/h  1
 ibl  0/1/2/3 = vacuum/refl/per/white    1      iim  inner iteration maximum        20
 ibr  right boundary condition           3      iom  outer iteration maximum        25
 mxx  number of mixtures                 3      iclc -1/0/n--flat res/sn/opt          0
 ms   mixing table length               65      ith  0/1 = forward/adjoint           0
 ign  number of energy groups           27      iflu not used(always wgtd)            0
 nng  number of neutron groups          27      iprt -2/-1/0/n=mixture xsec print    -2
 ngg  number of gamma groups             0      idl  0/1/2/3=no/prt nd/pch n/both    53
 iftg number of first thermal group     15      ipbt -1/0/1=none/fire/all bal. prt    0
0                              special options

 ifg  0/1 = none/weighting calculation   1      ipn  0/1/2 diff. coef. param          0
 iqm  volumetric sources (0/n=no/yes)    0      idfm 0/1 = none/density factors 38*   1
 ipm  boundary sources (0/n=no/yes)      0      iaz  0/n = none/n activities by zone  0
 ifn  0/1/2 = input 33*/34*/use last    53      iai  0/1=none/activities by interval  0
 itmx maximum time (minutes)            10      ifct 0/1=no/yes upscatter scaling     0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0      ipvt 0/1/2=no/k/alpha parametric srch 0
 isx  broad group fluxes                 0      isen outer iteration acceleration     0
 ibln activity data unit                 0      rbnd band rebaln parameter            0
 jbkl 0/1/2 buckling geometry            0
0                            weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1      ihtf total xsect psn in brd gp tables 3
 igmf number of broad groups            27      ndsf psn g-g or file number           4
 itp  0/10/20/30/40 0/c/e/ac/a           0      nusf table length or max order        4
 ipp  -2/-1/0/n=wgted xsect print       -2      mxm extra 1-d x-sect positions        0
 iap  -1/n anisn xsect print            -1
0                            floating point parameters

 eps  overall convergence       1.00000E-04      dy  cyl/pla ht for buckling     .00000E+00
 ptc  point convergence         1.00000E-04      dz  plane depth for buckling    .00000E+00
 xnf  normalization factor      1.00000E+00      vsc  void streaming correction  .00000E+00
 ev   eigenvalue guess           .00000E+00      pv   ipvt=1/2--k/alpha          1.00000E+00
 evm  eigenvalue modifier        .00000E+00      eql  ev change eps for search  1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00      xnpm new param mod for search  7.50000E-01
     this case will require      2535 locations for mixing
     this case has been allocated 200000 locations
1                  240 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       13q array has     65 entries.
0       14q array has     65 entries.
0       15q array has     65 entries.
0                              data block 2 (mixing table, etc.)
0     nuclides          cccc                          mixing table                    extra
        on tape    identification              mixture   component    atom density   xsect id's
     1     999                                      1       92235    5.95891E-04
     2    1001                                      1       92234    5.24821E-06
     3    5010                                      1       92236    2.07230E-05
     4    5011                                      1       92238    2.20058E-02
     5    8016                                      1        8016    4.55359E-02
     6       6                                      3           6    2.09710E-02
     7   36083                                      1       36083    4.52870E-07
     8   36085                                      1       36085    2.19160E-07
     9   38090                                      1       38090    4.90462E-06
    10   39089                                      1       39089    2.95210E-06
    11   40093                                      1       42095    2.67690E-06
    12   40094                                      1       40093    3.66334E-06
    13   40095                                      1       40094    5.64806E-06
    14   40902                                      1       40095    2.02113E-06
    15   41094                                      1       41094    1.92647E-12
```

16	42095	1	43099	5.40399E-06
17	43099	1	45103	2.34075E-06
18	44101	1	45105	1.42341E-08
19	44106	1	44101	4.73216E-06
20	45103	1	44106	6.38003E-07
21	45105	1	46105	1.32971E-06
22	46105	1	46108	2.44774E-07
23	46108	1	47109	1.71902E-07
24	47109	1	51124	4.79820E-11
25	51124	1	54131	2.48623E-06
26	54131	1	54132	4.07046E-06
27	54132	1	54135	6.51168E-09
28	54135	1	54136	9.02456E-06
29	54136	1	55134	8.14148E-08
30	55133	1	55135	2.79804E-06
31	55134	1	55137	5.70749E-06
32	55135	1	56136	1.66625E-08
33	55137	1	57139	5.70699E-06
34	56136	1	59141	4.20358E-06
35	57139	1	59143	4.03826E-07
36	58144	1	58144	3.63429E-06
37	59141	1	60143	4.64739E-06
38	59143	1	60145	3.44986E-06
39	60143	1	61147	1.63014E-06
40	60145	1	61148	4.34751E-09
41	60147	1	60147	1.34141E-07
42	61147	1	62147	1.37482E-07
43	61148	1	62149	6.87658E-08
44	62147	1	62150	9.89383E-07
45	62149	1	62151	2.22942E-07
46	62150	1	62152	4.58639E-07
47	62151	1	64155	4.46617E-10
48	62152	1	63153	2.02361E-07
49	63153	1	63154	1.57326E-08
50	63154	1	63155	3.12565E-08
51	63155	2	40302	4.25156E-02
52	64155	3	1001	4.19420E-02
53	92234	3	5010	3.81515E-06
54	92235	3	5011	1.54884E-05
55	92236	1	55133	5.85210E-06
56	92238	1	95237	6.15523E-07
57	95237	1	94238	2.41332E-08
58	94238	1	94239	4.36784E-05
59	94239	1	94240	3.25386E-06
60	94240	1	94241	7.50900E-07
61	94241	1	94242	2.06625E-08
62	94242	1	95241	6.04966E-09
63	95241	1	95243	4.19145E-10
64	95243	1	96244	9.13732E-12
65	96244	1	999	1.00000E-20

- elapsed time .00 min.
0 21649 locations will be used
0 35q array has 25 entries.
0 36q array has 24 entries.
0 38q array has 24 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 240 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	2	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	3	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	4	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	5	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	6	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	7	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	8	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	9	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	10	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	11	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01036E+07	12	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	13	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	14	0	14	1.00000E+00	
15	3.04999E+00	1.50030E+01	2.10601E+06	15	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	16	0	16	1.00000E+00	
17	1.29999E+00	1.58657E+01	1.52545E+06	17	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	18	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	19	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	20	0	20	1.00000E+00	
21	4.00000E-01	1.70344E+01	8.17974E+05	21	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	22	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86933E+05	23	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	24	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	25	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	26	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	27	0	27	1.00000E+00	
28	1.00000E-05	2.76310E+01						

1 240 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0	mixture by zone	order p(l) by zone	activity table matl no.	activity table reaction	quadrature constants weights	quadrature constants directions	quadrature constants refl direc	quadrature constants wt x cos
1	1	3			0	-2.79004E-01	3	0
2	1	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	2	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	3	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28593E-02
7					5.55953E-02	2.31301E-01	6	1.28593E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02
16					0	-9.83052E-01	24	0
17					4.53365E-02	-9.64143E-01	24	-4.37099E-02
18					4.53365E-02	-8.17361E-01	23	-3.70655E-02
19					4.53365E-02	-5.46143E-01	22	-2.47597E-02
20					4.53365E-02	-1.91780E-01	21	-8.69444E-03
21					4.53365E-02	1.91780E-01	20	8.69444E-03
22					4.53365E-02	5.46143E-01	19	2.47597E-02
23					4.53365E-02	8.17361E-01	18	3.70655E-02
24					4.53365E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5

1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83082E-01	-4.49528E-01	8.36885E-01	5.00708E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20862E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20862E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17236E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17236E-01
22	5.46143E-01	-4.49528E-01	-3.20862E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20862E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.29551E-02	1	0	2.10906E-03	1.00000E+00	0	
2	2.59102E-02	4.33406E-02	1	1.62798E-01	9.49318E-03	1.00000E+00	0	
3	6.07710E-02	8.75100E-02	1	3.81835E-01	2.94045E-02	1.00000E+00	0	
4	1.14249E-01	1.74155E-01	1	7.17848E-01	1.31104E-01	1.00000E+00	0	
5	2.34061E-01	2.93967E-01	1	1.47065E+00	2.21259E-01	1.00000E+00		
6	3.53873E-01	3.80612E-01	1	2.22345E+00	1.27890E-01	1.00000E+00		
7	4.07351E-01	4.24781E-01	1	2.55946E+00	9.30429E-02	1.00000E+00		
8	4.42212E-01	4.55167E-01	1	2.77850E+00	7.41004E-02	1.00000E+00		
9	4.68122E-01	4.68814E-01	2	2.94130E+00	4.07946E-03	0		
10	4.69507E-01	4.71481E-01	2	2.95000E+00	1.16988E-02	0		
11	4.73456E-01	4.75431E-01	2	2.97481E+00	1.17968E-02	0		
12	4.77405E-01	4.78098E-01	2	2.99962E+00	4.16023E-03	0		
13	4.78790E-01	4.83159E-01	3	3.00833E+00	2.65268E-02	1.00000E+00		
14	4.87528E-01	4.99987E-01	3	3.06329E+00	7.82768E-02	1.00000E+00		
15	5.12445E-01	5.24908E-01	3	3.21979E+00	8.21777E-02	1.00000E+00		
16	5.37362E-01	5.41731E-01	3	3.37634E+00	2.97427E-02	1.00000E+00		
17	5.46100E-01	5.53513E-01	4	3.43125E+00	5.15631E-02	1.00000E+00		
18	5.60926E-01	5.70900E-01	4	3.52440E+00	7.15548E-02	1.00000E+00		
19	5.80874E-01	5.96175E-01	4	3.64974E+00	1.14628E-01	1.00000E+00		
20	6.11475E-01	6.45755E-01	4	3.84201E+00	2.78169E-01	1.00000E+00		
21	6.80034E-01	7.14313E-01	4	4.27278E+00	3.07702E-01	1.00000E+00		
22	7.48592E-01	7.63893E-01	4	4.70354E+00	1.46875E-01	1.00000E+00		
23	7.79193E-01	7.89167E-01	4	4.89582E+00	9.89116E-02	1.00000E+00		
24	7.99141E-01	8.06554E-01	4	5.02115E+00	7.51357E-02	1.00000E+00		
25	8.13968E-01			5.11431E+00				

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	144	2.10439E-05	1.12496E+00	-1.38515E-01	1.00000E+00	-4.43609E-02	.00000E+00	.0000
2	221	-9.63613E-06	1.13858E+00	-1.26102E-03	-1.51759E-02	-4.62359E-03	.00000E+00	.0000
3	284	3.53239E-06	1.13978E+00	-1.41229E-04	-1.45082E-03	-8.89717E-04	.00000E+00	.0000
4	330	-6.49129E-06	1.14017E+00	-2.40409E-05	-2.83584E-04	-1.66783E-04	.00000E+00	.0167
5	361	-1.10716E-05	1.14028E+00	-5.19524E-06	-5.29128E-05	-2.70676E-05	.00000E+00	.0167

grp to grp inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh

1	1	1	1	3.99968E-08	24	1.00000E+00	1
2	2	1	1	4.75658E-08	24	1.00000E+00	1
3	3	1	1	4.42471E-08	24	1.00000E+00	1
4	4	1	1	4.34071E-08	24	1.00000E+00	1
5	5	1	1	4.76548E-08	24	1.00000E+00	1
6	6	1	1	3.14257E-08	24	1.00000E+00	1
7	7	1	1	2.35128E-08	24	1.00000E+00	1
8	8	1	1	5.70768E-09	24	1.00000E+00	1
9	9	1	2	3.06282E-09	24	1.00000E+00	1
10	10	1	1	3.10512E-09	24	1.00000E+00	1
11	11	1	1	3.15985E-09	24	1.00000E+00	1
12	12	1	2	7.43236E-10	24	1.00000E+00	1
13	13	1	24	1.12172E-09	24	1.00000E+00	1
14	14	1	24	1.28540E-09	24	1.00000E+00	1
15	15	1	24	3.80540E-05	24	9.99982E-01	1
16	16	1	24	4.84754E-05	24	9.99987E-01	1
17	17	1	18	1.60114E-05	24	9.99960E-01	1
18	18	1	18	1.77016E-05	24	9.99958E-01	1
19	19	1	18	1.54054E-05	24	9.99955E-01	1
20	20	1	24	5.22631E-05	24	9.99969E-01	1
21	21	1	18	2.56650E-05	24	9.99958E-01	1
22	22	1	24	4.65365E-05	24	9.99991E-01	1
23	23	1	24	2.26127E-06	24	1.00000E+00	1
24	24	1	24	1.31691E-05	24	1.00000E+00	1
25	25	1	24	1.56653E-05	24	1.00000E+00	1
26	26	1	21	1.67109E-05	24	1.00008E+00	2
27	27	1	2	2.98553E-06	24	1.00000E+00	2

6 388 -5.48963E-07 1.14015E+00 -7.61250E-07 -8.69375E-06 -5.37447E-06 .00000E+00 .0167

final monitor

lambda 1.14015E+00 production/absorption 1.14014E+00 angular flux on 16

- elapsed time .02 min.

1 240 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 int. zone number radius int. midpoint area volume prod density

1	1	.00000E+00	1.29551E-02	.00000E+00	2.10906E-03	3.34398E-03
2	1	2.59102E-02	4.33406E-02	1.62798E-01	9.49318E-03	1.50451E-02
3	1	6.07710E-02	8.75100E-02	3.81835E-01	2.94045E-02	4.66852E-02
4	1	1.14249E-01	1.74155E-01	7.17848E-01	1.31104E-01	2.10039E-01
5	1	2.34061E-01	2.93967E-01	1.47065E+00	2.21259E-01	3.62514E-01
6	1	3.53873E-01	3.80612E-01	2.22345E+00	1.27890E-01	2.14674E-01
7	1	4.07351E-01	4.24781E-01	2.55946E+00	9.30429E-02	1.59042E-01
8	1	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02	1.28806E-01
9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07946E-03	.00000E+00
10	2	4.69507E-01	4.71481E-01	2.95000E+00	1.16988E-02	.00000E+00
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	2	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.65268E-02	.00000E+00
14	3	4.87528E-01	4.99987E-01	3.06323E+00	7.82768E-02	.00000E+00
15	3	5.12445E-01	5.24903E-01	3.21979E+00	8.21777E-02	.00000E+00
16	3	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02	.00000E+00
17	4	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02	.00000E+00
18	4	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	4	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01	.00000E+00
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01	.00000E+00
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	4	7.48592E-01	7.63893E-01	4.70354E+00	1.46875E-01	.00000E+00
23	4	7.79193E-01	7.89167E-01	4.89582E+00	9.89116E-02	.00000E+00
24	4	7.99141E-01	8.06554E-01	5.02115E+00	7.51357E-02	.00000E+00
25		8.13968E-01		5.11431E+00		

1 240 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.72636E-01	1.31503E+00	1.67386E+00	1.03961E+00	1.57466E+00	3.03077E+00	2.90515E+00	2.07949E+00
2	1.72697E-01	1.31565E+00	1.67469E+00	1.04011E+00	1.57537E+00	3.03208E+00	2.90582E+00	2.07955E+00
3	1.72641E-01	1.31503E+00	1.67391E+00	1.03963E+00	1.57457E+00	3.03046E+00	2.90479E+00	2.07936E+00
4	1.72250E-01	1.31078E+00	1.66843E+00	1.03628E+00	1.56925E+00	3.01991E+00	2.89843E+00	2.07830E+00
5	1.71238E-01	1.29987E+00	1.65454E+00	1.02785E+00	1.55588E+00	2.99378E+00	2.88280E+00	2.07571E+00
6	1.70073E-01	1.28745E+00	1.63892E+00	1.01842E+00	1.54105E+00	2.96518E+00	2.86577E+00	2.07283E+00
7	1.69148E-01	1.27774E+00	1.62685E+00	1.01126E+00	1.52991E+00	2.94410E+00	2.85331E+00	2.07066E+00
8	1.68231E-01	1.26829E+00	1.61537E+00	1.00450E+00	1.51954E+00	2.92485E+00	2.84204E+00	2.06863E+00
9	1.67725E-01	1.26318E+00	1.60919E+00	1.00091E+00	1.51409E+00	2.91483E+00	2.83622E+00	2.06755E+00
10	1.67625E-01	1.26216E+00	1.60796E+00	1.00021E+00	1.51309E+00	2.91303E+00	2.83523E+00	2.06736E+00
11	1.67472E-01	1.26066E+00	1.60617E+00	9.99224E-01	1.51167E+00	2.91049E+00	2.83383E+00	2.06707E+00
12	1.67371E-01	1.25968E+00	1.60501E+00	9.98581E-01	1.51075E+00	2.90885E+00	2.83293E+00	2.06688E+00
13	1.67184E-01	1.25785E+00	1.60280E+00	9.97340E-01	1.50894E+00	2.90541E+00	2.83100E+00	2.06651E+00
14	1.66673E-01	1.25265E+00	1.59630E+00	9.93505E-01	1.50312E+00	2.89411E+00	2.82456E+00	2.06547E+00
15	1.66101E-01	1.24636E+00	1.58793E+00	9.88188E-01	1.49470E+00	2.87743E+00	2.81494E+00	2.06434E+00
16	1.65821E-01	1.24287E+00	1.58292E+00	9.84718E-01	1.48897E+00	2.86586E+00	2.80821E+00	2.06383E+00
17	1.65686E-01	1.24087E+00	1.57982E+00	9.82589E-01	1.48499E+00	2.85790E+00	2.80354E+00	2.06369E+00
18	1.65510E-01	1.23829E+00	1.57584E+00	9.79418E-01	1.47993E+00	2.84791E+00	2.79766E+00	2.06356E+00
19	1.65289E-01	1.23521E+00	1.57123E+00	9.76054E-01	1.47424E+00	2.83674E+00	2.79108E+00	2.06339E+00
20	1.64994E-01	1.23124E+00	1.56536E+00	9.71839E-01	1.46716E+00	2.82287E+00	2.78292E+00	2.06301E+00
21	1.64791E-01	1.22846E+00	1.56124E+00	9.68855E-01	1.46212E+00	2.81303E+00	2.77722E+00	2.06291E+00
22	1.64792E-01	1.22834E+00	1.56094E+00	9.68573E-01	1.46160E+00	2.81202E+00	2.77678E+00	2.06314E+00
23	1.64867E-01	1.22919E+00	1.56207E+00	9.69302E-01	1.46278E+00	2.81432E+00	2.77826E+00	2.06342E+00
24	1.64953E-01	1.23019E+00	1.56342E+00	9.70201E-01	1.46424E+00	2.81718E+00	2.78007E+00	2.06369E+00
0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58539E+00	1.44334E+00	1.30173E+00	7.94048E-01	6.72549E-01	5.94755E-01	3.72125E-01	2.07129E-01
2	1.58531E+00	1.44324E+00	1.30152E+00	7.93816E-01	6.72340E-01	5.94471E-01	3.72095E-01	2.07110E-01
3	1.58550E+00	1.44346E+00	1.30199E+00	7.94362E-01	6.72787E-01	5.95138E-01	3.72170E-01	2.07149E-01
4	1.58655E+00	1.44471E+00	1.30465E+00	7.97431E-01	6.75339E-01	5.98865E-01	3.72585E-01	2.07371E-01
5	1.58916E+00	1.44778E+00	1.31119E+00	8.05009E-01	6.81638E-01	6.08178E-01	3.73587E-01	2.07914E-01
6	1.59208E+00	1.45110E+00	1.31836E+00	8.13353E-01	6.88562E-01	6.18456E-01	3.74667E-01	2.08505E-01
7	1.59430E+00	1.45355E+00	1.32363E+00	8.19538E-01	6.93685E-01	6.26119E-01	3.75444E-01	2.08936E-01
8	1.59639E+00	1.45577E+00	1.32843E+00	8.25217E-01	6.98381E-01	6.33181E-01	3.76136E-01	2.09327E-01
9	1.59750E+00	1.45691E+00	1.33092E+00	8.28167E-01	7.00822E-01	6.36853E-01	3.76491E-01	2.09529E-01
10	1.59770E+00	1.45710E+00	1.33132E+00	8.28642E-01	7.01221E-01	6.37442E-01	3.76551E-01	2.09564E-01
11	1.59799E+00	1.45737E+00	1.33189E+00	8.29321E-01	7.01793E-01	6.38284E-01	3.76637E-01	2.09613E-01
12	1.59818E+00	1.45754E+00	1.33226E+00	8.29760E-01	7.02163E-01	6.38829E-01	3.76692E-01	2.09646E-01
13	1.59855E+00	1.45789E+00	1.33301E+00	8.30655E-01	7.02919E-01	6.39943E-01	3.76807E-01	2.09711E-01
14	1.59959E+00	1.45902E+00	1.33542E+00	8.33457E-01	7.05285E-01	6.43428E-01	3.77172E-01	2.09918E-01
15	1.60074E+00	1.46063E+00	1.33881E+00	8.37322E-01	7.08548E-01	6.48230E-01	3.77690E-01	2.10204E-01
16	1.60129E+00	1.46170E+00	1.34105E+00	8.39816E-01	7.10652E-01	6.51320E-01	3.78034E-01	2.10388E-01
17	1.60159E+00	1.46250E+00	1.34272E+00	8.41649E-01	7.12166E-01	6.53572E-01	3.78221E-01	2.10504E-01
18	1.60204E+00	1.46358E+00	1.34500E+00	8.44154E-01	7.14216E-01	6.56642E-01	3.78428E-01	2.10649E-01
19	1.60260E+00	1.46482E+00	1.34760E+00	8.47057E-01	7.16582E-01	6.60181E-01	3.78672E-01	2.10819E-01
20	1.60338E+00	1.46639E+00	1.35090E+00	8.50711E-01	7.19596E-01	6.64691E-01	3.78970E-01	2.11032E-01
21	1.60396E+00	1.46750E+00	1.35326E+00	8.53329E-01	7.21716E-01	6.67886E-01	3.79117E-01	2.11159E-01
22	1.60402E+00	1.46761E+00	1.35349E+00	8.53559E-01	7.21856E-01	6.68136E-01	3.79031E-01	2.11133E-01
23	1.60386E+00	1.46733E+00	1.35290E+00	8.52878E-01	7.21256E-01	6.67275E-01	3.78887E-01	2.11061E-01
24	1.60366E+00	1.46698E+00	1.35216E+00	8.52038E-01	7.20531E-01	6.66224E-01	3.78742E-01	2.10985E-01
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.87323E-02	6.41539E-02	1.37538E-01	4.52611E-01	1.26457E-01	2.32781E-01	7.73834E-01	5.51708E-01
2	8.87124E-02	6.41199E-02	1.37504E-01	4.52510E-01	1.26391E-01	2.32629E-01	7.73391E-01	5.51331E-01
3	8.87486E-02	6.42070E-02	1.37567E-01	4.52698E-01	1.26545E-01	2.33102E-01	7.74432E-01	5.52408E-01
4	8.89622E-02	6.46898E-02	1.37936E-01	4.53806E-01	1.27413E-01	2.35645E-01	7.80297E-01	5.58250E-01
5	8.94902E-02	6.58982E-02	1.38838E-01	4.56532E-01	1.29574E-01	2.41995E-01	7.94852E-01	5.72790E-01
6	9.00699E-02	6.72497E-02	1.39821E-01	4.59513E-01	1.31970E-01	2.49097E-01	8.10890E-01	5.88964E-01
7	9.04987E-02	6.82718E-02	1.40538E-01	4.61705E-01	1.33763E-01	2.54463E-01	8.22844E-01	6.01106E-01
8	9.08922E-02	6.92257E-02	1.41188E-01	4.63706E-01	1.35421E-01	2.59464E-01	8.33853E-01	6.12577E-01
9	9.10971E-02	6.97241E-02	1.41525E-01	4.64745E-01	1.36284E-01	2.62073E-01	8.39571E-01	6.18249E-01

10	9.11316E-02	6.98023E-02	1.41581E-01	4.64919E-01	1.36420E-01	2.62468E-01	8.40462E-01	6.19129E-01
11	9.11809E-02	6.99141E-02	1.41661E-01	4.65167E-01	1.36615E-01	2.63031E-01	8.41729E-01	6.20381E-01
12	9.12128E-02	6.99866E-02	1.41713E-01	4.65327E-01	1.36740E-01	2.63396E-01	8.42547E-01	6.21187E-01
13	9.12780E-02	7.01342E-02	1.41819E-01	4.65655E-01	1.36997E-01	2.64140E-01	8.44221E-01	6.22836E-01
14	9.14818E-02	7.05930E-02	1.42154E-01	4.66678E-01	1.37803E-01	2.66453E-01	8.49431E-01	6.27915E-01
15	9.17621E-02	7.12184E-02	1.42619E-01	4.68081E-01	1.38913E-01	2.69603E-01	8.56512E-01	6.34708E-01
16	9.19418E-02	7.16165E-02	1.42920E-01	4.68978E-01	1.39627E-01	2.71601E-01	8.60983E-01	6.38913E-01
17	9.20709E-02	7.19160E-02	1.43136E-01	4.69624E-01	1.40180E-01	2.73165E-01	8.64486E-01	6.42762E-01
18	9.22463E-02	7.23329E-02	1.43426E-01	4.70507E-01	1.40960E-01	2.75402E-01	8.70214E-01	6.48824E-01
19	9.24494E-02	7.28130E-02	1.43763E-01	4.71536E-01	1.41863E-01	2.78008E-01	8.76811E-01	6.56131E-01
20	9.27076E-02	7.34263E-02	1.44193E-01	4.72856E-01	1.43023E-01	2.81378E-01	8.85591E-01	6.65982E-01
21	9.28877E-02	7.38692E-02	1.44493E-01	4.73782E-01	1.43865E-01	2.83839E-01	8.92245E-01	6.73662E-01
22	9.28978E-02	7.39178E-02	1.44509E-01	4.73836E-01	1.43961E-01	2.84129E-01	8.93264E-01	6.75120E-01
23	9.28450E-02	7.38136E-02	1.44421E-01	4.73566E-01	1.43765E-01	2.83565E-01	8.91956E-01	6.73901E-01
24	9.27822E-02	7.36823E-02	1.44315E-01	4.73242E-01	1.43517E-01	2.82845E-01	8.90221E-01	6.72164E-01

0 int.

	grp. 25	grp. 26	grp. 27
1	2.26151E-01	1.35519E-01	1.73802E-02
2	2.25995E-01	1.35425E-01	1.73830E-02
3	2.26573E-01	1.35987E-01	1.75545E-02
4	2.29605E-01	1.38781E-01	1.85261E-02
5	2.37159E-01	1.45770E-01	2.02894E-02
6	2.45604E-01	1.53679E-01	2.25902E-02
7	2.51990E-01	1.59752E-01	2.44507E-02
8	2.57964E-01	1.65517E-01	2.63057E-02
9	2.61086E-01	1.68548E-01	2.72992E-02
10	2.61537E-01	1.68955E-01	2.74122E-02
11	2.62179E-01	1.69532E-01	2.75729E-02
12	2.62593E-01	1.69904E-01	2.76765E-02
13	2.63434E-01	1.70660E-01	2.78867E-02
14	2.65988E-01	1.72935E-01	2.85082E-02
15	2.69314E-01	1.75851E-01	2.92768E-02
16	2.71305E-01	1.77558E-01	2.97056E-02
17	2.73299E-01	1.79591E-01	3.03692E-02
18	2.76595E-01	1.83136E-01	3.15804E-02
19	2.80614E-01	1.87441E-01	3.29992E-02
20	2.86093E-01	1.93304E-01	3.48657E-02
21	2.90462E-01	1.98086E-01	3.64000E-02
22	2.91411E-01	1.99310E-01	3.68659E-02
23	2.90838E-01	1.98885E-01	3.68027E-02
24	2.89959E-01	1.98107E-01	3.66313E-02

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.19649E-02	.00000E+00	1.23497E-02	1.02562E-02	3.13908E-03	1.08050E-02	9.98830E-01
2	.00000E+00	1.90919E-01	2.26178E-03	1.65430E-01	6.57391E-02	1.35378E-02	1.13914E-01	1.00004E+00
3	.00000E+00	2.15337E-01	2.59391E-02	1.60488E-01	8.08686E-02	1.55714E-02	1.44834E-01	1.00001E+00
4	.00000E+00	1.24201E-01	3.87324E-02	1.05020E-01	6.77712E-02	7.44454E-03	8.77151E-02	1.00001E+00
5	.00000E+00	1.65227E-01	6.76670E-02	2.59170E-01	9.47659E-02	4.46831E-03	1.33662E-01	9.99991E-01
6	.00000E+00	1.78924E-01	1.34395E-01	6.53746E-01	5.44214E-02	7.09942E-03	2.51788E-01	1.00008E+00
7	.00000E+00	8.86746E-02	9.83529E-02	7.45389E-01	3.63396E-02	7.72135E-03	1.42965E-01	1.00001E+00
8	.00000E+00	1.36799E-02	4.25698E-02	6.31051E-01	2.14803E-02	1.41481E-02	2.06187E-02	1.00004E+00
9	.00000E+00	9.95164E-04	2.17022E-02	5.34747E-01	2.06381E-02	2.33408E-02	-2.12831E-02	9.99990E-01
10	.00000E+00	7.37715E-05	2.06600E-02	4.58514E-01	1.06567E-02	3.62691E-02	-2.61926E-02	1.00001E+00
11	.00000E+00	5.80390E-06	1.06576E-02	4.18975E-01	8.11287E-03	5.86471E-02	-5.60971E-02	1.00001E+00
12	.00000E+00	4.07714E-07	8.11292E-03	2.37012E-01	9.34645E-03	6.37660E-02	-6.49960E-02	9.99957E-01
13	.00000E+00	6.47414E-08	9.34646E-03	1.75650E-01	6.15925E-03	5.78126E-02	-5.46259E-02	1.00001E+00
14	.00000E+00	1.28300E-08	6.15925E-03	1.51833E-01	7.49595E-03	7.93121E-02	-8.06490E-02	1.00000E+00
15	.00000E+00	1.44995E-09	7.58475E-03	8.53715E-02	8.94771E-03	6.68964E-03	-8.06808E-03	1.00099E+00
16	.00000E+00	4.25751E-10	9.12581E-03	4.33987E-02	9.73769E-03	4.10607E-03	-4.72877E-03	1.00078E+00
17	.00000E+00	1.37112E-10	7.94491E-03	1.52643E-02	7.83004E-03	4.84674E-03	-4.75746E-03	1.00044E+00

18	.00000E+00	9.81685E-11	7.42006E-03	1.13022E-02	6.44406E-03	1.16314E-02	-1.06587E-02	1.00018E+00
19	.00000E+00	1.38784E-10	8.50848E-03	2.62845E-02	9.69011E-03	6.64942E-03	-7.85733E-03	1.00038E+00
20	.00000E+00	2.25686E-10	1.12799E-02	1.08305E-01	1.02220E-02	2.50597E-02	-2.40287E-02	1.00048E+00
21	.00000E+00	3.30331E-11	9.90182E-03	2.44678E-02	9.47212E-03	1.95529E-02	-1.91301E-02	1.00024E+00
22	.00000E+00	3.83259E-11	1.35344E-02	5.20389E-02	1.16875E-02	5.69047E-02	-5.50674E-02	1.00014E+00
23	.00000E+00	3.66438E-11	1.71087E-02	1.88500E-01	2.06445E-02	1.25074E-01	-1.28646E-01	1.00025E+00
24	.00000E+00	9.97397E-12	2.48121E-02	1.27301E-01	2.45551E-02	1.29080E-01	-1.28849E-01	1.00017E+00
25	.00000E+00	2.91973E-12	2.09252E-02	4.77306E-02	1.56681E-02	7.13802E-02	-6.61239E-02	1.00012E+00
26	.00000E+00	2.04733E-12	1.01983E-02	3.28329E-02	6.96721E-03	6.43571E-02	-6.11315E-02	1.00008E+00
27	.00000E+00	4.87889E-13	2.17960E-03	4.83590E-03	1.17205E-03	1.78452E-02	-1.68385E-02	1.00005E+00
28	.00000E+00	1.00000E+00	6.37080E-01	5.47681E+00	6.37080E-01	9.35465E-01	6.66139E-02	1.00009E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dd**2	total flux
1	1.67756E-01	1.08050E-02	1.72576E-01	.00000E+00	2.20711E-03	2.57414E-03	.00000E+00	1.17512E-01
2	1.26345E+00	1.13914E-01	1.31441E+00	.00000E+00	1.75309E-05	1.17886E-02	.00000E+00	8.90955E-01
3	1.60952E+00	1.44834E-01	1.67305E+00	.00000E+00	.00000E+00	1.45478E-02	.00000E+00	1.13420E+00
4	1.00109E+00	8.77151E-02	1.03912E+00	.00000E+00	.00000E+00	6.29661E-03	.00000E+00	7.04728E-01
5	1.51436E+00	1.33662E-01	1.57395E+00	.00000E+00	.00000E+00	1.85640E-03	.00000E+00	1.06666E+00
6	2.91531E+00	2.51788E-01	3.02941E+00	.00000E+00	.00000E+00	1.67207E-03	.00000E+00	2.05260E+00
7	2.83649E+00	1.42965E-01	2.90442E+00	.00000E+00	.00000E+00	1.69873E-03	.00000E+00	1.97966E+00
8	2.06760E+00	2.06187E-02	2.07939E+00	.00000E+00	.00000E+00	1.77322E-03	.00000E+00	1.42814E+00
9	1.59745E+00	-2.12831E-02	1.58549E+00	.00000E+00	.00000E+00	2.42091E-03	.00000E+00	1.09494E+00
10	1.45686E+00	-2.61926E-02	1.44347E+00	.00000E+00	.00000E+00	5.15569E-03	.00000E+00	9.97681E-01
11	1.33081E+00	-5.60971E-02	1.30199E+00	.00000E+00	.00000E+00	1.07150E-02	.00000E+00	9.04795E-01
12	8.28042E-01	-6.49960E-02	7.94341E-01	.00000E+00	.00000E+00	1.37916E-02	.00000E+00	5.56683E-01
13	7.00716E-01	-5.46259E-02	6.72804E-01	.00000E+00	.00000E+00	1.36260E-02	.00000E+00	4.71322E-01
14	6.36697E-01	-8.06490E-02	5.95112E-01	.00000E+00	.00000E+00	9.17978E-03	.00000E+00	4.21772E-01
15	3.76479E-01	-8.06808E-03	3.72168E-01	.00000E+00	.00000E+00	2.32477E-03	.00000E+00	2.57508E-01
16	2.09521E-01	-4.72877E-03	2.07153E-01	.00000E+00	.00000E+00	1.56920E-03	.00000E+00	1.43309E-01
17	9.10908E-02	-4.73746E-03	8.87581E-02	.00000E+00	.00000E+00	2.20864E-03	.00000E+00	6.17808E-02
18	6.97057E-02	-1.06587E-02	6.42002E-02	.00000E+00	.00000E+00	2.54205E-03	.00000E+00	4.57787E-02
19	1.41515E-01	-7.85733E-03	1.37581E-01	.00000E+00	.00000E+00	3.54318E-03	.00000E+00	9.58691E-02
20	4.64710E-01	-2.40287E-02	4.52738E-01	.00000E+00	.00000E+00	1.69539E-02	.00000E+00	3.15174E-01
21	1.36255E-01	-1.91301E-02	1.26547E-01	.00000E+00	.00000E+00	1.28783E-02	.00000E+00	8.99247E-02
22	2.61969E-01	-5.50674E-02	2.32996E-01	.00000E+00	.00000E+00	3.65695E-02	.00000E+00	1.68760E-01
23	8.39527E-01	-1.28646E-01	7.74383E-01	.00000E+00	.00000E+00	8.32005E-02	.00000E+00	5.51995E-01
24	6.18007E-01	-1.28849E-01	5.52211E-01	.00000E+00	.00000E+00	8.61648E-02	.00000E+00	3.99214E-01
25	2.60964E-01	-6.61239E-02	2.26387E-01	.00000E+00	.00000E+00	4.96836E-02	.00000E+00	1.65841E-01
26	1.68437E-01	-6.11315E-02	1.35701E-01	.00000E+00	.00000E+00	4.56895E-02	.00000E+00	1.02806E-01
27	2.72689E-02	-1.68385E-02	1.74124E-02	.00000E+00	.00000E+00	1.27786E-02	.00000E+00	1.47238E-02
28	2.35914E+01	6.66138E-02	2.35678E+01	.00000E+00	2.22464E-03	4.53208E-01	.00000E+00	1.62343E+01

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.98023E-08	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.96046E-08	1.00000E+00
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.96046E-08	1.00000E+00
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.11759E-08	1.00000E+00
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	6.70552E-08	9.99997E-01
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.23517E-08	1.00000E+00
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
14	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.23517E-08	1.00000E+00
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.16415E-08	1.00000E+00
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86265E-09	1.00000E+00
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00

19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.79397E-09	1.00000E+00
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.23517E-08	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.58794E-09	1.00000E+00
22	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
23	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.63685E-08	9.99992E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.67346E-01	1.08050E-02	1.67756E-01	1.08050E-02	.00000E+00	.00000E+00	.00000E+00	5.31719E-03
2	1.25943E+00	1.13914E-01	1.26345E+00	1.13914E-01	.00000E+00	.00000E+00	.00000E+00	4.03511E-02
3	1.60471E+00	1.44834E-01	1.60952E+00	1.44834E-01	.00000E+00	.00000E+00	.00000E+00	5.10006E-02
4	9.98419E-01	8.77151E-02	1.00109E+00	8.77151E-02	.00000E+00	.00000E+00	.00000E+00	3.17264E-02
5	1.51063E+00	1.33662E-01	1.51436E+00	1.33662E-01	.00000E+00	.00000E+00	.00000E+00	4.79960E-02
6	2.90844E+00	2.51788E-01	2.91531E+00	2.51788E-01	.00000E+00	.00000E+00	.00000E+00	9.24057E-02
7	2.85271E+00	1.42965E-01	2.85649E+00	1.42965E-01	.00000E+00	.00000E+00	.00000E+00	8.99547E-02
8	2.06684E+00	2.06187E-02	2.06760E+00	2.06187E-02	.00000E+00	.00000E+00	.00000E+00	6.56035E-02
9	1.59822E+00	-2.12831E-02	1.59745E+00	-2.12831E-02	.00000E+00	.00000E+00	.00000E+00	5.07079E-02
10	1.45758E+00	-2.61925E-02	1.45686E+00	-2.61926E-02	.00000E+00	.00000E+00	.00000E+00	4.62456E-02
11	1.33235E+00	-5.60971E-02	1.33081E+00	-5.60971E-02	.00000E+00	.00000E+00	.00000E+00	4.22587E-02
12	8.29870E-01	-6.49960E-02	8.28042E-01	-6.49960E-02	.00000E+00	.00000E+00	.00000E+00	2.63079E-02
13	7.02256E-01	-5.46259E-02	7.00716E-01	-5.46259E-02	.00000E+00	.00000E+00	.00000E+00	2.22625E-02
14	6.38966E-01	-8.06490E-02	6.36697E-01	-8.06490E-02	.00000E+00	.00000E+00	.00000E+00	2.02427E-02
15	3.76710E-01	-8.06808E-03	3.76479E-01	-8.06808E-03	.00000E+00	.00000E+00	.00000E+00	1.19513E-02
16	2.09654E-01	-4.72878E-03	2.09521E-01	-4.72877E-03	.00000E+00	.00000E+00	.00000E+00	6.65134E-03
17	9.12236E-02	-4.73746E-03	9.10908E-02	-4.73746E-03	.00000E+00	.00000E+00	.00000E+00	2.89286E-03
18	7.00070E-02	-1.06587E-02	6.97057E-02	-1.06587E-02	.00000E+00	.00000E+00	.00000E+00	2.21696E-03
19	1.41731E-01	-7.83733E-03	1.41515E-01	-7.83733E-03	.00000E+00	.00000E+00	.00000E+00	4.49438E-03
20	4.65377E-01	-2.40287E-02	4.64710E-01	-2.40287E-02	.00000E+00	.00000E+00	.00000E+00	1.47582E-02
21	1.36779E-01	-1.91301E-02	1.36255E-01	-1.91301E-02	.00000E+00	.00000E+00	.00000E+00	4.33240E-03
22	2.63487E-01	-5.50674E-02	2.61969E-01	-5.50674E-02	.00000E+00	.00000E+00	.00000E+00	8.33838E-03
23	8.42744E-01	-1.28646E-01	8.39527E-01	-1.28646E-01	.00000E+00	.00000E+00	.00000E+00	2.66922E-02
24	6.21380E-01	-1.28845E-01	6.18007E-01	-1.28849E-01	.00000E+00	.00000E+00	.00000E+00	1.96679E-02
25	2.62693E-01	-6.61235E-02	2.60964E-01	-6.61239E-02	.00000E+00	.00000E+00	.00000E+00	8.31006E-03
26	1.69994E-01	-6.11315E-02	1.68437E-01	-6.11315E-02	.00000E+00	.00000E+00	.00000E+00	5.37092E-03
27	2.77020E-02	-1.68385E-02	2.72689E-02	-1.68385E-02	.00000E+00	.00000E+00	.00000E+00	8.72467E-04
28	2.35871E+01	6.66144E-02	2.35914E+01	6.66138E-02	.00000E+00	.00000E+00	.00000E+00	7.48610E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	3.68857E-03	2.76490E-03	1.41690E-05	-2.68044E-03	1.00001E+00
2	.00000E+00	.00000E+00	4.82884E-04	2.56625E-02	1.84141E-02	5.09828E-05	-1.79825E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.60917E-03	4.99148E-02	1.57825E-02	1.36521E-04	-1.33089E-02	9.99993E-01
4	.00000E+00	.00000E+00	5.08745E-03	4.19998E-02	5.43799E-03	1.03108E-04	-4.53241E-04	9.99996E-01
5	.00000E+00	.00000E+00	1.09722E-02	8.15405E-02	5.15682E-03	1.51908E-04	5.66314E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.83660E-02	2.34945E-01	3.21000E-03	3.19927E-04	1.48362E-02	9.99999E-01
7	.00000E+00	.00000E+00	1.22417E-02	2.35115E-01	1.18181E-03	3.44647E-04	1.07153E-02	9.99999E-01
8	.00000E+00	.00000E+00	2.15447E-03	1.58474E-01	7.63077E-03	2.94718E-04	-5.77158E-03	1.00002E+00
9	.00000E+00	.00000E+00	7.66388E-03	1.05103E-01	8.76150E-04	1.10829E-03	5.67971E-03	9.99988E-01
10	.00000E+00	.00000E+00	8.77321E-04	8.54438E-02	8.47751E-04	8.34410E-04	-8.04784E-04	9.99998E-01
11	.00000E+00	.00000E+00	8.47812E-04	7.68865E-02	8.68319E-04	1.33410E-03	-1.35452E-03	9.99999E-01
12	.00000E+00	.00000E+00	8.68325E-04	4.67062E-02	8.68953E-04	4.15839E-05	-4.22820E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.68954E-04	3.95406E-02	8.06602E-04	6.00341E-05	2.37301E-06	9.99999E-01
14	.00000E+00	.00000E+00	8.06602E-04	3.62159E-02	6.88493E-04	9.64626E-05	2.76342E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.26961E-04	2.07254E-02	8.48221E-04	8.32306E-05	-2.03991E-04	9.99944E-01
16	.00000E+00	.00000E+00	9.51757E-04	1.10438E-02	9.56740E-04	5.20408E-05	-5.66542E-05	9.99936E-01
17	.00000E+00	.00000E+00	1.05252E-03	4.20045E-03	1.05395E-03	2.53759E-05	-6.76839E-06	9.99993E-01
18	.00000E+00	.00000E+00	1.09083E-03	3.06237E-03	9.88825E-04	2.09709E-05	8.10549E-05	9.99999E-01
19	.00000E+00	.00000E+00	1.01046E-03	7.08879E-03	1.04589E-03	4.59256E-05	-8.12821E-05	9.99992E-01

20	.00000E+00	.00000E+00	1.26042E-03	2.56127E-02	1.08889E-03	1.90432E-04	-1.80267E-05	9.99965E-01
21	.00000E+00	.00000E+00	1.40802E-03	6.38091E-03	1.52417E-03	7.02981E-05	-1.86367E-04	9.99996E-01
22	.00000E+00	.00000E+00	1.92587E-03	1.35088E-02	1.80541E-03	1.57402E-04	-3.65955E-05	9.99994E-01
23	.00000E+00	.00000E+00	2.57550E-03	4.53980E-02	3.33297E-03	6.87511E-04	-1.44492E-03	1.00000E+00
24	.00000E+00	.00000E+00	4.07022E-03	3.17198E-02	4.35306E-03	7.38901E-04	-1.02194E-03	1.00000E+00
25	.00000E+00	.00000E+00	3.91555E-03	1.21607E-02	3.13000E-03	4.13616E-04	3.71881E-04	1.00000E+00
26	.00000E+00	.00000E+00	1.62904E-03	8.79963E-03	1.16289E-03	3.84246E-04	8.19713E-05	9.99999E-01
27	.00000E+00	.00000E+00	3.37200E-04	1.64945E-03	8.49857E-07	1.20642E-04	2.15705E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.58011E-02	1.41259E+00	8.58010E-02	7.88144E-03	-7.77970E-03	9.99986E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.65766E-01	8.12454E-03	1.67346E-01	1.08050E-02	9.87871E-05	.00000E+00	.00000E+00	3.60633E-02
2	1.24208E+00	9.59318E-02	1.25943E+00	1.13914E-01	.00000E+00	.00000E+00	.00000E+00	2.70809E-01
3	1.58170E+00	1.31526E-01	1.60471E+00	1.44834E-01	.00000E+00	.00000E+00	.00000E+00	3.45043E-01
4	9.83810E-01	8.72619E-02	9.98419E-01	8.77151E-02	.00000E+00	.00000E+00	.00000E+00	2.14720E-01
5	1.48743E+00	1.39525E-01	1.51053E+00	1.33662E-01	.00000E+00	.00000E+00	.00000E+00	3.24804E-01
6	2.86271E+00	2.66624E-01	2.90844E+00	2.51788E-01	.00000E+00	.00000E+00	.00000E+00	6.25312E-01
7	2.80637E+00	1.53681E-01	2.83271E+00	1.42965E-01	.00000E+00	.00000E+00	.00000E+00	6.11044E-01
8	2.05374E+00	1.48471E-02	2.06684E+00	2.06187E-02	.00000E+00	.00000E+00	.00000E+00	4.47523E-01
9	1.60140E+00	-1.56034E-02	1.59822E+00	-2.12831E-02	.00000E+00	.00000E+00	.00000E+00	3.46788E-01
10	1.46198E+00	-2.69973E-02	1.45758E+00	-2.61925E-02	.00000E+00	.00000E+00	.00000E+00	3.16386E-01
11	1.34164E+00	-5.76517E-02	1.33235E+00	-5.60971E-02	.00000E+00	.00000E+00	.00000E+00	2.89800E-01
12	8.40460E-01	-6.50383E-02	8.29870E-01	-6.49960E-02	.00000E+00	.00000E+00	.00000E+00	1.81068E-01
13	7.11196E-01	-5.46235E-02	7.02256E-01	-5.46259E-02	.00000E+00	.00000E+00	.00000E+00	1.53217E-01
14	6.52118E-01	-8.06213E-02	6.38966E-01	-8.06490E-02	.00000E+00	.00000E+00	.00000E+00	1.39983E-01
15	3.78128E-01	-8.27207E-03	3.76710E-01	-8.06808E-03	.00000E+00	.00000E+00	.00000E+00	8.18008E-02
16	2.10436E-01	-4.78543E-03	2.09654E-01	-4.72878E-03	.00000E+00	.00000E+00	.00000E+00	4.55262E-02
17	9.19909E-02	-4.74423E-03	9.12236E-02	-4.75746E-03	.00000E+00	.00000E+00	.00000E+00	1.98576E-02
18	7.17207E-02	-1.05777E-02	7.00070E-02	-1.06587E-02	.00000E+00	.00000E+00	.00000E+00	1.53689E-02
19	1.43004E-01	-7.91861E-03	1.41731E-01	-7.85733E-03	.00000E+00	.00000E+00	.00000E+00	3.08608E-02
20	4.69219E-01	-2.40467E-02	4.65377E-01	-2.40287E-02	.00000E+00	.00000E+00	.00000E+00	1.01297E-01
21	1.39818E-01	-1.93165E-02	1.36779E-01	-1.91301E-02	.00000E+00	.00000E+00	.00000E+00	2.99895E-02
22	2.72111E-01	-5.51040E-02	2.63487E-01	-5.50674E-02	.00000E+00	.00000E+00	.00000E+00	5.80974E-02
23	8.62108E-01	-1.30090E-01	8.42744E-01	-1.28646E-01	.00000E+00	.00000E+00	.00000E+00	1.84879E-01
24	6.39951E-01	-1.29871E-01	6.21380E-01	-1.28849E-01	.00000E+00	.00000E+00	.00000E+00	1.36835E-01
25	2.71783E-01	-6.57520E-02	2.62693E-01	-6.61239E-02	.00000E+00	.00000E+00	.00000E+00	5.80097E-02
26	1.77959E-01	-6.10495E-02	1.69994E-01	-6.11315E-02	.00000E+00	.00000E+00	.00000E+00	3.77959E-02
27	2.98025E-02	-1.66228E-02	2.77020E-02	-1.68385E-02	.00000E+00	.00000E+00	.00000E+00	6.26071E-03
28	2.35604E+01	5.88338E-02	2.35871E+01	6.66144E-02	9.87871E-05	.00000E+00	.00000E+00	5.10913E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	5.82799E-03	7.71383E-03	4.11113E-04	-8.12454E-03	9.99950E-01
2	.00000E+00	.00000E+00	4.42605E-03	7.55509E-02	9.92978E-02	1.06390E-03	-9.59318E-02	9.99962E-01
3	.00000E+00	.00000E+00	4.70913E-02	6.86507E-02	1.78616E-01	5.39586E-06	-1.31526E-01	9.99977E-01
4	.00000E+00	.00000E+00	6.98545E-02	4.57275E-02	1.57115E-01	3.22207E-06	-8.72619E-02	9.99988E-01
5	.00000E+00	.00000E+00	1.29537E-01	1.48293E-01	2.68661E-01	3.76993E-06	-1.39525E-01	9.99991E-01
6	.00000E+00	.00000E+00	2.74231E-01	4.55062E-01	5.40845E-01	1.14712E-05	-2.66624E-01	9.99998E-01
7	.00000E+00	.00000E+00	5.52150E-01	7.94902E-01	7.05814E-01	2.53428E-05	-1.53680E-01	9.99987E-01
8	.00000E+00	.00000E+00	7.35133E-01	1.00024E+00	7.50000E-01	4.69800E-05	-1.48472E-02	9.99912E-01
9	.00000E+00	.00000E+00	7.40801E-01	9.15111E-01	7.24684E-01	9.58075E-05	1.56033E-02	9.99889E-01
10	.00000E+00	.00000E+00	7.21457E-01	8.63964E-01	6.94323E-01	2.11105E-04	2.69973E-02	9.99896E-01
11	.00000E+00	.00000E+00	6.99385E-01	8.03544E-01	6.41518E-01	4.56312E-04	5.74516E-02	9.99941E-01
12	.00000E+00	.00000E+00	5.58562E-01	4.18944E-01	4.92999E-01	5.96109E-04	6.50883E-02	9.99979E-01
13	.00000E+00	.00000E+00	4.88879E-01	3.37930E-01	4.33372E-01	8.97617E-04	5.46235E-02	9.99970E-01
14	.00000E+00	.00000E+00	4.69941E-01	3.24681E-01	3.87864E-01	1.46941E-03	8.06213E-02	9.99988E-01
15	.00000E+00	.00000E+00	2.52365E-01	1.29599E-01	2.42791E-01	1.29130E-03	8.27416E-03	9.99994E-01
16	.00000E+00	.00000E+00	1.67564E-01	5.49505E-02	1.61889E-01	8.89502E-04	4.78708E-03	9.99990E-01
17	.00000E+00	.00000E+00	8.66306E-02	1.56546E-02	8.14500E-02	4.37270E-04	4.74087E-03	1.00003E+00
18	.00000E+00	.00000E+00	7.70199E-02	1.20920E-02	6.60731E-02	3.69968E-04	1.05744E-02	1.00003E+00
19	.00000E+00	.00000E+00	1.28694E-01	3.61216E-02	1.19885E-01	7.91748E-04	7.91324E-03	1.00003E+00
20	.00000E+00	.00000E+00	3.15825E-01	2.55175E-01	2.88510E-01	3.26458E-03	2.40503E-02	9.99999E-01

21	.00000E+00	.00000E+00	1.50480E-01	4.99443E-02	1.29928E-01	1.23751E-03	1.93081E-02	1.00004E+00
22	.00000E+00	.00000E+00	2.88144E-01	1.47940E-01	2.30226E-01	2.81206E-03	5.51076E-02	9.99993E-01
23	.00000E+00	.00000E+00	6.95248E-01	8.39165E-01	5.51057E-01	1.20981E-02	1.30090E-01	1.00001E+00
24	.00000E+00	.00000E+00	7.09544E-01	7.33724E-01	5.66368E-01	1.33018E-02	1.29869E-01	1.00001E+00
25	.00000E+00	.00000E+00	4.56501E-01	2.97857E-01	3.83194E-01	7.55472E-03	6.57505E-02	1.00000E+00
26	.00000E+00	.00000E+00	3.59984E-01	3.15751E-01	2.91638E-01	7.29449E-03	6.10573E-02	9.99983E-01
27	.00000E+00	.00000E+00	1.19468E-01	6.58655E-02	1.00339E-01	2.50622E-03	1.66230E-02	9.99978E-01
28	.00000E+00	.00000E+00	9.29610E+00	9.21227E+00	9.29610E+00	5.91468E-02	-5.88402E-02	9.99967E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.64997E-01	2.10805E-09	1.65766E-01	8.12454E-03	4.26597E-10	.00000E+00	.00000E+00	1.88841E-01
2	1.23071E+00	-4.87721E-08	1.24208E+00	9.59318E-02	.00000E+00	.00000E+00	.00000E+00	1.40909E+00
3	1.56413E+00	-3.94333E-09	1.58170E+00	1.31526E-01	.00000E+00	.00000E+00	.00000E+00	1.79140E+00
4	9.70570E-01	2.16520E-08	9.88810E-01	8.72619E-02	.00000E+00	.00000E+00	.00000E+00	1.11211E+00
5	1.46501E+00	-2.23687E-08	1.48743E+00	1.39325E-01	.00000E+00	.00000E+00	.00000E+00	1.67885E+00
6	2.81868E+00	2.37693E-07	2.86271E+00	2.66624E-01	.00000E+00	.00000E+00	.00000E+00	3.23018E+00
7	2.78100E+00	1.75371E-07	2.80637E+00	1.53681E-01	.00000E+00	.00000E+00	.00000E+00	3.18488E+00
8	2.06382E+00	-1.20095E-07	2.06574E+00	1.48471E-02	.00000E+00	.00000E+00	.00000E+00	2.36139E+00
9	1.60356E+00	-4.92143E-08	1.60140E+00	-1.56034E-02	.00000E+00	.00000E+00	.00000E+00	1.83519E+00
10	1.46680E+00	-6.01523E-08	1.46198E+00	-2.69973E-02	.00000E+00	.00000E+00	.00000E+00	1.67842E+00
11	1.35177E+00	-4.26168E-08	1.34164E+00	-5.74517E-02	.00000E+00	.00000E+00	.00000E+00	1.54634E+00
12	8.51598E-01	-1.92106E-08	8.40460E-01	-6.50883E-02	.00000E+00	.00000E+00	.00000E+00	9.73852E-01
13	7.20153E-01	-1.56201E-09	7.11196E-01	-5.46235E-02	.00000E+00	.00000E+00	.00000E+00	8.23711E-01
14	6.65674E-01	1.05850E-08	6.52118E-01	-8.06213E-02	.00000E+00	.00000E+00	.00000E+00	7.60959E-01
15	3.78573E-01	2.09122E-06	3.78128E-01	-8.27207E-03	.00000E+00	.00000E+00	.00000E+00	4.33663E-01
16	2.10948E-01	1.64750E-06	2.10436E-01	-4.78543E-03	.00000E+00	.00000E+00	.00000E+00	2.41509E-01
17	9.27525E-02	-3.35600E-06	9.19909E-02	-4.74423E-03	.00000E+00	.00000E+00	.00000E+00	1.06115E-01
18	7.36155E-02	-3.21498E-06	7.17207E-02	-1.05777E-02	.00000E+00	.00000E+00	.00000E+00	8.40789E-02
19	1.44266E-01	-5.37192E-06	1.43004E-01	-7.91861E-03	.00000E+00	.00000E+00	.00000E+00	1.65046E-01
20	4.73085E-01	3.61124E-06	4.69219E-01	-2.40467E-02	.00000E+00	.00000E+00	.00000E+00	5.41245E-01
21	1.43393E-01	-8.45319E-06	1.39818E-01	-1.93165E-02	.00000E+00	.00000E+00	.00000E+00	1.63778E-01
22	2.82468E-01	3.57357E-06	2.72111E-01	-5.51040E-02	.00000E+00	.00000E+00	.00000E+00	3.22299E-01
23	8.89289E-01	-5.71100E-07	8.62108E-01	-1.30090E-01	.00000E+00	.00000E+00	.00000E+00	1.01456E+00
24	6.71217E-01	-2.53733E-06	6.39951E-01	-1.29871E-01	.00000E+00	.00000E+00	.00000E+00	7.63641E-01
25	2.89473E-01	-1.55391E-06	2.71783E-01	-6.57520E-02	.00000E+00	.00000E+00	.00000E+00	3.28362E-01
26	1.97669E-01	7.85225E-06	1.77959E-01	-6.10495E-02	.00000E+00	.00000E+00	.00000E+00	2.22404E-01
27	3.65267E-02	2.27438E-07	2.98025E-02	-1.66228E-02	.00000E+00	.00000E+00	.00000E+00	4.03129E-02
28	2.36019E+01	-5.96958E-06	2.35604E+01	5.88338E-02	4.26597E-10	.00000E+00	.00000E+00	2.70022E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.19649E-02	.00000E+00	2.18660E-02	2.07350E-02	3.56436E-03	2.10805E-09	9.98825E-01
2	.00000E+00	1.90919E-01	7.17069E-03	2.66643E-01	1.83451E-01	1.46527E-02	-4.87721E-08	1.00002E+00
3	.00000E+00	2.15337E-01	7.56396E-02	2.79053E-01	2.75267E-01	1.57133E-02	-3.94333E-09	9.99987E-01
4	.00000E+00	1.24201E-01	1.13674E-01	1.92747E-01	2.30524E-01	7.55087E-03	2.16520E-08	1.00000E+00
5	.00000E+00	1.65227E-01	2.07976E-01	4.89003E-01	3.68584E-01	4.62399E-03	-2.23687E-08	9.99989E-01
6	.00000E+00	1.78924E-01	4.26992E-01	1.34375E+00	5.98476E-01	7.43082E-03	2.37693E-07	1.00001E+00
7	.00000E+00	8.86746E-02	6.62744E-01	1.77541E+00	7.43336E-01	8.09134E-03	1.75371E-07	9.99989E-01
8	.00000E+00	1.36799E-02	7.79858E-01	1.78977E+00	7.79111E-01	1.44898E-02	-1.20095E-07	9.99921E-01
9	.00000E+00	9.93164E-04	7.69667E-01	1.55496E+00	7.46198E-01	2.45449E-02	-4.92143E-08	9.99893E-01
10	.00000E+00	7.37715E-05	7.42994E-01	1.40792E+00	7.05827E-01	3.73147E-02	-6.01523E-08	9.99900E-01
11	.00000E+00	5.80390E-06	7.10890E-01	1.29941E+00	6.50469E-01	6.04375E-02	-4.26168E-08	9.99942E-01
12	.00000E+00	4.07714E-07	5.67543E-01	7.02662E-01	5.03155E-01	6.44037E-02	-1.92106E-08	9.99974E-01
13	.00000E+00	6.47414E-08	4.99094E-01	5.53120E-01	4.40338E-01	5.87703E-02	-1.56201E-09	9.99971E-01
14	.00000E+00	1.28300E-08	4.76906E-01	5.12730E-01	3.96034E-01	8.08780E-02	1.05850E-08	9.99989E-01
15	.00000E+00	1.44993E-09	2.60667E-01	2.35696E-01	2.52587E-01	8.06416E-03	2.09122E-06	1.00005E+00
16	.00000E+00	4.25751E-10	1.77642E-01	1.09595E-01	1.72583E-01	5.04761E-03	1.64750E-06	1.00005E+00
17	.00000E+00	1.37112E-10	9.56281E-02	3.51195E-02	9.03140E-02	5.30938E-03	-3.35600E-06	1.00008E+00
18	.00000E+00	9.81685E-11	8.55308E-02	2.64565E-02	7.35059E-02	1.20223E-02	-3.21493E-06	1.00007E+00
19	.00000E+00	1.38789E-10	1.38113E-01	6.94949E-02	1.30621E-01	7.48710E-03	-5.37192E-06	1.00008E+00
20	.00000E+00	2.25686E-10	3.28365E-01	3.86095E-01	2.99821E-01	2.85247E-02	3.61124E-06	1.00005E+00
21	.00000E+00	3.30331E-11	1.61790E-01	8.07930E-02	1.40925E-01	2.08608E-02	-8.45319E-06	1.00008E+00

22	.00000E+00	3.83259E-11	3.03604E-01	2.13487E-01	2.43719E-01	5.98741E-02	3.57357E-06	1.00002E+00
23	.00000E+00	3.66438E-11	7.12952E-01	1.07285E+00	5.75034E-01	1.37859E-01	-5.71100E-07	1.00006E+00
24	.00000E+00	9.97397E-12	7.38426E-01	8.92745E-01	5.95276E-01	1.43121E-01	-2.53733E-06	1.00004E+00
25	.00000E+00	2.91973E-12	4.81342E-01	3.57749E-01	4.01982E-01	7.93486E-02	-1.55391E-06	1.00008E+00
26	.00000E+00	2.04733E-12	3.71811E-01	3.57384E-01	2.99769E-01	7.20358E-02	7.85225E-06	9.99998E-01
27	.00000E+00	4.87885E-13	1.21985E-01	7.23509E-02	1.01512E-01	2.04720E-02	2.27438E-07	1.00001E+00
28	.00000E+00	1.00000E+00	1.00190E+01	1.61017E+01	1.00190E+01	1.00249E+00	-5.99568E-06	9.99785E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*df**2	total flux
1	1.64997E-01	2.10805E-09	1.72576E-01	.00000E+00	2.30590E-03	2.57414E-03	.00000E+00	3.47739E-01
2	1.23071E+00	-4.87721E-08	1.31441E+00	.00000E+00	1.75309E-05	1.17886E-02	.00000E+00	2.61089E+00
3	1.56413E+00	-3.94333E-09	1.67305E+00	.00000E+00	.00000E+00	1.45478E-02	.00000E+00	3.32164E+00
4	9.70670E-01	2.16520E-08	1.03912E+00	.00000E+00	.00000E+00	6.29661E-03	.00000E+00	2.06528E+00
5	1.46501E+00	-2.23687E-08	1.57395E+00	.00000E+00	.00000E+00	1.85640E-03	.00000E+00	3.11830E+00
6	2.81868E+00	2.37693E-07	3.02941E+00	.00000E+00	.00000E+00	1.67207E-03	.00000E+00	6.00050E+00
7	2.78100E+00	1.75371E-07	2.90442E+00	.00000E+00	.00000E+00	1.69873E-03	.00000E+00	5.86555E+00
8	2.06382E+00	-1.20093E-07	2.07939E+00	.00000E+00	.00000E+00	1.77522E-03	.00000E+00	4.30265E+00
9	1.60356E+00	-4.92143E-08	1.58549E+00	.00000E+00	.00000E+00	2.42091E-03	.00000E+00	3.32763E+00
10	1.46680E+00	-6.01523E-08	1.44347E+00	.00000E+00	.00000E+00	5.15569E-03	.00000E+00	3.03873E+00
11	1.35177E+00	-4.26168E-08	1.30199E+00	.00000E+00	.00000E+00	1.07150E-02	.00000E+00	2.78319E+00
12	8.51598E-01	-1.92106E-08	7.94341E-01	.00000E+00	.00000E+00	1.37916E-02	.00000E+00	1.73791E+00
13	7.20153E-01	-1.56201E-09	6.72804E-01	.00000E+00	.00000E+00	1.36260E-02	.00000E+00	1.47051E+00
14	6.65674E-01	1.05850E-08	5.95112E-01	.00000E+00	.00000E+00	9.17978E-03	.00000E+00	1.34296E+00
15	3.78673E-01	2.09122E-06	3.72168E-01	.00000E+00	.00000E+00	2.32477E-03	.00000E+00	7.84918E-01
16	2.10948E-01	1.64750E-06	2.07153E-01	.00000E+00	.00000E+00	1.56920E-03	.00000E+00	4.36998E-01
17	9.27525E-02	-3.35600E-06	8.87581E-02	.00000E+00	.00000E+00	2.20864E-03	.00000E+00	1.90646E-01
18	7.36155E-02	-3.21493E-06	6.42002E-02	.00000E+00	.00000E+00	2.54205E-03	.00000E+00	1.47443E-01
19	1.44266E-01	-5.37192E-06	1.37581E-01	.00000E+00	.00000E+00	3.54318E-03	.00000E+00	2.96270E-01
20	4.73085E-01	3.61124E-06	4.52738E-01	.00000E+00	.00000E+00	1.69539E-02	.00000E+00	9.72474E-01
21	1.43393E-01	-8.45319E-06	1.26547E-01	.00000E+00	.00000E+00	1.28783E-02	.00000E+00	2.88022E-01
22	2.82465E-01	3.57357E-06	2.32996E-01	.00000E+00	.00000E+00	3.65695E-02	.00000E+00	5.57494E-01
23	8.89289E-01	-5.71100E-07	7.74383E-01	.00000E+00	.00000E+00	8.32006E-02	.00000E+00	1.77813E+00
24	6.71217E-01	-2.53733E-06	5.52211E-01	.00000E+00	.00000E+00	8.61648E-02	.00000E+00	1.31936E+00
25	2.89473E-01	-1.55391E-06	2.26387E-01	.00000E+00	.00000E+00	4.96836E-02	.00000E+00	5.60524E-01
26	1.97859E-01	7.85225E-06	1.35701E-01	.00000E+00	.00000E+00	4.56895E-02	.00000E+00	3.68377E-01
27	3.65267E-02	2.27438E-07	1.74124E-02	.00000E+00	.00000E+00	1.27786E-02	.00000E+00	6.21659E-02
28	2.36019E+01	-5.96958E-06	2.35678E+01	.00000E+00	2.32343E-03	4.53203E-01	.00000E+00	4.90943E+01

- elapsed time .02 min.

Odirect access unit 9 requires 516 blocks of length 1456 for cross section weighting.

1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.32023E-03	2.46432E-02	3.14960E-02	1.91146E-02	2.92591E-02	5.58960E-02	3.18415E-02	4.61034E-03
2	3.63221E-03	3.82934E-02	4.86876E-02	2.94863E-02	4.49319E-02	8.46411E-02	4.80592E-02	6.95116E-03
3	2.95138E-03	3.26702E-02	4.29869E-02	2.71862E-02	4.23898E-02	8.04845E-02	4.60468E-02	5.53407E-03
4	1.01878E-03	1.20220E-02	1.64775E-02	1.09272E-02	1.74414E-02	3.33811E-02	1.95152E-02	1.98607E-03
5	1.69031E-03	1.87470E-02	2.46961E-02	1.56111E-02	2.43670E-02	4.65140E-02	2.66799E-02	3.29888E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.76323E-03	5.86906E-03	1.25367E-02	1.44708E-02	1.21700E-02	1.78675E-02	1.82534E-03	1.05963E-03
2	7.15452E-03	8.80490E-03	1.88576E-02	2.18491E-02	1.83631E-02	2.71110E-02	2.71215E-03	1.58962E-03
3	5.75377E-03	8.26024E-03	1.76352E-02	2.02020E-02	1.69731E-02	2.50551E-02	2.53800E-03	1.47790E-03
4	1.91944E-03	3.36057E-03	7.16180E-03	8.11418E-03	6.85335E-03	1.00771E-02	1.10575E-03	6.22081E-04
5	3.33909E-03	4.78343E-03	1.02084E-02	1.16847E-02	9.84101E-03	1.44731E-02	1.51738E-03	8.70663E-04

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.05475E-03	2.33689E-03	1.76176E-03	5.37297E-03	4.22154E-03	1.20619E-02	2.84650E-02	2.83012E-02
2	1.59250E-03	3.58292E-03	2.63450E-03	8.07731E-03	6.43045E-03	1.85115E-02	4.32459E-02	4.33146E-02
3	1.47298E-03	3.29918E-03	2.44771E-03	7.46892E-03	5.97175E-03	1.71157E-02	4.01916E-02	4.01905E-02
4	5.96243E-04	1.30954E-03	9.99810E-04	3.03522E-03	2.40481E-03	6.86900E-03	1.65054E-02	1.64319E-02
5	8.54371E-04	1.89117E-03	1.42751E-03	4.34696E-03	3.43847E-03	9.83099E-03	2.33356E-02	2.32414E-02

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	1.44409E-02	1.31470E-02	3.44384E-03	3.84351E-01
2	2.22286E-02	2.05503E-02	5.66049E-03	5.86934E-01

3	2.04903E-02	1.89825E-02	5.19966E-03	5.40975E-01
4	8.29796E-03	7.56765E-03	1.90505E-03	2.17707E-01
5	1.18116E-02	1.07995E-02	2.81431E-03	3.12114E-01

1 240 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0cell averaged fluxes

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.70692E-01	1.29416E+00	1.64749E+00	1.02366E+00	1.54988E+00	2.98152E+00	2.87567E+00	2.07444E+00
2	1.67548E-01	1.26141E+00	1.60707E+00	9.99721E-01	1.51239E+00	2.91177E+00	2.83454E+00	2.06721E+00
3	1.66402E-01	1.24956E+00	1.59208E+00	9.90752E-01	1.49870E+00	2.88529E+00	2.81946E+00	2.06494E+00
4	1.64993E-01	1.23114E+00	1.56517E+00	9.71662E-01	1.46683E+00	2.82225E+00	2.78268E+00	2.06318E+00
5	1.67064E-01	1.25437E+00	1.59584E+00	9.91275E-01	1.49815E+00	2.88286E+00	2.81802E+00	2.06715E+00

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59046E+00	1.44919E+00	1.31426E+00	8.08612E-01	6.84621E-01	6.12646E-01	3.74037E-01	2.08164E-01
2	1.59784E+00	1.45723E+00	1.33160E+00	8.28980E-01	7.01506E-01	6.37861E-01	3.76594E-01	2.09588E-01
3	1.60013E+00	1.45986E+00	1.33719E+00	8.35452E-01	7.06969E-01	6.45905E-01	3.77442E-01	2.10065E-01
4	1.60343E+00	1.46646E+00	1.35106E+00	8.50869E-01	7.19688E-01	6.64860E-01	3.78898E-01	2.11010E-01
5	1.59871E+00	1.45992E+00	1.33714E+00	8.34953E-01	7.06488E-01	6.45205E-01	3.77103E-01	2.09949E-01

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.97398E-02	6.64960E-02	1.39255E-01	4.57807E-01	1.30620E-01	2.45133E-01	8.01802E-01	5.79882E-01
2	9.11561E-02	6.98580E-02	1.41621E-01	4.65042E-01	1.36517E-01	2.62748E-01	8.41092E-01	6.19751E-01
3	9.16263E-02	7.09144E-02	1.42394E-01	4.67401E-01	1.38376E-01	2.68071E-01	8.53064E-01	6.31378E-01
4	9.27138E-02	7.34609E-02	1.44203E-01	4.72893E-01	1.43093E-01	2.81597E-01	8.86436E-01	6.67204E-01
5	9.15952E-02	7.08372E-02	1.42339E-01	4.67212E-01	1.38376E-01	2.67841E-01	8.54277E-01	6.33868E-01

0zone	grp. 25	grp. 26	grp. 27
1	2.40893E-01	1.49532E-01	2.13871E-02
2	2.61856E-01	1.69242E-01	2.74920E-02
3	2.67666E-01	1.74396E-01	2.88879E-02
4	2.86895E-01	1.94317E-01	3.52220E-02
5	2.69296E-01	1.76982E-01	2.98687E-02

0flux disadvantage factors (zone average/cell average-flux)

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.02172E+00	1.03172E+00	1.03237E+00	1.03267E+00	1.03419E+00	1.03422E+00	1.02042E+00	1.00353E+00
2	1.00290E+00	1.00561E+00	1.00704E+00	1.00852E+00	1.00951E+00	1.01003E+00	1.00589E+00	1.00003E+00
3	9.96038E-01	9.96167E-01	9.97648E-01	9.99473E-01	1.00057E+00	1.00084E+00	1.00051E+00	9.98933E-01
4	9.87605E-01	9.81488E-01	9.80781E-01	9.80215E-01	9.79099E-01	9.78978E-01	9.87458E-01	9.98079E-01
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	9.94857E-01	9.92650E-01	9.82885E-01	9.68452E-01	9.69049E-01	9.49537E-01	9.91868E-01	9.91502E-01
2	9.99455E-01	9.98161E-01	9.95854E-01	9.92846E-01	9.92948E-01	9.88618E-01	9.98650E-01	9.98285E-01
3	1.00089E+00	9.99961E-01	1.00003E+00	1.00060E+00	1.00068E+00	1.00109E+00	1.00090E+00	1.00056E+00
4	1.00295E+00	1.00448E+00	1.01040E+00	1.01905E+00	1.01868E+00	1.03046E+00	1.00478E+00	1.00505E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.79765E-01	9.38716E-01	9.78334E-01	9.79871E-01	9.43951E-01	9.15220E-01	9.38574E-01	9.14831E-01
2	9.95229E-01	9.86177E-01	9.94957E-01	9.95356E-01	9.86564E-01	9.80988E-01	9.84566E-01	9.77728E-01
3	1.00036E+00	1.00109E+00	1.00089E+00	1.00040E+00	9.99995E-01	1.00086E+00	9.98580E-01	9.96071E-01
4	1.01224E+00	1.03704E+00	1.01310E+00	1.01216E+00	1.03409E+00	1.05136E+00	1.03764E+00	1.05259E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

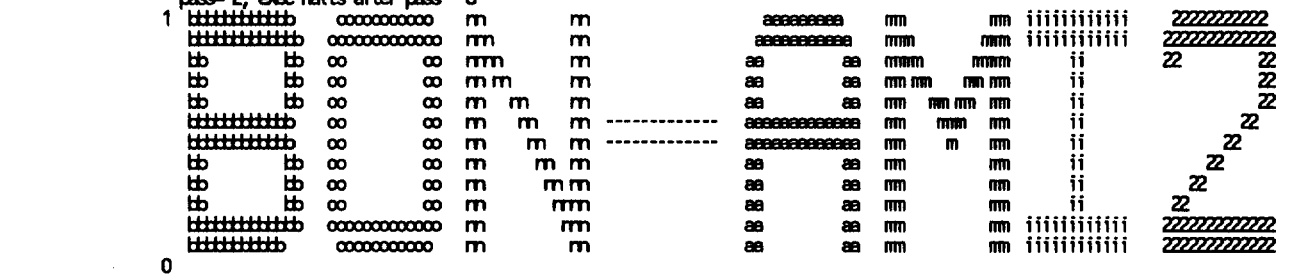
0zone	grp. 25	grp. 26	grp. 27
1	8.94530E-01	8.43769E-01	7.16037E-01
2	9.72573E-01	9.56267E-01	9.20431E-01
3	9.93948E-01	9.85395E-01	9.67165E-01
4	1.06535E+00	1.09795E+00	1.17923E+00
5	1.00000E+00	1.00000E+00	1.00000E+00

0cell averaged currents

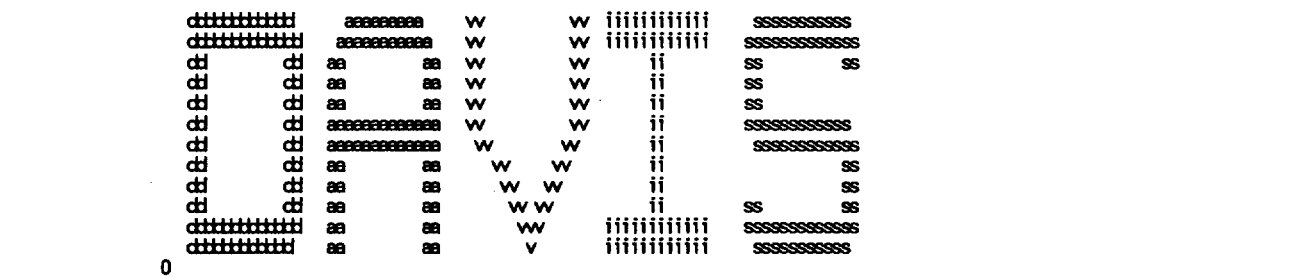
0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.52023E-03	2.44432E-02	3.14960E-02	1.91146E-02	2.92591E-02	5.58960E-02	3.18415E-02	4.61034E-03

```
    2 3.63221E-03 3.82934E-02 4.86876E-02 2.94863E-02 4.49319E-02 8.46411E-02 4.80592E-02 6.93116E-03
    3 2.95138E-03 3.26702E-02 4.29659E-02 2.71862E-02 4.23898E-02 8.04845E-02 4.60468E-02 5.53407E-03
    4 1.01878E-03 1.20220E-02 1.64775E-02 1.09272E-02 1.74414E-02 3.33811E-02 1.95152E-02 1.98607E-03
    5 1.69031E-03 1.87470E-02 2.46961E-02 1.56111E-02 2.43670E-02 4.65140E-02 2.66799E-02 3.29888E-03
Ozone  grp. 9     grp. 10    grp. 11    grp. 12    grp. 13    grp. 14    grp. 15    grp. 16
    1 4.76323E-03 5.86906E-03 1.25367E-02 1.44708E-02 1.21700E-02 1.78675E-02 1.82534E-03 1.05963E-03
    2 7.15452E-03 8.80490E-03 1.88576E-02 2.18491E-02 1.83631E-02 2.71110E-02 2.71215E-03 1.58962E-03
    3 5.75377E-03 8.26024E-03 1.76352E-02 2.02020E-02 1.69731E-02 2.50551E-02 2.53800E-03 1.47790E-03
    4 1.91944E-03 3.36057E-03 7.16180E-03 8.11418E-03 6.85335E-03 1.00771E-02 1.10575E-03 6.22081E-04
    5 3.33909E-03 4.78343E-03 1.02084E-02 1.16847E-02 9.84101E-03 1.44731E-02 1.51738E-03 8.70663E-04
Ozone  grp. 17    grp. 18    grp. 19    grp. 20    grp. 21    grp. 22    grp. 23    grp. 24
    1 1.05475E-03 2.33689E-03 1.76176E-03 5.37297E-03 4.22154E-03 1.20619E-02 2.84650E-02 2.83012E-02
    2 1.59250E-03 3.58292E-03 2.63450E-03 8.07731E-03 6.43045E-03 1.85115E-02 4.32459E-02 4.33146E-02
    3 1.47296E-03 3.29918E-03 2.44771E-03 7.46892E-03 5.97175E-03 1.71157E-02 4.01916E-02 4.01905E-02
    4 5.96243E-04 1.30954E-03 9.99810E-04 3.03522E-03 2.40481E-03 6.86900E-03 1.65064E-02 1.64319E-02
    5 8.54371E-04 1.89117E-03 1.42751E-03 4.34696E-03 3.43847E-03 9.83099E-03 2.33356E-02 2.32414E-02
Ozone  grp. 25    grp. 26    grp. 27
    1 1.44409E-02 1.31470E-02 3.44384E-03
    2 2.22285E-02 2.05508E-02 5.66049E-03
    3 2.04903E-02 1.89825E-02 5.19966E-03
    4 8.29796E-03 7.56765E-03 1.90505E-03
    5 1.18116E-02 1.07995E-02 2.81431E-03
Ozone      volume     vol. fraction

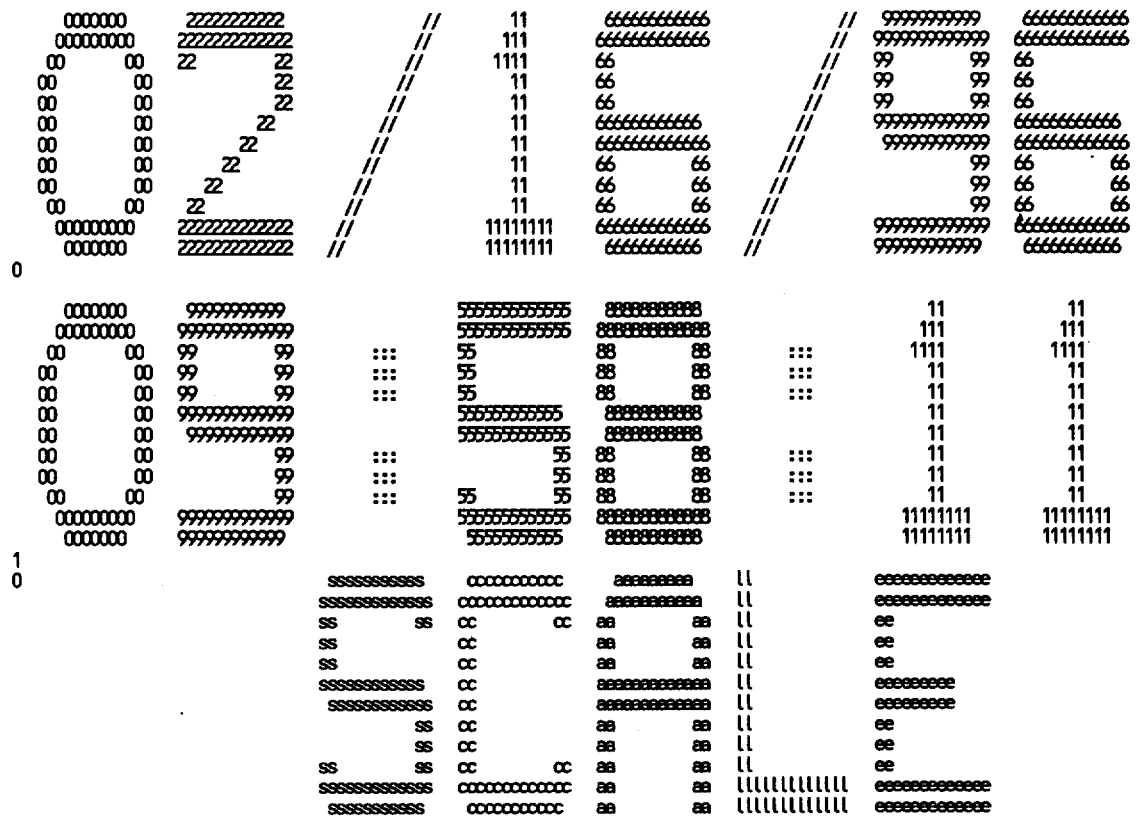
    1    6.88443E-01    3.30753E-01
    2    3.17352E-02    1.52468E-02
    3    2.16724E-01    1.04122E-01
    4    1.14454E+00    5.49878E-01
    5    2.08144E+00    1.00000E+00
 - elapsed time    .03 min.
 0requested parm=halt8,skipcellwt,skipshipdata
   pass= 2, exec halts after pass  8
```



```
0
```



```
0
```


program verification information
code system: scale version: 4.2
program: d0c008
creation date: 04/27/95

```
*****            library:  /neutronics/scale/exe                    *****
*****                                                               *****
*****                                                               *****
*****   this is not a   scale  configuration controlled code        *****
*****                                                               *****
*****            jobname:  davis                                    *****
*****                                                               *****
*****   date of execution:  02/16/96                                *****
*****                                                               *****
*****   time of execution:  09:58:11                                *****
*****                                                               *****
*****                                                               *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
```

```
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has      6 entries.
0        2q array has      2 entries.
1logical assignments
0master library   12
 working library  17
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere              2
0izm--number of zones or material regions                     4
0ms--mixing table length                                     70
0ibl--shielded cross section edit option (0/1--no/yes)        0
0ibr--bondarenko factor edit option (0/1--no/yes)             0
0issopt--dancoff factor option                                0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has     70 entries.
0        4q array has     70 entries.
0        5q array has     70 entries.
0        6q array has      4 entries.
0        7q array has      4 entries.
0        8q array has      4 entries.
0        9q array has      4 entries.
0       10q array has     70 entries.
0       11q array has      4 entries.
0m i x i n g   t a b l e
```

0entry	mixture	isotope	number density	new identifier
1	3	8016	2.09710E-02	201
2	3	1001	4.19420E-02	202
3	3	5010	3.81515E-06	203
4	3	5011	1.54884E-05	204
5	2	40302	4.25156E-02	205
6	1	92235	1.97093E-04	200006
7	1	92234	1.73586E-06	200007
8	1	92236	6.85418E-06	200008
9	1	92238	7.27846E-03	200009
10	1	8016	1.50611E-02	200010
11	1	8016	1.15315E-02	200011
12	1	36083	1.49788E-07	200012
13	1	36085	7.24877E-08	200013
14	1	38090	1.62222E-06	200014
15	1	39089	9.69799E-07	200015

16	1	42095	8.85393E-07	200016
17	1	40093	1.21166E-06	200017
18	1	40094	1.86811E-06	200018
19	1	40095	6.68494E-07	200019
20	1	41094	6.37185E-13	200020
21	1	43099	1.78738E-06	200021
22	1	45103	7.74208E-07	200022
23	1	45105	4.70797E-09	200023
24	1	44101	1.56517E-06	200024
25	1	44106	2.11021E-07	200025
26	1	46105	4.39806E-07	200026
27	1	46108	8.09598E-08	200027
28	1	47109	5.68571E-08	200028
29	1	51124	1.58536E-11	200029
30	1	54131	8.22527E-07	200030
31	1	54132	1.34631E-06	200031
32	1	54135	2.15375E-09	200032
33	1	54136	2.98490E-06	200033
34	1	55134	2.69282E-08	200034
35	1	55135	9.25459E-07	200035
36	1	55137	1.88977E-06	200036
37	1	56136	5.51117E-09	200037
38	1	57139	1.88760E-06	200038
39	1	59141	1.39034E-06	200039
40	1	59143	1.33567E-07	200040
41	1	58144	1.20205E-06	200041
42	1	60143	1.53714E-06	200042
43	1	60145	1.14105E-06	200043
44	1	61147	5.39173E-07	200044
45	1	61148	1.43795E-09	200045
46	1	60147	4.43675E-08	200046
47	1	62147	4.54726E-08	200047
48	1	62149	2.27445E-08	200048
49	1	62150	3.27241E-07	200049
50	1	62151	7.37387E-08	200050
51	1	62152	1.51696E-07	200051
52	1	64155	1.47720E-10	200052
53	1	63153	6.69315E-08	200053
54	1	63154	5.20859E-09	200054
55	1	63155	1.03382E-08	200055
56	1	40302	4.42681E-03	200056
57	1	1001	2.30530E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	1.93560E-06	200060
61	1	95237	2.03586E-07	200061
62	1	94238	7.98213E-09	200062
63	1	94239	1.44467E-05	200063
64	1	94240	1.07622E-06	200064
65	1	94241	2.48362E-07	200065
66	1	94242	6.83419E-09	200066
67	1	95241	2.00094E-09	200067
68	1	95243	1.38633E-10	200068
69	1	96244	3.02219E-12	200069
70	1	999	3.30753E-21	200070

Geometry and material description

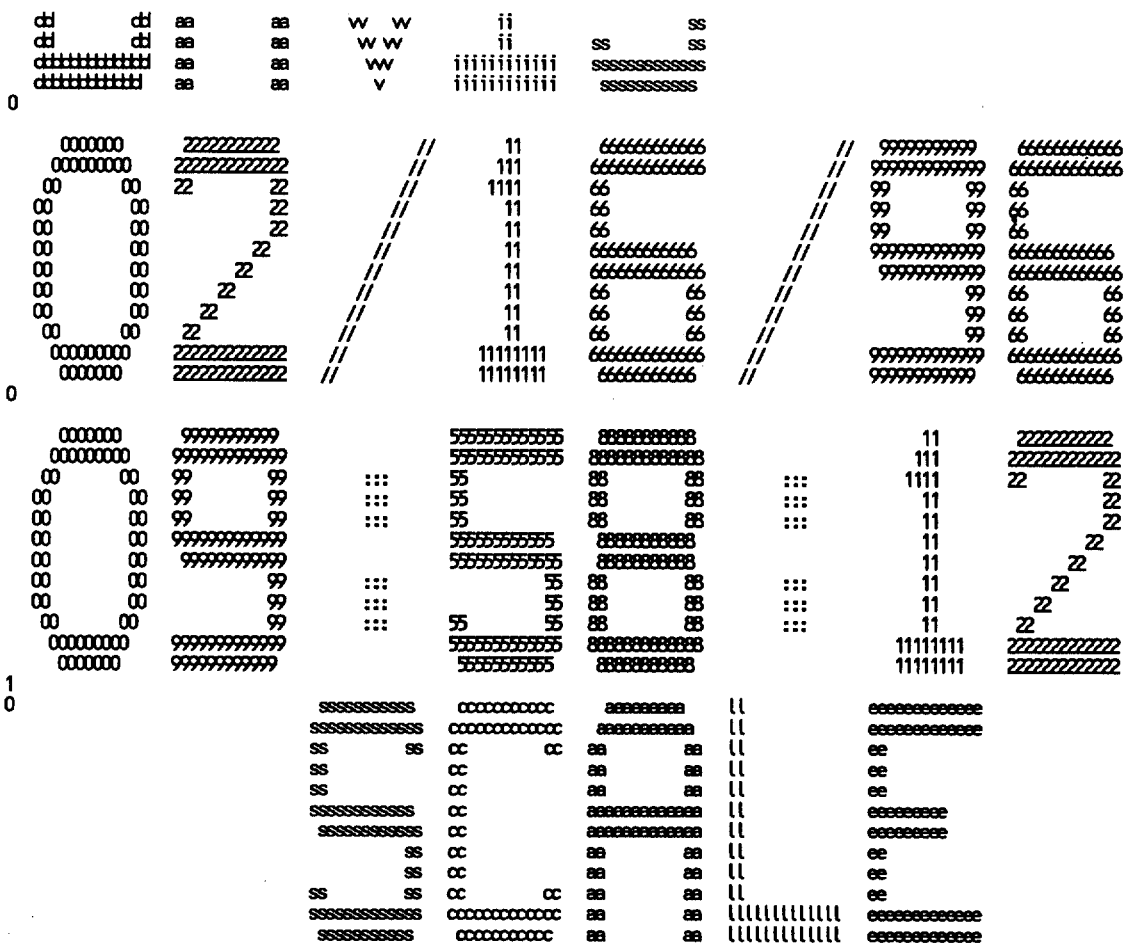
Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.32460E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.23052E+01	0
3	3	8.14000E-01	6.07600E+02	3.54862E+00	0

```
   4     1          2.96100E+00    9.75000E+02    2.32883E-01           0
     8067 locations of   200000 available are required to make a new master containing the self-shielded values
0no nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical  1
0copy      999  1/v cross sectio from log 12 to log  1   bondarenko trigger 0
0copy     1001   hydrogen        from log 12 to log 18   bondarenko trigger 0
0copy     1001   hydrogen        from log 18 to log  1   bondarenko trigger 0
0copy     1001   hydrogen        from log 18 to log  1   bondarenko trigger 0
0copy     5010  b-10 1273 218ngp from log 12 to log 18   bondarenko trigger 0
0copy     5010  b-10 1273 218ngp from log 18 to log  1   bondarenko trigger 0
0copy     5010  b-10 1273 218ngp from log 18 to log  1   bondarenko trigger 0
0copy     5011   boron-11        from log 12 to log 18   bondarenko trigger 0
0copy     5011   boron-11        from log 18 to log  1   bondarenko trigger 0
0copy     5011   boron-11        from log 18 to log  1   bondarenko trigger 0
0copy     8016   oxygen-16       from log 12 to log 18   bondarenko trigger 0
0copy     8016   oxygen-16       from log 18 to log  1   bondarenko trigger 0
0copy     8016   oxygen-16       from log 18 to log  1   bondarenko trigger 0
0copy     8016   oxygen-16       from log 18 to log  1   bondarenko trigger 0
0copy    36083   kr-83           from log 12 to log  1   bondarenko trigger 0
0copy    36085   kr-85           from log 12 to log  1   bondarenko trigger 0
0copy    38090   sr-90           from log 12 to log  1   bondarenko trigger 0
0copy    39089    y-89           from log 12 to log  1   bondarenko trigger 0
0copy    40093   zr-93           from log 12 to log  1   bondarenko trigger 0
0copy    40094   zr-94           from log 12 to log  1   bondarenko trigger 0
0copy    40095   zr-95           from log 12 to log  1   bondarenko trigger 0
0copy    40302   zircalloy       from log 12 to log 18   bondarenko trigger 0
0copy    40302   zircalloy       from log 18 to log  1   bondarenko trigger 0
0copy    40302   zircalloy       from log 18 to log  1   bondarenko trigger 0
0copy    41094   nb-94           from log 12 to log  1   bondarenko trigger 0
0copy    42095   mo-95           from log 12 to log  1   bondarenko trigger 0
0copy    43099   tc-99           from log 12 to log  1   bondarenko trigger 0
0copy    44101   ru-101          from log 12 to log  1   bondarenko trigger 0
0copy    44106   ru-106          from log 12 to log  1   bondarenko trigger 0
0copy    45103   rh-103          from log 12 to log  1   bondarenko trigger 0
0copy    45105   rh-105          from log 12 to log  1   bondarenko trigger 0
0copy    46105   pd-105          from log 12 to log  1   bondarenko trigger 0
0copy    46108   pd-108          from log 12 to log  1   bondarenko trigger 0
0copy    47109   silver-109      from log 12 to log  1   bondarenko trigger 0
0copy    51124   sb-124          from log 12 to log  1   bondarenko trigger 0
0copy    54131   xe-131          from log 12 to log  1   bondarenko trigger 0
0copy    54132   xe-132          from log 12 to log  1   bondarenko trigger 0
0copy    54135   xenon-135       from log 12 to log  1   bondarenko trigger 0
0copy    54136   xe-136          from log 12 to log  1   bondarenko trigger 0
0copy    55133   cesium-133      from log 12 to log  1   bondarenko trigger 0
0copy    55134   cs-134          from log 12 to log  1   bondarenko trigger 0
0copy    55135   cs-135          from log 12 to log  1   bondarenko trigger 0
0copy    55137   cs-137          from log 12 to log  1   bondarenko trigger 0
0copy    56136   ba-136          from log 12 to log  1   bondarenko trigger 0
0copy    57139   la-139          from log 12 to log  1   bondarenko trigger 0
0copy    58144   ce-144          from log 12 to log  1   bondarenko trigger 0
0copy    59141   pr-141          from log 12 to log  1   bondarenko trigger 0
0copy    59143   pr-143          from log 12 to log  1   bondarenko trigger 0
0copy    60143   nd-143          from log 12 to log  1   bondarenko trigger 0
0copy    60145   nd-145          from log 12 to log  1   bondarenko trigger 0
0copy    60147   nd-147          from log 12 to log  1   bondarenko trigger 0
0copy    61147   pm-147          from log 12 to log  1   bondarenko trigger 0
0copy    61148   pm-148          from log 12 to log  1   bondarenko trigger 0
0copy    62147   sm-147          from log 12 to log  1   bondarenko trigger 0
0copy    62149   sm-149          from log 12 to log  1   bondarenko trigger 0
0copy    62150   sm-150          from log 12 to log  1   bondarenko trigger 0
0copy    62151   sm-151          from log 12 to log  1   bondarenko trigger 0
```

```
0copy    62152  sm-152          from log 12 to log  1   bondarenko trigger 0
0copy    63153  eu-153          from log 12 to log  1   bondarenko trigger 0
0copy    63154  eu-154          from log 12 to log  1   bondarenko trigger 0
0copy    63155  eu-155          from log 12 to log  1   bondarenko trigger 0
0copy    64155  gd-155          from log 12 to log  1   bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1   bondarenko trigger 0
0copy    92235  uranium-235     from log 12 to log  1   bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1   bondarenko trigger 0
0copy    92238  uranium-238     from log 12 to log  1   bondarenko trigger 0
0copy    93237  neptunium-237   from log 12 to log  1   bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1   bondarenko trigger 0
0copy    94239  plutonium-239   from log 12 to log  1   bondarenko trigger 0
0copy    94240  plutonium-240   from log 12 to log  1   bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1   bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1   bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1   bondarenko trigger 0
0copy    95243  am-243 1057 218 from log 12 to log  1   bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1   bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
             last updated      9/16/93
                l.m.petrie   -   ornl
        tape id                          4321        number of nuclides                  70
        number of neutron groups           27        number of gamma groups               0
        first thermal group                15        logical unit                         1
                                  table of contents
      1/v cross sections normalized to 1.0 at 0.0253 ev                          id   200070
       hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89             id      202
       hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89             id   200057
      b-10 1273 218ngp 042375 p-3 293k                                           id      203
      b-10 1273 218ngp 042375 p-3 293k                                           id   200058
       boron-11       endf/b-iv mat 1160            updated 10/13/89             id      204
       boron-11       endf/b-iv mat 1160            updated 10/13/89             id   200059
       oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id      201
       oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id   200010
       oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id   200011
       kr-83          mt=102,103,103,105,106,107    updated 10/13/89             id   200012
       kr-85            mt=  102                                                 id   200013
       sr-90          mt=102                        updated 10/13/89             id   200014
        y-89          mt=102                        updated 10/13/89             id   200015
       zr-93            mt=  102                                                 id   200017
       zr-94          mt=102                        updated 10/13/89             id   200018
       zr-95          mt=102                        updated 10/13/89             id   200019
       zircalloy      endf/b-iv mat 1284            updated 10/13/89             id      205
       zircalloy      endf/b-iv mat 1284            updated 10/13/89             id   200056
       nb-94          mt=102                        updated 10/13/89             id   200020
       mo-95          mt=102                        updated 10/13/89             id   200016
       tc-99          mt=102                        updated 10/13/89             id   200021
       ru-101         mt=102                        updated 10/13/89             id   200024
       ru-106         mt=102                        updated 10/13/89             id   200025
       rh-103         mt=102                        updated 10/13/89             id   200022
       rh-105           mt=  102                                                 id   200023
       pd-105         mt=102                        updated 10/13/89             id   200026
       pd-108         mt=102                        updated 10/13/89             id   200027
       silver-109     endf/b-iv mat 1139            updated 10/13/89             id   200028
       sb-124         mt=102                        updated 10/13/89             id   200029
       xe-131         mt=102,103,104,105,106        updated 10/13/89             id   200030
       xe-132         mt=102,103,104,105,106        updated 10/13/89             id   200031
       xenon-135      endf/b-iv mat 1294            updated 10/13/89             id   200032
```

```
        xe-136          mt=  102, 103, 104, 105, 107                          id   200033
        cesium-133      endf/b-iv mat 1141          updated 10/13/89          id   200060
        cs-134          mt=102                      updated 10/13/89          id   200034
        cs-135          mt=  102                                              id   200035
        cs-137          mt=102                      updated 10/13/89          id   200036
        ba-136          mt=102                      updated 10/13/89          id   200037
        la-139          mt=102                      updated 10/13/89          id   200038
        ce-144          mt=  102                                              id   200041
        pr-141          mt=102,103,104,105,106,107  updated 10/13/89          id   200039
        pr-143          mt=102                      updated 10/13/89          id   200040
        nd-143          mt=102                      updated 10/13/89          id   200042
        nd-145          mt=102                      updated 10/13/89          id   200043
        nd-147          mt=102                      updated 10/13/89          id   200046
        pm-147          mt=102                      updated 10/13/89          id   200044
        pm-148          mt=  102                                              id   200045
        sm-147          endf/b-v fission product    updated 10/13/89          id   200047
        sm-149          mt=102,103,107              updated 10/13/89          id   200048
        sm-150          mt=102                      updated 10/13/89          id   200049
        sm-151          mt=102,103,104,105,106,107  updated 10/13/89          id   200050
        sm-152          mt=102,103,104,105,106,107  updated 10/13/89          id   200051
        eu-153          mt=102,103,104,105,106,107  updated 10/13/89          id   200053
        eu-154          mt=102,103,104,105,106,107  updated 10/13/89          id   200054
        eu-155          mt=102,103,104,105,106,107  updated 10/13/89          id   200055
        gd-155          mt=102                      updated 10/13/89          id   200052
       u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id   200007
        uranium-235     endf/b-iv mat 1261          updated 10/13/89          id   200006
       u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id   200008
        uranium-238     endf/b-iv mat 1262          updated 10/13/89          id   200009
        neptunium-237   endf/b-iv mat 1263          updated 10/13/89          id   200061
       pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                   id   200062
        plutonium-239   endf/b-iv mat 1264          updated 10/13/89          id   200063
        plutonium-240   endf/b-iv mat 1265          updated 10/13/89          id   200064
        plutonium-241   endf/b-iv mat 1266          updated 10/13/89          id   200065
        plutonium-242   endf/b-iv mat 1161          updated 10/13/89          id   200066
       am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                          id   200067
       am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           id   200068
        curium-244      endf/b-iv mat 1162          updated 10/13/89          id   200069
0       tape copy used      0 i/o's, and took     .00 seconds
1               m         m  iiiiiiiiiiii   ttttttttttt     aaaaaaaa    ww        ww  ll
                mm        m  iiiiiiiiiiii   ttttttttttt    aaaaaaaaaa   ww        ww  ll
                mmm       m      ii             tt        aa        aa  ww        ww  ll
                m mm      m      ii             tt        aa        aa  ww        ww  ll
                m  m      m      ii             tt        aa        aa  ww        ww  ll
                m   m     m      ii             tt        aaaaaaaaaaaa  ww    w   ww  ll
                m    m    m      ii             tt        aaaaaaaaaaaa  ww   www  ww  ll
                m     m   m      ii             tt        aa        aa  ww  ww ww  ww  ll
                m      mm m      ii             tt        aa        aa  ww ww   ww ww  ll
                m       mmm      ii             tt        aa        aa  wwww     wwww  ll
                m        mm iiiiiiiiiii        tt        aa        aa  www       www  lllllllllll
                m         m iiiiiiiiiii        tt        aa        aa  ww         ww  lllllllllll
0

  ddddddddd     aaaaaaaa    w        w iiiiiiiiiii   sssssssss
  ddddddddddd   aaaaaaaaa   w        w iiiiiiiiiii   ssssssssss
  dd       dd  aa       aa  w        w     ii       ss      ss
  dd       dd  aa       aa  w        w     ii       ss
  dd       dd  aa       aa  w        w     ii       ss
  dd       dd  aaaaaaaaaaa  w        w     ii       ssssssssss
  dd       dd  aaaaaaaaaaa   w      w      ii        ssssssssss
  dd       dd  aa       aa    w    w       ii              ss
```



program verification information

code system: scale version: 4.2

```
                    *****                                                                  *****
                    *****                                                                  *****
                    *****              program:  c0c002                                    *****
                    *****                                                                  *****
                    *****        creation date:  04/27/95                                  *****
                    *****                                                                  *****
                    *****              library:  /neutronics/scale/exe                     *****
                    *****                                                                  *****
                    *****                                                                  *****
                    *****    this is not a   scale  configuration controlled code          *****
                    *****                                                                  *****
                    *****              jobname:  davis                                     *****
                    *****                                                                  *****
                    *****    date of execution:  02/16/96                                  *****
                    *****                                                                  *****
                    *****    time of execution:  09:58:12                                  *****
                    *****                                                                  *****
                    *****                                                                  *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has     12 entries.
0select  5 nuclides from the master  library on logical  1
        65 nuclides from the working library on logical  3
         0 nuclides from the working library on logical  0
           to create the new working library on logical  4

         1 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has     70 entries.
0        3q array has     15 entries.
0        4q array has      5 entries.
0 general information concerning cross section library
    tape identification number                 4349
    number of nuclides on tape                   65
    number of neutron energy groups              27
    first thermal neutron energy group           15
    number of gamma energy groups                 0
0   direct access unit number  9 requires  72 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                           based on endf-b version 4 data with endf-b version 5 fission products
                              compiled for nrc      1/27/89
                                 last updated       9/16/93
                                    l.m.petrie   -   ornl
-  work tape   4349

 xsdrn weighted tape--parent case entitled--  240 d, sas2h: babcock wilcox 15x15,
  3.00wt%, 20gwd/mtu burn high temp

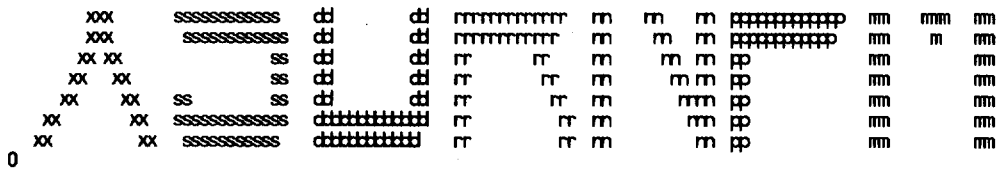

0 nuclides from xsdrn tape
    1     hydrogen        endf/b-iv mat 1269/thrm1002    updated 10/13/89              202
    2    b-10 1273 218ngp 042375 p-3 293k                                                203
    3     boron-11        endf/b-iv mat 1160             updated 10/13/89              204
```

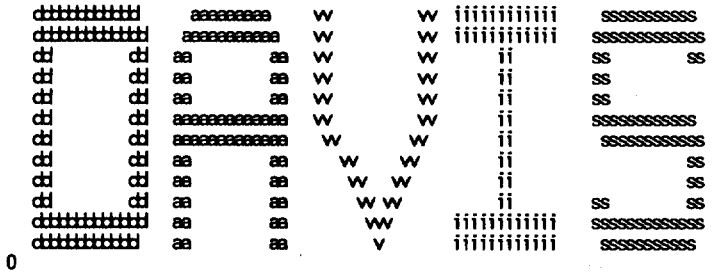
```
    4    oxygen-16      endf/b-iv mat 1276            updated 10/13/89          201
    5    zircalloy      endf/b-iv mat 1284            updated 10/13/89          205
0 nuclides from work tape
    6    1/v cross sections normalized to 1.0 at 0.0253 ev                      999
    7    hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89         1001
    8    b-10 1273 218ngp 042375 p-3 293k                                       5010
    9    boron-11       endf/b-iv mat 1160            updated 10/13/89         5011
   10    oxygen-16      endf/b-iv mat 1276            updated 10/13/89         8016
   11    oxygen-16      endf/b-iv mat 1276            updated 10/13/89            6
   12    kr-83          mt=102,103,103,105,106,107    updated 10/13/89        36083
   13    kr-85             mt=  102                                            36085
   14    sr-90          mt=102                        updated 10/13/89        38090
   15     y-89          mt=102                        updated 10/13/89        39089
   16    zr-93             mt=  102                                            40093
   17    zr-94          mt=102                        updated 10/13/89        40094
   18    zr-95          mt=102                        updated 10/13/89        40095
   19    zircalloy      endf/b-iv mat 1284            updated 10/13/89        40302
   20    nb-94          mt=102                        updated 10/13/89        41094
   21    mo-95          mt=102                        updated 10/13/89        42095
   22    tc-99          mt=102                        updated 10/13/89        43099
   23    ru-101         mt=102                        updated 10/13/89        44101
   24    ru-106         mt=102                        updated 10/13/89        44106
   25    rh-103         mt=102                        updated 10/13/89        45103
   26    rh-105            mt=  102                                            45105
   27    pd-105         mt=102                        updated 10/13/89        46105
   28    pd-108         mt=102                        updated 10/13/89        46108
   29    silver-109     endf/b-iv mat 1139            updated 10/13/89        47109
   30    sb-124         mt=102                        updated 10/13/89        51124
   31    xe-131         mt=102,103,104,105,106        updated 10/13/89        54131
   32    xe-132         mt=102,103,104,105,106        updated 10/13/89        54132
   33    xenon-135      endf/b-iv mat 1294            updated 10/13/89        54135
   34    xe-136            mt=  102, 103, 104, 105, 107                        54136
   35    cesium-133     endf/b-iv mat 1141            updated 10/13/89        55133
   36    cs-134         mt=102                        updated 10/13/89        55134
   37    cs-135            mt=  102                                            55135
   38    cs-137         mt=102                        updated 10/13/89        55137
   39    ba-136         mt=102                        updated 10/13/89        56136
   40    la-139         mt=102                        updated 10/13/89        57139
   41    ce-144            mt=  102                                            58144
   42    pr-141         mt=102,103,104,105,106,107    updated 10/13/89        59141
   43    pr-143         mt=102                        updated 10/13/89        59143
   44    nd-143         mt=102                        updated 10/13/89        60143
   45    nd-145         mt=102                        updated 10/13/89        60145
   46    nd-147         mt=102                        updated 10/13/89        60147
   47    pm-147         mt=102                        updated 10/13/89        61147
   48    pm-148            mt=  102                                            61148
   49    sm-147         endf/b-v fission product      updated 10/13/89        62147
   50    sm-149         mt=102,103,107                updated 10/13/89        62149
   51    sm-150         mt=102                        updated 10/13/89        62150
   52    sm-151         mt=102,103,104,105,106,107    updated 10/13/89        62151
   53    sm-152         mt=102,103,104,105,106,107    updated 10/13/89        62152
   54    eu-153         mt=102,103,104,105,106,107    updated 10/13/89        63153
   55    eu-154         mt=102,103,104,105,106,107    updated 10/13/89        63154
   56    eu-155         mt=102,103,104,105,106,107    updated 10/13/89        63155
   57    gd-155         mt=102                        updated 10/13/89        64155
   58    u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                   92234
   59    uranium-235    endf/b-iv mat 1261            updated 10/13/89        92235
   60    u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                   92236
   61    uranium-238    endf/b-iv mat 1262            updated 10/13/89        92238
   62    neptunium-237  endf/b-iv mat 1263            updated 10/13/89        93237
```

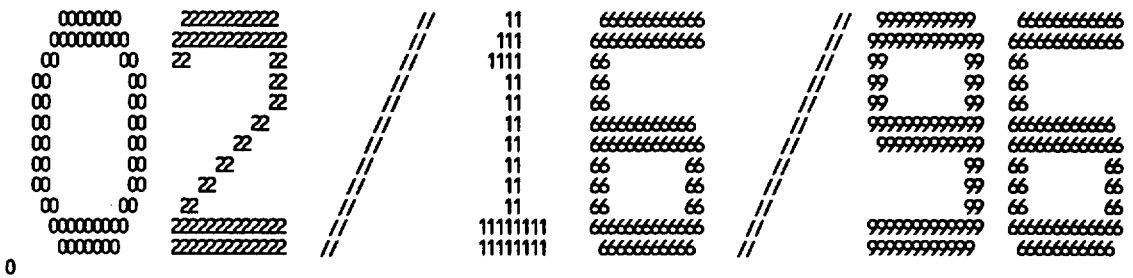
```
    63    pu-238 1050 sigp=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    94238
    64     plutonium-239  endf/b-iv mat 1264          updated 10/13/89           94239
    65     plutonium-240  endf/b-iv mat 1265          updated 10/13/89           94240
    66     plutonium-241  endf/b-iv mat 1266          updated 10/13/89           94241
    67     plutonium-242  endf/b-iv mat 1161          updated 10/13/89           94242
    68    am-241 1056 sigp=5+4 newxlacs 218ngp p-3 293k                           95241
    69    am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                            95243
    70     curium-244     endf/b-iv mat 1162          updated 10/13/89           96244
0 hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89          202    temperature=  607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                          203    temperature=  607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160          updated 10/13/89          204    temperature=  607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276          updated 10/13/89          201    temperature=  607.60
0 zircalloy      endf/b-iv mat 1284          updated 10/13/89          205    temperature=  650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)      =   650.000
0potential scatter sigma  =     6.385          lumped nuclear density   = 4.2515602E-02
0spin factor (g)          =     1.079          lump dimension (a-bar)   = 6.7309999E-01
0inner radius             = 6.3246000E-01      dancoff correction (c)   = 1.6805907E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   8     -1.156752E-03    .000000E+00   -7.806033E-01
   9     -4.625978E-02    .000000E+00   -2.073270E+00
  10     -5.962230E-02    .000000E+00   -1.351984E+00
  11     -1.761672E-01    .000000E+00   -7.350731E-01
0excess resonance integrals
0                 resolved
0absorption      2.92402E-01
 fission          .00000E+00
-  elapsed time    .00 min.
-  elapsed time    .02 min.
1     this xsdrn working tape was created 02/16/96 at 09:58:12
      the title of the parent case is as follows
      xsdrn weighted tape--parent case entitled--  240 d, sas2h: babcock wilcox 15x15,
       3.00wt%, 20gwd/mtu burn high temp

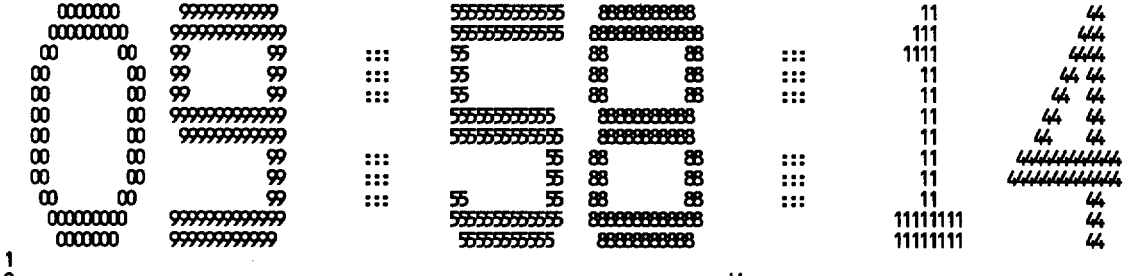
        tape id                          8670        number of nuclides              70
        number of neutron groups           27        number of gamma groups           0
        first thermal group                15        logical unit                     4
                                  table of contents
       hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89          id    202
      b-10 1273 218ngp 042375 p-3 293k                                         id    203
       boron-11       endf/b-iv mat 1160             updated 10/13/89          id    204
       oxygen-16      endf/b-iv mat 1276             updated 10/13/89          id    201
       zircalloy      endf/b-iv mat 1284             updated 10/13/89          id    205
      1/v cross sections normalized to 1.0 at 0.0253 ev                         id    999
       hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89          id   1001
      b-10 1273 218ngp 042375 p-3 293k                                         id   5010
       boron-11       endf/b-iv mat 1160             updated 10/13/89          id   5011
       oxygen-16      endf/b-iv mat 1276             updated 10/13/89          id   8016
       oxygen-16      endf/b-iv mat 1276             updated 10/13/89          id      6
       kr-83          mt=102,103,103,105,106,107     updated 10/13/89          id  36083
       kr-85             mt=  102                                               id  36085
       sr-90          mt=102                         updated 10/13/89          id  38090
        y-89          mt=102                         updated 10/13/89          id  39089
       zr-93             mt=  102                                               id  40093
```

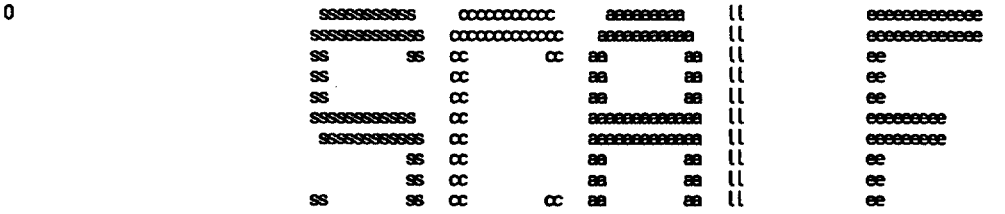
```
        zr-94          mt=102                          updated 10/13/89              id    40094
        zr-95          mt=102                          updated 10/13/89              id    40095
        zircalloy      endf/b-iv mat 1284              updated 10/13/89              id    40802
        nb-94          mt=102                          updated 10/13/89              id    41094
        mo-95          mt=102                          updated 10/13/89              id    42095
        tc-99          mt=102                          updated 10/13/89              id    43099
        ru-101         mt=102                          updated 10/13/89              id    44101
        ru-106         mt=102                          updated 10/13/89              id    44106
        rh-103         mt=102                          updated 10/13/89              id    45103
        rh-105           mt=  102                                                    id    45105
        pd-105         mt=102                          updated 10/13/89              id    46105
        pd-108         mt=102                          updated 10/13/89              id    46108
        silver-109     endf/b-iv mat 1139              updated 10/13/89              id    47109
        sb-124         mt=102                          updated 10/13/89              id    51124
        xe-131         mt=102,103,104,105,106          updated 10/13/89              id    54131
        xe-132         mt=102,103,104,105,106          updated 10/13/89              id    54132
        xenon-135      endf/b-iv mat 1294              updated 10/13/89              id    54135
        xe-136           mt=  102, 103, 104, 105, 107                              id    54136
        cesium-133     endf/b-iv mat 1141              updated 10/13/89              id    55133
        cs-134         mt=102                          updated 10/13/89              id    55134
        cs-135           mt=  102                                                    id    55135
        cs-137         mt=102                          updated 10/13/89              id    55137
        ba-136         mt=102                          updated 10/13/89              id    56136
        la-139         mt=102                          updated 10/13/89              id    57139
        ce-144           mt=  102                                                    id    58144
        pr-141         mt=102,103,104,105,106,107      updated 10/13/89              id    59141
        pr-143         mt=102                          updated 10/13/89              id    59143
        nd-143         mt=102                          updated 10/13/89              id    60143
        nd-145         mt=102                          updated 10/13/89              id    60145
        nd-147         mt=102                          updated 10/13/89              id    60147
        pm-147         mt=102                          updated 10/13/89              id    61147
        pm-148           mt=  102                                                    id    61148
        sm-147         endf/b-v fission product        updated 10/13/89              id    62147
        sm-149         mt=102,103,107                  updated 10/13/89              id    62149
        sm-150         mt=102                          updated 10/13/89              id    62150
        sm-151         mt=102,103,104,105,106,107      updated 10/13/89              id    62151
        sm-152         mt=102,103,104,105,106,107      updated 10/13/89              id    62152
        eu-153         mt=102,103,104,105,106,107      updated 10/13/89              id    63153
        eu-154         mt=102,103,104,105,106,107      updated 10/13/89              id    63154
        eu-155         mt=102,103,104,105,106,107      updated 10/13/89              id    63155
        gd-155         mt=102                          updated 10/13/89              id    64155
      u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                            id    92234
       uranium-235     endf/b-iv mat 1261              updated 10/13/89              id    92235
      u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                            id    92236
       uranium-238     endf/b-iv mat 1262              updated 10/13/89              id    92238
       neptunium-237   endf/b-iv mat 1263              updated 10/13/89              id    93237
      pu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                           id    94238
       plutonium-239   endf/b-iv mat 1264              updated 10/13/89              id    94239
       plutonium-240   endf/b-iv mat 1265              updated 10/13/89              id    94240
       plutonium-241   endf/b-iv mat 1266              updated 10/13/89              id    94241
       plutonium-242   endf/b-iv mat 1161              updated 10/13/89              id    94242
      am-241 1056 sigo=5+4 newklacs 218ngp p-3 293k                                  id    95241
      am-243 1057 218 gp wt f-1/e-m 090576 p3 293k                                   id    95243
       curium-244      endf/b-iv mat 1162              updated 10/13/89              id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
1 xx        xx   sssssssssss   ddddddddddd   rrrrrrrrrrr   rrr       mm  mm pppppppppp   mmm        mmm
   xx       xx  sssssssssssss  ddddddddddddd  rrrrrrrrrrrr  rrrr      mm  mm pppppppppppp  mmmm      mmmm
    xx     xx   ss      ss     dd     dd     rr     rr     rrrr     mm  mm pp     pp     mmmm    mmmm
     xx   xx    ss             dd     dd     rr     rr     rr rr    mm  mm pp     pp     mm mm   mm mm
      xx xx     ss             dd     dd     rr     rr     rr  rr   mm  mm pp     pp     mm  mm  mm mm
```











```
sssssssssssss   cccccccccccc   aa        aa   lllllllllllll   eeeeeeeeeeeee
 sssssssssss     cccccccccc    aa        aa   lllllllllllll   eeeeeeeeeeeee


*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****             program:  c0c001                                      *****
*****                                                                   *****
*****        creation date:  04/27/95                                   *****
*****                                                                   *****
*****             library:  /neutronics/scale/exe                       *****
*****                                                                   *****
*****                                                                   *****
*****    this is not a   scale  configuration controlled code           *****
*****                                                                   *****
*****             jobname:  davis                                       *****
*****                                                                   *****
*****    date of execution:  02/16/96                                   *****
*****                                                                   *****
*****    time of execution:  09:58:14                                   *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
                    240 d, second part of sas2h pass to make library
0       -1q array has     1 entries.
0        0q array has    11 entries.
0        1q array has    15 entries.
0        2q array has    10 entries.
0        3q array has    12 entries.
0        4q array has     9 entries.
0        5q array has    12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                   240 d, second part of sas2h pass to make library
0general problem description data block
0                          general problem data

 ige  1/2/3 = plane/cylinder/sphere      2      isn  quadrature order                  8
 izm  number of zones                    4      isct order of scattering               3
 im   number of spacial intervals       28      ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1      iim  inner iteration maximum          20
 ibr  right boundary condition           3      iom  outer iteration maximum          25
 mxx  number of mixtures                 3      iclc -1/0/n--flat res/sn/opt           0
 ms   mixing table length               70      ith  0/1 = forward/adjoint             0
 igm  number of energy groups           27      iflu not used(always wgtd)             0
```

```
 nng  number of neutron groups          27      iprt -2/-1/0/n=mixture xsec print      -2
 ngg  number of gamma groups             0      idl  0/1/2/3=no/prt nd/pch n/both      14
 iftg number of first thermal group     15      ipbt -1/0/1=none/fine/all bal. prt      0
0                                 special options

 ifg  0/1 = none/weighting calculation   1      ipn  0/1/2 diff. coef. param            0
 iqm  volumetric sources (0/n=no/yes)    0      idfm 0/1 = none/density factors 38*     0
 ipm  boundary sources (0/n=no/yes)      0      iaz  0/n = none/n activities by zone    0
 ifn  0/1/2 = input 33*/34*/use last    14      iai  0/1=none/activities by interval    0
 itmx maximum time (minutes)            10      ifct 0/1=no/yes upscatter scaling       0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0      ipvt 0/1/2=no/k/alpha parametric srch   0
 isx  broad group fluxes                 0      isen outer iteration acceleration       0
 ibln activity data unit                 0      nbnd band rebaln parameter              0
 jbkl 0/1/2 buckling geometry            0
0                                 weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1      ihtf total xsect psn in brd gp tables   3
 igmf number of broad groups             3      ndsf psn g-g or file number             4
 itp  0/10/20/30/40 0/c/e/ac/a           0      nusf table length or max order          6
 ipp  -2/-1/0/n=wgted xsect print       -2      msom extra 1-d x-sect positions         0
 iap  -1/n anisn xsect print            -1
0                                 floating point parameters

 eps  overall convergence       1.00000E-04      dy   cyl/pla ht for buckling    .00000E+00
 ptc  point convergence         1.00000E-04      dz   plane depth for buckling  2.00000E+02
 xnf  normalization factor      1.00000E+00      vsc  void streaming correction  .00000E+00
 ev   eigenvalue guess           .00000E+00      pv   ipvt=1/2--k/alpha          1.00000E+00
 evm  eigenvalue modifier        .00000E+00      eql  ev change eps for search   1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00      xrpm new param mod for search   7.50000E-01
     this case will require       2611 locations for mixing
     this case has been allocated 200000 locations
1                       240 d, second part of sas2h pass to make library
0       13q array has     70 entries.
0       14q array has     70 entries.
0       15q array has     70 entries.
0                                 data block 2 (mixing table, etc.)
0     nuclides        cccc                                 mixing table                                  extra
       on tape    identification                  mixture   component     atom density                 xsect id's
    1      202                                       3          201       2.09710E-02
    2      203                                       3          202       4.19420E-02
    3      204                                       3          203       3.81515E-06
    4      201                                       3          204       1.54884E-05
    5      205                                       2          205       4.25156E-02
    6      999                                       1        92235       1.97093E-04
    7     1001                                       1        92234       1.73586E-06
    8     5010                                       1        92236       6.85418E-06
    9     5011                                       1        92238       7.27846E-03
   10     8016                                       1         8016       1.50611E-02
   11        6                                       1            6       1.15315E-02
   12    36083                                       1        36083       1.49788E-07
   13    36085                                       1        36085       7.24877E-08
   14    38090                                       1        38090       1.62222E-06
   15    39089                                       1        39089       9.69799E-07
   16    40093                                       1        42095       8.85393E-07
   17    40094                                       1        40093       1.21166E-06
   18    40095                                       1        40094       1.86811E-06
   19    40302                                       1        40095       6.68494E-07
   20    41094                                       1        41094       6.37185E-13
   21    42095                                       1        43099       1.78738E-06
   22    43099                                       1        45103       7.74208E-07
```

23	44101	1	45105	4.70797E-09
24	44106	1	44101	1.56517E-06
25	45103	1	44106	2.11021E-07
26	45105	1	46105	4.39806E-07
27	46105	1	46108	8.09598E-08
28	46108	1	47109	5.68571E-08
29	47109	1	51124	1.58536E-11
30	51124	1	54131	8.22327E-07
31	54131	1	54132	1.34631E-06
32	54132	1	54135	2.15375E-09
33	54135	1	54136	2.98490E-06
34	54136	1	55134	2.69282E-08
35	55133	1	55135	9.25459E-07
36	55134	1	55137	1.88777E-06
37	55135	1	56136	5.51117E-09
38	55137	1	57139	1.88760E-06
39	56136	1	59141	1.39034E-06
40	57139	1	59143	1.33567E-07
41	58144	1	58144	1.20205E-06
42	59141	1	60143	1.53714E-06
43	59143	1	60145	1.14105E-06
44	60143	1	61147	5.39173E-07
45	60145	1	61148	1.43795E-09
46	60147	1	60147	4.43675E-08
47	61147	1	62147	4.54726E-08
48	61148	1	62149	2.27445E-08
49	62147	1	62150	3.27241E-07
50	62149	1	62151	7.37387E-08
51	62150	1	62152	1.51696E-07
52	62151	1	64155	1.47720E-10
53	62152	1	63153	6.69315E-08
54	63153	1	63154	5.20359E-09
55	63154	1	63155	1.03382E-08
56	63155	1	40302	4.42681E-03
57	64155	1	1001	2.30630E-02
58	92234	1	5010	2.09787E-06
59	92235	1	5011	8.51673E-06
60	92236	1	55133	1.93560E-06
61	92238	1	93237	2.03586E-07
62	93237	1	94238	7.98213E-09
63	94238	1	94239	1.44467E-05
64	94239	1	94240	1.07622E-06
65	94240	1	94241	2.48362E-07
66	94241	1	94242	6.83419E-09
67	94242	1	95241	2.00094E-09
68	95241	1	95243	1.38633E-10
69	95243	1	96244	3.02219E-12
70	96244	1	999	3.30753E-21

- elapsed time .00 min.
0 24259 locations will be used
0 35q array has 29 entries.
0 36q array has 28 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 240 d, second part of sas2h pass to make library
neutron group parameters

0	gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo

1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00
2	6.43400E+06	4.40989E-01	2.88737E+09	1	0	2	1.00000E+00
3	3.00000E+06	1.20397E+00	2.12201E+09	1	0	3	1.00000E+00
4	1.85000E+06	1.68740E+00	1.75673E+09	1	0	4	1.00000E+00
5	1.40000E+06	1.96611E+00	1.46535E+09	1	0	5	1.00000E+00
6	9.00000E+05	2.40795E+00	1.06620E+09	2	0	6	1.00000E+00
7	4.00000E+05	3.21888E+00	6.07557E+08	2	0	7	1.00000E+00
8	1.00000E+05	4.60517E+00	2.72415E+08	2	0	8	1.00000E+00
9	1.70000E+04	6.37713E+00	1.13526E+08	2	0	9	1.00000E+00
10	3.00000E+03	8.11173E+00	4.82126E+07	2	0	10	1.00000E+00
11	5.50000E+02	9.80818E+00	2.05946E+07	2	0	11	1.00000E+00
12	1.00000E+02	1.15129E+01	1.01086E+07	2	0	12	1.00000E+00
13	3.00000E+01	1.27169E+01	5.69595E+06	2	0	13	1.00000E+00
14	1.00000E+01	1.38155E+01	3.20957E+06	2	0	14	1.00000E+00
15	3.04999E+00	1.50030E+01	2.10601E+06	2	0	15	1.00000E+00
16	1.77000E+00	1.55471E+01	1.70522E+06	2	0	16	1.00000E+00
17	1.29999E+00	1.58557E+01	1.52545E+06	2	0	17	1.00000E+00
18	1.12999E+00	1.59959E+01	1.42867E+06	2	0	18	1.00000E+00
19	1.00000E+00	1.61181E+01	1.31002E+06	2	0	19	1.00000E+00
20	8.00000E-01	1.63412E+01	9.05898E+05	2	0	20	1.00000E+00
21	4.00000E-01	1.70344E+01	8.17974E+05	3	0	21	1.00000E+00
22	3.25000E-01	1.72420E+01	6.90070E+05	3	0	22	1.00000E+00
23	2.25000E-01	1.76098E+01	4.86953E+05	3	0	23	1.00000E+00
24	9.99999E-02	1.84207E+01	3.57866E+05	3	0	24	1.00000E+00
25	5.00000E-02	1.91138E+01	2.71895E+05	3	0	25	1.00000E+00
26	3.00000E-02	1.96247E+01	1.87283E+05	3	0	26	1.00000E+00
27	1.00000E-02	2.07233E+01	8.88201E+04	3	0	27	1.00000E+00
28	1.00000E-05	2.76310E+01					

1 240 d, second part of sas2h pass to make library

0

	mixture by zone	order p(l) by zone	activity table matl no.	activity table reaction	quadrature constants weights	quadrature constants directions	quadrature constants refl direc	quadrature constants wt x cos
1	3	3			0	-2.79004E-01	3	0
2	2	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	3	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	1	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28598E-02
7					5.55953E-02	2.31301E-01	6	1.28598E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02
16					0	-9.83052E-01	24	0
17					4.53365E-02	-9.64143E-01	24	-4.37099E-02
18					4.53365E-02	-8.17361E-01	23	-3.70555E-02
19					4.53365E-02	-5.46143E-01	22	-2.47597E-02
20					4.53365E-02	-1.91780E-01	21	-8.69444E-03
21					4.53365E-02	1.91780E-01	20	8.69444E-03
22					4.53365E-02	5.46143E-01	19	2.47597E-02
23					4.53365E-02	8.17361E-01	18	3.70555E-02
24					4.53365E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.85235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.85235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.85235E-01	.00000E+00	4.36228E-01	-1.21411E-02

4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.89032E-01	-4.49528E-01	8.36886E-01	5.00708E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20862E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20862E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17256E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17256E-01
22	5.46143E-01	-4.49528E-01	-3.20862E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20862E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.97644E-02	1	0	4.90881E-03		0	
2	3.95287E-02	5.92931E-02	1	2.48366E-01	1.47264E-02		0	
3	7.90575E-02	1.18586E-01	1	4.96733E-01	5.89057E-02		0	
4	1.58115E-01	1.97644E-01	1	9.93466E-01	9.81762E-02		0	
5	2.37172E-01	2.76701E-01	1	1.49020E+00	1.37447E-01			
6	3.16230E-01	3.55759E-01	1	1.98693E+00	1.76717E-01			
7	3.95288E-01	4.34816E-01	1	2.48366E+00	2.15988E-01			
8	4.74345E-01	5.13874E-01	1	2.98040E+00	2.55258E-01			
9	5.53403E-01	5.73167E-01	1	3.47713E+00	1.42355E-01			
10	5.92931E-01	6.12698E-01	1	3.72550E+00	1.52173E-01			
11	6.32460E-01	6.42620E-01	2	3.97386E+00	8.20460E-02			
12	6.52780E-01	6.62940E-01	2	4.10154E+00	8.46405E-02			
13	6.73100E-01	6.96583E-01	3	4.22921E+00	2.05562E-01			
14	7.20067E-01	7.43550E-01	3	4.52431E+00	2.19422E-01			
15	7.67033E-01	7.90517E-01	3	4.81941E+00	2.33282E-01			
16	8.14000E-01	8.62795E-01	4	5.11451E+00	5.29051E-01			
17	9.11591E-01	9.60886E-01	4	5.72769E+00	5.88891E-01			
18	1.00918E+00	1.10677E+00	4	6.34088E+00	1.35731E+00			
19	1.20436E+00	1.30195E+00	4	7.56724E+00	1.59667E+00			
20	1.39955E+00	1.49714E+00	4	8.79360E+00	1.83603E+00			
21	1.59473E+00	1.69232E+00	4	1.00200E+01	2.07540E+00			
22	1.78991E+00	1.88750E+00	4	1.12463E+01	2.31476E+00			
23	1.98509E+00	2.08268E+00	4	1.24727E+01	2.55412E+00			
24	2.18027E+00	2.27786E+00	4	1.36991E+01	2.79349E+00			
25	2.37545E+00	2.47305E+00	4	1.49254E+01	3.03285E+00			
26	2.57064E+00	2.66823E+00	4	1.61518E+01	3.27221E+00			
27	2.76582E+00	2.81461E+00	4	1.73781E+01	1.72587E+00			
28	2.86341E+00	2.91220E+00	4	1.79913E+01	1.78571E+00			
29	2.96100E+00			1.86045E+01				

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	215	-1.84455E-06	1.12831E+00	-1.42524E-01	1.00000E+00	-4.10664E-02	.00000E+00	.0000
2	319	2.60041E-06	1.14215E+00	-1.25675E-03	-1.84449E-02	-4.28646E-03	.00000E+00	.0167
3	401	2.31725E-07	1.14359E+00	-1.27918E-04	-1.79126E-03	-8.35467E-04	.00000E+00	.0167
4	462	2.14825E-06	1.14384E+00	-2.02940E-05	-3.55786E-04	-1.62330E-04	.00000E+00	.0167
5	504	-4.31136E-07	1.14393E+00	-3.61934E-06	-7.01865E-05	-3.16620E-05	.00000E+00	.0167

grp to grp inner mfd max. flux msf max. scale coarse

		iters	int.	difference	int.	factor	mesh
1	1	1	17	2.49552E-06	28	1.00000E+00	1
2	2	1	17	3.03674E-06	28	1.00000E+00	1
3	3	1	17	2.81856E-06	28	1.00000E+00	1
4	4	1	17	2.75748E-06	28	1.00000E+00	1
5	5	1	17	2.89726E-06	28	1.00000E+00	1
6	6	1	17	1.98400E-06	28	1.00000E+00	1
7	7	1	24	1.11949E-06	28	1.00000E+00	2
8	8	1	3	2.11836E-07	20	1.00000E+00	2
9	9	1	27	6.98521E-06	28	9.99998E-01	3
10	10	1	26	1.04663E-06	28	1.00000E+00	3
11	11	1	26	2.28395E-06	28	1.00000E+00	3
12	12	1	26	1.14753E-06	28	9.99999E-01	3
13	13	1	26	1.47936E-06	28	1.00000E+00	3
14	14	1	25	4.36464E-07	28	1.00000E+00	3
15	15	1	2	3.39450E-05	28	9.99963E-01	2
16	16	1	2	4.18474E-05	28	9.99965E-01	2
17	17	1	27	9.47314E-05	28	1.00002E+00	3
18	18	1	2	5.36516E-05	28	9.99921E-01	3
19	19	1	26	7.43672E-05	26	9.99978E-01	3
20	20	1	2	4.05059E-05	28	9.99919E-01	3
21	21	1	3	6.15783E-05	28	9.99942E-01	3
22	22	1	24	2.89865E-05	28	9.99966E-01	3
23	23	1	27	3.44234E-05	28	1.00002E+00	4
24	24	1	1	3.42575E-05	9	1.00002E+00	4
25	25	1	1	3.91320E-05	8	1.00002E+00	5
26	26	1	1	3.23397E-05	6	1.00002E+00	6
27	27	1	1	3.00938E-05	5	1.00002E+00	8

6 531 -1.69257E-06 1.14395E+00 -5.47494E-07 -1.38940E-05 -6.78856E-06 .00000E+00 .0167

final monitor

lambda 1.14393E+00 production/absorption 1.15895E+00 angular flux on 16

- elapsed time .02 min.

1 240 d, second part of sas2h pass to make library

0 int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1	3.95287E-02	5.92931E-02	2.48366E-01	1.47264E-02	.00000E+00
3	1	7.90575E-02	1.18586E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1	1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1	2.37172E-01	2.76701E-01	1.49020E+00	1.37447E-01	.00000E+00
6	1	3.16230E-01	3.55759E-01	1.98693E+00	1.76717E-01	.00000E+00
7	1	3.95288E-01	4.34816E-01	2.48366E+00	2.15988E-01	.00000E+00
8	1	4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1	5.53403E-01	5.73167E-01	3.47713E+00	1.42365E-01	.00000E+00
10	1	5.92931E-01	6.12696E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2	6.32460E-01	6.42620E-01	3.97386E+00	8.20460E-02	.00000E+00
12	2	6.52780E-01	6.62940E-01	4.10154E+00	8.46405E-02	.00000E+00
13	3	6.73100E-01	6.96883E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3	7.20067E-01	7.43550E-01	4.52431E+00	2.19422E-01	.00000E+00
15	3	7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4	8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.59973E-02
17	4	9.11591E-01	9.60388E-01	5.72769E+00	5.88891E-01	2.83198E-02
18	4	1.00918E+00	1.10677E+00	6.34088E+00	1.35731E+00	6.39825E-02
19	4	1.20436E+00	1.30195E+00	7.56724E+00	1.59667E+00	7.37806E-02
20	4	1.39955E+00	1.49714E+00	8.79360E+00	1.83603E+00	8.36686E-02
21	4	1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	9.36102E-02
22	4	1.78991E+00	1.88750E+00	1.12463E+01	2.31478E+00	1.03609E-01
23	4	1.98509E+00	2.08268E+00	1.24727E+01	2.55412E+00	1.13674E-01
24	4	2.18027E+00	2.27786E+00	1.36991E+01	2.79349E+00	1.23819E-01
25	4	2.37545E+00	2.47305E+00	1.49254E+01	3.05285E+00	1.34061E-01
26	4	2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.44431E-01

27	4	2.76582E+00	2.81461E+00	1.73781E+01	1.72587E+00	7.61524E-02
28	4	2.86341E+00	2.91220E+00	1.79913E+01	1.78571E+00	7.88275E-02
29		2.96100E+00		1.86045E+01		

1 240 d, second part of sas2h pass to make library

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.22880E-02	8.89680E-02	1.11539E-01	6.86707E-02	1.02474E-01	1.92610E-01	1.92975E-01	1.46890E-01
2	1.22830E-02	8.89176E-02	1.11474E-01	6.86325E-02	1.02421E-01	1.92523E-01	1.92935E-01	1.46884E-01
3	1.22836E-02	8.89308E-02	1.11496E-01	6.86504E-02	1.02456E-01	1.92595E-01	1.92989E-01	1.46895E-01
4	1.22900E-02	8.90093E-02	1.11608E-01	6.87286E-02	1.02586E-01	1.92836E-01	1.93145E-01	1.46924E-01
5	1.23016E-02	8.91483E-02	1.11802E-01	6.88615E-02	1.02802E-01	1.93236E-01	1.93394E-01	1.46968E-01
6	1.23175E-02	8.93397E-02	1.12070E-01	6.90446E-02	1.03100E-01	1.93786E-01	1.93734E-01	1.47034E-01
7	1.23375E-02	8.95846E-02	1.12414E-01	6.92824E-02	1.03489E-01	1.94505E-01	1.94177E-01	1.47094E-01
8	1.23617E-02	8.98904E-02	1.12851E-01	6.95895E-02	1.03995E-01	1.95443E-01	1.94756E-01	1.47177E-01
9	1.23821E-02	9.01594E-02	1.13244E-01	6.98711E-02	1.04463E-01	1.96313E-01	1.95293E-01	1.47246E-01
10	1.23959E-02	9.03703E-02	1.13571E-01	7.01190E-02	1.04885E-01	1.97101E-01	1.95781E-01	1.47294E-01
11	1.24076E-02	9.05451E-02	1.13844E-01	7.03270E-02	1.05238E-01	1.97778E-01	1.96200E-01	1.47339E-01
12	1.24202E-02	9.06752E-02	1.14017E-01	7.04353E-02	1.05408E-01	1.98116E-01	1.96404E-01	1.47382E-01
13	1.24467E-02	9.09120E-02	1.14286E-01	7.05729E-02	1.05599E-01	1.98457E-01	1.96597E-01	1.47451E-01
14	1.24857E-02	9.12894E-02	1.14737E-01	7.08281E-02	1.05975E-01	1.99119E-01	1.96978E-01	1.47542E-01
15	1.25316E-02	9.17748E-02	1.15358E-01	7.12144E-02	1.06573E-01	2.00195E-01	1.97609E-01	1.47643E-01
16	1.26029E-02	9.25525E-02	1.16369E-01	7.18590E-02	1.07590E-01	2.02042E-01	1.98706E-01	1.47812E-01
17	1.26753E-02	9.33277E-02	1.17380E-01	7.25074E-02	1.08623E-01	2.03942E-01	1.99853E-01	1.48008E-01
18	1.27295E-02	9.39581E-02	1.18212E-01	7.30446E-02	1.09493E-01	2.05586E-01	2.00878E-01	1.48213E-01
19	1.27788E-02	9.45195E-02	1.18961E-01	7.35315E-02	1.10290E-01	2.07122E-01	2.01849E-01	1.48425E-01
20	1.28078E-02	9.48584E-02	1.19421E-01	7.38528E-02	1.10789E-01	2.08112E-01	2.02492E-01	1.48580E-01
21	1.28261E-02	9.50772E-02	1.19722E-01	7.40817E-02	1.11122E-01	2.08790E-01	2.02941E-01	1.48697E-01
22	1.28379E-02	9.52208E-02	1.19923E-01	7.41649E-02	1.11347E-01	2.09259E-01	2.03258E-01	1.48784E-01
23	1.28454E-02	9.53137E-02	1.20055E-01	7.42528E-02	1.11497E-01	2.09579E-01	2.03477E-01	1.48847E-01
24	1.28498E-02	9.53694E-02	1.20135E-01	7.43067E-02	1.11590E-01	2.09784E-01	2.03620E-01	1.48888E-01
25	1.28517E-02	9.53953E-02	1.20174E-01	7.43327E-02	1.11636E-01	2.09889E-01	2.03695E-01	1.48910E-01
26	1.28514E-02	9.53927E-02	1.20172E-01	7.43318E-02	1.11636E-01	2.09897E-01	2.03702E-01	1.48910E-01
27	1.28497E-02	9.53729E-02	1.20146E-01	7.43143E-02	1.11608E-01	2.09841E-01	2.03664E-01	1.48897E-01
28	1.28473E-02	9.53434E-02	1.20106E-01	7.42875E-02	1.11563E-01	2.09750E-01	2.03600E-01	1.48877E-01

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.15817E-01	1.06965E-01	1.00658E-01	6.52725E-02	5.58591E-02	5.35811E-02	2.92296E-02	1.62611E-02
2	1.15817E-01	1.06966E-01	1.00662E-01	6.52774E-02	5.58639E-02	5.35878E-02	2.92318E-02	1.62620E-02
3	1.15815E-01	1.06957E-01	1.00641E-01	6.52536E-02	5.58419E-02	5.35563E-02	2.92256E-02	1.62589E-02
4	1.15810E-01	1.06935E-01	1.00591E-01	6.51962E-02	5.57891E-02	5.34806E-02	2.92104E-02	1.62514E-02
5	1.15803E-01	1.06901E-01	1.00515E-01	6.51087E-02	5.57085E-02	5.33654E-02	2.91877E-02	1.62401E-02
6	1.15793E-01	1.06855E-01	1.00411E-01	6.49898E-02	5.56005E-02	5.32092E-02	2.91578E-02	1.62252E-02
7	1.15780E-01	1.06794E-01	1.00274E-01	6.48339E-02	5.54590E-02	5.30050E-02	2.91201E-02	1.62061E-02
8	1.15766E-01	1.06713E-01	1.00093E-01	6.46285E-02	5.52739E-02	5.27367E-02	2.90726E-02	1.61819E-02
9	1.15755E-01	1.06636E-01	9.99221E-02	6.44369E-02	5.51021E-02	5.24868E-02	2.90259E-02	1.61599E-02
10	1.15754E-01	1.06565E-01	9.97645E-02	6.42625E-02	5.49467E-02	5.22598E-02	2.89906E-02	1.61403E-02
11	1.15759E-01	1.06508E-01	9.96398E-02	6.41257E-02	5.48252E-02	5.20806E-02	2.89599E-02	1.61236E-02
12	1.15754E-01	1.06488E-01	9.95931E-02	6.40721E-02	5.47724E-02	5.20086E-02	2.89418E-02	1.61153E-02
13	1.15709E-01	1.06460E-01	9.95294E-02	6.39901E-02	5.46998E-02	5.19019E-02	2.89268E-02	1.61074E-02
14	1.15637E-01	1.06395E-01	9.93842E-02	6.38126E-02	5.45467E-02	5.16737E-02	2.89022E-02	1.60927E-02
15	1.15560E-01	1.06287E-01	9.91465E-02	6.35332E-02	5.43074E-02	5.13153E-02	2.88649E-02	1.60699E-02
16	1.15452E-01	1.06109E-01	9.87528E-02	6.30733E-02	5.39124E-02	5.07225E-02	2.87965E-02	1.60302E-02
17	1.15355E-01	1.05933E-01	9.83594E-02	6.26135E-02	5.35123E-02	5.01268E-02	2.87147E-02	1.59859E-02
18	1.15286E-01	1.05784E-01	9.80228E-02	6.22208E-02	5.31615E-02	4.96156E-02	2.86263E-02	1.59410E-02
19	1.15231E-01	1.05647E-01	9.77089E-02	6.18547E-02	5.28290E-02	4.91376E-02	2.85325E-02	1.58946E-02
20	1.15205E-01	1.05560E-01	9.75058E-02	6.16183E-02	5.26094E-02	4.88273E-02	2.84618E-02	1.58603E-02
21	1.15192E-01	1.05501E-01	9.73646E-02	6.14540E-02	5.24543E-02	4.86106E-02	2.84079E-02	1.58344E-02
22	1.15185E-01	1.05459E-01	9.72641E-02	6.13369E-02	5.23425E-02	4.84557E-02	2.83668E-02	1.58148E-02
23	1.15182E-01	1.05429E-01	9.71927E-02	6.12537E-02	5.22625E-02	4.83455E-02	2.83365E-02	1.58003E-02
24	1.15179E-01	1.05409E-01	9.71440E-02	6.11971E-02	5.22079E-02	4.82704E-02	2.83157E-02	1.57905E-02
25	1.15177E-01	1.05397E-01	9.71150E-02	6.11633E-02	5.21757E-02	4.82260E-02	2.83041E-02	1.57850E-02

26	1.15174E-01	1.05393E-01	9.71056E-02	6.11526E-02	5.21665E-02	4.82127E-02	2.83024E-02	1.57842E-02
27	1.15172E-01	1.05395E-01	9.71114E-02	6.11593E-02	5.21744E-02	4.82228E-02	2.83075E-02	1.57867E-02
28	1.15170E-01	1.05401E-01	9.71271E-02	6.11779E-02	5.21956E-02	4.82485E-02	2.83170E-02	1.57912E-02
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.25461E-03	6.03026E-03	1.13700E-02	3.74452E-02	1.21054E-02	2.57135E-02	8.61427E-02	7.02890E-02
2	7.25513E-03	6.03101E-03	1.13708E-02	3.74474E-02	1.21062E-02	2.57150E-02	8.61374E-02	7.02732E-02
3	7.25300E-03	6.02725E-03	1.13671E-02	3.74353E-02	1.20974E-02	2.56868E-02	8.60179E-02	7.01356E-02
4	7.24787E-03	6.01811E-03	1.13582E-02	3.74068E-02	1.20769E-02	2.56196E-02	8.57552E-02	6.98395E-02
5	7.24011E-03	6.00418E-03	1.13447E-02	3.73640E-02	1.20461E-02	2.55201E-02	8.53655E-02	6.94011E-02
6	7.22966E-03	5.98516E-03	1.13266E-02	3.73065E-02	1.20043E-02	2.53861E-02	8.48465E-02	6.88167E-02
7	7.21609E-03	5.96009E-03	1.13031E-02	3.72322E-02	1.19498E-02	2.52121E-02	8.41850E-02	6.80727E-02
8	7.19838E-03	5.92883E-03	1.12726E-02	3.71359E-02	1.18782E-02	2.49858E-02	8.33494E-02	6.71368E-02
9	7.18197E-03	5.89561E-03	1.12445E-02	3.70471E-02	1.18115E-02	2.47770E-02	8.25982E-02	6.62999E-02
10	7.16708E-03	5.86697E-03	1.12191E-02	3.69673E-02	1.17504E-02	2.45889E-02	8.19453E-02	6.55780E-02
11	7.15508E-03	5.84473E-03	1.11986E-02	3.69037E-02	1.17035E-02	2.44473E-02	8.14707E-02	6.50756E-02
12	7.14999E-03	5.83644E-03	1.11899E-02	3.68776E-02	1.16873E-02	2.43997E-02	8.13251E-02	6.49485E-02
13	7.14337E-03	5.82269E-03	1.11788E-02	3.68422E-02	1.16611E-02	2.43141E-02	8.10429E-02	6.46302E-02
14	7.12953E-03	5.79213E-03	1.11557E-02	3.67680E-02	1.16012E-02	2.41210E-02	8.04153E-02	6.39014E-02
15	7.10762E-03	5.74365E-03	1.11195E-02	3.66525E-02	1.15056E-02	2.38221E-02	7.94979E-02	6.28549E-02
16	7.07138E-03	5.66402E-03	1.10594E-02	3.64633E-02	1.13509E-02	2.33405E-02	7.80955E-02	6.12981E-02
17	7.03438E-03	5.58604E-03	1.09973E-02	3.62690E-02	1.11983E-02	2.28639E-02	7.66686E-02	5.97508E-02
18	7.00119E-03	5.52229E-03	1.09402E-02	3.60906E-02	1.10680E-02	2.24547E-02	7.53061E-02	5.88828E-02
19	6.98909E-03	5.46433E-03	1.08844E-02	3.59154E-02	1.09460E-02	2.20694E-02	7.39348E-02	5.68130E-02
20	6.94729E-03	5.42810E-03	1.08460E-02	3.57945E-02	1.08661E-02	2.18156E-02	7.29563E-02	5.57717E-02
21	6.93153E-03	5.40338E-03	1.08181E-02	3.57061E-02	1.08094E-02	2.16350E-02	7.22225E-02	5.49962E-02
22	6.91997E-03	5.38602E-03	1.07976E-02	3.56407E-02	1.07688E-02	2.15035E-02	7.16659E-02	5.44126E-02
23	6.91162E-03	5.37381E-03	1.07828E-02	3.55929E-02	1.07393E-02	2.14077E-02	7.12485E-02	5.39786E-02
24	6.90593E-03	5.36556E-03	1.07726E-02	3.55600E-02	1.07189E-02	2.13402E-02	7.09469E-02	5.36609E-02
25	6.90266E-03	5.36068E-03	1.07667E-02	3.55405E-02	1.07060E-02	2.12974E-02	7.07479E-02	5.34489E-02
26	6.90190E-03	5.35889E-03	1.07651E-02	3.55341E-02	1.07012E-02	2.12788E-02	7.06508E-02	5.33360E-02
27	6.90296E-03	5.35990E-03	1.07669E-02	3.55391E-02	1.07026E-02	2.12802E-02	7.06413E-02	5.33107E-02
28	6.90538E-03	5.36261E-03	1.07707E-02	3.55509E-02	1.07082E-02	2.12954E-02	7.06936E-02	5.33466E-02
0 int.	grp. 25	grp. 26	grp. 27					
1	3.17211E-02	2.28527E-02	4.33841E-03					
2	3.17091E-02	2.28398E-02	4.33517E-03					
3	3.16342E-02	2.27732E-02	4.32162E-03					
4	3.14747E-02	2.26333E-02	4.29288E-03					
5	3.12384E-02	2.24247E-02	4.24956E-03					
6	3.09229E-02	2.21437E-02	4.18968E-03					
7	3.05213E-02	2.17829E-02	4.11143E-03					
8	3.00181E-02	2.13273E-02	4.01022E-03					
9	2.95708E-02	2.09204E-02	3.91846E-03					
10	2.91905E-02	2.05718E-02	3.83928E-03					
11	2.89360E-02	2.03471E-02	3.79132E-03					
12	2.88818E-02	2.03134E-02	3.78818E-03					
13	2.87007E-02	2.01454E-02	3.74307E-03					
14	2.82861E-02	1.97449E-02	3.63380E-03					
15	2.77053E-02	1.91757E-02	3.47025E-03					
16	2.68613E-02	1.83587E-02	3.23001E-03					
17	2.60360E-02	1.75901E-02	3.02405E-03					
18	2.52608E-02	1.69073E-02	2.87147E-03					
19	2.44902E-02	1.62510E-02	2.73535E-03					
20	2.39514E-02	1.58131E-02	2.65395E-03					
21	2.35550E-02	1.55031E-02	2.59984E-03					
22	2.32604E-02	1.52802E-02	2.56276E-03					
23	2.30423E-02	1.51194E-02	2.53666E-03					
24	2.28854E-02	1.50059E-02	2.51862E-03					
25	2.27797E-02	1.49299E-02	2.50670E-03					
26	2.27206E-02	1.48862E-02	2.49985E-03					
27	2.27052E-02	1.48707E-02	2.49727E-03					

28 2.27147E-02 1.48739E-02 2.49715E-03
- elapsed time .02 min.
1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	4.78609E-04	6.33478E-04	5.27473E-05	-6.86193E-04	9.99953E-01
2	.00000E+00	.00000E+00	3.63477E-04	6.03966E-03	7.95803E-03	1.72591E-04	-7.74685E-03	9.99964E-01
3	.00000E+00	.00000E+00	3.76711E-03	5.41785E-03	1.40962E-02	9.19848E-05	-1.04207E-02	9.99978E-01
4	.00000E+00	.00000E+00	5.52772E-03	3.58341E-03	1.23122E-02	4.18181E-05	-6.82619E-03	9.99989E-01
5	.00000E+00	.00000E+00	1.01847E-02	1.15008E-02	2.08350E-02	4.95595E-05	-1.06997E-02	9.99992E-01
6	.00000E+00	.00000E+00	2.14030E-02	3.44731E-02	4.09715E-02	8.42317E-05	-1.96527E-02	1.00000E+00
7	.00000E+00	.00000E+00	4.21606E-02	6.09446E-02	5.41143E-02	6.11957E-05	-1.20143E-02	9.99988E-01
8	.00000E+00	.00000E+00	5.63212E-02	7.83023E-02	5.87126E-02	3.63824E-05	-2.42262E-03	9.99912E-01
9	.00000E+00	.00000E+00	5.77525E-02	7.25507E-02	5.74534E-02	2.92511E-05	2.76213E-04	9.99889E-01
10	.00000E+00	.00000E+00	5.70358E-02	6.90680E-02	5.55064E-02	3.60089E-05	1.49945E-03	9.99895E-01
11	.00000E+00	.00000E+00	5.57952E-02	6.54509E-02	5.22535E-02	5.50366E-05	3.49016E-03	9.99938E-01
12	.00000E+00	.00000E+00	4.53160E-02	3.50229E-02	4.12088E-02	6.05238E-05	4.04784E-03	9.99979E-01
13	.00000E+00	.00000E+00	4.04795E-02	2.85696E-02	3.66386E-02	8.46329E-05	3.75730E-03	9.99968E-01
14	.00000E+00	.00000E+00	3.94366E-02	2.88864E-02	3.39096E-02	1.36993E-04	5.39045E-03	9.99988E-01
15	.00000E+00	.00000E+00	2.17603E-02	1.09527E-02	2.04813E-02	1.13435E-04	1.16563E-03	9.99999E-01
16	.00000E+00	.00000E+00	1.43052E-02	4.63257E-03	1.36474E-02	7.72528E-05	5.78567E-04	9.99999E-01
17	.00000E+00	.00000E+00	7.37300E-03	1.33708E-03	6.95650E-03	3.82740E-05	3.78279E-04	9.99994E-01
18	.00000E+00	.00000E+00	6.55987E-03	1.07568E-03	5.87771E-03	3.36583E-05	6.48474E-04	1.00000E+00
19	.00000E+00	.00000E+00	1.10239E-02	3.10681E-03	1.03112E-02	6.95852E-05	6.43075E-04	9.99999E-01
20	.00000E+00	.00000E+00	2.72076E-02	2.20461E-02	2.49261E-02	2.87528E-04	1.99375E-03	1.00001E+00
21	.00000E+00	.00000E+00	1.33346E-02	4.57299E-03	1.18965E-02	1.14683E-04	1.32340E-03	1.00000E+00
22	.00000E+00	.00000E+00	2.68219E-02	1.45137E-02	2.25864E-02	2.78769E-04	3.95628E-03	1.00002E+00
23	.00000E+00	.00000E+00	7.10181E-02	8.73366E-02	5.73516E-02	1.26782E-03	1.23956E-02	1.00004E+00
24	.00000E+00	.00000E+00	7.65800E-02	8.19825E-02	6.32830E-02	1.49151E-03	1.18026E-02	1.00004E+00
25	.00000E+00	.00000E+00	5.10189E-02	3.46880E-02	4.46262E-02	8.81621E-04	5.51002E-03	1.00002E+00
26	.00000E+00	.00000E+00	4.07276E-02	3.87085E-02	3.57524E-02	8.95196E-04	4.07927E-03	1.00002E+00
27	.00000E+00	.00000E+00	1.37997E-02	8.39691E-03	1.27918E-02	3.19619E-04	6.88214E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.17072E-01	8.13118E-01	8.17072E-01	6.86171E-03	-6.84474E-03	9.99979E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rxn rate	fiss rate	flux*dv**2	total flux
1	1.24026E-02	-6.86193E-04	1.22921E-02	.00000E+00	3.50331E-11	.00000E+00	1.89858E-05	1.55081E-02
2	9.04818E-02	-7.74685E-03	8.90107E-02	.00000E+00	.00000E+00	.00000E+00	8.75418E-05	1.12645E-01
3	1.13749E-01	-1.04207E-02	1.11595E-01	.00000E+00	.00000E+00	.00000E+00	9.15590E-05	1.41375E-01
4	7.02589E-02	-6.82619E-03	6.87048E-02	.00000E+00	.00000E+00	.00000E+00	4.15656E-05	8.71495E-02
5	1.05125E-01	-1.06997E-02	1.02523E-01	.00000E+00	.00000E+00	.00000E+00	4.92671E-05	1.30197E-01
6	1.97551E-01	-1.96527E-02	1.92694E-01	.00000E+00	.00000E+00	.00000E+00	8.33628E-05	2.44701E-01
7	1.96062E-01	-1.20143E-02	1.93018E-01	.00000E+00	.00000E+00	.00000E+00	5.92527E-05	2.44188E-01
8	1.47318E-01	-2.42262E-03	1.46897E-01	.00000E+00	.00000E+00	.00000E+00	3.27046E-05	1.84858E-01
9	1.15757E-01	2.76213E-04	1.15816E-01	.00000E+00	.00000E+00	.00000E+00	2.16555E-05	1.45495E-01
10	1.06523E-01	1.49945E-03	1.06961E-01	.00000E+00	.00000E+00	.00000E+00	1.91325E-05	1.34178E-01
11	9.96734E-02	3.49016E-03	1.00650E-01	.00000E+00	.00000E+00	.00000E+00	1.78688E-05	1.25953E-01
12	6.41626E-02	4.04784E-03	6.52636E-02	.00000E+00	.00000E+00	.00000E+00	1.04903E-05	8.14122E-02
13	5.48577E-02	3.75730E-03	5.58506E-02	.00000E+00	.00000E+00	.00000E+00	8.74495E-06	6.96391E-02
14	5.21298E-02	5.39045E-03	5.35691E-02	.00000E+00	.00000E+00	.00000E+00	8.52431E-06	6.65295E-02
15	2.89721E-02	1.16563E-03	2.92270E-02	.00000E+00	.00000E+00	.00000E+00	4.50400E-06	3.65828E-02
16	1.61293E-02	5.78567E-04	1.62599E-02	.00000E+00	.00000E+00	.00000E+00	2.26695E-06	2.03594E-02
17	7.15854E-03	3.78279E-04	7.25373E-03	.00000E+00	.00000E+00	.00000E+00	9.27623E-07	9.06306E-03
18	5.85054E-03	6.48474E-04	6.02892E-03	.00000E+00	.00000E+00	.00000E+00	7.46824E-07	7.47947E-03
19	1.12046E-02	6.43075E-04	1.13686E-02	.00000E+00	.00000E+00	.00000E+00	1.48534E-06	1.41956E-02
20	3.69229E-02	1.99375E-03	3.74423E-02	.00000E+00	.00000E+00	.00000E+00	5.48083E-06	4.67613E-02
21	1.17155E-02	1.32340E-03	1.21031E-02	.00000E+00	.00000E+00	.00000E+00	1.37497E-06	1.49956E-02
22	2.44815E-02	3.95628E-03	2.57066E-02	.00000E+00	.00000E+00	.00000E+00	2.89052E-06	3.16192E-02
23	8.15744E-02	1.23956E-02	8.61215E-02	.00000E+00	.00000E+00	.00000E+00	8.70913E-06	1.05591E-01
24	6.51699E-02	1.18026E-02	7.02734E-02	.00000E+00	.00000E+00	.00000E+00	5.23011E-06	8.53253E-02
25	2.89769E-02	5.51002E-03	3.17159E-02	.00000E+00	.00000E+00	.00000E+00	1.81083E-06	3.82406E-02
26	2.03753E-02	4.07927E-03	2.28509E-02	.00000E+00	.00000E+00	.00000E+00	9.53476E-07	2.72648E-02
27	3.79469E-03	6.88214E-04	4.33862E-03	.00000E+00	.00000E+00	.00000E+00	1.12286E-07	5.13932E-03

28	1.76838E+00	-6.84477E-03	1.77553E+00	.00000E+00	3.50331E-11	.00000E+00	5.87149E-04	2.22644E+00

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.11632E-04	1.58645E-04	2.37992E-06	-1.55367E-04	1.00001E+00
2	.00000E+00	.00000E+00	2.77070E-05	1.43126E-03	1.02700E-03	1.37854E-05	-1.01310E-03	1.00000E+00
3	.00000E+00	.00000E+00	1.46512E-04	2.74728E-03	8.68660E-04	2.01035E-05	-7.42206E-04	9.99996E-01
4	.00000E+00	.00000E+00	2.82531E-04	2.29473E-03	2.97118E-04	1.30402E-05	-2.76058E-05	9.99997E-01
5	.00000E+00	.00000E+00	6.08308E-04	4.40740E-03	2.78735E-04	1.68290E-05	3.12708E-04	1.00000E+00
6	.00000E+00	.00000E+00	1.01185E-03	1.23972E-02	1.69380E-04	2.70507E-05	8.15401E-04	1.00000E+00
7	.00000E+00	.00000E+00	6.67148E-04	1.25903E-02	6.32853E-05	2.68066E-05	5.77050E-04	1.00000E+00
8	.00000E+00	.00000E+00	1.16872E-04	9.20258E-03	4.43118E-04	2.20992E-05	-3.48375E-04	1.00001E+00
9	.00000E+00	.00000E+00	4.44942E-04	6.35391E-03	5.29668E-05	7.66408E-05	3.15340E-04	9.99995E-01
10	.00000E+00	.00000E+00	5.30313E-05	4.98040E-03	4.94142E-05	5.92497E-05	-5.56279E-05	9.99997E-01
11	.00000E+00	.00000E+00	4.94175E-05	4.44516E-03	5.02016E-05	8.98253E-05	-9.06098E-05	1.00000E+00
12	.00000E+00	.00000E+00	5.02019E-05	2.75609E-03	5.12762E-05	5.66238E-06	-6.74324E-06	1.00000E+00
13	.00000E+00	.00000E+00	5.12762E-05	2.35720E-03	4.80852E-05	6.31606E-06	-3.12645E-06	1.00000E+00
14	.00000E+00	.00000E+00	4.80853E-05	2.24437E-03	4.22955E-05	8.57116E-06	-2.78652E-06	1.00000E+00
15	.00000E+00	.00000E+00	4.49199E-05	1.22266E-03	5.00394E-05	6.33185E-06	-1.14143E-05	9.99969E-01
16	.00000E+00	.00000E+00	5.62565E-05	6.51788E-04	5.64653E-05	3.86304E-06	-4.04869E-06	9.99962E-01
17	.00000E+00	.00000E+00	6.27271E-05	2.52189E-04	6.20771E-05	1.87465E-06	-1.21095E-06	9.99969E-01
18	.00000E+00	.00000E+00	6.55613E-05	1.93985E-04	6.26370E-05	1.61502E-06	1.31881E-06	9.99987E-01
19	.00000E+00	.00000E+00	6.35760E-05	4.28613E-04	6.32380E-05	3.32595E-06	-2.96644E-06	9.99970E-01
20	.00000E+00	.00000E+00	7.79284E-05	1.55479E-03	6.61000E-05	1.33671E-05	-1.47871E-06	9.99971E-01
21	.00000E+00	.00000E+00	8.99546E-05	4.14789E-04	9.90781E-05	5.14164E-06	-1.42420E-05	9.99984E-01
22	.00000E+00	.00000E+00	1.31719E-04	9.46594E-04	1.26509E-04	1.22223E-05	-6.99355E-06	9.99997E-01
23	.00000E+00	.00000E+00	1.91860E-04	3.33163E-03	2.44597E-04	5.44158E-05	-1.07195E-04	1.00000E+00
24	.00000E+00	.00000E+00	3.13404E-04	2.51201E-03	3.44735E-04	6.16610E-05	-9.30531E-05	1.00001E+00
25	.00000E+00	.00000E+00	3.18690E-04	1.01014E-03	2.59997E-04	3.57478E-05	2.29138E-05	1.00001E+00
26	.00000E+00	.00000E+00	1.35291E-04	7.88964E-04	1.04264E-04	3.54183E-05	-4.40422E-06	1.00000E+00
27	.00000E+00	.00000E+00	3.02525E-05	1.66427E-04	8.57494E-08	1.23474E-05	1.77954E-05	1.00001E+00
28	.00000E+00	.00000E+00	5.14000E-03	8.18941E-02	5.14000E-03	6.35691E-04	-6.30030E-04	9.99995E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.26278E-02	-8.41560E-04	1.24026E-02	-6.86193E-04	5.66822E-06	.00000E+00	1.56693E-06	2.06924E-03
2	9.07419E-02	-8.75994E-03	9.04818E-02	-7.74685E-03	.00000E+00	.00000E+00	1.09420E-05	1.51037E-02
3	1.14095E-01	-1.11629E-02	1.13749E-01	-1.04207E-02	.00000E+00	.00000E+00	1.25895E-05	1.89909E-02
4	7.04754E-02	-6.85380E-03	7.02589E-02	-6.82619E-03	.00000E+00	.00000E+00	7.40690E-06	1.17317E-02
5	1.05464E-01	-1.03870E-02	1.05125E-01	-1.06997E-02	.00000E+00	.00000E+00	8.61804E-06	1.75562E-02
6	1.98227E-01	-1.88573E-02	1.97551E-01	-1.96527E-02	.00000E+00	.00000E+00	1.01693E-05	3.29955E-02
7	1.96469E-01	-1.14372E-02	1.96062E-01	-1.20143E-02	.00000E+00	.00000E+00	8.35086E-06	3.27212E-02
8	1.47406E-01	-2.77099E-03	1.47318E-01	-2.42262E-03	.00000E+00	.00000E+00	5.27158E-06	2.45631E-02
9	1.15746E-01	5.91553E-04	1.15757E-01	2.76213E-04	.00000E+00	.00000E+00	4.57967E-06	1.92950E-02
10	1.06482E-01	1.44382E-03	1.06523E-01	1.49945E-03	.00000E+00	.00000E+00	4.90286E-06	1.77518E-02
11	9.95800E-02	3.39955E-03	9.96734E-02	3.49016E-03	.00000E+00	.00000E+00	4.75415E-06	1.66047E-02
12	6.40554E-02	4.04110E-03	6.41626E-02	4.04784E-03	.00000E+00	.00000E+00	3.20855E-06	1.06843E-02
13	5.47560E-02	3.75418E-03	5.48577E-02	3.75730E-03	.00000E+00	.00000E+00	2.73715E-06	9.13398E-03
14	5.19858E-02	5.38766E-03	5.21298E-02	5.39045E-03	.00000E+00	.00000E+00	2.59318E-06	8.67508E-03
15	2.89360E-02	1.15421E-03	2.89721E-02	1.16563E-03	.00000E+00	.00000E+00	1.42181E-06	4.82570E-03
16	1.61127E-02	5.74519E-04	1.61295E-02	5.78567E-04	.00000E+00	.00000E+00	7.91675E-07	2.68689E-03
17	7.14857E-03	3.77068E-04	7.15854E-03	3.78279E-04	.00000E+00	.00000E+00	3.51113E-07	1.19222E-03
18	5.83399E-03	6.49793E-04	5.85054E-03	6.48474E-04	.00000E+00	.00000E+00	2.86619E-07	9.73538E-04
19	1.11873E-02	6.40108E-04	1.12046E-02	6.43075E-04	.00000E+00	.00000E+00	5.49104E-07	1.86592E-03
20	3.68707E-02	1.99227E-03	3.69229E-02	1.99375E-03	.00000E+00	.00000E+00	1.80704E-06	6.14915E-03
21	1.16830E-02	1.30915E-03	1.17155E-02	1.32340E-03	.00000E+00	.00000E+00	5.71953E-07	1.94944E-03
22	2.43863E-02	3.94928E-03	2.44815E-02	3.95628E-03	.00000E+00	.00000E+00	1.19281E-06	4.07101E-03
23	8.12852E-02	1.22884E-02	8.15744E-02	1.23956E-02	.00000E+00	.00000E+00	3.96133E-06	1.35677E-02
24	6.49157E-02	1.17095E-02	6.51699E-02	1.18026E-02	.00000E+00	.00000E+00	3.14467E-06	1.08365E-02
25	2.88684E-02	5.53294E-03	2.89769E-02	5.51002E-03	.00000E+00	.00000E+00	1.39004E-06	4.81865E-03
26	2.03078E-02	4.07486E-03	2.03753E-02	4.07927E-03	.00000E+00	.00000E+00	9.67257E-07	3.39874E-03
27	3.78842E-03	7.06009E-04	3.79469E-03	6.88214E-04	.00000E+00	.00000E+00	1.74783E-07	6.31696E-04
28	1.76923E+00	-7.47473E-03	1.76838E+00	-6.84477E-03	5.66822E-06	.00000E+00	1.04301E-04	2.94833E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.53734E-04	3.35839E-04	2.79640E-05	-3.65784E-04	9.99985E-01
2	.00000E+00	.00000E+00	1.92698E-04	3.22588E-03	4.23720E-03	9.21267E-05	-4.13646E-03	9.99987E-01
3	.00000E+00	.00000E+00	2.01047E-03	2.89639E-03	7.53584E-03	4.91752E-05	-5.57437E-03	9.99991E-01
4	.00000E+00	.00000E+00	2.95410E-03	1.91862E-03	6.59219E-03	2.23902E-05	-3.66041E-03	9.99995E-01
5	.00000E+00	.00000E+00	5.44811E-03	6.16735E-03	1.11734E-02	2.65777E-05	-5.75175E-03	9.99998E-01
6	.00000E+00	.00000E+00	1.14658E-02	1.84816E-02	2.19665E-02	4.51580E-05	-1.05449E-02	1.00000E+00
7	.00000E+00	.00000E+00	2.25974E-02	3.23794E-02	2.87506E-02	3.25129E-05	-6.18531E-03	9.99992E-01
8	.00000E+00	.00000E+00	2.99751E-02	4.11411E-02	3.08484E-02	1.91158E-05	-8.89669E-04	9.99919E-01
9	.00000E+00	.00000E+00	3.04068E-02	3.79552E-02	3.00570E-02	1.53029E-05	3.37880E-04	9.99892E-01
10	.00000E+00	.00000E+00	2.98719E-02	3.60450E-02	2.89675E-02	1.87922E-05	8.88763E-04	9.99900E-01
11	.00000E+00	.00000E+00	2.91375E-02	3.39824E-02	2.71302E-02	2.85752E-05	1.98047E-03	9.99945E-01
12	.00000E+00	.00000E+00	2.35542E-02	1.80582E-02	2.12477E-02	3.11036E-05	2.27593E-03	9.99981E-01
13	.00000E+00	.00000E+00	2.09249E-02	1.47206E-02	1.88782E-02	4.36072E-05	2.00376E-03	9.99973E-01
14	.00000E+00	.00000E+00	2.05434E-02	1.44976E-02	1.73185E-02	6.99657E-05	2.95516E-03	9.99990E-01
15	.00000E+00	.00000E+00	1.11508E-02	5.68458E-03	1.06495E-02	5.89818E-05	4.42308E-04	1.00000E+00
16	.00000E+00	.00000E+00	7.37853E-03	2.40976E-03	7.09358E-03	4.01869E-05	2.38960E-04	1.00000E+00
17	.00000E+00	.00000E+00	3.81181E-03	6.92019E-04	3.60054E-03	1.98099E-05	1.91479E-04	9.99995E-01
18	.00000E+00	.00000E+00	3.39183E-03	5.47617E-04	2.99229E-03	1.71352E-05	3.82387E-04	1.00000E+00
19	.00000E+00	.00000E+00	5.68615E-03	1.60635E-03	5.33134E-03	3.59775E-05	3.18858E-04	9.99999E-01
20	.00000E+00	.00000E+00	1.40287E-02	1.14053E-02	1.28952E-02	1.48749E-04	9.84574E-04	1.00001E+00
21	.00000E+00	.00000E+00	6.84749E-03	2.32580E-03	6.05050E-03	5.83274E-05	7.38661E-04	1.00000E+00
22	.00000E+00	.00000E+00	1.36463E-02	7.27446E-03	1.13206E-02	1.39723E-04	2.18581E-03	1.00001E+00
23	.00000E+00	.00000E+00	3.53407E-02	4.37130E-02	2.87052E-02	6.34560E-04	5.99988E-03	1.00002E+00
24	.00000E+00	.00000E+00	3.77600E-02	4.03255E-02	3.11276E-02	7.33642E-04	5.89755E-03	1.00002E+00
25	.00000E+00	.00000E+00	2.49495E-02	1.68444E-02	2.16703E-02	4.28112E-04	2.85049E-03	1.00001E+00
26	.00000E+00	.00000E+00	1.98217E-02	1.83811E-02	1.69773E-02	4.25092E-04	2.41917E-03	1.00001E+00
27	.00000E+00	.00000E+00	6.67666E-03	3.88255E-03	5.91467E-03	1.47785E-04	6.14197E-04	1.00000E+00
28	.00000E+00	.00000E+00	4.19572E-01	4.16813E-01	4.19572E-01	3.41045E-03	-3.40036E-03	9.99977E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.25573E-02	-1.20534E-03	1.24278E-02	-8.41560E-04	1.85728E-11	.00000E+00	1.00653E-05	8.22160E-03
2	9.20530E-02	-1.28964E-02	9.07419E-02	-8.75994E-03	.00000E+00	.00000E+00	4.67285E-05	6.01283E-02
3	1.15719E-01	-1.67373E-02	1.14095E-01	-1.11629E-02	.00000E+00	.00000E+00	4.89478E-05	7.55794E-02
4	7.14430E-02	-1.05142E-02	7.04754E-02	-6.85380E-03	.00000E+00	.00000E+00	2.22550E-05	4.66614E-02
5	1.06930E-01	-1.61387E-02	1.05464E-01	-1.03870E-02	.00000E+00	.00000E+00	2.64209E-05	6.98217E-02
6	2.00839E-01	-2.93822E-02	1.98227E-01	-1.88373E-02	.00000E+00	.00000E+00	4.46921E-05	1.31188E-01
7	1.97987E-01	-1.76225E-02	1.96469E-01	-1.14372E-02	.00000E+00	.00000E+00	3.14806E-05	1.29733E-01
8	1.47697E-01	-3.66066E-03	1.47406E-01	-2.77099E-03	.00000E+00	.00000E+00	1.71834E-05	9.71266E-02
9	1.15517E-01	9.29433E-04	1.15746E-01	5.91553E-04	.00000E+00	.00000E+00	1.13291E-05	7.61165E-02
10	1.06222E-01	2.33259E-03	1.06482E-01	1.44382E-03	.00000E+00	.00000E+00	9.98481E-06	7.00243E-02
11	9.90133E-02	5.38001E-03	9.95800E-02	3.39955E-03	.00000E+00	.00000E+00	9.27753E-06	6.53956E-02
12	6.33661E-02	6.31708E-03	6.40654E-02	4.04110E-03	.00000E+00	.00000E+00	5.40888E-06	4.19769E-02
13	5.41649E-02	5.75794E-03	5.47560E-02	3.75418E-03	.00000E+00	.00000E+00	4.50588E-06	3.58818E-02
14	5.11011E-02	8.34282E-03	5.19858E-02	5.38766E-03	.00000E+00	.00000E+00	4.35358E-06	3.39783E-02
15	2.88443E-02	1.59652E-03	2.89360E-02	1.15421E-03	.00000E+00	.00000E+00	2.34191E-06	1.90217E-02
16	1.60568E-02	8.13479E-04	1.61127E-02	5.76519E-04	.00000E+00	.00000E+00	1.17927E-06	1.05910E-02
17	7.09457E-03	5.68547E-04	7.14837E-03	3.77068E-04	.00000E+00	.00000E+00	4.80119E-07	4.69086E-03
18	5.71451E-03	1.03218E-03	5.85399E-03	6.49798E-04	.00000E+00	.00000E+00	3.80202E-07	3.80773E-03
19	1.10981E-02	9.58947E-04	1.11873E-02	6.40108E-04	.00000E+00	.00000E+00	7.67982E-07	7.33971E-03
20	3.65854E-02	2.97685E-03	3.68707E-02	1.99227E-03	.00000E+00	.00000E+00	2.83544E-06	2.41914E-02
21	1.14485E-02	2.04782E-03	1.16830E-02	1.30915E-03	.00000E+00	.00000E+00	6.99103E-07	7.62670E-03
22	2.36443E-02	6.13510E-03	2.43863E-02	3.94928E-03	.00000E+00	.00000E+00	1.44877E-06	1.58480E-02
23	7.89650E-02	1.82889E-02	8.12852E-02	1.22884E-02	.00000E+00	.00000E+00	4.35902E-06	5.28496E-02
24	6.22481E-02	1.76071E-02	6.49157E-02	1.17095E-02	.00000E+00	.00000E+00	2.57258E-06	4.19698E-02
25	2.73699E-02	8.38343E-03	2.88684E-02	5.53294E-03	.00000E+00	.00000E+00	8.79334E-07	1.85695E-02
26	1.88636E-02	6.49408E-03	2.08078E-02	4.07486E-03	.00000E+00	.00000E+00	4.52766E-07	1.29469E-02
27	3.37046E-03	1.32021E-03	3.78842E-03	7.06009E-04	.00000E+00	.00000E+00	5.19185E-08	2.37631E-03
28	1.76588E+00	-1.08750E-02	1.76923E+00	-7.47473E-03	1.85728E-11	.00000E+00	3.11082E-04	1.16366E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.21135E-02	.00000E+00	2.05319E-02	1.94698E-02	3.63035E-03	1.20533E-03	9.98897E-01
2	.00000E+00	1.91371E-01	6.73317E-03	2.47194E-01	1.70070E-01	1.51509E-02	1.28963E-02	1.00002E+00
3	.00000E+00	2.15417E-01	7.01575E-02	2.56078E-01	2.52603E-01	1.62374E-02	1.67372E-02	9.99989E-01
4	.00000E+00	1.24145E-01	1.04566E-01	1.76088E-01	2.10417E-01	7.77983E-03	1.05141E-02	1.00000E+00
5	.00000E+00	1.65069E-01	1.90752E-01	4.43728E-01	3.34458E-01	5.22670E-03	1.61386E-02	9.99991E-01
6	.00000E+00	1.78657E-01	3.89452E-01	1.19091E+00	5.30402E-01	8.31671E-03	2.95820E-02	1.00001E+00
7	.00000E+00	8.85054E-02	5.92545E-01	1.56461E+00	6.55078E-01	8.35657E-03	1.76231E-02	9.99989E-01
8	.00000E+00	1.36510E-02	6.89167E-01	1.57532E+00	6.85762E-01	1.34511E-02	3.66075E-03	9.99922E-01
9	.00000E+00	9.91007E-04	6.77875E-01	1.37068E+00	6.57763E-01	2.21066E-02	-9.33803E-04	9.99898E-01
10	.00000E+00	7.36106E-05	6.54847E-01	1.24451E+00	6.25907E-01	3.34119E-02	-2.33196E-03	9.99899E-01
11	.00000E+00	5.79123E-06	6.28047E-01	1.15711E+00	5.79264E-01	5.42054E-02	-5.37864E-03	9.99940E-01
12	.00000E+00	4.06824E-07	5.04635E-01	6.32315E-01	4.52782E-01	5.81835E-02	-6.31742E-03	9.99975E-01
13	.00000E+00	6.46000E-08	4.47429E-01	5.02026E-01	3.99663E-01	5.35376E-02	-5.75748E-03	9.99970E-01
14	.00000E+00	1.28020E-08	4.30968E-01	4.72118E-01	3.64665E-01	7.46500E-02	-8.34267E-03	9.99988E-01
15	.00000E+00	1.44677E-09	2.38544E-01	2.17038E-01	2.32592E-01	7.53757E-03	-1.60098E-03	1.00007E+00
16	.00000E+00	4.24821E-10	1.63040E-01	1.00866E-01	1.59132E-01	4.71284E-03	-8.16557E-04	1.00007E+00
17	.00000E+00	1.36813E-10	8.79279E-02	3.24917E-02	8.35567E-02	4.93557E-03	-5.67262E-04	1.00005E+00
18	.00000E+00	9.79542E-11	7.87397E-02	2.46702E-02	6.85430E-02	1.12269E-02	-1.03496E-03	1.00006E+00
19	.00000E+00	1.38486E-10	1.27389E-01	6.45629E-02	1.21350E-01	6.99304E-03	-9.58357E-04	1.00003E+00
20	.00000E+00	2.25193E-10	3.08895E-01	3.63470E-01	2.80077E-01	2.67779E-02	-2.98742E-03	1.00009E+00
21	.00000E+00	3.29610E-11	1.52381E-01	7.71019E-02	1.34486E-01	1.99390E-02	-2.05092E-03	1.00004E+00
22	.00000E+00	3.82423E-11	2.93188E-01	2.10436E-01	2.40255E-01	5.90774E-02	-6.13913E-03	1.00005E+00
23	.00000E+00	3.65638E-11	7.15845E-01	1.10448E+00	5.91982E-01	1.42114E-01	-1.82787E-02	1.00004E+00
24	.00000E+00	9.95219E-12	7.61354E-01	9.41618E-01	6.27864E-01	1.51068E-01	-1.76074E-02	1.00004E+00
25	.00000E+00	2.91335E-12	5.08114E-01	3.80135E-01	4.27137E-01	8.43519E-02	-8.38349E-03	1.00002E+00
26	.00000E+00	2.04286E-12	3.89479E-01	3.80591E-01	3.19234E-01	7.67321E-02	-6.49428E-03	1.00002E+00
27	.00000E+00	4.86824E-13	1.28224E-01	7.68333E-02	1.07801E-01	2.17422E-02	-1.32026E-03	1.00001E+00
28	.00000E+00	1.00000E+00	9.33080E+00	1.48275E+01	9.33029E+00	9.91453E-01	1.08556E-02	9.99988E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.28458E-02	-9.97737E-09	1.25573E-02	-1.20534E-03	2.16520E-03	2.41708E-03	2.83477E-04	3.26516E-01
2	9.53250E-02	-9.01340E-08	9.20530E-02	-1.28964E-02	1.62522E-05	1.09287E-02	1.56700E-03	2.42045E+00
3	1.20081E-01	-1.07647E-07	1.15719E-01	-1.67373E-02	.00000E+00	1.33500E-02	1.81787E-03	3.04817E+00
4	7.42708E-02	-9.78123E-08	7.14430E-02	-1.05142E-02	.00000E+00	5.75240E-03	8.81579E-04	1.88495E+00
5	1.11534E-01	-1.84290E-07	1.06930E-01	-1.61387E-02	.00000E+00	1.68452E-03	1.03082E-03	2.82959E+00
6	2.09693E-01	-2.34811E-07	2.00839E-01	-2.95822E-02	.00000E+00	1.48188E-03	1.73113E-03	5.31797E+00
7	2.03560E-01	5.61110E-07	1.97987E-01	-1.76225E-02	.00000E+00	1.49704E-03	1.22593E-03	5.16913E+00
8	1.48864E-01	8.97995E-08	1.47697E-01	-3.66066E-03	.00000E+00	1.56078E-03	6.97367E-04	3.78712E+00
9	1.15171E-01	-4.37011E-06	1.15517E-01	9.29433E-04	.00000E+00	2.13399E-03	4.70672E-04	2.95326E+00
10	1.05405E-01	6.26909E-07	1.06222E-01	2.33259E-03	.00000E+00	4.55728E-03	4.28092E-04	2.68604E+00
11	9.71375E-02	1.37020E-06	9.90053E-02	5.38001E-03	.00000E+00	9.54164E-03	3.86377E-04	2.47840E+00
12	6.11904E-02	-3.91943E-07	6.33661E-02	6.31708E-03	.00000E+00	1.24109E-02	2.27570E-04	1.56392E+00
13	5.22063E-02	4.64490E-07	5.41649E-02	5.75794E-03	.00000E+00	1.23673E-02	1.96229E-04	1.33468E+00
14	4.82667E-02	1.48095E-07	5.11011E-02	8.34282E-03	.00000E+00	8.45267E-03	1.78236E-04	1.23658E+00
15	2.85237E-02	-4.46383E-06	2.88443E-02	1.59652E-03	.00000E+00	2.14073E-03	1.11784E-04	7.22782E-01
16	1.57945E-02	-3.07762E-06	1.60568E-02	8.13479E-04	.00000E+00	1.44688E-03	5.86730E-05	4.02934E-01
17	6.90660E-03	1.28506E-06	7.09457E-03	5.68547E-04	.00000E+00	2.04339E-03	2.34470E-05	1.76382E-01
18	5.36478E-03	-2.77755E-06	5.71451E-03	1.05218E-03	.00000E+00	2.37041E-03	1.62795E-05	1.37488E-01
19	1.07732E-02	5.89876E-07	1.10981E-02	9.58947E-04	.00000E+00	3.29172E-03	3.72986E-05	2.75244E-01
20	3.55610E-02	-1.05754E-05	3.66854E-02	2.97685E-03	.00000E+00	1.58374E-02	1.31723E-04	9.08433E-01
21	1.07126E-02	-3.10237E-06	1.14485E-02	2.04782E-03	.00000E+00	1.22900E-02	3.12957E-05	2.74863E-01
22	2.13068E-02	-4.08089E-06	2.36443E-02	6.13510E-03	.00000E+00	3.60467E-02	5.91360E-05	5.49526E-01
23	7.07299E-02	9.52730E-06	7.89650E-02	1.82883E-02	.00000E+00	8.56527E-02	1.91421E-04	1.83053E+00
24	5.33756E-02	-3.12395E-07	6.22481E-02	1.76071E-02	.00000E+00	9.08818E-02	1.12351E-04	1.39159E+00
25	2.27252E-02	-6.15187E-08	2.73695E-02	8.38343E-03	.00000E+00	5.27926E-02	3.80808E-05	5.95598E-01
26	1.48782E-02	-2.52953E-07	1.88436E-02	6.49408E-03	.00000E+00	4.86563E-02	1.86392E-05	3.92298E-01
27	2.49733E-03	-5.16804E-08	3.37044E-03	1.32021E-03	.00000E+00	1.35708E-02	1.90395E-06	6.60215E-02
28	1.75450E+00	-1.95233E-05	1.76588E+00	-1.08750E-02	2.18146E-03	4.55157E-01	1.19544E-02	4.47405E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance

1	.00000E+00	2.21135E-02	.00000E+00	2.14758E-02	2.05978E-02	3.71345E-03	-9.97737E-09	9.98896E-01
2	.00000E+00	1.91371E-01	7.31705E-03	2.57889E-01	1.85272E-01	1.54294E-02	-9.01340E-08	1.00001E+00
3	.00000E+00	2.15417E-01	7.60816E-02	2.67140E-01	2.75104E-01	1.63987E-02	-1.07647E-07	9.99987E-01
4	.00000E+00	1.26145E-01	1.13331E-01	1.89884E-01	2.29619E-01	7.85708E-03	-9.78123E-08	9.99999E-01
5	.00000E+00	1.65069E-01	2.06993E-01	4.65808E-01	3.66746E-01	5.31966E-03	-1.84290E-07	9.99990E-01
6	.00000E+00	1.78657E-01	4.23332E-01	1.25626E+00	5.95508E-01	8.47315E-03	-2.34811E-07	1.00001E+00
7	.00000E+00	8.85054E-02	6.57970E-01	1.67052E+00	7.38006E-01	8.47708E-03	5.61110E-07	9.99989E-01
8	.00000E+00	1.36510E-02	7.75581E-01	1.70897E+00	7.75766E-01	1.35287E-02	8.97995E-08	9.99920E-01
9	.00000E+00	9.91007E-04	7.66479E-01	1.48754E+00	7.45326E-01	2.22278E-02	-4.37011E-06	9.99897E-01
10	.00000E+00	7.36106E-05	7.41808E-01	1.35461E+00	7.08430E-01	3.35259E-02	6.26909E-07	9.99898E-01
11	.00000E+00	5.79123E-06	7.13029E-01	1.26099E+00	6.58698E-01	5.43788E-02	1.37020E-06	9.99939E-01
12	.00000E+00	4.06824E-07	5.75555E-01	6.88152E-01	5.15290E-01	5.82806E-02	-3.91943E-07	9.99975E-01
13	.00000E+00	6.46000E-08	5.08884E-01	5.47674E-01	4.55227E-01	5.36722E-02	4.64490E-07	9.99969E-01
14	.00000E+00	1.28020E-08	4.90796E-01	5.17246E-01	4.15936E-01	7.48656E-02	1.48095E-07	9.99988E-01
15	.00000E+00	1.44677E-09	2.71502E-01	2.34877E-01	2.63773E-01	7.71631E-03	-4.46383E-06	1.00006E+00
16	.00000E+00	4.24821E-10	1.84778E-01	1.08560E-01	1.79955E-01	4.83414E-03	-3.07762E-06	1.00006E+00
17	.00000E+00	1.36813E-10	9.91754E-02	3.47729E-02	9.41758E-02	4.99553E-03	1.28506E-06	1.00008E+00
18	.00000E+00	9.79542E-11	8.87569E-02	2.64875E-02	7.74756E-02	1.12798E-02	-2.77755E-06	1.00005E+00
19	.00000E+00	1.38486E-10	1.44163E-01	6.97047E-02	1.37066E-01	7.10192E-03	5.89878E-07	1.00008E+00
20	.00000E+00	2.25193E-10	3.45209E-01	3.98476E-01	3.17964E-01	2.72276E-02	-1.05754E-05	1.00008E+00
21	.00000E+00	3.29610E-11	1.72653E-01	8.44155E-02	1.52532E-01	2.01171E-02	-3.10257E-06	1.00004E+00
22	.00000E+00	3.82423E-11	3.33788E-01	2.33171E-01	2.74269E-01	5.95081E-02	-4.03089E-06	1.00004E+00
23	.00000E+00	3.66638E-11	8.22395E-01	1.23886E+00	6.78284E-01	1.44071E-01	9.52730E-06	1.00004E+00
24	.00000E+00	9.95219E-12	8.76008E-01	1.06644E+00	7.22619E-01	1.53356E-01	-3.12395E-07	1.00004E+00
25	.00000E+00	2.91335E-12	5.79402E-01	4.32678E-01	4.95695E-01	8.56973E-02	-6.15187E-08	1.00002E+00
26	.00000E+00	2.04286E-12	4.50164E-01	4.38470E-01	3.72068E-01	7.80878E-02	-2.52953E-07	1.00002E+00
27	.00000E+00	4.86824E-13	1.48731E-01	8.92792E-02	1.26508E-01	2.22220E-02	-5.16804E-08	1.00001E+00
28	.00000E+00	1.00000E+00	1.05719E+01	1.61395E+01	1.05719E+01	1.00236E+00	-1.95301E-05	9.99987E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.28458E-02	-9.97737E-09	1.22921E-02	.00000E+00	2.17087E-03	2.41708E-03	3.14095E-04	3.52315E-01
2	9.53250E-02	-9.01340E-08	8.90107E-02	.00000E+00	1.62522E-05	1.09287E-02	1.71221E-03	2.60833E+00
3	1.20081E-01	-1.07647E-07	1.11595E-01	.00000E+00	.00000E+00	1.33500E-02	1.97097E-03	3.28411E+00
4	7.42708E-02	-9.78123E-08	6.87048E-02	.00000E+00	.00000E+00	5.75240E-03	9.52807E-04	2.03049E+00
5	1.11534E-01	-1.84290E-07	1.02523E-01	.00000E+00	.00000E+00	1.68452E-03	1.11513E-03	3.04717E+00
6	2.09693E-01	-2.34811E-07	1.92694E-01	.00000E+00	.00000E+00	1.48188E-03	1.86935E-03	5.72685E+00
7	2.03560E-01	5.61110E-07	1.98018E-01	.00000E+00	.00000E+00	1.49704E-03	1.32501E-03	5.57576E+00
8	1.48864E-01	8.97995E-08	1.46897E-01	.00000E+00	.00000E+00	1.56076E-03	7.52527E-04	4.09367E+00
9	1.15171E-01	-4.37011E-06	1.15816E-01	.00000E+00	.00000E+00	2.13399E-03	5.08257E-04	3.17416E+00
10	1.05405E-01	6.26909E-07	1.06961E-01	.00000E+00	.00000E+00	4.55729E-03	4.62112E-04	2.90800E+00
11	9.71375E-02	1.37020E-06	1.00650E-01	.00000E+00	.00000E+00	9.54164E-03	4.18278E-04	2.68636E+00
12	6.11904E-02	-3.91943E-07	6.52636E-02	.00000E+00	.00000E+00	1.24109E-02	2.46678E-04	1.69799E+00
13	5.22063E-02	4.64490E-07	5.58506E-02	.00000E+00	.00000E+00	1.23673E-02	2.12217E-04	1.44933E+00
14	4.82657E-02	1.48095E-07	5.35691E-02	.00000E+00	.00000E+00	8.45267E-03	1.95707E-04	1.34577E+00
15	2.85237E-02	-4.46383E-06	2.92270E-02	.00000E+00	.00000E+00	2.14075E-03	1.20052E-04	7.83212E-01
16	1.57945E-02	-3.07762E-06	1.62599E-02	.00000E+00	.00000E+00	1.44688E-03	6.29109E-05	4.36571E-01
17	6.90660E-03	1.28506E-06	7.25373E-03	.00000E+00	.00000E+00	2.04339E-03	2.52059E-05	1.91328E-01
18	5.36478E-03	-2.77755E-06	6.02892E-03	.00000E+00	.00000E+00	2.37041E-03	1.76930E-05	1.49749E-01
19	1.07752E-02	5.89876E-07	1.13686E-02	.00000E+00	.00000E+00	3.29172E-03	4.01010E-05	2.98645E-01
20	3.55610E-02	-1.05754E-05	3.74423E-02	.00000E+00	.00000E+00	1.58374E-02	1.41846E-04	9.85535E-01
21	1.07126E-02	-3.10257E-06	1.21031E-02	.00000E+00	.00000E+00	1.22900E-02	3.39399E-05	2.99435E-01
22	2.13068E-02	-4.03089E-06	2.57066E-02	.00000E+00	.00000E+00	3.60467E-02	6.46681E-05	6.01064E-01
23	7.07299E-02	9.52730E-06	8.61215E-02	.00000E+00	.00000E+00	8.56527E-02	2.08450E-04	2.00254E+00
24	5.33756E-02	-3.12395E-07	7.02734E-02	.00000E+00	.00000E+00	9.08818E-02	1.23298E-04	1.52972E+00
25	2.27252E-02	-6.15187E-08	3.17159E-02	.00000E+00	.00000E+00	5.27926E-02	4.21610E-05	6.57227E-01
26	1.48782E-02	-2.52953E-07	2.28509E-02	.00000E+00	.00000E+00	4.86563E-02	2.10117E-05	4.35898E-01
27	2.49733E-03	-5.16804E-08	4.33862E-03	.00000E+00	.00000E+00	1.35703E-02	2.24294E-06	7.41689E-02
28	1.75450E+00	-1.95233E-05	1.77553E+00	.00000E+00	2.18713E-03	4.55157E-01	1.29569E-02	4.84254E+01

- elapsed time .02 min.
0direct access unit 9 requires 556 blocks of length 216 for cross section weighting.
1 transport cross section weighting function

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.09995E-03	4.97152E-03	5.26014E-03	2.50249E-03	3.18158E-03	5.52947E-03	3.72049E-03	1.74274E-03
2	6.70103E-04	4.91019E-03	5.75661E-03	3.43497E-03	4.29880E-03	6.16395E-03	4.33987E-03	2.14746E-03
3	1.12768E-03	5.38921E-03	5.84306E-03	2.91018E-03	3.86563E-03	6.79211E-03	4.38629E-03	1.82315E-03
4	7.74881E-04	4.23266E-03	4.90758E-03	2.38326E-03	2.82784E-03	4.80332E-03	3.32751E-03	1.79648E-03
5	7.97509E-04	4.29811E-03	4.95116E-03	2.40766E-03	2.87768E-03	4.89222E-03	3.37687E-03	1.79679E-03

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.11224E-03	1.01486E-03	1.09642E-03	8.72989E-04	7.85709E-04	1.00879E-03	3.13745E-04	1.56159E-04
2	1.78969E-03	1.95277E-03	2.04380E-03	1.59939E-03	1.41152E-03	1.66206E-03	6.25267E-04	3.40838E-04
3	1.12153E-03	1.05699E-03	1.30164E-03	1.21978E-03	1.10269E-03	1.51851E-03	3.73415E-04	1.87902E-04
4	1.19407E-03	1.09414E-03	1.03049E-03	6.77811E-04	6.01782E-04	6.38781E-04	3.11265E-04	1.61485E-04
5	1.19220E-03	1.09483E-03	1.04611E-03	7.05265E-04	6.26954E-04	6.82879E-04	3.14763E-04	1.62959E-04

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.08819E-05	1.13772E-04	1.34909E-04	4.46709E-04	2.31664E-04	6.75516E-04	2.16474E-03	2.01510E-03
2	1.65665E-04	1.94151E-04	2.66191E-04	8.59307E-04	3.91615E-04	1.07147E-03	3.38727E-03	3.12108E-03
3	1.10969E-04	1.81898E-04	1.86016E-04	5.97253E-04	3.62520E-04	1.07915E-03	3.28500E-03	3.13057E-03
4	6.96203E-05	6.48574E-05	1.12953E-04	3.86197E-04	1.31387E-04	3.30358E-04	1.11594E-03	9.12768E-04
5	7.17085E-05	7.06686E-05	1.16610E-04	3.96865E-04	1.43061E-04	3.68486E-04	1.22957E-03	1.02943E-03

0zone	grp. 25	grp. 26	grp. 27	grp. 28
1	9.28145E-04	6.61741E-04	1.00942E-04	4.19214E-02
2	1.45258E-03	1.06411E-03	1.83235E-04	5.53039E-02
3	1.48223E-03	1.11985E-03	2.09760E-04	5.17650E-02
4	3.84693E-04	2.34281E-04	2.90224E-05	3.45354E-02
5	4.42179E-04	2.79969E-04	3.75563E-05	3.54099E-02

1broad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.0000E+07	2.6391E+06	1.9647E+09	7.1812E-01
2	9.0000E+05	1.5069E+05	9.6512E+06	2.8188E-01
3	4.0000E-01	1.2716E-01	3.6830E+05	1.2316E-10
4	1.0000E-05			

1 240 d, second part of sas2h pass to make library

0cell averaged fluxes

0zone	grp. 1	grp. 2	grp. 3
1	3.87437E-01	1.13905E+00	2.45235E-01
2	3.98664E-01	1.14057E+00	2.35554E-01
3	3.95604E-01	1.14097E+00	2.31194E-01
4	4.12753E-01	1.14406E+00	2.00312E-01
5	4.11067E-01	1.14373E+00	2.03313E-01

0flux disadvantage factors (zone average/cell average-flux)

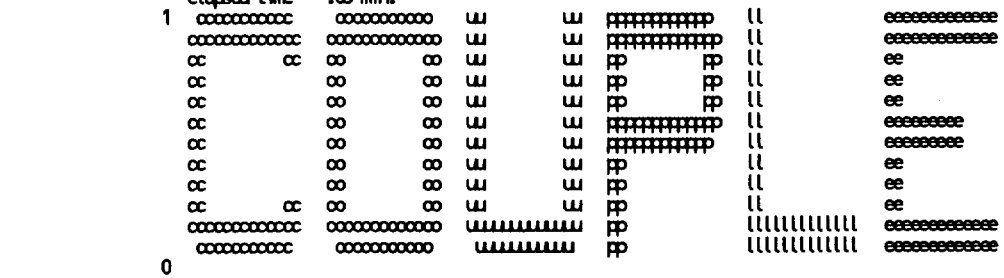
0zone	grp. 1	grp. 2	grp. 3
1	9.42516E-01	9.95905E-01	1.20619E+00
2	9.55231E-01	9.97257E-01	1.15858E+00
3	9.62383E-01	9.97588E-01	1.13713E+00
4	1.00410E+00	1.00028E+00	9.85240E-01
5	1.00000E+00	1.00000E+00	1.00000E+00

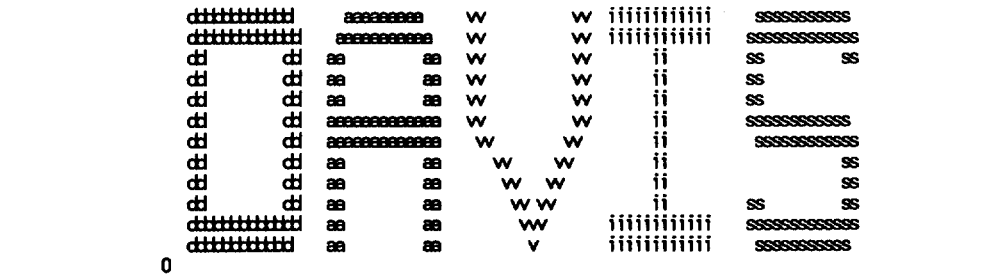
0cell averaged currents

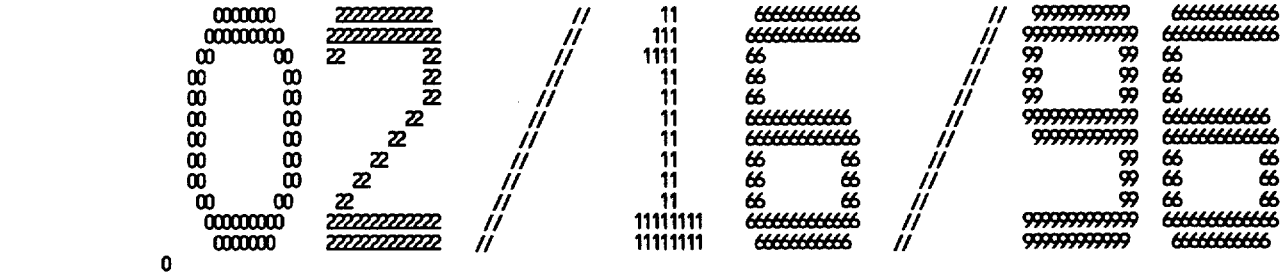
0zone	grp. 1	grp. 2	grp. 3
1	1.70157E-02	1.81279E-02	6.77785E-03
2	1.90707E-02	2.55619E-02	1.06713E-02
3	1.91358E-02	2.19601E-02	1.06691E-02
4	1.51262E-02	1.62707E-02	3.13845E-03
5	1.53321E-02	1.65477E-02	3.53005E-03

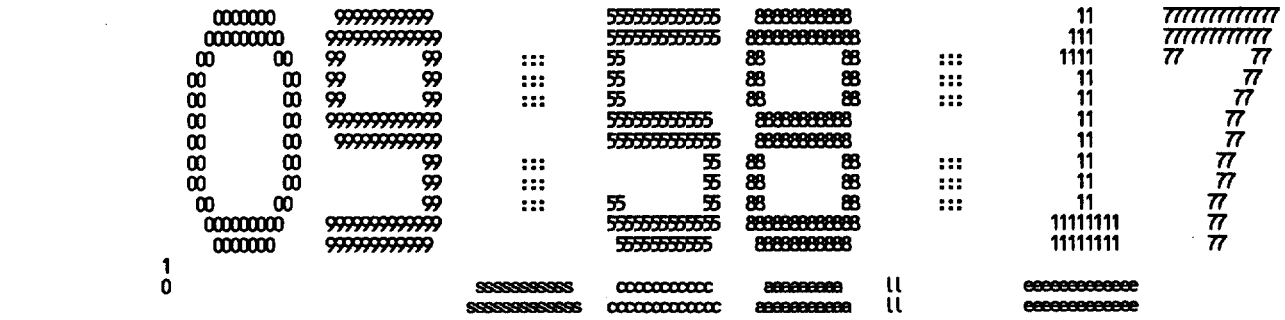
0zone	volume	vol. fraction
1	1.2566E+00	4.5623E-02
2	1.6668E-01	6.0516E-03
3	6.5826E-01	2.3898E-02

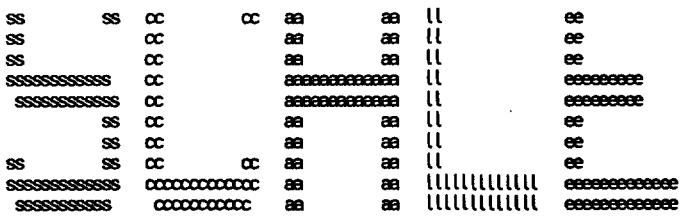
```
   4    2.5462E+01    9.2442E-01
   5    2.7544E+01    1.0000E+00
-  elapsed time    .03 min.
```











```
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       2q array has      1 entries.
0        * core allocated to array-data (by -1$$ or default) was   200000 words. *
1         * broad 3-group flux weighting factors *
0
0                therm =    .5092
```

0 res = .3846
0 fast = 2.9317
0 user requested (see jadd) that only the nuclide transitions presently included in
0 origen library be updated.
1cross sections, available from ampx (normalized to thermal flux), barns

10010	to 10020	2.75385E-01
10010	tot-cap	2.75385E-01
50100	to 40100	2.09013E-02
50100	to 10010	2.09013E-02
50100	to 40090	3.11769E-03
50100	to 10020	3.11769E-03
50100	to 30070	3.16715E+03
50100	to 20040	3.16730E+03
50100	to 10030	7.80945E-02
50100	tot-cap	3.16725E+03
50110	to 50100	8.88977E-06
50110	to 50120	4.18853E-03
50110	to 40110	1.13442E-06
50110	to 10010	1.13442E-06
50110	to 40090	1.01236E-05
50110	to 10030	1.01236E-05
50110	to 30080	1.32158E-04
50110	to 20040	1.32158E-04
50110	tot-cap	4.34084E-03
80160	to 80170	1.47104E-04
80160	to 70160	7.77840E-05
80160	to 10010	7.77840E-05
80160	to 70150	1.46700E-05
80160	to 10020	1.46700E-05
80160	to 60130	2.21441E-02
80160	to 20040	2.21441E-02
80160	to 80161	3.41133E-03
80160	tot-cap	2.23837E-02
360830	to 360820	1.76621E-02
360830	to 360810	1.86468E-09
360830	to 360840	1.48072E+02
360830	to 350830	7.33568E-04
360830	to 10010	7.33568E-04
360830	to 350820	5.83331E-06
360830	to 10020	5.83331E-06
360830	to 350810	2.03885E-06
360830	to 10030	2.03885E-06
360830	to 340810	3.29972E-08
360830	to 20030	3.29972E-08
360830	to 340800	3.87812E-05
360830	to 20040	3.87812E-05
360830	tot-cap	1.48091E+02
360850	to 360860	1.33283E+00
360850	tot-cap	1.33283E+00
380900	to 380910	6.11188E-01
380900	tot-cap	6.11188E-01
390890	to 390900	9.50305E-01
390890	tot-cap	9.50305E-01
400930	to 400940	1.18722E+01
400930	tot-cap	1.18722E+01
400940	to 400950	1.66352E-01
400940	tot-cap	1.66352E-01
400950	to 400960	1.97588E+00
400950	tot-cap	1.97588E+00

410940 to 410950 3.46661E+01
410940 tot-cap 3.46661E+01
420950 to 420960 3.52522E+01
420950 tot-cap 3.52522E+01
430990 to 430980 5.35894E-03
430990 to 431000 8.15638E+01
430990 tot-cap 8.15691E+01
441010 to 441020 2.50117E+01
441010 tot-cap 2.50117E+01
441060 to 441070 7.66631E-01
441060 tot-cap 7.66631E-01
451080 to 451020 1.94081E-03
451080 to 451040 3.40500E+02
451080 tot-cap 3.40502E+02
451050 to 451060 7.90428E+03
451050 tot-cap 7.90428E+03
461050 to 461060 3.05554E+01
461050 tot-cap 3.05554E+01
461080 to 461090 6.08972E+01
461080 tot-cap 6.08972E+01
471090 to 471080 4.51323E-03
471090 to 471100 3.36304E+02
471090 to 461090 2.57958E-04
471090 to 10010 2.57958E-04
471090 to 451060 2.12051E-04
471090 to 20040 2.12051E-04
471090 to 471091 5.55824E-01
471090 tot-cap 3.36309E+02
511240 to 511250 1.09642E+01
511240 tot-cap 1.09642E+01
541310 to 541300 5.47244E-02
541310 to 541290 1.14430E-05
541310 to 541320 2.40805E+02
541310 to 531310 3.33792E-05
541310 to 10010 3.33792E-05
541310 to 531300 4.58919E-07
541310 to 10020 4.58919E-07
541310 to 531290 4.70578E-07
541310 to 10030 4.70578E-07
541310 to 521280 1.55555E-05
541310 to 20040 1.55555E-05
541310 tot-cap 2.40860E+02
541320 to 541310 8.84048E-03
541320 to 541300 1.87500E-05
541320 to 541330 8.41305E-01
541320 to 531320 6.77785E-06
541320 to 10010 6.77785E-06
541320 to 531310 2.84930E-07
541320 to 10020 2.84930E-07
541320 to 531300 3.83659E-08
541320 to 10030 3.83659E-08
541320 to 521290 8.30858E-07
541320 to 20040 8.30858E-07
541320 tot-cap 8.50172E-01
541350 to 541360 1.44670E+06
541350 tot-cap 1.44670E+06
541360 to 541350 1.51222E-02
541360 to 541340 4.61869E-05
541360 to 541370 1.18642E-01
541360 to 531360 2.79290E-07

541360 to 10010 2.79290E-07
541360 to 531350 1.03961E-07
541360 to 10020 1.03961E-07
541360 to 531340 2.34866E-08
541360 to 10030 2.34866E-08
541360 to 521330 2.34241E-07
541360 to 20040 2.34241E-07
541360 tot-cap 1.33811E-01
551330 to 551320 7.08146E-05
551330 to 551340 9.32952E+01
551330 to 541330 7.78062E-04
551330 to 10010 7.78062E-04
551330 to 531300 1.21005E-05
551330 to 20040 1.21005E-05
551330 tot-cap 9.33011E+01
551340 to 551350 1.22130E+02
551340 tot-cap 1.22130E+02
551350 to 551360 1.93162E+01
551350 tot-cap 1.93162E+01
551370 to 551380 2.08031E-01
551370 tot-cap 2.08031E-01
561360 to 561370 8.14605E-01
561360 tot-cap 8.14605E-01
571390 to 571400 7.56554E+00
571390 tot-cap 7.56554E+00
581440 to 581450 1.14875E+00
581440 tot-cap 1.14875E+00
591410 to 591400 5.07440E-05
591410 to 591390 1.45800E-06
591410 to 571370 2.19084E-06
591410 to 20040 4.52882E-05
591410 to 581400 1.54905E-05
591410 to 10010 4.43067E-05
591410 to 591420 1.11551E+01
591410 to 581410 4.17447E-05
591410 to 10020 1.29286E-05
591410 to 581390 1.35585E-06
591410 to 10030 1.35585E-06
591410 to 571390 1.30942E-08
591410 to 20030 1.30942E-08
591410 to 571380 4.30973E-05
591410 tot-cap 1.11603E+01
591430 to 591440 9.16495E+01
591430 tot-cap 9.16495E+01
601430 to 601420 7.77083E-02
601430 to 601410 7.92424E-06
601430 to 581390 1.75011E-05
601430 to 20040 4.88915E-04
601430 to 591420 3.31708E-06
601430 to 10010 3.42954E-05
601430 to 601440 1.94951E+02
601430 to 591430 3.30457E-05
601430 to 10020 2.05737E-06
601430 to 591410 2.97908E-06
601430 to 10030 2.97908E-06
601430 to 581410 1.43133E-08
601430 to 20030 1.43133E-08
601430 to 581400 4.71414E-04
601430 tot-cap 1.95029E+02
601450 to 601440 9.97664E-02

601450 to 601430 1.01175E-04
601450 to 581410 7.23125E-06
601450 to 20040 1.81711E-04
601450 to 591440 1.90050E-06
601450 to 10010 1.23862E-05
601450 to 601460 7.22582E+01
601450 to 591450 1.16281E-05
601450 to 10020 1.14244E-06
601450 to 591430 1.80107E-06
601450 to 10030 1.80107E-06
601450 to 581430 3.66699E-09
601450 to 20030 3.66699E-09
601450 to 581420 1.74479E-04
601450 tot-cap 7.23582E+01
601470 to 601480 1.69168E+02
601470 tot-cap 1.69168E+02
611470 to 611460 2.72616E-02
611470 to 611450 8.50603E-05
611470 to 591430 7.58435E-06
611470 to 20040 7.05508E-05
611470 to 601460 1.04371E-05
611470 to 10010 2.38494E-05
611470 to 611480 5.36551E+02
611470 to 601470 2.12576E-05
611470 to 10020 7.84523E-06
611470 to 601450 2.96207E-06
611470 to 10030 2.96207E-06
611470 to 591450 4.45355E-09
611470 to 20030 4.45355E-09
611470 to 591440 6.29665E-05
611470 tot-cap 5.36578E+02
611480 to 611490 1.15266E+04
611480 tot-cap 1.15266E+04
621470 to 621460 7.11243E-02
621470 to 621450 6.40362E-03
621470 to 601430 5.62185E-05
621470 to 20040 1.09573E-03
621470 to 611460 1.29063E-04
621470 to 10010 1.85403E-04
621470 to 621480 2.08808E+02
621470 to 611470 1.63646E-04
621470 to 10020 1.07306E-04
621470 to 611450 1.15222E-04
621470 to 10030 1.15222E-04
621470 to 601450 5.30158E-06
621470 to 20030 5.30158E-06
621470 to 601440 1.03752E-03
621470 to 621471 1.45472E+00
621470 tot-cap 2.08887E+02
621490 to 621480 4.02107E-02
621490 to 621470 3.19192E-05
621490 to 621500 4.47195E+04
621490 to 611490 4.15418E-04
621490 to 10010 4.15418E-04
621490 to 601460 4.15418E-04
621490 to 20040 4.15418E-04
621490 tot-cap 4.47195E+04
621500 to 621510 1.24848E+02
621500 tot-cap 1.24848E+02
621510 to 621500 1.34695E-01

621510 to 621490 1.20109E-04
621510 to 601470 1.35716E-05
621510 to 20040 1.06235E-04
621510 to 611500 1.64465E-06
621510 to 10010 1.28378E-05
621510 to 621520 4.81862E+03
621510 to 611510 1.18528E-05
621510 to 10020 6.39831E-07
621510 to 611490 1.16285E-06
621510 to 10030 1.16285E-06
621510 to 601490 1.19796E-09
621510 to 20030 1.19796E-09
621510 to 601480 9.26637E-05
621510 tot-cap 4.81876E+03
621520 to 621510 1.60840E-02
621520 to 621500 1.08680E-04
621520 to 601480 2.42985E-06
621520 to 20040 1.00951E-05
621520 to 611510 6.96662E-07
621520 to 10010 2.05583E-06
621520 to 621530 6.81767E+02
621520 to 611520 1.82621E-06
621520 to 10020 4.67044E-07
621520 to 611500 1.21467E-07
621520 to 10030 1.21467E-07
621520 to 601500 3.68114E-10
621520 to 20030 3.68114E-10
621520 to 601490 7.66524E-06
621520 tot-cap 6.81789E+02
631530 to 631520 1.56213E-02
631530 to 631510 2.33275E-05
631530 to 611490 3.85358E-05
631530 to 20040 5.50264E-04
631530 to 621520 6.54189E-06
631530 to 10010 5.55667E-05
631530 to 631540 5.68632E+02
631530 to 621530 5.33315E-05
631530 to 10020 4.30669E-06
631530 to 621510 9.64501E-07
631530 to 10030 9.64501E-07
631530 to 611510 2.20463E-08
631530 to 20030 2.20463E-08
631530 to 611500 5.11728E-04
631530 tot-cap 5.68648E+02
631540 to 631530 2.49726E-02
631540 to 631520 8.97066E-06
631540 to 611500 8.72234E-11
631540 to 20040 6.56784E-04
631540 to 621530 1.96376E-06
631540 to 10010 1.05938E-05
631540 to 631550 1.02480E+03
631540 to 621540 1.05938E-05
631540 to 10020 1.96267E-06
631540 to 621520 3.32532E-06
631540 to 10030 3.32532E-06
631540 to 611520 1.40944E-08
631540 to 20030 1.40944E-08
631540 to 611510 6.56784E-04
631540 tot-cap 1.02489E+03
631550 to 631540 2.05034E-02

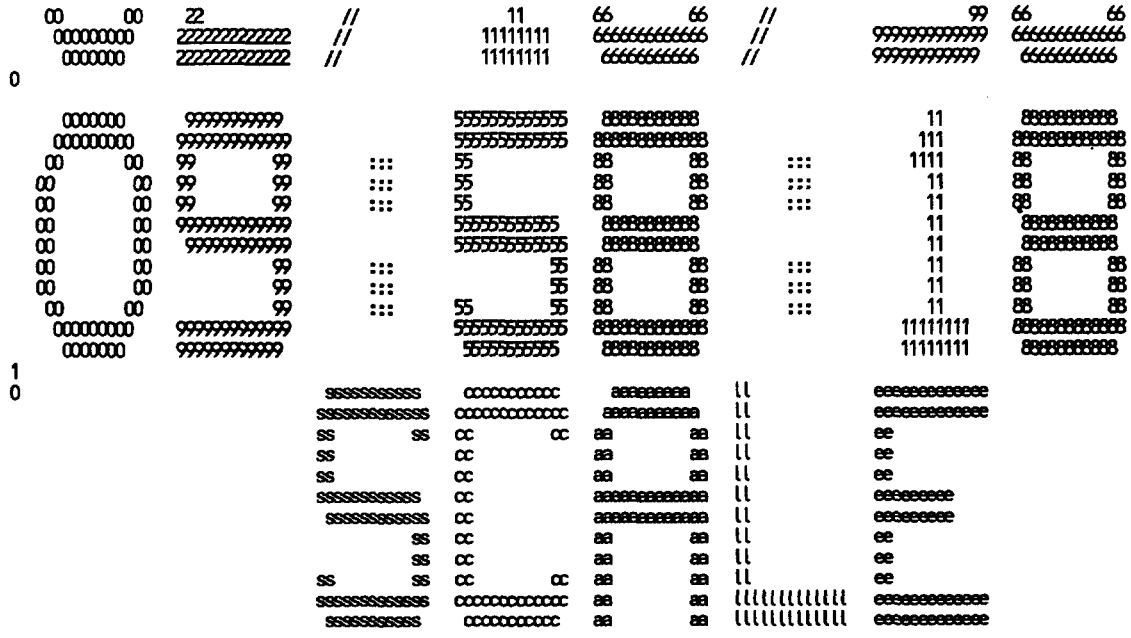
631550	to 631530	5.74142E-05
631550	to 611510	1.54638E-06
631550	to 20040	7.61090E-06
631550	to 621540	3.13069E-06
631550	to 10010	6.58607E-06
631550	to 631560	2.50523E+03
631550	to 621550	5.06278E-06
631550	to 10020	1.60740E-06
631550	to 621530	5.32104E-07
631550	to 10030	5.32104E-07
631550	to 611530	1.20604E-10
631550	to 20030	1.20604E-10
631550	to 611520	6.06452E-06
631550	tot-cap	2.50525E+03
641550	to 641560	1.68972E+04
641550	tot-cap	1.68972E+04
922340	to 922330	5.37161E-03
922340	fission	3.86763E+00
922340	nu-sigf	1.01609E+01
922340	to 922320	7.78863E-05
922340	to 922350	1.69442E+02
922340	to 922341	2.60942E+00
922340	tot-cap	1.73315E+02
922350	to 922340	2.46199E-02
922350	fission	3.51653E+02
922350	nu-sigf	8.51468E+02
922350	to 922330	2.34617E-05
922350	to 922360	8.13681E+01
922350	to 922351	7.42194E-02
922350	tot-cap	4.33045E+02
922360	to 922350	2.73641E-02
922360	fission	1.65349E+00
922360	nu-sigf	4.53531E+00
922360	to 922340	3.64673E-04
922360	to 922370	6.97858E+01
922360	to 922361	2.85478E+00
922360	tot-cap	7.14670E+01
922380	to 922370	5.46600E-02
922380	fission	8.27057E-01
922380	nu-sigf	2.32670E+00
922380	to 922360	3.53195E-04
922380	to 922390	7.61294E+00
922380	tot-cap	8.49501E+00
932370	to 932360	1.24589E-02
932370	fission	4.48514E+00
932370	nu-sigf	1.35001E+01
932370	to 932350	4.76640E-05
932370	to 932380	2.78085E+02
932370	to 932371	6.69105E-01
932370	tot-cap	2.82583E+02
942380	to 942370	2.00260E-03
942380	fission	2.02106E+01
942380	nu-sigf	5.72261E+01
942380	to 942360	1.12076E-05
942380	to 942390	2.57609E+02
942380	to 942381	2.60790E+00
942380	tot-cap	2.77822E+02
942390	to 942380	1.06246E-02
942390	fission	8.54735E+02
942390	nu-sigf	2.45731E+03

```
                    942390 to 942370  1.80436E-05
                    942390 to 942360  1.78869E-08
                    942390 to 942400  4.83359E+02
                    942390 tot-cap    1.33811E+03
                    942400 to 942390  4.98738E-03
                    942400 fission    5.21918E+00
                    942400 nu-sigf    1.63062E+01
                    942400 to 942380  4.86689E-05
                    942400 to 942410  1.91204E+03
                    942400 tot-cap    1.91727E+03
                    942410 to 942400  6.34184E-02
                    942410 fission    8.90876E+02
                    942410 nu-sigf    2.61233E+03
                    942410 to 942390  1.04138E-04
                    942410 to 942420  2.94405E+02
                    942410 tot-cap    1.18484E+03
                    942420 to 942410  2.03312E-02
                    942420 fission    3.88427E+00
                    942420 nu-sigf    1.21612E+01
                    942420 to 942400  2.47167E-04
                    942420 to 942430  2.96889E+02
                    942420 tot-cap    3.00793E+02
                    952410 fission    1.16252E+01
                    952410 nu-sigf    3.74443E+01
                    952410 to 952420  1.00417E+03
                    952410 tot-cap    1.01579E+03
                    952430 fission    2.99676E+00
                    952430 nu-sigf    1.00699E+01
                    952430 to 952440  3.82722E+02
                    952430 tot-cap    3.85718E+02
                    962440 to 962430  4.88608E-03
                    962440 fission    1.35709E+01
                    962440 nu-sigf    4.54429E+01
                    962440 to 962420  4.87258E-05
                    962440 to 962450  1.26267E+02
                    962440 to 962441  3.32706E+00
                    962440 tot-cap    1.39843E+02
 Othe reaction  50100 to  30070 was not used, because  50100 is not in library., (in subr pool)
                                        in the search of library number 3
 Othe reaction  50100 to  40090 was not used, because  50100 is not in library., (in subr pool)
                                        in the search of library number 3
 Othe reaction  50110 to  40090 was not used, because  50110 is not in library., (in subr pool)
                                        in the search of library number 3
 Othe reaction  50100 to  40100 was not used, because  50100 is not in library., (in subr pool)
                                        in the search of library number 3
 Othe reaction  80160 to  80161 was not used, because  80161 is not in library., (in subr pool)
 Othe reaction 621470 to 621471 was not used, because 621471 is not in library., (in subr pool)
 Othe fission product transitions for  922340 were not used.  library fissile nuclides are
    922330  922350  942410  922380  942390
 Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
 Othe reaction 922340 to 922341 was not used, because 922341 is not in library., (in subr pool)
 Othe reaction 922350 to 922351 was not used, because 922351 is not in library., (in subr pool)
 Othe fission product transitions for  922360 were not used.  library fissile nuclides are
    922330  922350  942410  922380  942390
 Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
 Othe reaction 922360 to 922361 was not used, because 922361 is not in library., (in subr pool)
 Othe fission product transitions for  952370 were not used.  library fissile nuclides are
    922330  922350  942410  922380  942390
 Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
 Othe reaction 952370 to 952371 was not used, because 952371 is not in library., (in subr pool)
```

```
0the fission product transitions for  942380 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  942380 to 942381 was not used, because  942381 is not in library., (in subr pool)
0the fission product transitions for  942400 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  942420 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952410 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952430 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  962440 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  962440 to 962441 was not used, because  962441 is not in library., (in subr pool)
1
0                          case completed.  date,   2/16/1996
0 * normal termination *
1   ooooooooooo   rrrrrrrrrrrr   iiiiiiiiiiii    gggggggggg   eeeeeeeeeeeee  m        m  sssssssssss
   ooooooooooooo  rrrrrrrrrrrrr  iiiiiiiiiiii   ggggggggggggg  eeeeeeeeeeeee  mm       m  ssssssssssssss
   oo        oo   rr        rr       ii        gg        gg  ee             mmm      m  ss        ss
   oo        oo   rr        rr       ii        gg            ee             m m      m  ss
   oo        oo   rr        rr       ii        gg            ee             m  m     m  ss
   oo        oo   rrrrrrrrrrrrr       ii        gg   gggggg   eeeeeeeee      m   m    m  ssssssssssss
   oo        oo   rrrrrrrrrrrr        ii        gg   gggggg   eeeeeeeee      m    m   m  ssssssssssss
   oo        oo   rr      rr         ii        gg        gg  ee             m     m  m           ss
   oo        oo   rr       rr        ii        gg        gg  ee             m      m m           ss
   oo        oo   rr        rr       ii        gg        gg  ee             m       mm  ss        ss
   ooooooooooooo  rr         rr  iiiiiiiiiiii   ggggggggggggg  eeeeeeeeeeeee  m        m  ssssssssssssss
    ooooooooooo   rr         rr  iiiiiiiiiiii    gggggggggg   eeeeeeeeeeeee  m        m  sssssssssss
0

   dddddddddddd    aaaaaaaaa   w        w  iiiiiiiiiiii    sssssssssss
   dddddddddddd   aaaaaaaaaaa  w        w  iiiiiiiiiiii   ssssssssssssss
   dd        dd   aa        aa  w        w      ii        ss        ss
   dd        dd   aa        aa  w        w      ii        ss
   dd        dd   aa        aa  w        w      ii        ss
   dd        dd   aaaaaaaaaaaaa  w        w      ii        ssssssssssss
   dd        dd   aaaaaaaaaaaaa   w      w      ii         ssssssssssss
   dd        dd   aa        aa    w    w       ii                  ss
   dd        dd   aa        aa     w  w        ii                  ss
   dd        dd   aa        aa      w w        ii        ss        ss
   dddddddddddd   aa        aa       ww    iiiiiiiiiiii   ssssssssssssss
   dddddddddddd   aa        aa        v    iiiiiiiiiiii    sssssssssss
0

     0000000     22222222222          //       11       666666666666          //  99999999999   666666666666
    000000000    2222222222222        //      111       6666666666666         //  9999999999999  6666666666666
   00       00   22        22         //     1111       66                    //  99        99  66
   00        00            22        //       11       66                    //  99        99  66
   00        00            22       //        11       66                    //  99        99  66
   00        00          22        //         11       666666666666         //   9999999999999  666666666666
   00        00        22         //          11       6666666666666       //    999999999999  6666666666666
   00        00      22          //           11       66        66       //              99  66        66
   00        00    22           //            11       66        66      //               99  66        66
```


SCALE 4.2
program verification information
code system: scale version: 4.2
program: c0c004
creation date: 04/27/95
library: /neutronics/scale/exe
this is not a scale configuration controlled code
jobname: davis
date of execution: 02/16/96

```
                    *****    time of execution:  09:58:18                    *****
                    *****                                                    *****
                    *****                                                    *****
                    ************************************************************
                    ************************************************************
                    ************************************************************
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0        cbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0           short-lived split test fraction, qm =    9.1188E-04
0           half-norm of matrix used, axn =    7.0000E+00
0           4-place-accuracy-retention ratio, ratio4 =    6.4516E-13
0       1q array has     20 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       4q array has      1 entries.
0      54q array has     12 entries.
1library information...

        cross-section data taken from position number  1 of library on unit 15.

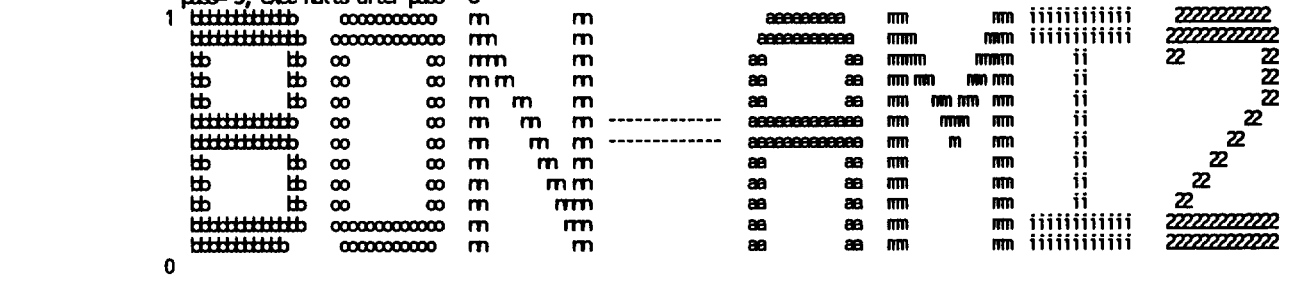
        pass  2
        pass  1
        pass  0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densities
          pass n applies mid time densities of nth library interval
        first library updated was...
        pass  1
        pass  0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densities
          pass n applies mid time densities of nth library interval
        first library updated was...
        ************************************************************************
        *                                                                      *
        *           prelim lwr origen-s binary working library--id = 1143      *
        *         made from modified card-image origen-s libraries of scale 4.2*
        *       data from the light element, actinide, and fission product libraries*
        *         decay data, including gamma and total energy, are from endf/b-vi*
        *                                                                      *
        *       neutron flux spectrum factors and cross sections were produced from*
        *      the "presas2" case updating all nuclides on the scale "burnup" library*
        *                                                                      *
        *                  fission product yields are from endf/b-v            *
        *                                                                      *
        *              photon libraries use an 18-energy-group structure       *
        *             the photon data are from the master photon data base,    *
        *             produced to include bremsstrahlung from us2 matrix       *
        *                                                                      *
        *         see information above this box (if present) for later updates*
        *                                                                      *
        ************************************************************************
```

```
0       ******************************************************************************
0                .other identification and sizes of library.
0                 data set name:  ft15f001
0              2/16/1996    date library was produced
0                 1697      total number of nuclides in library
                   689      number of light-element nuclides
                   129      number of actinide nuclides
                   879      number of fission product nuclides
0                 7935      number of nonzero off-diagonal matrix elements
0       ******************************************************************************
1
    sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                actinides       page   1
     power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.64E+13n/cm**2-sec
0                                          nuclide concentrations, gram atoms
                                           basis = converted to atoms/(barn-cm)
          charge    200.0 d   240.0 d   280.0 d   320.0 d   320.0 d   360.0 d   400.0 d
    u230 3.02E-22  4.37E-22  5.84E-22  7.51E-22  9.43E-22  9.43E-22  1.17E-21  1.42E-21
    u231 8.18E-21  1.15E-20  1.46E-20  1.82E-20  2.23E-20  2.22E-20  2.69E-20  3.22E-20
    u232 1.07E-13  1.44E-13  1.87E-13  2.36E-13  2.94E-13  2.94E-13  3.61E-13  4.37E-13
    u233 9.03E-12  1.12E-11  1.33E-11  1.52E-11  1.71E-11  1.71E-11  1.89E-11  2.06E-11
    u234 5.35E-06  5.30E-06  5.25E-06  5.19E-06  5.14E-06  5.14E-06  5.10E-06  5.05E-06
    u235 6.26E-04  6.11E-04  5.96E-04  5.82E-04  5.67E-04  5.67E-04  5.54E-04  5.40E-04
    u236 1.53E-05  1.81E-05  2.08E-05  2.34E-05  2.59E-05  2.59E-05  2.84E-05  3.08E-05
    u237 2.96E-08  3.35E-08  3.61E-08  3.85E-08  4.09E-08  4.08E-08  4.32E-08  4.55E-08
    u238 2.20E-02  2.20E-02  2.20E-02  2.20E-02  2.20E-02  2.20E-02  2.20E-02  2.20E-02
    u239 4.13E-09  5.62E-09  5.59E-09  5.58E-09  5.57E-09  3.23E-09  5.56E-09  5.55E-09
    u240 .00E+00   2.57E-39  1.87E-38  9.93E-38  4.17E-37  4.17E-37  1.47E-36  4.50E-36
    u241 .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
   np235 1.51E-15  2.54E-15  3.82E-15  5.38E-15  7.21E-15  7.21E-15  9.31E-15  1.17E-14
  np236m 6.04E-15  8.73E-15  1.11E-14  1.36E-14  1.62E-14  1.60E-14  1.89E-14  2.18E-14
   np236 1.12E-13  1.91E-13  2.93E-13  4.21E-13  5.75E-13  5.75E-13  7.57E-13  9.68E-13
   np237 3.67E-07  4.91E-07  6.25E-07  7.67E-07  9.16E-07  9.17E-07  1.07E-06  1.24E-06
   np238 4.33E-10  5.93E-10  7.52E-10  9.21E-10  1.10E-09  1.09E-09  1.28E-09  1.48E-09
   np239 7.84E-07  8.11E-07  8.08E-07  8.05E-07  8.04E-07  8.03E-07  8.02E-07  8.02E-07
  np240m .00E+00   2.19E-41  1.59E-40  8.48E-40  3.56E-39  3.56E-39  1.25E-38  3.84E-38
   np240 1.15E-11  1.36E-11  1.35E-11  1.35E-11  1.34E-11  1.09E-11  1.34E-11  1.34E-11
   np241 .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
   pu236 1.46E-13  2.47E-13  3.77E-13  5.37E-13  7.27E-13  7.27E-13  9.49E-13  1.20E-12
   pu237 3.28E-14  4.61E-14  5.89E-14  7.12E-14  8.31E-14  8.31E-14  9.46E-14  1.06E-13
   pu238 9.70E-09  1.62E-08  2.46E-08  3.51E-08  4.78E-08  4.78E-08  6.24E-08  7.96E-08
   pu239 3.13E-05  3.81E-05  4.45E-05  5.03E-05  5.57E-05  5.57E-05  6.08E-05  6.54E-05
   pu240 1.65E-06  2.40E-06  3.25E-06  4.17E-06  5.13E-06  5.13E-06  6.13E-06  7.16E-06
   pu241 2.56E-07  4.51E-07  7.16E-07  1.05E-06  1.47E-06  1.47E-06  1.95E-06  2.51E-06
   pu242 4.63E-09  1.04E-08  1.98E-08  3.41E-08  5.43E-08  5.43E-08  8.17E-08  1.17E-07
   pu243 5.47E-13  1.31E-12  2.49E-12  4.27E-12  6.80E-12  6.51E-12  1.02E-11  1.46E-11
   pu244 1.12E-29  1.28E-28  9.32E-28  4.95E-27  2.08E-26  2.08E-26  7.32E-26  2.24E-25
   pu245 .00E+00   9.35E-35  6.81E-34  3.60E-33  1.51E-32  1.48E-32  5.32E-32  1.63E-31
   pu246 .00E+00   2.11E-37  1.75E-36  9.95E-36  4.40E-35  4.40E-35  1.61E-34  5.11E-34
   am239 1.93E-20  4.62E-20  8.77E-20  1.50E-19  2.37E-19  2.33E-19  3.53E-19  5.03E-19
   am240 8.34E-18  1.99E-17  3.78E-17  6.45E-17  1.02E-16  1.02E-16  1.52E-16  2.17E-16
   am241 1.37E-09  3.09E-09  5.89E-09  1.01E-08  1.60E-08  1.60E-08  2.39E-08  3.40E-08
  am242m 9.02E-12  2.46E-11  5.45E-11  1.05E-10  1.84E-10  1.84E-10  2.99E-10  4.59E-10
   am242 1.59E-12  3.56E-12  6.77E-12  1.16E-11  1.83E-11  1.81E-11  2.73E-11  3.88E-11
   am243 6.20E-11  1.82E-10  4.26E-10  8.61E-10  1.57E-09  1.57E-09  2.67E-09  4.26E-09
  am244m .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
   am244 1.97E-14  6.03E-14  1.40E-13  2.83E-13  5.17E-13  5.06E-13  8.75E-13  1.40E-12
   am245 .00E+00   8.66E-33  6.24E-32  3.26E-31  1.35E-30  1.35E-30  4.69E-30  1.42E-29
   am246 .00E+00   5.25E-40  4.38E-39  2.49E-38  1.10E-37  1.10E-37  4.03E-37  1.28E-36
  totals 2.27E-02  2.27E-02  2.27E-02  2.27E-02  2.26E-02  2.26E-02  2.26E-02  2.26E-02
```

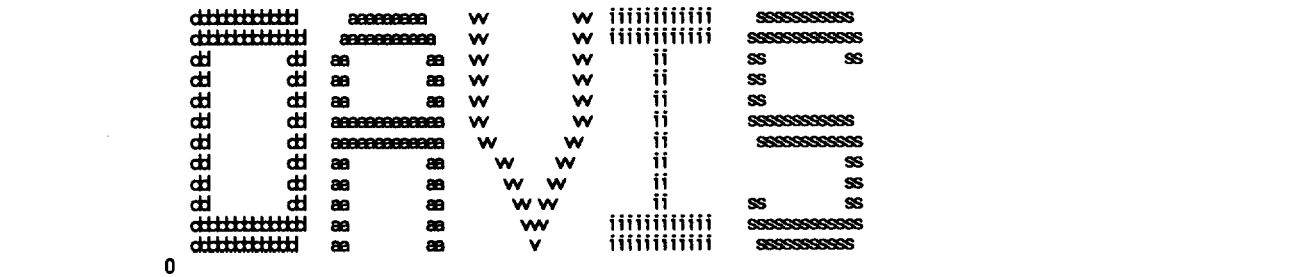
```
0   flux              1.65E+13  1.64E+13  1.64E+13  1.64E+13   .00E+00  1.64E+13  1.63E+13
0  .results on logical unit no. 71, position  1, for time step  7, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  2, for time step  5, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  3, for time step  4, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0     .terminated logical unit no. 71 with zero flag record.
1  * normal termination of execution *
0                                    table of contents for material tables
0                                      case or subcase printed      page

                                                  1                 1
0ndset          33
          15          4          1         27          6          0          0          0          0          0
           0          0          0          0          0          0         -1       1698        690        130
         880       7935          0          5         99          2         16         96         18         18
          18          0         71
0       56q array has      2 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       57q array has      3 entries.
0        1q array has     20 entries.
0        1q array has     10 entries.
     l90   97376
     l116  60826
     l32   33663 rudata (library) storage size
     l44   33734
     l103  75953
0       58q array has      4 entries.
0       60q array has      7 entries.
0       58q array has      7 entries.
0       66q array has      1 entries.
0       73q array has   1697 entries.
0       74q array has   1697 entries.
0       75q array has   1697 entries.
     l140  66991
     used   101044 in size   200000
0jopt           12
           0          0          0          0          0          0          0          0          0          0
           0          0
0therm           4
  5.092282E-01 3.846097E-01 2.931669E+00 1.000000E-31
0non             5
        7935         20          6         18       1697
0mm             19
           7          7          0          0          1          1          0          0          0          0
          21        100       1697          4          3         74          4          1          0
0tconst          5
  8.640000E+04 1.600064E+02  .000000E+00  .000000E+00 1.000000E-08
0mzero           4
           0        689        129        879
0pow             3
   .000000E+00  .000000E+00  .000000E+00
0 linp           9
           6          0         51         26          2       3000       1000       1697         94
```

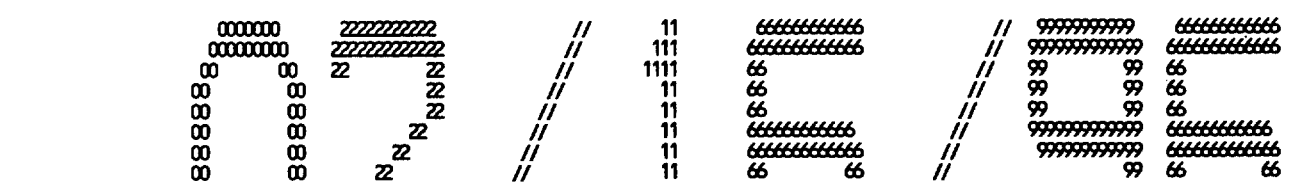
```
 n-gamma, fission and total mev/fission =          5.2408E+00     1.9492E+02     2.0016E+02
 start of interval flux =        1.65204E+13
 n-gamma, fission and total mev/fission =          5.3397E+00     1.9505E+02     2.0039E+02
 start of interval flux =        1.64592E+13
 n-gamma, fission and total mev/fission =          5.4422E+00     1.9518E+02     2.0062E+02
 start of interval flux =        1.64118E+13
 n-gamma, fission and total mev/fission =          5.5462E+00     1.9530E+02     2.0085E+02
 start of interval flux =        1.63779E+13
 start of interval flux =         .00000E+00
 n-gamma, fission and total mev/fission =          5.6579E+00     1.9542E+02     2.0107E+02
 start of interval flux =        1.63548E+13
 n-gamma, fission and total mev/fission =          5.7568E+00     1.9553E+02     2.0128E+02
 start of interval flux =        1.63432E+13
0 case or subcase    1  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       56q array has      20 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has      20 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has      20 entries.
0       56q array has      20 entries.
0requested parm=halt8,skipcellwt,skipshipdata
  pass= 3, exec halts after pass  8
```

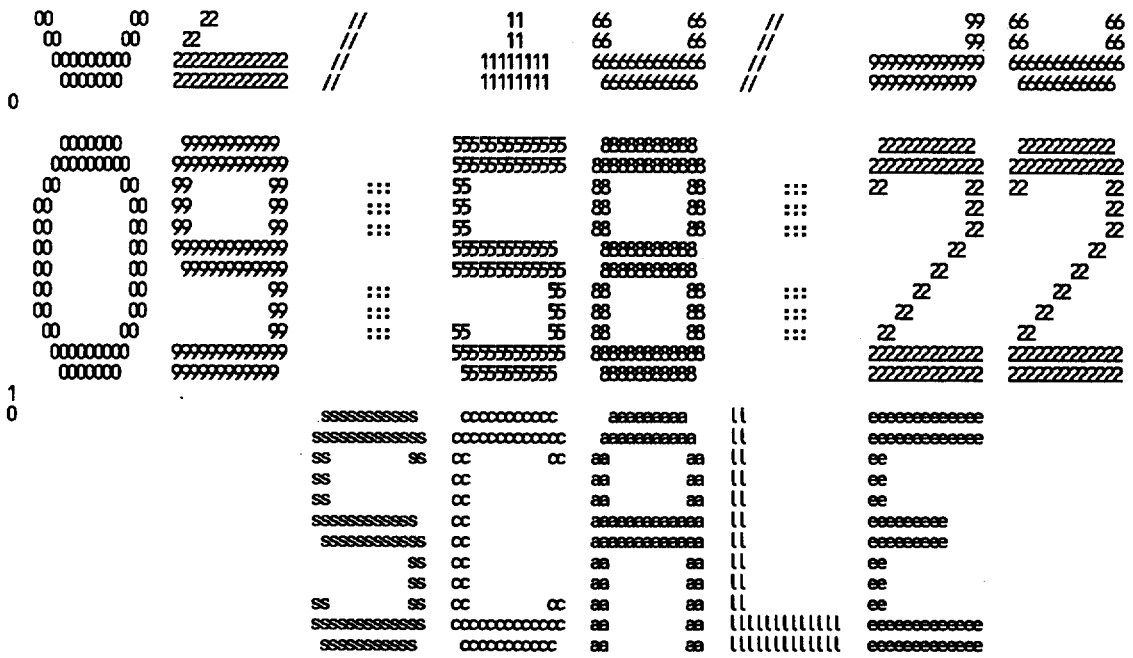


```
0
```



```
0
```





program verification information

code system: scale version: 4.2

program: c0c008

creation date: 04/27/95

library: /neutronics/scale/exe

this is not a scale configuration controlled code

jobname: davis

date of execution: 02/16/96

```
                    *****                                                                  *****
                    *****    time of execution:  09:58:22                                  *****
                    *****                                                                  *****
                    *****                                                                  *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has      6 entries.
0        2q array has      2 entries.
1logical assignments
0master library   12
 working library   0
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere                  2
0izm--number of zones or material regions                         4
0ms--mixing table length                                         66
0ibl--shielded cross section edit option (0/1--no/yes)            0
0ibr--bondarenko factor edit option (0/1--no/yes)                 0
0issopt--dancoff factor option                                    0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has     66 entries.
0        4q array has     66 entries.
0        5q array has     66 entries.
0        6q array has      4 entries.
0        7q array has      4 entries.
0        8q array has      4 entries.
0        9q array has      4 entries.
0       10q array has     66 entries.
0       11q array has      4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope  number density  new identifier
   1       1       92235    5.40480E-04           92235
   2       1       92234    5.04673E-06           92234
   3       1       92236    3.08086E-05           92236
   4       1       92238    2.19627E-02           92238
   5       1        8016    4.55359E-02            8016
   6       3        8016    2.09710E-02               6
   7       1       36083    7.25090E-07           36083
   8       1       36085    3.50117E-07           36085
   9       1       38090    7.86170E-06           38090
  10       1       39089    5.47406E-06           39089
  11       1       42095    6.12150E-06           42095
  12       1       40093    5.98109E-06           40093
  13       1       40094    9.26342E-06           40094
  14       1       40095    2.10190E-06           40095
  15       1       41094    3.60192E-12           41094
  16       1       43099    8.96719E-06           43099
  17       1       45103    4.40585E-06           45103
  18       1       45105    1.67519E-08           45105
  19       1       44101    7.89901E-06           44101
  20       1       44106    1.14008E-06           44106
  21       1       46105    2.49116E-06           46105
  22       1       46108    5.44054E-07           46108
  23       1       47109    3.91284E-07           47109
```

24	1	51124	1.00596E-10	51124
25	1	54131	4.16287E-06	54131
26	1	54132	7.00585E-06	54132
27	1	54135	6.60408E-09	54135
28	1	54136	1.50336E-05	54136
29	1	55134	2.22576E-07	55134
30	1	55135	4.71145E-06	55135
31	1	55137	9.46756E-06	55137
32	1	56136	4.32042E-08	56136
33	1	57139	9.43297E-06	57139
34	1	59141	7.61682E-06	59141
35	1	59143	3.93553E-07	59143
36	1	58144	5.00712E-06	58144
37	1	60143	7.75909E-06	60143
38	1	60145	5.63501E-06	60145
39	1	61147	2.48433E-06	61147
40	1	61148	6.82848E-09	61148
41	1	60147	1.32716E-07	60147
42	1	62147	3.65895E-07	62147
43	1	62149	7.51956E-08	62149
44	1	62150	1.75200E-06	62150
45	1	62151	2.87244E-07	62151
46	1	62152	8.48904E-07	62152
47	1	64155	7.98151E-10	64155
48	1	63153	3.95032E-07	63153
49	1	63154	4.62875E-08	63154
50	1	63155	5.11217E-08	63155
51	2	40302	4.25156E-02	40302
52	3	1001	4.19420E-02	1001
53	3	5010	3.81515E-06	5010
54	3	5011	1.54884E-05	5011
55	1	55133	9.78898E-06	55133
56	1	95237	1.23726E-06	95237
57	1	94238	7.95918E-08	94238
58	1	94239	6.54028E-05	94239
59	1	94240	7.15776E-06	94240
60	1	94241	2.50959E-06	94241
61	1	94242	1.17254E-07	94242
62	1	95241	3.39704E-08	95241
63	1	95243	4.26479E-09	95243
64	1	96244	1.64658E-10	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Ogeometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05844E-01	0
2	4	4.78790E-01	2.93000E+02	5.49010E-01	0
3	2	5.46100E-01	6.50000E+02	.00000E+00	0
4	3	8.13968E-01	6.07600E+02	.00000E+00	0

7711 locations of 200000 available are required to make a new master containing the self-shielded values

Ono nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

Ocopy 999 1/v cross sectio from log 12 to log 18 bondarenko trigger 0
Ocopy 999 1/v cross sectio from log 18 to log 1 bondarenko trigger 0
Ocopy 999 1/v cross sectio from log 18 to log 1 bondarenko trigger 0
Ocopy 1001 hydrogen from log 12 to log 1 bondarenko trigger 0
Ocopy 5010 b-10 1273 218grp from log 12 to log 1 bondarenko trigger 0
Ocopy 5011 boron-11 from log 12 to log 1 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 12 to log 18 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0

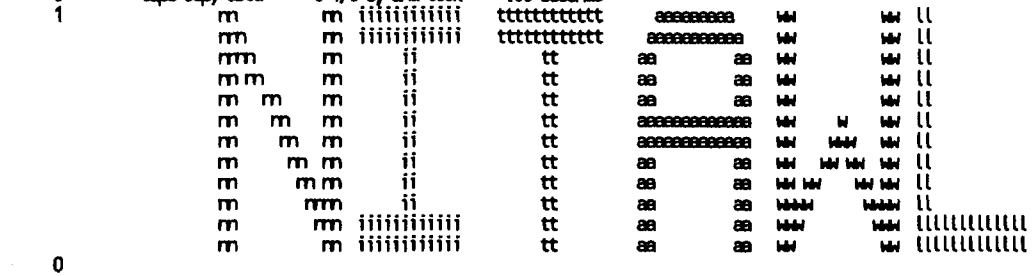
```
0copy    36083  kr-83          from log 12 to log  1   bondarenko trigger 0
0copy    36085  kr-85          from log 12 to log  1   bondarenko trigger 0
0copy    38090  sr-90          from log 12 to log  1   bondarenko trigger 0
0copy    39089   y-89          from log 12 to log  1   bondarenko trigger 0
0copy    40093  zr-93          from log 12 to log  1   bondarenko trigger 0
0copy    40094  zr-94          from log 12 to log  1   bondarenko trigger 0
0copy    40095  zr-95          from log 12 to log  1   bondarenko trigger 0
0copy    40302  zircalloy      from log 12 to log  1   bondarenko trigger 0
0copy    41094  nb-94          from log 12 to log  1   bondarenko trigger 0
0copy    42095  mo-95          from log 12 to log  1   bondarenko trigger 0
0copy    43099  tc-99          from log 12 to log  1   bondarenko trigger 0
0copy    44101  ru-101         from log 12 to log  1   bondarenko trigger 0
0copy    44106  ru-106         from log 12 to log  1   bondarenko trigger 0
0copy    45103  rh-103         from log 12 to log  1   bondarenko trigger 0
0copy    45105  rh-105         from log 12 to log  1   bondarenko trigger 0
0copy    46105  pd-105         from log 12 to log  1   bondarenko trigger 0
0copy    46108  pd-108         from log 12 to log  1   bondarenko trigger 0
0copy    47109  silver-109     from log 12 to log  1   bondarenko trigger 0
0copy    51124  sb-124         from log 12 to log  1   bondarenko trigger 0
0copy    54131  xe-131         from log 12 to log  1   bondarenko trigger 0
0copy    54132  xe-132         from log 12 to log  1   bondarenko trigger 0
0copy    54135  xenon-135      from log 12 to log  1   bondarenko trigger 0
0copy    54136  xe-136         from log 12 to log  1   bondarenko trigger 0
0copy    55133  cesium-133     from log 12 to log  1   bondarenko trigger 0
0copy    55134  cs-134         from log 12 to log  1   bondarenko trigger 0
0copy    55135  cs-135         from log 12 to log  1   bondarenko trigger 0
0copy    55137  cs-137         from log 12 to log  1   bondarenko trigger 0
0copy    56136  ba-136         from log 12 to log  1   bondarenko trigger 0
0copy    57139  la-139         from log 12 to log  1   bondarenko trigger 0
0copy    58144  ce-144         from log 12 to log  1   bondarenko trigger 0
0copy    59141  pr-141         from log 12 to log  1   bondarenko trigger 0
0copy    59143  pr-143         from log 12 to log  1   bondarenko trigger 0
0copy    60143  nd-143         from log 12 to log  1   bondarenko trigger 0
0copy    60145  nd-145         from log 12 to log  1   bondarenko trigger 0
0copy    60147  nd-147         from log 12 to log  1   bondarenko trigger 0
0copy    61147  pm-147         from log 12 to log  1   bondarenko trigger 0
0copy    61148  pm-148         from log 12 to log  1   bondarenko trigger 0
0copy    62147  sm-147         from log 12 to log  1   bondarenko trigger 0
0copy    62149  sm-149         from log 12 to log  1   bondarenko trigger 0
0copy    62150  sm-150         from log 12 to log  1   bondarenko trigger 0
0copy    62151  sm-151         from log 12 to log  1   bondarenko trigger 0
0copy    62152  sm-152         from log 12 to log  1   bondarenko trigger 0
0copy    63153  eu-153         from log 12 to log  1   bondarenko trigger 0
0copy    63154  eu-154         from log 12 to log  1   bondarenko trigger 0
0copy    63155  eu-155         from log 12 to log  1   bondarenko trigger 0
0copy    64155  gd-155         from log 12 to log  1   bondarenko trigger 0
0copy    92234  u-234 1043 sigc= from log 12 to log  1   bondarenko trigger 0
0copy    92235   uranium-235   from log 12 to log  1   bondarenko trigger 0
0copy    92236  u-236 1163 sigc= from log 12 to log  1   bondarenko trigger 0
0copy    92238   uranium-238   from log 12 to log  1   bondarenko trigger 0
0copy    93237   neptunium-237 from log 12 to log  1   bondarenko trigger 0
0copy    94238  pu-238 1050 sigc from log 12 to log  1   bondarenko trigger 0
0copy    94239   plutonium-239 from log 12 to log  1   bondarenko trigger 0
0copy    94240   plutonium-240 from log 12 to log  1   bondarenko trigger 0
0copy    94241   plutonium-241 from log 12 to log  1   bondarenko trigger 0
0copy    94242   plutonium-242 from log 12 to log  1   bondarenko trigger 0
0copy    95241  am-241 1056 sigc from log 12 to log  1   bondarenko trigger 0
0copy    95243  am-243 1057 218  from log 12 to log  1   bondarenko trigger 0
0copy    96244   curium-244    from log 12 to log  1   bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
```

based on endf-b version 4 data with endf-b version 5 fission products
compiled for nrc 1/27/89
last updated 9/16/93
l.m.petrie - ornl

tape id	4321	number of nuclides	66
number of neutron groups	27	number of gamma groups	0
first thermal group	15	logical unit	1

table of contents

1/v cross sections normalized to 1.0 at 0.0253 ev			id	999
1/v cross sections normalized to 1.0 at 0.0253 ev			id	66
hydrogen	endf/b-iv mat 1269/thrmf1002	updated 10/13/89	id	1001
b-10 1273 218ngp 042375 p-3 293k			id	5010
boron-11	endf/b-iv mat 1160	updated 10/13/89	id	5011
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	8016
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	6
kr-83	mt=102,103,103,105,106,107	updated 10/13/89	id	36083
kr-85	mt= 102		id	36085
sr-90	mt=102	updated 10/13/89	id	38090
y-89	mt=102	updated 10/13/89	id	39089
zr-93	mt= 102		id	40093
zr-94	mt=102	updated 10/13/89	id	40094
zr-95	mt=102	updated 10/13/89	id	40095
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id	40802
rb-94	mt=102	updated 10/13/89	id	41094
mo-95	mt=102	updated 10/13/89	id	42095
tc-99	mt=102	updated 10/13/89	id	43099
ru-101	mt=102	updated 10/13/89	id	44101
ru-106	mt=102	updated 10/13/89	id	44106
rh-103	mt=102	updated 10/13/89	id	45103
rh-105	mt= 102		id	45105
pd-105	mt=102	updated 10/13/89	id	46105
pd-108	mt=102	updated 10/13/89	id	46108
silver-109	endf/b-iv mat 1139	updated 10/13/89	id	47109
sb-124	mt=102	updated 10/13/89	id	51124
xe-131	mt=102,103,104,105,106	updated 10/13/89	id	54131
xe-132	mt=102,103,104,105,106	updated 10/13/89	id	54132
xenon-135	endf/b-iv mat 1294	updated 10/13/89	id	54135
xe-136	mt= 102, 103, 104, 105, 107		id	54136
cesium-133	endf/b-iv mat 1141	updated 10/13/89	id	55133
cs-134	mt=102	updated 10/13/89	id	55134
cs-135	mt= 102		id	55135
cs-137	mt=102	updated 10/13/89	id	55137
ba-136	mt=102	updated 10/13/89	id	56136
la-139	mt=102	updated 10/13/89	id	57139
ce-144	mt= 102		id	58144
pr-141	mt=102,103,104,105,106,107	updated 10/13/89	id	59141
pr-143	mt=102	updated 10/13/89	id	59143
nd-143	mt=102	updated 10/13/89	id	60143
nd-145	mt=102	updated 10/13/89	id	60145
nd-147	mt=102	updated 10/13/89	id	60147
pm-147	mt=102	updated 10/13/89	id	61147
pm-148	mt= 102		id	61148
sm-147	endf/b-v fission product	updated 10/13/89	id	62147
sm-149	mt=102,103,107	updated 10/13/89	id	62149
sm-150	mt=102	updated 10/13/89	id	62150
sm-151	mt=102,103,104,105,106,107	updated 10/13/89	id	62151
sm-152	mt=102,103,104,105,106,107	updated 10/13/89	id	62152
eu-153	mt=102,103,104,105,106,107	updated 10/13/89	id	63153
eu-154	mt=102,103,104,105,106,107	updated 10/13/89	id	63154
eu-155	mt=102,103,104,105,106,107	updated 10/13/89	id	63155



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     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                 id    92234
      uranium-235   endf/b-iv mat 1261        updated 10/13/89          id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                 id    92236
      uranium-238   endf/b-iv mat 1262        updated 10/13/89          id    92238
      neptunium-237 endf/b-iv mat 1263        updated 10/13/89          id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                 id    94238
      plutonium-239 endf/b-iv mat 1264        updated 10/13/89          id    94239
      plutonium-240 endf/b-iv mat 1265        updated 10/13/89          id    94240
      plutonium-241 endf/b-iv mat 1266        updated 10/13/89          id    94241
      plutonium-242 endf/b-iv mat 1161        updated 10/13/89          id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                       id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                        id    95243
      curium-244    endf/b-iv mat 1162        updated 10/13/89          id    96244
0      tape copy used     0 i/o's, and took     .00 seconds
1              rn        rn iiiiiiiiiiii   tttttttttttt     aaaaaaaaa    ww         ww  ll
               rnn       rn iiiiiiiiiiii   tttttttttttt    aaaaaaaaaaa   ww         ww  ll
               rnrn      rn      ii            tt        aa        aa  ww         ww  ll
               rn rn     rn      ii            tt        aa        aa  ww         ww  ll
               rn  rn    rn      ii            tt        aa        aa  ww         ww  ll
               rn   rn   rn      ii            tt        aaaaaaaaaaaaa  ww    w    ww  ll
               rn    rn  rn      ii            tt        aaaaaaaaaaaaa  ww   www   ww  ll
               rn     rn rn      ii            tt        aa        aa  ww  ww ww  ww  ll
               rn      rn rn     ii            tt        aa        aa  ww ww   ww ww  ll
               rn       rnrn     ii            tt        aa        aa  wwww     wwww  ll
               rn        rnn iiiiiiiiiiii     tt        aa        aa  www       www  llllllllllll
               rn         rn iiiiiiiiiiii     tt        aa        aa  ww         ww  llllllllllll
0

  dddddddddddd    aaaaaaaaa   w        w iiiiiiiiiiii   sssssssssss
  dddddddddddd   aaaaaaaaaaa  w        w iiiiiiiiiiii   sssssssssssss
  dd        dd  aa        aa  w        w     ii        ss        ss
  dd        dd  aa        aa  w        w     ii        ss
  dd        dd  aa        aa  w        w     ii        ss
  dd        dd  aaaaaaaaaaaaa w        w     ii        sssssssssssss
  dd        dd  aaaaaaaaaaaaa  w      w     ii         sssssssssssss
  dd        dd  aa        aa    w    w      ii                  ss
  dd        dd  aa        aa     w  w       ii                  ss
  dd        dd  aa        aa      w w       ii        ss        ss
  dddddddddddd  aa        aa       ww     iiiiiiiiiiii   sssssssssssss
  dddddddddddd  aa        aa        v     iiiiiiiiiiii   sssssssssss
0

    0000000     22222222222          //      11      666666666666          //  99999999999   666666666666
   000000000    22222222222          //     111      666666666666          //  99999999999   666666666666
  00      00   22        22          //    1111      66                    //  99        99  66
 00        00            22          //      11      66                    //  99        99  66
 00        00            22          //      11      66                    //  99        99  66
 00        00          22            //      11      666666666666          //  99999999999   666666666666
 00        00        22              //      11      666666666666          //   99999999999  666666666666
 00        00      22                //      11      66        66          //            99  66        66
 00        00    22                  //      11      66        66          //            99  66        66
  00      00   22                    //      11      66        66          //            99  66        66
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    0000000    22222222222          //    11111111   66666666666          //  99999999999   66666666666
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  00      00   99        99      :::    55            88        88      :::   22        22  33        33
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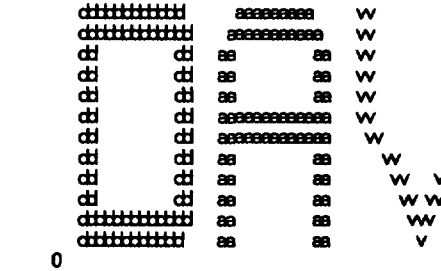

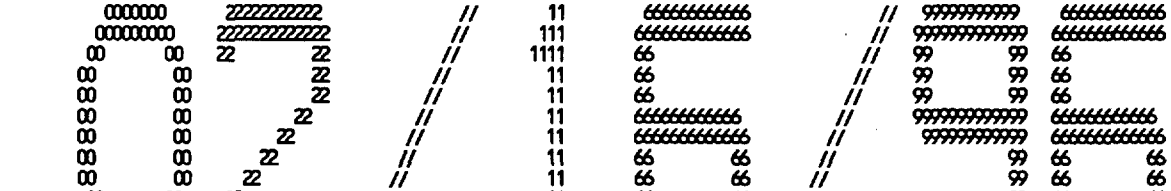

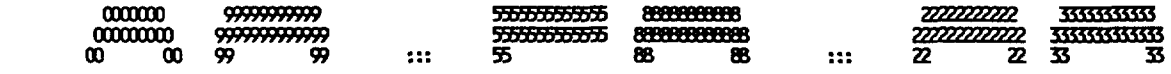

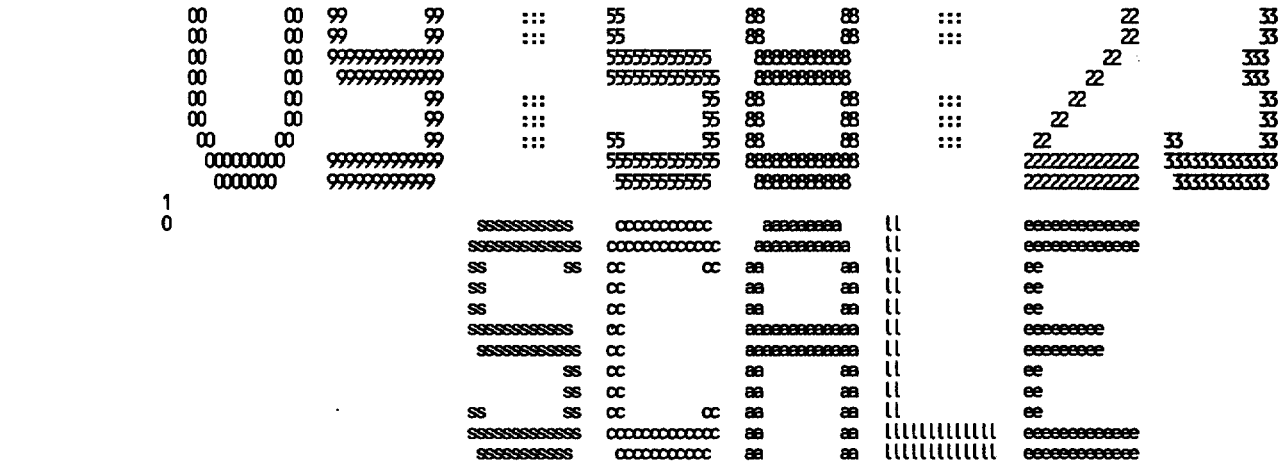

program verification information

code system: scale version: 4.2

program: c0c002

creation date: 04/27/95

library: /neutronics/scale/exe

this is not a scale configuration controlled code

jobname: davis

date of execution: 02/16/96

time of execution: 09:58:23

1
0 -1q array has 1 entries.

```
0        0q array has      9 entries.
0        1q array has     12 entries.
0select 65 nuclides from the master  library on logical  1
         0 nuclides from the working library on logical  2
         0 nuclides from the working library on logical  3
           to create the new working library on logical  4

        61 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has     65 entries.
0        3q array has    915 entries.
0        4q array has     65 entries.
0 general information concerning cross section library
    tape identification number                4321
    number of nuclides on tape                  66
    number of neutron energy groups             27
    first thermal neutron energy group          15
    number of gamma energy groups                0
0   direct access unit number  9 requires 117 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                          based on endf-b version 4 data with endf-b version 5 fission products
                             compiled for nrc      1/27/89
                                last updated      9/16/93
                                  l.m.petrie   -   ornl
0 nuclides from xsdrn tape
    1    1/v cross sections normalized to 1.0 at 0.0253 ev                                  999
    2     hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89                  1001
    3    b-10 1273 218ngp 042375 p-3 293k                                                  5010
    4     boron-11       endf/b-iv mat 1160             updated 10/13/89                  5011
    5     oxygen-16      endf/b-iv mat 1276             updated 10/13/89                  8016
    6     oxygen-16      endf/b-iv mat 1276             updated 10/13/89                     6
    7     kr-83          mt=102,103,103,105,106,107     updated 10/13/89                 36083
    8     kr-85             mt=  102                                                      36085
    9     sr-90          mt=102                         updated 10/13/89                 38090
   10      y-89          mt=102                         updated 10/13/89                 39089
   11     zr-93             mt=  102                                                      40093
   12     zr-94          mt=102                         updated 10/13/89                 40094
   13     zr-95          mt=102                         updated 10/13/89                 40095
   14     zircalloy      endf/b-iv mat 1284             updated 10/13/89                 40302
   15     nb-94          mt=102                         updated 10/13/89                 41094
   16     mo-95          mt=102                         updated 10/13/89                 42095
   17     tc-99          mt=102                         updated 10/13/89                 43099
   18     ru-101         mt=102                         updated 10/13/89                 44101
   19     ru-106         mt=102                         updated 10/13/89                 44106
   20     rh-103         mt=102                         updated 10/13/89                 45103
   21     rh-105            mt=  102                                                      45105
   22     pd-105         mt=102                         updated 10/13/89                 46105
   23     pd-108         mt=102                         updated 10/13/89                 46108
   24     silver-109     endf/b-iv mat 1139             updated 10/13/89                 47109
   25     sb-124         mt=102                         updated 10/13/89                 51124
   26     xe-131         mt=102,103,104,105,106         updated 10/13/89                 54131
   27     xe-132         mt=102,103,104,105,106         updated 10/13/89                 54132
   28     xenon-135      endf/b-iv mat 1294             updated 10/13/89                 54135
   29     xe-136            mt=  102, 103, 104, 105, 107                                  54136
   30     cesium-133     endf/b-iv mat 1141             updated 10/13/89                 55133
   31     cs-134         mt=102                         updated 10/13/89                 55134
   32     cs-135            mt=  102                                                      55135
   33     cs-137         mt=102                         updated 10/13/89                 55137
```

```
   34    ba-136        mt=102                          updated 10/13/89          56136
   35    la-139        mt=102                          updated 10/13/89          57139
   36    ce-144          mt=  102                                                58144
   37    pr-141        mt=102,103,104,105,106,107      updated 10/13/89          59141
   38    pr-143        mt=102                          updated 10/13/89          59143
   39    nd-143        mt=102                          updated 10/13/89          60143
   40    nd-145        mt=102                          updated 10/13/89          60145
   41    nd-147        mt=102                          updated 10/13/89          60147
   42    pm-147        mt=102                          updated 10/13/89          61147
   43    pm-148          mt=  102                                                61148
   44    sm-147        endf/b-v fission product        updated 10/13/89          62147
   45    sm-149        mt=102,103,107                  updated 10/13/89          62149
   46    sm-150        mt=102                          updated 10/13/89          62150
   47    sm-151        mt=102,103,104,105,106,107      updated 10/13/89          62151
   48    sm-152        mt=102,103,104,105,106,107      updated 10/13/89          62152
   49    eu-153        mt=102,103,104,105,106,107      updated 10/13/89          63153
   50    eu-154        mt=102,103,104,105,106,107      updated 10/13/89          63154
   51    eu-155        mt=102,103,104,105,106,107      updated 10/13/89          63155
   52    gd-155        mt=102                          updated 10/13/89          64155
   53   u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      92234
   54    uranium-235   endf/b-iv mat 1261              updated 10/13/89          92235
   55   u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      92236
   56    uranium-238   endf/b-iv mat 1262              updated 10/13/89          92238
   57    neptunium-237 endf/b-iv mat 1263              updated 10/13/89          93237
   58   pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      94238
   59    plutonium-239 endf/b-iv mat 1264              updated 10/13/89          94239
   60    plutonium-240 endf/b-iv mat 1265              updated 10/13/89          94240
   61    plutonium-241 endf/b-iv mat 1266              updated 10/13/89          94241
   62    plutonium-242 endf/b-iv mat 1161              updated 10/13/89          94242
   63   am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                            95241
   64   am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                             95243
   65    curium-244    endf/b-iv mat 1162              updated 10/13/89          96244
01/v cross sections normalized to 1.0 at 0.0253 ev                      999    temperature=   975.00
0 hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89        1001    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                       5010    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160            updated 10/13/89        5011    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276            updated 10/13/89        8016    temperature=   975.00
0 oxygen-16      endf/b-iv mat 1276            updated 10/13/89           6    temperature=   607.60
0 kr-83          mt=102,103,103,105,106,107    updated 10/13/89       36083    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    82.202          temperature(kelvin)      =   975.000
0potential scatter sigma  =     7.004          lumped nuclear density   = 7.2509016E-07
0spin factor (g)          =  4988.190          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 2.3550131E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 2.6274603E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11      -9.819651E-04    .000000E+00   -1.251893E-03
  12       2.167537E-02    .000000E+00    9.906985E-03
  13      -2.399784E-01    .000000E+00   -7.504968E-02
  14       4.781998E-05    .000000E+00   -1.721927E-05
0excess resonance integrals
```

```
0                 resolved
0absorption       1.45000E+02
 fission           .00000E+00
- elapsed time    .00 min.
0 kr-85            mt=  102                                          36085     temperature=   975.00
0 sr-90          mt=102                    updated 10/13/89          38090     temperature=   975.00
0  y-89          mt=102                    updated 10/13/89          39089     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    88.142          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.644          lumped nuclear density   = 5.4740635E-06
0spin factor (g)          =    78.664          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 3.1194320E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 3.4803137E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9      -7.380091E-07     .000000E+00    9.697895E-06
  10      -3.189627E-05     .000000E+00   -8.988161E-05
0excess resonance integrals
0                 resolved
0absorption       1.46470E-01
 fission           .00000E+00
- elapsed time    .00 min.
0 zr-93            mt=  102                                          40093     temperature=   975.00
0 zr-94          mt=102                    updated 10/13/89          40094     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    93.100          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.779          lumped nuclear density   = 9.2634236E-06
0spin factor (g)          =   180.853          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.8433756E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 2.0566324E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   8      -3.996329E-07     .000000E+00   -3.981763E-04
   9      -1.740391E-05     .000000E+00   -1.543847E-03
0excess resonance integrals
0                 resolved
0absorption       3.44067E-02
 fission           .00000E+00
- elapsed time    .00 min.
0 zr-95          mt=102                    updated 10/13/89          40095     temperature=   975.00
0 zircalloy      endf/b-iv mat 1284        updated 10/13/89          40302     temperature=   650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)      =   650.000
0potential scatter sigma  =     6.385          lumped nuclear density   = 4.2515602E-02
0spin factor (g)          =     1.079          lump dimension (a-bar)   = 5.4610002E-01
0inner radius             = 4.7878999E-01      dancoff correction (c)   = 5.0364637E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
```

```
   8      -1.788994E-03     .000000E+00   -4.286907E+00
   9      -5.695375E-02     .000000E+00   -2.695297E+00
  10      -6.959955E-02     .000000E+00   -1.601321E+00
  11      -1.883937E-01     .000000E+00   -7.920912E-01
0excess resonance integrals
0                 resolved
0absorption       2.28539E-01
 fission          .0000E+00
- elapsed time    .02 min.
0 rb-94          mt=102                    updated 10/13/89          41094     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    93.101          temperature(kelvin)     =   975.000
0potential scatter sigma  =     3.779          lumped nuclear density  = 3.6019208E-12
0spin factor (g)          = 43808.801          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 4.7407952E+10
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   257.933          sigma(per absorber atom)= 5.2892492E+10
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  13       1.042787E-02     .000000E+00    9.252072E-04
  14       9.836727E-03     .000000E+00   -4.064848E-04
0excess resonance integrals
0                 resolved
0absorption       9.15001E+01
 fission          .0000E+00
- elapsed time    .02 min.
0 mo-95          mt=102                    updated 10/13/89          42095     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    94.091          temperature(kelvin)     =   975.000
0potential scatter sigma  =     3.806          lumped nuclear density  = 6.1215037E-06
0spin factor (g)          =   607.724          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 2.7895055E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   257.933          sigma(per absorber atom)= 3.1122184E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  10      -1.359311E-03     .000000E+00   -7.621617E-03
  11      -2.295119E-03     .000000E+00   -4.000108E-03
  12      -1.778539E+00     .000000E+00   -2.047869E+00
  13       1.600225E-04     .000000E+00   -2.533864E-05
0excess resonance integrals
0                 resolved
0absorption       1.01012E+02
 fission          .0000E+00
- elapsed time    .02 min.
0 tc-99          mt=102                    updated 10/13/89          43099     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    98.150          temperature(kelvin)     =   975.000
0potential scatter sigma  =     6.000          lumped nuclear density  = 8.9671930E-06
0spin factor (g)          =  4527.940          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
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0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.9042715E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 2.1245732E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      -1.143065E-02     .000000E+00   -5.399383E-03
  12      -2.896091E-03     .000000E+00   -9.676807E-05
  13      -1.866455E-01     .000000E+00   -9.856686E-03
  14      -4.066176E+00     .000000E+00   -1.301287E-01
  15       1.071236E-02     .000000E+00   -5.402104E-04
  16       4.836075E-03     .000000E+00   -2.802230E-04
  17       2.074324E-04     .000000E+00   -1.191662E-05
0excess resonance integrals
0                 resolved
0absorption      3.2972BE+02
 fission          .00000E+00
- elapsed time    .03 min.
0 ru-101        mt=102                  updated 10/13/89            44101     temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =   100.039          temperature(kelvin)      =   975.000
0potential scatter sigma =     3.965          lumped nuclear density   = 7.8990079E-06
0spin factor (g)         =    8786.290        lump dimension (a-bar)   = 4.6812201E-01
0inner radius            =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 2.1617867E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 2.4118799E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      -3.577315E-02     .000000E+00   -3.650390E-03
  12      -3.629454E-02     .000000E+00   -1.328259E-02
  13      -2.097446E-01     .000000E+00   -5.654530E-03
  14       2.376605E-04     .000000E+00   -4.179696E-05
0excess resonance integrals
0                 resolved
0absorption      7.9672DE+01
 fission          .00000E+00
- elapsed time    .03 min.
0 ru-106        mt=102                  updated 10/13/89            44106     temperature=   975.00
0 rh-103        mt=102                  updated 10/13/89            45103     temperature=   975.00
 0resonance data for this nuclide
 0mass number (a)         =   102.021          temperature(kelvin)      =   975.000
 0potential scatter sigma =     5.408          lumped nuclear density   = 4.4058538E-06
 0spin factor (g)         =      .500          lump dimension (a-bar)   = 4.6812201E-01
 0inner radius            =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
 0the absorber will be treated by the nordheim integral method.
 0mass of moderator-1    =    15.995              sigma(per absorber atom)= 3.8757457E+04
 0moderator-1 will be treated by the nordheim integral method.
 0mass of moderator-2    =   237.953              sigma(per absorber atom)= 4.3241238E+04
 0moderator-2 will be treated by the nordheim integral method.
 0this resonance material will be treated as a 2-dimensional object.
 0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
 0group       res abs         res fiss        res scat
   9       1.289190E-03     .000000E+00    2.051222E-03
  10      -2.437226E-03     .000000E+00   -3.482086E-03
  11      -8.577483E-03     .000000E+00   -7.675869E-03
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  12      -1.027692E-04     .000000E+00   -1.704071E-05
  13        .000000E+00     .000000E+00     .000000E+00
  14        .000000E+00     .000000E+00     .000000E+00
  15       2.306213E-01     .000000E+00    3.364654E-03
  16       3.688781E+01     .000000E+00   -4.548918E-02
  17      -1.831598E+02     .000000E+00   -1.432801E-01
  18       8.764003E+01     .000000E+00    2.615952E-01
  19       1.155327E+01     .000000E+00   -1.651123E-03
  20       1.092636E+00     .000000E+00   -2.517397E-03
  21       2.166005E-01     .000000E+00    1.924732E-03
  22       2.583945E-01     .000000E+00    2.928506E-03
  23      -9.880788E-02     .000000E+00    1.799112E-03
0excess resonance integrals
0                  resolved
0absorption       1.15654E+03
 fission           .00000E+00
- elapsed time     .05 min.
0 rh-105           mt=  102                                          45105     temperature=   975.00
0 pd-105        mt=102                      updated 10/13/89          46105     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   104.004          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.069          lumped nuclear density   = 2.4911647E-06
0spin factor (g)          = 15210.000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 6.8546125E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 7.6476109E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  12      -4.953295E-02     .000000E+00   -7.882353E-04
  13       2.276423E-02     .000000E+00   -5.572332E-05
  14       7.777355E-04     .000000E+00   -8.168058E-05
0excess resonance integrals
0                  resolved
0absorption       6.12945E+01
 fission           .00000E+00
- elapsed time     .07 min.
0 pd-108        mt=102                      updated 10/13/89          46108     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   106.977          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.146          lumped nuclear density   = 5.4405444E-07
0spin factor (g)          = 21175.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 3.1386509E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 3.5017556E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11       1.170557E-04     .000000E+00    3.532514E-04
  12      -4.881945E-01     .000000E+00   -3.598531E-01
  13       6.931076E-03     .000000E+00    1.824895E-03
  14       8.561452E-02     .000000E+00   -3.206503E-05
  15      -1.840304E-01     .000000E+00    8.083835E-05
  16       2.946594E-04     .000000E+00   -9.255707E-06
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0excess resonance integrals
0                resolved
0absorption      2.13516E+02
 fission          .00000E+00
- elapsed time    .07 min.
0 silver-109     endf/b-iv mat 1139          updated 10/13/89          47109     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   107.969          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.988          lumped nuclear density   = 3.9128443E-07
0spin factor (g)          =  1441.870          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 4.3640809E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 4.8689538E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
  10     -1.470666E-05      .000000E+00    1.632901E-05
  11     -1.388515E-03      .000000E+00   -1.091168E-03
  12     -7.052492E-01      .000000E+00   -3.163157E-02
  13      7.672281E-01      .000000E+00    3.380755E-02
  14     -3.453321E+00      .000000E+00   -3.333731E-01
0excess resonance integrals
0                resolved
0absorption      1.39897E+03
 fission          .00000E+00
- elapsed time    .07 min.
0 sb-124         mt=102                      updated 10/13/89          51124     temperature=  975.00
0 xe-131         mt=102,103,104,105,106      updated 10/13/89          54131     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   129.781          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.301          lumped nuclear density   = 4.1628664E-06
0spin factor (g)          =   246.825          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 4.1019738E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 4.5765238E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
   9     -1.157132E-06      .000000E+00   -1.109606E-05
  10     -8.302818E-05      .000000E+00   -6.607881E-05
  11     -1.069897E-03      .000000E+00   -8.185382E-04
  12     -2.103276E-02      .000000E+00   -1.964439E-03
  13     -3.601871E+01      .000000E+00   -8.453455E+01
  14      1.100193E-02      .000000E+00    1.539452E-02
0excess resonance integrals
0                resolved
0absorption      7.98384E+02
 fission          .00000E+00
- elapsed time    .08 min.
0 xe-132         mt=102,103,104,105,106      updated 10/13/89          54132     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   130.771          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.301          lumped nuclear density   = 7.0068454E-06
0spin factor (g)          =   675.899          lump dimension (a-bar)   = 4.6812201E-01
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0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995               sigma(per absorber atom)= 2.4373887E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.933               sigma(per absorber atom)= 2.7193658E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
   9      -1.056912E-05      .000000E+00   -4.704644E-05
  10      -3.331607E-03      .000000E+00   -4.241930E-02
  11       3.344413E-08      .000000E+00   -9.285239E-07
0excess resonance integrals
0                 resolved
0absorption      9.78718E-01
 fission          .00000E+00
-  elapsed time    .08 min.
0 xenon-135     endf/b-iv mat 1294          updated 10/13/89              54135     temperature=  975.00
0 xe-136          mt=  102, 103, 104, 105, 107                            54136     temperature=  975.00
0 cesium-133    endf/b-iv mat 1141          updated 10/13/89              55133     temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   131.764              temperature(kelvin)       =   975.000
0potential scatter sigma =     7.100              lumped nuclear density    = 9.7889797E-06
0spin factor (g)         =   374.437              lump dimension (a-bar)    = 4.6812201E-01
0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995               sigma(per absorber atom)= 1.7444074E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  238.051               sigma(per absorber atom)= 1.8711057E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
   9      -2.907373E-05      .000000E+00   -1.570998E-04
  10      -1.314802E-03      .000000E+00   -2.538390E-03
  11      -5.049485E-02      .000000E+00   -8.853554E-02
  12      -7.794365E-02      .000000E+00   -1.087077E-02
  13      -1.293005E-01      .000000E+00   -7.041851E-03
  14      -5.816844E+00      .000000E+00   -2.551529E-01
  15       5.627014E-03      .000000E+00   -4.058210E-04
  16       2.777945E-03      .000000E+00   -2.215582E-04
  17       2.352170E-03      .000000E+00   -1.830856E-04
  18       2.214986E-03      .000000E+00   -1.679469E-04
  19       1.317094E-03      .000000E+00   -9.670768E-05
0excess resonance integrals
0                 resolved
0absorption      3.59757E+02
 fission          .00000E+00
-  elapsed time    .10 min.
0 cs-134        mt=102                      updated 10/13/89              55134     temperature=  975.00
0 cs-135          mt=  102                                                55135     temperature=  975.00
0 cs-137        mt=102                      updated 10/13/89              55137     temperature=  975.00
0 ba-136        mt=102                      updated 10/13/89              56136     temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   134.737              temperature(kelvin)       =   975.000
0potential scatter sigma =     4.835              lumped nuclear density    = 4.3204217E-08
0spin factor (g)         =  1247.690              lump dimension (a-bar)    = 4.6812201E-01
0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995               sigma(per absorber atom)= 3.9523850E+06
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0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 4.409629E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
  10      1.325435E-06      .000000E+00    5.726989E-07
  11      1.778946E-05      .000000E+00    1.536195E-05
0excess resonance integrals
0                resolved
0absorption      1.33476E+00
 fission          .00000E+00
- elapsed time    .10 min.
0 la-139        mt=102                    updated 10/13/89            57139    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   137.713          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.906          lumped nuclear density   = 9.432974E-06
0spin factor (g)          =   145.855          lump dimension (a-bar)   = 4.681220E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.810242E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 2.019665E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
   9      2.513561E-05      .000000E+00    4.217379E-03
  10     -2.130884E-04      .000000E+00   -1.470225E-02
  11       .000000E+00      .000000E+00     .000000E+00
  12     -3.235367E-02      .000000E+00   -1.955698E-02
0excess resonance integrals
0                resolved
0absorption      8.11172E+00
 fission          .00000E+00
- elapsed time    .12 min.
0 ce-144         mt=  102                                                 58144    temperature=  975.00
0 pr-141        mt=102,103,104,105,106,107    updated 10/13/89            59141    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   139.697          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.953          lumped nuclear density   = 7.616822E-06
0spin factor (g)          =  1026.500          lump dimension (a-bar)   = 4.681220E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 2.241875E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 2.501234E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
  10     -2.990048E-03      .000000E+00   -1.015056E-01
  11     -4.969222E-02      .000000E+00   -6.609490E-01
  12     -1.085222E-03      .000000E+00   -1.048369E-04
0excess resonance integrals
0                resolved
0absorption      1.22139E+01
 fission          .00000E+00
- elapsed time    .12 min.
0 pr-143        mt=102                    updated 10/13/89            59143    temperature=  975.00
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0 nd-143        mt=102                    updated 10/13/89          60143    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   141.682          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.000          lumped nuclear density   = 7.7590876E-06
0spin factor (g)          =  1964.860          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 2.2007703E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 2.4553734E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10     -7.957541E-05     .000000E+00   -2.374323E-05
  11     -1.830864E-01     .000000E+00   -2.131639E+00
  12     -1.198135E-01     .000000E+00   -5.897775E-02
0excess resonance integrals
0                resolved
0absorption     5.12557E+01
 fission         .00000E+00
- elapsed time    .12 min.
0 nd-145        mt=102                    updated 10/13/89          60145    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   143.668          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.047          lumped nuclear density   = 5.6350132E-06
0spin factor (g)          =  1007.250          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 3.0303336E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 3.3809074E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10     -2.253398E-03     .000000E+00   -3.557378E-02
  11     -3.474493E-02     .000000E+00   -1.048051E-01
  12     -8.615515E-01     .000000E+00   -5.427825E+00
  13      9.626082E-05     .000000E+00    2.057469E-04
  14     -7.513707E-01     .000000E+00   -1.978675E-02
  15      5.908317E-03     .000000E+00   -4.625057E-04
  16      1.326683E-03     .000000E+00   -1.451354E-04
  17      9.642397E-04     .000000E+00   -1.063940E-04
  18      8.539907E-04     .000000E+00   -9.313782E-05
  19      7.634096E-04     .000000E+00   -8.069522E-05
  20      2.839427E-05     .000000E+00   -2.921005E-06
0excess resonance integrals
0                resolved
0absorption     2.08187E+02
 fission         .00000E+00
- elapsed time    .13 min.
0 nd-147        mt=102                    updated 10/13/89          60147    temperature=  975.00
0 pm-147        mt=102                    updated 10/13/89          61147    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 2.4843284E-06
0spin factor (g)          = 21589.500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
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0mass of moderator-1    =    15.995              sigma(per absorber atom)= 6.873475E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 7.668654E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
  12      -1.223039E-01     .000000E+00    -3.948635E-02
  13      -3.141409E-02     .000000E+00    -1.907241E-03
  14      -5.745860E+01     .000000E+00    -2.474550E+01
  15       4.132830E-02     .000000E+00     6.985857E-03
  16       1.697975E-02     .000000E+00     1.746748E-03
  17       1.369755E-02     .000000E+00     1.150447E-03
  18       1.253781E-02     .000000E+00     9.649050E-04
  19       6.998458E-04     .000000E+00     5.072522E-05
0excess resonance integrals
0                resolved
0absorption     2.04771E+03
 fission         .00000E+00
- elapsed time    .13 min.
0 pm-148          mt=  102                                          61148    temperature=  975.00
0 sm-147       endf/b-v fission product      updated 10/13/89         62147    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 3.658945E-07
0spin factor (g)          =      .000          lump dimension (a-bar)   = 4.681220E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 4.666909E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 5.206815E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
  11       2.896982E-01     .000000E+00     1.129878E+00
  12       1.167188E+00     .000000E+00    -1.330838E+00
  13      -2.347516E+00     .000000E+00    -8.911353E-01
  14      -1.601623E-01     .000000E+00     1.549642E-04
  15       3.119469E-01     .000000E+00    -1.924454E-03
  16       7.287886E-03     .000000E+00    -3.738721E-04
  17       4.281512E-03     .000000E+00    -2.401627E-04
  18       3.510471E-03     .000000E+00    -1.997298E-04
  19       2.910642E-03     .000000E+00    -1.649535E-04
  20       8.435342E-04     .000000E+00    -4.627657E-05
0excess resonance integrals
0                resolved
0absorption     7.24261E+02
 fission         .00000E+00
- elapsed time    .15 min.
                        thermal scattering matrix number  3 at a temperature of    900.03 was selected.
0 sm-149       mt=102,103,107                updated 10/13/89         62149    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   147.638          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.260          lumped nuclear density   = 7.519558E-08
0spin factor (g)          = 10407.900          lump dimension (a-bar)   = 4.681220E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 2.270874E+06
0moderator-1 will be treated by the nordheim integral method.
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0mass of moderator-2    =   237.933              sigma(per absorber atom)= 2.5335873E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      8.546639E-03     .000000E+00    3.071180E-02
  12     -5.302144E-02     .000000E+00   -1.779283E-01
  13      2.406209E-02     .000000E+00    2.974950E-03
  14      1.500835E-02     .000000E+00   -6.463817E-03
0excess resonance integrals
0                resolved
0absorption     8.04352E+02
 fission         .00000E+00
-  elapsed time    .15 min.
0 sm-150        mt=102                   updated 10/13/89          62150     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   148.629          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.162          lumped nuclear density   = 1.7519981E-06
0spin factor (g)          =  4376.420          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 9.7465680E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.0874131E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10     -6.373778E-04     .000000E+00   -5.756720E-03
  11     -1.304944E-02     .000000E+00   -1.490106E-01
  12     -4.227013E-02     .000000E+00   -1.278060E-02
  13     -3.095665E+00     .000000E+00   -2.440727E+00
  14      1.066137E-04     .000000E+00   -6.413570E-05
0excess resonance integrals
0                resolved
0absorption     2.91457E+02
 fission         .00000E+00
-  elapsed time    .15 min.
0 sm-151        mt=102,103,104,105,106,107   updated 10/13/89          62151     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   149.623          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.185          lumped nuclear density   = 2.8724369E-07
0spin factor (g)          = 75574.703          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 5.9447675E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 6.6325069E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  14     -1.639246E-01     .000000E+00   -1.796795E-02
  15      1.491918E+01     .000000E+00    7.558513E-02
  16     -2.177298E+01     .000000E+00   -6.173761E-02
  17      1.739949E+02     .000000E+00    8.298581E-01
  18     -3.204102E+02     .000000E+00   -1.780888E+00
  19      6.256166E+01     .000000E+00    3.868497E-01
  20      1.141531E+00     .000000E+00   -1.417522E-04
  21     -7.117683E-02     .000000E+00    1.244102E-02
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  22      6.952534E-02     .000000E+00    3.838926E-03
  23     -1.091920E-02     .000000E+00    3.374054E-04
0excess resonance integrals
0                 resolved
0absorption      2.05685E+03
 fission          .00000E+00
- elapsed time    .15 min.
0 sm-152        mt=102,103,104,105,106,107     updated 10/13/89              62152     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   150.615              temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.208              lumped nuclear density   = 8.489045E-07
0spin factor (g)          =   863.594              lump dimension (a-bar)   = 4.681220IE-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 2.0115302E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933              sigma(per absorber atom)= 2.2442405E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9      2.403006E-06     .000000E+00    1.158916E-04
  10     -6.300000E-04     .000000E+00   -1.018422E-02
  11     -9.556884E-03     .000000E+00   -3.651736E-02
  12     -6.559117E-02     .000000E+00   -2.088114E-01
  13      4.246605E-02     .000000E+00    1.053022E-01
  14     -6.047521E+01     .000000E+00   -1.170778E+02
0excess resonance integrals
0                 resolved
0absorption      2.85243E+03
 fission          .00000E+00
- elapsed time    .17 min.
0 eu-153        mt=102,103,104,105,106,107     updated 10/13/89              63153     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   151.607              temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.731              lumped nuclear density   = 3.9505220E-07
0spin factor (g)          = 12265.900              lump dimension (a-bar)   = 4.681220IE-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 4.3226778E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933              sigma(per absorber atom)= 4.8227606E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12     -2.700846E-01     .000000E+00   -5.264485E-02
  13     -7.127646E-02     .000000E+00   -2.768018E-04
  14     -5.875798E-01     .000000E+00    3.188236E-03
  15      2.867073E+00     .000000E+00   -2.053510E-02
  16     -3.292259E+00     .000000E+00    8.159347E-03
  17      1.505616E-01     .000000E+00   -3.437751E-03
  18      7.726888E-02     .000000E+00   -2.231245E-03
  19      5.055488E-02     .000000E+00   -1.541107E-03
  20     -1.253801E-01     .000000E+00   -1.275081E-03
0excess resonance integrals
0                 resolved
0absorption      1.35573E+03
 fission          .00000E+00
- elapsed time    .17 min.
```

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0 eu-154        mt=102,103,104,105,106,107     updated 10/13/89              63154     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   152.601              temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.731              lumped nuclear density   = 4.6287475E-08
0spin factor (g)          = 19135.801              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 3.6891120E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933              sigma(per absorber atom)= 4.1158988E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -3.861222E-01     .000000E+00    -6.032471E-02
  13      -2.990322E-01     .000000E+00    -2.442458E-02
  14       3.518871E-01     .000000E+00     1.505895E-02
  15       2.104515E-01     .000000E+00     2.119006E-02
  16       7.291847E+00     .000000E+00     9.268108E-02
  17      -1.437307E+02     .000000E+00    -1.895209E+00
  18       1.138007E+02     .000000E+00     1.859608E+00
  19      -1.014582E+02     .000000E+00     1.187222E+00
0excess resonance integrals
0                 resolved
0absorption      2.13713E+03
 fission          .00000E+00
- elapsed time     .18 min.
0 eu-155        mt=102,103,104,105,106,107     updated 10/13/89              63155     temperature=  975.00
0 gd-155        mt=102                         updated 10/13/89              64155     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   153.592              temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.277              lumped nuclear density   = 7.9815138E-10
0spin factor (g)          = 12700.100              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 2.1394400E+08
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933              sigma(per absorber atom)= 2.3869478E+08
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -1.439277E+00     .000000E+00    -1.839441E-01
  13       1.541312E+00     .000000E+00     1.985276E-01
  14       2.191371E-01     .000000E+00     9.808348E-03
  15      -3.311029E-01     .000000E+00    -7.466390E-06
  16       1.477360E+00     .000000E+00    -4.148879E-03
  17       1.568661E-01     .000000E+00    -1.479119E-03
  18       9.605166E-02     .000000E+00    -1.078106E-03
  19       6.295341E-02     .000000E+00    -8.026526E-04
  20       1.670418E-02     .000000E+00     1.626851E-04
  21        .000000E+00     .000000E+00      .000000E+00
  22        .000000E+00     .000000E+00      .000000E+00
  23        .000000E+00     .000000E+00      .000000E+00
  24        .000000E+00     .000000E+00      .000000E+00
  25      -2.127720E+03     .000000E+00    -1.621942E+00
  26      -5.205629E+03     .000000E+00     1.961451E+00
  27      -1.659955E+03     .000000E+00     7.392510E-01
0excess resonance integrals
0                 resolved
```

```
0absorption      3.97067E+04
 fission          .0000E+00
- elapsed time    .18 min.
0u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    92234     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   232.029          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.021          lumped nuclear density   = 5.0467297E-06
0spin factor (g)          =  6948.450          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 3.3835711E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.955          sigma(per absorber atom)= 3.7738547E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11     -2.415318E-02     .000000E+00   -7.041884E-02
  12     -1.968077E-01     .000000E+00   -8.249157E-02
  13      7.759724E-04     .000000E+00   -6.471135E-04
  14     -1.926428E+01     .000000E+00   -3.151055E+00
0excess resonance integrals
0                resolved
0absorption      5.80961E+02
 fission          .0000E+00
- elapsed time    .20 min.
0 uranium-235   endf/b-iv mat 1261          updated 10/13/89            92235     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   233.025          temperature(kelvin)      =   975.000
0potential scatter sigma  =    11.500          lumped nuclear density   = 5.4047973E-04
0spin factor (g)          = 15171.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 3.1594098E+02
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.049          sigma(per absorber atom)= 3.3905756E+02
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12     -2.237724E+00   -1.393543E+00   -5.229959E-02
  13     -7.708092E+00   -3.834183E+00   -1.662088E-01
  14     -6.189115E+00   -3.789033E+00   -4.212886E-02
0excess resonance integrals
0                resolved
0absorption      2.09175E+02
 fission         1.24654E+02
- elapsed time    .22 min.
0u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    92236     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   234.017          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.995          lumped nuclear density   = 3.0808562E-05
0spin factor (g)          =  6328.490          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 5.5426050E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.954          sigma(per absorber atom)= 6.1827402E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
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```
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -1.523668E-01     .000000E+00   -3.801088E-01
  12      -8.034678E-01     .000000E+00   -5.583938E-01
  13      -6.051546E-02     .000000E+00   -3.357721E-03
  14      -2.886298E+01     .000000E+00   -2.525290E+00
0excess resonance integrals
0                 resolved
0absorption      2.96393E+02
 fission          .00000E+00
- elapsed time    .22 min.
0 uranium-238   endf/b-iv mat 1262          updated 10/13/89          92238     temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   236.006          temperature(kelvin)     =   975.000
0potential scatter sigma =    10.599         lumped nuclear density  = 2.1962663E-02
0spin factor (g)         =   656.527          lump dimension (a-bar)  = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 7.7749991E+00
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   235.041          sigma(per absorber atom)= 3.3478946E-01
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9      -3.944036E-02     .000000E+00   -4.050720E-01
  10      -1.026518E+00    -1.753316E-05  -6.484920E+00
  11      -9.709722E+00     .000000E+00   -2.690162E+01
  12      -4.305133E+01     .000000E+00   -4.999088E+01
  13      -5.401731E+01     .000000E+00   -1.769248E+01
  14      -1.045068E+02     .000000E+00   -6.060081E+00
0excess resonance integrals
0                 resolved
0absorption      1.79895E+01
 fission         5.03922E-04
- elapsed time    .23 min.
0 neptunium-237  endf/b-iv mat 1263          updated 10/13/89          93237     temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   235.012          temperature(kelvin)     =   975.000
0potential scatter sigma =    10.500         lumped nuclear density  = 1.2372562E-06
0spin factor (g)         = 10100.800          lump dimension (a-bar)  = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.3801481E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 1.4803898E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -6.325133E-02    -1.946361E-06  -7.388205E-03
  12       3.730817E-02    -9.091694E-05   8.666517E-03
  13       1.510195E-02     9.073738E-05   4.388653E-04
  14      -1.946115E-02    -2.886008E-06  -9.108857E-04
0excess resonance integrals
0                 resolved
0absorption      2.93165E+02
 fission         1.38589E-01
- elapsed time    .27 min.
0pu-238 1050 sigo=5+4 newklacs p-3 295k f-1/e-m(1.+5)          94238     temperature=  975.00
```

```
0resonance data for this nuclide
0mass number (a)          =   236.167          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.890          lumped nuclear density   = 7.9591842E-08
0spin factor (g)          = 13130.600          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 2.1454420E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 2.3012678E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11      -1.284735E-04   -1.341992E-05   -1.980659E-04
  12      -4.303728E-05   -2.903865E-06   -5.489353E-05
  13       4.134514E-01    7.566257E-02   -9.305859E-03
  14      -3.822731E-01   -6.988454E-02    8.538994E-03
0excess resonance integrals
0                  resolved
0absorption       8.25506E+01
 fission          9.08542E+00
- elapsed time     .27 min.
0 plutonium-239  endf/b-iv mat 1264          updated 10/13/89          94239     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.999          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.200          lumped nuclear density   = 6.5402754E-05
0spin factor (g)          =  6435.710          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 2.6108943E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 2.8005264E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11      -1.372717E-01   -5.512489E-02   -4.218680E-02
  12      -1.231102E+00   -4.618338E-01   -1.623044E-01
  13      -4.054652E+00   -2.387267E+00   -6.166678E-02
  14      -1.292015E+00   -6.866961E-01   -1.170952E-02
0excess resonance integrals
0                  resolved
0absorption       3.11634E+02
 fission          1.74952E+02
- elapsed time     .28 min.
0 plutonium-240  endf/b-iv mat 1265          updated 10/13/89          94240     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   237.992          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density   = 7.1577624E-06
0spin factor (g)          =   669.244          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 2.3856574E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 2.5589305E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   9      -2.527904E-05   -4.472240E-07   -4.415883E-05
```

```
  10      -1.671842E-03   -1.040354E-04   -7.669151E-03
  11      -5.483094E-02   -3.168331E-04   -7.304044E-02
  12      -7.702689E-01   -4.206388E-03   -7.416141E-01
  13      -9.330229E-02   -5.720981E-04   -6.802758E-03
  14        .000000E+00     .000000E+00     .000000E+00
  15       1.750853E-02    3.341580E-06    3.472721E-03
  16       3.193329E+00    6.094609E-04    4.049562E-01
  17       5.207403E+02    9.958658E-02    4.696471E+01
  18      -5.241542E+03   -1.000371E+00   -4.157560E+02
  19       8.658362E+02    1.652487E-01    6.655492E+01
  20      -9.297894E+01   -1.774544E-02    1.798328E+00
0excess resonance integrals
0                 resolved
0absorption      6.34075E+03
 fission         2.23112E+00
- elapsed time    .30 min.
0 plutonium-241  endf/b-iv mat 1266          updated 10/13/89          9424l     temperature=   975.00
0resonance data for this nuclide
0mass number (a)        =   238.978          temperature(kelvin)      =   975.000
0potential scatter sigma =    10.989         lumped nuclear density   = 2.5095871E-06
0spin factor (g)        = 16402.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius           =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995           sigma(per absorber atom)= 6.8048359E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 7.2990789E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  12      9.910288E-03    8.743934E-03    6.553351E-04
  13     -1.870408E-01   -1.488423E-01   -6.361959E-03
  14     -1.075350E-01   -6.497218E-02    7.055812E-04
  15      1.797773E-02    1.611609E-02   -4.686306E-04
0excess resonance integrals
0                 resolved
0absorption      5.09079E+02
 fission         4.26759E+02
- elapsed time    .32 min.
0 plutonium-242  endf/b-iv mat 1161          updated 10/13/89          9424l     temperature=   975.00
0resonance data for this nuclide
0mass number (a)        =   240.145          temperature(kelvin)      =   975.000
0potential scatter sigma =    10.694         lumped nuclear density   = 1.1725373E-07
0spin factor (g)        =  6606.710          lump dimension (a-bar)   = 4.6812201E-01
0inner radius           =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995           sigma(per absorber atom)= 1.4563261E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 1.5621008E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11     -1.595395E-04    .000000E+00   -5.900082E-04
  12     -5.455534E-03    .000000E+00   -1.111986E-02
  13      1.023480E-04    .000000E+00    4.744354E-06
  14      8.148858E-02    .000000E+00    1.527138E-02
  15     -1.866679E+00    .000000E+00   -1.871458E-01
  16      4.033705E-02    .000000E+00   -3.458752E-03
  17      1.550415E-02    .000000E+00   -1.848246E-03
```

```
  18      1.112550E-02     .000000E+00   -1.430672E-03
0excess resonance integrals
0                 resolved
0absorption       1.110866E+03
 fission           .00000E+00
- elapsed time     .32 min.
0am-241 1056 sigp=5+4 newklacs 218ngp p-3 293k                          95241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   238.950          temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.511          lumped nuclear density   = 3.3970430E-08
0spin factor (g)          = 82058.203          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 5.0267155E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 5.3918115E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  13      4.919184E-01     1.212667E-02    4.934242E-03
  14     -4.313571E-01    -1.109051E-02   -4.482724E-03
0excess resonance integrals
0                 resolved
0absorption       1.95473E+02
 fission          1.07612E+00
- elapsed time     .32 min.
0am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           95243     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   240.940          temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.511          lumped nuclear density   = 4.2647872E-09
0spin factor (g)          = 82052.602          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 4.0039436E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 4.2947548E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  13     -6.647073E-03     .000000E+00    4.374598E-04
  14      2.210911E-02     .000000E+00    2.339746E-04
0excess resonance integrals
0                 resolved
0absorption       1.60152E+02
 fission           .00000E+00
- elapsed time     .32 min.
0 curium-244     endf/b-iv mat 1162          updated 10/13/89           96244     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   242.133          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.320          lumped nuclear density   = 1.6465758E-10
0spin factor (g)          =  5251.150          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.0370695E+09
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 1.1123822E+09
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
```

0volume fraction of lump in cell used to account for spatial self-shielding=1.00000

0group	res abs	res fiss	res scat
11	2.577953E-04	7.054416E-06	3.049273E-04
12	6.927479E-04	3.252468E-05	1.367911E-04
13	2.717880E-03	1.335395E-04	7.127342E-04
14	8.386877E-02	5.017790E-03	1.585305E-02

0excess resonance integrals

0	resolved
0absorption	6.139038E+02
fission	3.542216E+01

- elapsed time .32 min.
- elapsed time .33 min.

1 this xsdrn working tape was created 02/16/96 at 09:58:23
the title of the parent case is as follows
scale 4.2 - 27 group neutron burnup library
based on endf-b version 4 data with endf-b version 5 fission products
compiled for nrc 1/27/89

tape id	4321	number of nuclides	65
number of neutron groups	27	number of gamma groups	0
first thermal group	15	logical unit	4

table of contents

1/v cross sections normalized to 1.0 at 0.0253 ev			id	999
hydrogen	endf/b-iv mat 1269/thrmf1002	updated 10/13/89	id	1001
b-10 1273 218ngp 042375 p-3 293k			id	5010
boron-11	endf/b-iv mat 1160	updated 10/13/89	id	5011
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	8016
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	6
kr-83	mt=102,103,103,105,106,107	updated 10/13/89	id	36083
kr-85	mt= 102		id	36085
sr-90	mt=102	updated 10/13/89	id	38090
y-89	mt=102	updated 10/13/89	id	39089
zr-93	mt= 102		id	40093
zr-94	mt=102	updated 10/13/89	id	40094
zr-95	mt=102	updated 10/13/89	id	40095
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id	40802
rb-94	mt=102	updated 10/13/89	id	41094
mo-95	mt=102	updated 10/13/89	id	42095
tc-99	mt=102	updated 10/13/89	id	43099
ru-101	mt=102	updated 10/13/89	id	44101
ru-106	mt=102	updated 10/13/89	id	44106
rh-103	mt=102	updated 10/13/89	id	45103
rh-105	mt= 102		id	45105
pd-105	mt=102	updated 10/13/89	id	46105
pd-108	mt=102	updated 10/13/89	id	46108
silver-109	endf/b-iv mat 1139	updated 10/13/89	id	47109
sb-124	mt=102	updated 10/13/89	id	51124
xe-131	mt=102,103,104,105,106	updated 10/13/89	id	54131
xe-132	mt=102,103,104,105,106	updated 10/13/89	id	54132
xenon-135	endf/b-iv mat 1294	updated 10/13/89	id	54135
xe-136	mt= 102, 103, 104, 105, 107		id	54136
cesium-133	endf/b-iv mat 1141	updated 10/13/89	id	55133
cs-134	mt=102	updated 10/13/89	id	55134
cs-135	mt= 102		id	55135
cs-137	mt=102	updated 10/13/89	id	55137
ba-136	mt=102	updated 10/13/89	id	56136
la-139	mt=102	updated 10/13/89	id	57139
ce-144	mt= 102		id	58144
pr-141	mt=102,103,104,105,106,107	updated 10/13/89	id	59141
pr-143	mt=102	updated 10/13/89	id	59143
nd-143	mt=102	updated 10/13/89	id	60143

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      nd-145        mt=102                        updated 10/13/89          id    60145
      nd-147        mt=102                        updated 10/13/89          id    60147
      pm-147        mt=102                        updated 10/13/89          id    61147
      pm-148          mt=  102                                              id    61148
      sm-147        endf/b-v fission product      updated 10/13/89          id    62147
      sm-149        mt=102,103,107                updated 10/13/89          id    62149
      sm-150        mt=102                        updated 10/13/89          id    62150
      sm-151        mt=102,103,104,105,106,107    updated 10/13/89          id    62151
      sm-152        mt=102,103,104,105,106,107    updated 10/13/89          id    62152
      eu-153        mt=102,103,104,105,106,107    updated 10/13/89          id    63153
      eu-154        mt=102,103,104,105,106,107    updated 10/13/89          id    63154
      eu-155        mt=102,103,104,105,106,107    updated 10/13/89          id    63155
      gd-155        mt=102                        updated 10/13/89          id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92234
      uranium-235   endf/b-iv mat 1261            updated 10/13/89          id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92236
      uranium-238   endf/b-iv mat 1262            updated 10/13/89          id    92238
      neptunium-237 endf/b-iv mat 1263            updated 10/13/89          id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    94238
      plutonium-239 endf/b-iv mat 1264            updated 10/13/89          id    94239
      plutonium-240 endf/b-iv mat 1265            updated 10/13/89          id    94240
      plutonium-241 endf/b-iv mat 1266            updated 10/13/89          id    94241
      plutonium-242 endf/b-iv mat 1161            updated 10/13/89          id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                          id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           id    95243
      curium-244    endf/b-iv mat 1162            updated 10/13/89          id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
1 xx        xx  sssssssssss  dddddddddd  rrrrrrrrrrr  rn       rn  pppppppppp  mm       mm
  xx       xx  sssssssssssss dddddddddd  rrrrrrrrrrr  rrn      rn  pppppppppp  mmm      mmm
    xx    xx   ss       ss  dd       dd  rr       rr  rrrn     rn  pp       pp  mmmm    mmmm
     xx  xx    ss           dd       dd  rr       rr  rn rn    rn  pp       pp  mm mm   mm mm
      xx xx    ss           dd       dd  rr       rr  rn  rn   rn  pp       pp  mm  mm mm  mm
       xxx     sssssssssssss dd       dd  rrrrrrrrrrr  rn   rn  rn  pppppppppp  mm   mmm  mm
       xxx      sssssssssssss dd       dd  rrrrrrrrrrr  rn    rn rn  pppppppppp  mm    m   mm
      xx xx              ss  dd       dd  rr      rr   rn     rn rn  pp          mm        mm
     xx  xx              ss  dd       dd  rr       rr  rn      rn rn  pp          mm        mm
    xx    xx   ss       ss  dd       dd  rr       rr  rn       rrrn  pp          mm        mm
  xx       xx  sssssssssssss dddddddddd  rr        rr rn        rrn  pp          mm        mm
  xx        xx  sssssssssss  dddddddddd  rr        rr rn         rn  pp          mm        mm
0

  dddddddddd    aaaaaaaaa   w        w  iiiiiiiiiiii   sssssssssss
  dddddddddd   aaaaaaaaaa   w        w  iiiiiiiiiiii   sssssssssssss
  dd       dd  aa       aa  w        w      ii        ss       ss
  dd       dd  aa       aa  w        w      ii        ss
  dd       dd  aa       aa  w        w      ii        ss
  dd       dd  aaaaaaaaaaaa w        w      ii        sssssssssss
  dd       dd  aaaaaaaaaaaa  w       w      ii         sssssssssss
  dd       dd  aa       aa    w    w        ii                 ss
  dd       dd  aa       aa     w  w         ii                 ss
  dd       dd  aa       aa      w w         ii        ss       ss
  dddddddddd   aa       aa       ww     iiiiiiiiiiii   sssssssssssss
  dddddddddd   aa       aa        v     iiiiiiiiiiii   sssssssssss
0

    0000000     22222222222          //      11      666666666666          //  99999999999   666666666666
   000000000    2222222222222        //     111      6666666666666         //  9999999999999  6666666666666
  00      00   22       22           //    1111      66                    //  99        99  66
 00       00            22          //      11      66                    //  99        99  66
 00       00            22         //       11      66                    //  99        99  66
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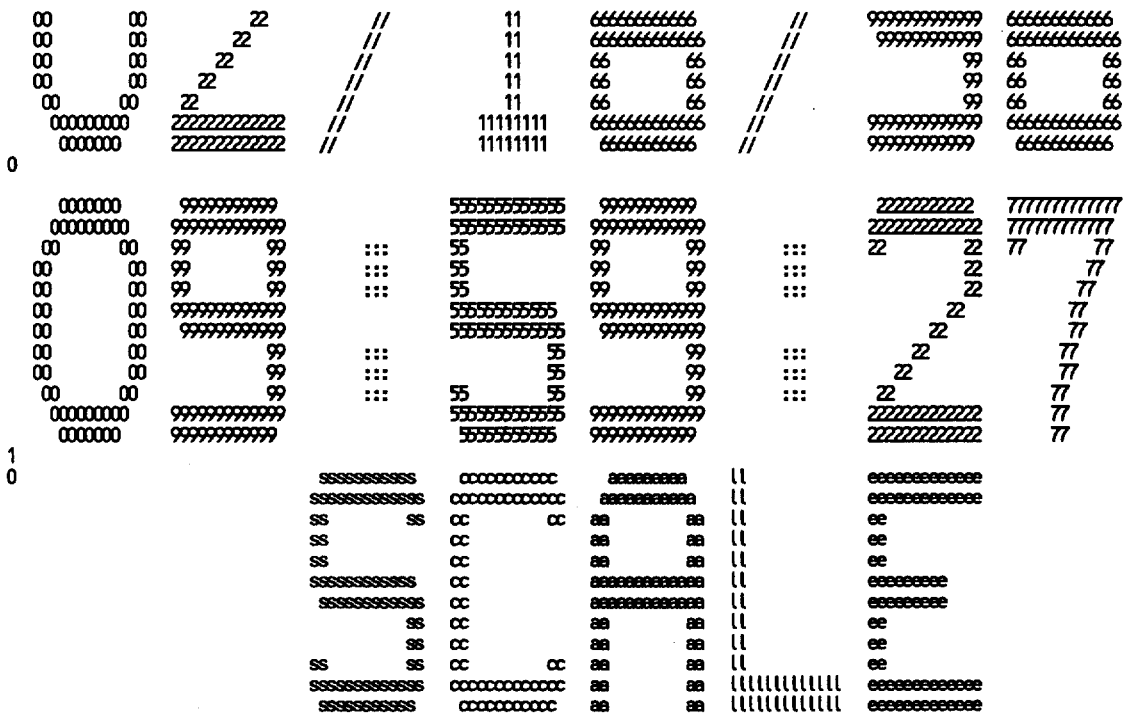


```
********************************************************************************
********************************************************************************
********************************************************************************
*****                                                                      *****
*****                  program verification information                    *****
*****                                                                      *****
*****                  code system:    scale  version:    4.2             *****
*****                                                                      *****
********************************************************************************
********************************************************************************
*****                                                                      *****
*****                                                                      *****
*****                                                                      *****
*****             program:  c0c001                                         *****
*****                                                                      *****
*****         creation date:  04/27/95                                     *****
*****                                                                      *****
*****             library:  /neutronics/scale/exe                          *****
*****                                                                      *****
*****                                                                      *****
*****                                                                      *****
*****    this is not a  scale  configuration controlled code               *****
*****                                                                      *****
```

```
                    *****            jobname:  davis                                    *****
                    *****                                                               *****
                    *****   date of execution:  02/16/96                                *****
                    *****                                                               *****
                    *****   time of execution:  09:59:27                                *****
                    *****                                                               *****
                    *****                                                               *****
                    ***********************************************************************
                    ***********************************************************************
                    ***********************************************************************
1
                    400 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       -1q array has     1 entries.
0        1q array has    15 entries.
0        2q array has    10 entries.
0        3q array has    12 entries.
0        4q array has     9 entries.
0        5q array has    12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                    400 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0general problem description data block
0                              general problem data

 ige  1/2/3 = plane/cylinder/sphere      2      isn  quadrature order                  8
 izm  number of zones                    4      isct order of scattering               3
 im   number of spacial intervals       24      ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1      iim  inner iteration maximum          20
 ibr  right boundary condition           3      iom  outer iteration maximum          25
 mxx  number of mixtures                 3      iclc -1/0/n--flat res/sn/opt           0
 ms   mixing table length               65      ith  0/1 = forward/adjoint             0
 igm  number of energy groups           27      iflu not used(always wgtd)             0
 nng  number of neutron groups          27      iprt -2/-1/0/n=mixture xsec print     -2
 ngg  number of gamma groups             0      id1  0/1/2/3=no/prt nd/pch n/both     53
 iftg number of first thermal group     15      ipbt -1/0/1=none/fine/all bal. prt     0
0                              special options

 ifg  0/1 = none/weighting calculation   1      ipn  0/1/2 diff. coef. param           0
 iqm  volumetric sources (0/n=no/yes)    0      idfm 0/1 = none/density factors 38*    1
 ipm  boundary sources (0/n=no/yes)      0      iaz  0/n = none/n activities by zone   0
 ifn  0/1/2 = input 33*/34*/use last    53      iai  0/1=none/activities by interval   0
 itmx maximum time (minutes)            10      ifct 0/1=no/yes upscatter scaling      0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0      ipvt 0/1/2=no/k/alpha parametric srch  0
 isx  broad group fluxes                 0      isen outer iteration acceleration      0
 ibln activity data unit                 0      nbnd band rebaln parameter             0
 jbkl 0/1/2 buckling geometry            0
0                              weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1      ihtf total xsect psn in brd gp tables  3
 igmf number of broad groups            27      ndsf psn g-g or file number            4
 itp  0/10/20/30/40 0/c/e/ac/a           0      nusf table length or max order         4
 ipp  -2/-1/0/n=wgted xsect print       -2      mscm extra 1-d x-sect positions        0
 iap  -1/n anisn xsect print            -1
0                              floating point parameters

 eps  overall convergence       1.00000E-04      dy   cyl/pla ht for buckling    .00000E+00
 ptc  point convergence         1.00000E-04      dz   plane depth for buckling   .00000E+00
 xnf  normalization factor      1.00000E+00      vsc  void streaming correction  .00000E+00
 ev   eigenvalue guess           .00000E+00      pv   ipvt=1/2--k/alpha         1.00000E+00
 evm  eigenvalue modifier        .00000E+00      eql  ev change eps for search  1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00      xrpm new param mod for search  7.50000E-01
```

this case will require 2535 locations for mixing
this case has been allocated 200000 locations
1 400 d, sas2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp
0 13q array has 65 entries.
0 14q array has 65 entries.
0 15q array has 65 entries.
0 data block 2 (mixing table, etc.)

0	nuclides on tape	cccc identification	mixing table mixture	mixing table component	atom density	extra xsect id's
1	999		1	92235	5.40480E-04	
2	1001		1	92234	5.04673E-06	
3	5010		1	92236	3.08086E-05	
4	5011		1	92238	2.19627E-02	
5	8016		1	8016	4.55359E-02	
6	6		3	6	2.09710E-02	
7	36083		1	36083	7.25090E-07	
8	36085		1	36085	3.50117E-07	
9	38090		1	38090	7.86170E-06	
10	39089		1	39089	5.47406E-06	
11	40093		1	42095	6.12150E-06	
12	40094		1	40093	5.98109E-06	
13	40095		1	40094	9.26342E-06	
14	40302		1	40095	2.10190E-06	
15	41094		1	41094	3.60192E-12	
16	42095		1	43099	8.96719E-06	
17	43099		1	45103	4.40585E-06	
18	44101		1	45105	1.67519E-08	
19	44106		1	44101	7.89901E-06	
20	45103		1	44106	1.14008E-06	
21	45105		1	46105	2.49116E-06	
22	46105		1	46108	5.44054E-07	
23	46108		1	47109	3.91284E-07	
24	47109		1	51124	1.00596E-10	
25	51124		1	54131	4.16287E-06	
26	54131		1	54132	7.00585E-06	
27	54132		1	54135	6.60408E-09	
28	54135		1	54136	1.50336E-05	
29	54136		1	55134	2.22578E-07	
30	55133		1	55135	4.71145E-06	
31	55134		1	55137	9.46756E-06	
32	55135		1	56136	4.32042E-08	
33	55137		1	57139	9.43297E-06	
34	56136		1	59141	7.61682E-06	
35	57139		1	59143	3.93553E-07	
36	58144		1	58144	5.00712E-06	
37	59141		1	60143	7.75905E-06	
38	59143		1	60145	5.63501E-06	
39	60143		1	61147	2.48433E-06	
40	60145		1	61148	6.82848E-09	
41	60147		1	60147	1.32716E-07	
42	61147		1	62147	3.65895E-07	
43	61148		1	62149	7.51956E-08	
44	62147		1	62150	1.75200E-06	
45	62149		1	62151	2.87244E-07	
46	62150		1	62152	8.48904E-07	
47	62151		1	64155	7.98151E-10	
48	62152		1	63153	3.95082E-07	
49	63153		1	63154	4.62875E-08	
50	63154		1	63155	5.11217E-08	
51	63155		2	40302	4.25156E-02	

52	64155	3	1001	4.19420E-02
53	92234	3	5010	3.81515E-06
54	92235	3	5011	1.54884E-05
55	92236	1	55133	9.78898E-06
56	92238	1	95237	1.23726E-06
57	95237	1	94238	7.95918E-08
58	94238	1	94239	6.54028E-05
59	94239	1	94240	7.15776E-06
60	94240	1	94241	2.50939E-06
61	94241	1	94242	1.17254E-07
62	94242	1	95241	3.39704E-08
63	95241	1	95243	4.26479E-09
64	95243	1	96244	1.64658E-10
65	96244	1	999	1.00000E-20

- elapsed time .00 min.
0 21649 locations will be used
0 35q array has 25 entries.
0 36q array has 24 entries.
0 38q array has 24 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 400 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40986E-01	2.88737E+09	2	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	3	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	4	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	5	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	6	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	7	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	8	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	9	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	10	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	11	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01036E+07	12	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	13	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	14	0	14	1.00000E+00	
15	3.04999E+00	1.50030E+01	2.10601E+06	15	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	16	0	16	1.00000E+00	
17	1.29999E+00	1.58557E+01	1.52545E+06	17	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	18	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	19	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	20	0	20	1.00000E+00	
21	4.00000E-01	1.70344E+01	8.17974E+05	21	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	22	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86953E+05	23	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	24	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	25	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	26	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	27	0	27	1.00000E+00	
28	1.00000E-05	2.76310E+01						

1 400 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0	mixture by zone	order p(l) by zone	activity table matl no.	reaction	quadrature constants weights	directions	refl direc	wt x cos
1	1	3			0	-2.79004E-01	3	0
2	1	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03

3	2	3	5.06143E-02	1.97286E-01	2	9.98548E-03
4	3	3	0	-6.04419E-01	8	0
5			5.55953E-02	-5.58410E-01	8	-3.10450E-02
6			5.55953E-02	-2.31301E-01	7	-1.28593E-02
7			5.55953E-02	2.31301E-01	6	1.28593E-02
8			5.55953E-02	5.58410E-01	5	3.10450E-02
9			0	-8.50774E-01	15	0
10			5.22844E-02	-8.21784E-01	15	-4.29665E-02
11			5.22844E-02	-6.01588E-01	14	-3.14537E-02
12			5.22844E-02	-2.20196E-01	13	-1.15128E-02
13			5.22844E-02	2.20196E-01	12	1.15128E-02
14			5.22844E-02	6.01588E-01	11	3.14537E-02
15			5.22844E-02	8.21784E-01	10	4.29665E-02
16			0	-9.83052E-01	24	0
17			4.53355E-02	-9.64143E-01	24	-4.37099E-02
18			4.53355E-02	-8.17361E-01	23	-3.70655E-02
19			4.53355E-02	-5.46143E-01	22	-2.47597E-02
20			4.53355E-02	-1.91780E-01	21	-8.69444E-03
21			4.53355E-02	1.91780E-01	20	8.69444E-03
22			4.53355E-02	5.46143E-01	19	2.47597E-02
23			4.53355E-02	8.17361E-01	18	3.70655E-02
24			4.53355E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83052E-01	-4.49528E-01	8.36885E-01	5.00703E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20962E-01	4.16520E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20962E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17256E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17256E-01
22	5.46143E-01	-4.49528E-01	-3.20962E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20962E-01	-4.16520E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.29551E-02	1	0	2.10906E-03	1.00000E+00	0	
2	2.59102E-02	4.33406E-02	1	1.62798E-01	9.49318E-03	1.00000E+00	0	
3	6.07710E-02	8.75100E-02	1	3.81855E-01	2.94045E-02	1.00000E+00	0	
4	1.14249E-01	1.74155E-01	1	7.17848E-01	1.31104E-01	1.00000E+00	0	
5	2.34061E-01	2.93967E-01	1	1.47065E+00	2.21259E-01	1.00000E+00		
6	3.53873E-01	3.80612E-01	1	2.22345E+00	1.27890E-01	1.00000E+00		
7	4.07351E-01	4.24781E-01	1	2.55946E+00	9.30429E-02	1.00000E+00		
8	4.42212E-01	4.55167E-01	1	2.77850E+00	7.41004E-02	1.00000E+00		
9	4.68122E-01	4.68814E-01	2	2.94130E+00	4.07946E-03	0		
10	4.69507E-01	4.71481E-01	2	2.95000E+00	1.16988E-02	0		
11	4.73456E-01	4.75431E-01	2	2.97481E+00	1.17968E-02	0		

12	4.77405E-01	4.78098E-01	2	2.99962E+00	4.16023E-03	0
13	4.78790E-01	4.83159E-01	3	3.00833E+00	2.65268E-02	1.00000E+00
14	4.87528E-01	4.99987E-01	3	3.06323E+00	7.82768E-02	1.00000E+00
15	5.12445E-01	5.24903E-01	3	3.21979E+00	8.21777E-02	1.00000E+00
16	5.37362E-01	5.41731E-01	3	3.37634E+00	2.97427E-02	1.00000E+00
17	5.46100E-01	5.53513E-01	4	3.43125E+00	5.15631E-02	1.00000E+00
18	5.60926E-01	5.70900E-01	4	3.52440E+00	7.15548E-02	1.00000E+00
19	5.80874E-01	5.96175E-01	4	3.64974E+00	1.14628E-01	1.00000E+00
20	6.11475E-01	6.45755E-01	4	3.84201E+00	2.78169E-01	1.00000E+00
21	6.80084E-01	7.14313E-01	4	4.27278E+00	3.07702E-01	1.00000E+00
22	7.48592E-01	7.63893E-01	4	4.70354E+00	1.46875E-01	1.00000E+00
23	7.79193E-01	7.89167E-01	4	4.89582E+00	9.89116E-02	1.00000E+00
24	7.99141E-01	8.06554E-01	4	5.02115E+00	7.51357E-02	1.00000E+00
25	8.13968E-01			5.11431E+00		

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	138	1.09566E-05	1.09759E+00	-1.07731E-01	1.00000E+00	-3.55729E-02	.00000E+00	.0000
2	213	-1.28319E-05	1.10826E+00	-1.48861E-03	-1.15081E-02	-4.26417E-03	.00000E+00	.0000
3	273	1.62299E-05	1.10914E+00	-1.97899E-04	-1.28292E-03	-8.84204E-04	.00000E+00	.0000
4	319	-1.04679E-05	1.10971E+00	-3.81491E-05	-2.70424E-04	-1.78398E-04	.00000E+00	.0167
5	350	-9.05080E-06	1.10975E+00	-8.04876E-06	-5.43973E-05	-3.29763E-05	.00000E+00	.0167

grp to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	1	3.80860E-08	24	1.00000E+00	1
2	1	1	4.46907E-08	24	1.00000E+00	1
3	1	1	4.10794E-08	24	1.00000E+00	1
4	1	1	3.97392E-08	24	1.00000E+00	1
5	1	1	4.12062E-08	24	1.00000E+00	1
6	1	1	2.63373E-08	24	1.00000E+00	1
7	1	1	1.85898E-08	24	1.00000E+00	1
8	1	1	4.40921E-09	24	1.00000E+00	1
9	1	2	2.34214E-09	24	1.00000E+00	1
10	1	1	2.37749E-09	24	1.00000E+00	1
11	1	1	2.43404E-09	24	1.00000E+00	1
12	1	24	4.39035E-09	24	1.00000E+00	1
13	1	24	5.87595E-09	24	1.00000E+00	1
14	1	24	5.61334E-09	24	1.00000E+00	1
15	1	24	4.08595E-05	24	9.99977E-01	1
16	1	24	5.07017E-05	24	9.99983E-01	1
17	1	18	1.82135E-05	24	9.99956E-01	1
18	1	18	2.09272E-05	24	9.99955E-01	1
19	1	18	1.73670E-05	24	9.99951E-01	1
20	1	24	5.16144E-05	24	9.99965E-01	1
21	1	18	2.68156E-05	24	9.99938E-01	1
22	1	24	4.66957E-05	24	9.99989E-01	1
23	1	24	2.32620E-06	24	1.00000E+00	1
24	1	24	1.39544E-05	24	1.00001E+00	1
25	1	24	1.72749E-05	24	1.00000E+00	1
26	1	1	1.01266E-05	24	9.99997E-01	2
27	1	2	4.45654E-06	24	1.00000E+00	2

6	377	-1.79461E-06	1.10967E+00	-1.60890E-06	-1.02061E-05	-6.57033E-06	.00000E+00	.0167

final monitor lambda 1.10965E+00 production/absorption 1.10965E+00 angular flux on 16

- elapsed time .02 min.

1 400 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gad/mtu burn high temp

0 int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.29551E-02	.00000E+00	2.10908E-03	3.25098E-03
2	1	2.59102E-02	4.33408E-02	1.62798E-01	9.49318E-03	1.46265E-02
3	1	6.07710E-02	8.75100E-02	3.81835E-01	2.94045E-02	4.53863E-02

4	1	1.14249E-01	1.74155E-01	7.17848E-01	1.31104E-01	2.04251E-01
5	1	2.34061E-01	2.99967E-01	1.47065E+00	2.21299E-01	3.52723E-01
6	1	3.53873E-01	3.80612E-01	2.22345E+00	1.27890E-01	2.09002E-01
7	1	4.07351E-01	4.24781E-01	2.55946E+00	9.30429E-02	1.54907E-01
8	1	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02	1.25505E-01
9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07946E-03	.00000E+00
10	2	4.69507E-01	4.71481E-01	2.95000E+00	1.16988E-02	.00000E+00
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	2	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.65268E-02	.00000E+00
14	3	4.87528E-01	4.99987E-01	3.06325E+00	7.82768E-02	.00000E+00
15	3	5.12445E-01	5.24903E-01	3.21979E+00	8.21777E-02	.00000E+00
16	3	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02	.00000E+00
17	4	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02	.00000E+00
18	4	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	4	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01	.00000E+00
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01	.00000E+00
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	4	7.48592E-01	7.63893E-01	4.70354E+00	1.46875E-01	.00000E+00
23	4	7.79193E-01	7.89167E-01	4.89582E+00	9.89114E-02	.00000E+00
24	4	7.99141E-01	8.06554E-01	5.02115E+00	7.51357E-02	.00000E+00
25		8.13968E-01		5.11431E+00		

1 400 d, sas2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.75114E-01	1.32204E+00	1.67743E+00	1.04071E+00	1.57532E+00	3.03095E+00	2.90528E+00	2.08005E+00
2	1.75177E-01	1.32267E+00	1.67826E+00	1.04121E+00	1.57602E+00	3.03223E+00	2.90594E+00	2.08012E+00
3	1.75120E-01	1.32205E+00	1.67748E+00	1.04073E+00	1.57523E+00	3.03062E+00	2.90491E+00	2.07992E+00
4	1.74725E-01	1.31778E+00	1.67201E+00	1.03740E+00	1.56992E+00	3.02009E+00	2.89857E+00	2.07887E+00
5	1.73702E-01	1.30685E+00	1.65814E+00	1.02898E+00	1.55660E+00	2.99408E+00	2.88298E+00	2.07627E+00
6	1.72524E-01	1.29439E+00	1.64253E+00	1.01958E+00	1.54181E+00	2.96549E+00	2.86599E+00	2.07339E+00
7	1.71586E-01	1.28464E+00	1.63050E+00	1.01242E+00	1.53069E+00	2.94444E+00	2.85355E+00	2.07122E+00
8	1.70655E-01	1.27515E+00	1.61897E+00	1.00567E+00	1.52034E+00	2.92522E+00	2.84230E+00	2.06918E+00
9	1.70147E-01	1.27002E+00	1.61278E+00	1.00208E+00	1.51490E+00	2.91521E+00	2.83649E+00	2.06810E+00
10	1.70041E-01	1.26898E+00	1.61155E+00	1.00139E+00	1.51390E+00	2.91342E+00	2.83550E+00	2.06790E+00
11	1.69886E-01	1.26748E+00	1.60978E+00	1.00039E+00	1.51248E+00	2.91088E+00	2.83410E+00	2.06762E+00
12	1.69784E-01	1.26649E+00	1.60859E+00	9.99752E-01	1.51156E+00	2.90925E+00	2.83321E+00	2.06743E+00
13	1.69595E-01	1.26465E+00	1.60638E+00	9.98512E-01	1.50975E+00	2.90581E+00	2.83127E+00	2.06705E+00
14	1.69075E-01	1.25963E+00	1.59987E+00	9.94677E-01	1.50393E+00	2.89452E+00	2.82484E+00	2.06601E+00
15	1.68494E-01	1.25310E+00	1.59149E+00	9.89360E-01	1.49553E+00	2.87786E+00	2.81524E+00	2.06488E+00
16	1.68210E-01	1.24960E+00	1.58648E+00	9.85890E-01	1.48980E+00	2.86630E+00	2.80852E+00	2.06437E+00
17	1.68073E-01	1.24759E+00	1.58337E+00	9.83560E-01	1.48582E+00	2.85834E+00	2.80385E+00	2.06423E+00
18	1.67894E-01	1.24499E+00	1.57958E+00	9.80589E-01	1.48076E+00	2.84836E+00	2.79797E+00	2.06409E+00
19	1.67670E-01	1.24190E+00	1.57477E+00	9.77225E-01	1.47507E+00	2.83720E+00	2.79140E+00	2.06386E+00
20	1.67371E-01	1.23790E+00	1.56890E+00	9.73009E-01	1.46799E+00	2.82333E+00	2.78325E+00	2.06353E+00
21	1.67165E-01	1.23511E+00	1.56477E+00	9.70025E-01	1.46296E+00	2.81351E+00	2.77755E+00	2.06344E+00
22	1.67166E-01	1.23499E+00	1.56447E+00	9.69743E-01	1.46244E+00	2.81250E+00	2.77711E+00	2.06366E+00
23	1.67242E-01	1.23584E+00	1.56560E+00	9.70472E-01	1.46362E+00	2.81479E+00	2.77859E+00	2.06395E+00
24	1.67329E-01	1.23685E+00	1.56695E+00	9.71370E-01	1.46508E+00	2.81765E+00	2.78039E+00	2.06422E+00

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58622E+00	1.44471E+00	1.30346E+00	7.94800E-01	6.71758E-01	5.90936E-01	3.71152E-01	2.05785E-01
2	1.58614E+00	1.44461E+00	1.30325E+00	7.94568E-01	6.71548E-01	5.90650E-01	3.71122E-01	2.05744E-01
3	1.58633E+00	1.44482E+00	1.30372E+00	7.95115E-01	6.72001E-01	5.91332E-01	3.71198E-01	2.05786E-01
4	1.58737E+00	1.44606E+00	1.30637E+00	7.98190E-01	6.74585E-01	5.95154E-01	3.71615E-01	2.06025E-01
5	1.58997E+00	1.44909E+00	1.31289E+00	8.05783E-01	6.80963E-01	6.04634E-01	3.72622E-01	2.06610E-01
6	1.59287E+00	1.45239E+00	1.32002E+00	8.14143E-01	6.87975E-01	6.15124E-01	3.73706E-01	2.07248E-01
7	1.59507E+00	1.45481E+00	1.32527E+00	8.20340E-01	6.93165E-01	6.22945E-01	3.74486E-01	2.07713E-01
8	1.59715E+00	1.45701E+00	1.33006E+00	8.26080E-01	6.97922E-01	6.30163E-01	3.75181E-01	2.08136E-01
9	1.59826E+00	1.45815E+00	1.33253E+00	8.28986E-01	7.00395E-01	6.33914E-01	3.75538E-01	2.08355E-01
10	1.59845E+00	1.45833E+00	1.33293E+00	8.29462E-01	7.00799E-01	6.34514E-01	3.75598E-01	2.08392E-01

11	1.59874E+00	1.45860E+00	1.33350E+00	8.30141E-01	7.01377E-01	6.35372E-01	3.75684E-01	2.08446E-01
12	1.59893E+00	1.45877E+00	1.33387E+00	8.30581E-01	7.01752E-01	6.35927E-01	3.75740E-01	2.08481E-01
13	1.59931E+00	1.45912E+00	1.33462E+00	8.31478E-01	7.02514E-01	6.37061E-01	3.75854E-01	2.08552E-01
14	1.60034E+00	1.46024E+00	1.33702E+00	8.34283E-01	7.04909E-01	6.40612E-01	3.76221E-01	2.08775E-01
15	1.60148E+00	1.46183E+00	1.34040E+00	8.38154E-01	7.08209E-01	6.45503E-01	3.76742E-01	2.09084E-01
16	1.60202E+00	1.46289E+00	1.34263E+00	8.40651E-01	7.10337E-01	6.48651E-01	3.77087E-01	2.09283E-01
17	1.60232E+00	1.46368E+00	1.34429E+00	8.42487E-01	7.11869E-01	6.50945E-01	3.77273E-01	2.09409E-01
18	1.60278E+00	1.46478E+00	1.34656E+00	8.44996E-01	7.13943E-01	6.54072E-01	3.77479E-01	2.09570E-01
19	1.60331E+00	1.46598E+00	1.34915E+00	8.47883E-01	7.16336E-01	6.57676E-01	3.77722E-01	2.09757E-01
20	1.60408E+00	1.46753E+00	1.35244E+00	8.51563E-01	7.19386E-01	6.62270E-01	3.78017E-01	2.09992E-01
21	1.60466E+00	1.46864E+00	1.35479E+00	8.54186E-01	7.21531E-01	6.65523E-01	3.78162E-01	2.10135E-01
22	1.60472E+00	1.46875E+00	1.35501E+00	8.54416E-01	7.21674E-01	6.65778E-01	3.78073E-01	2.10110E-01
23	1.60456E+00	1.46847E+00	1.35442E+00	8.53735E-01	7.21067E-01	6.64901E-01	3.77928E-01	2.10034E-01
24	1.60437E+00	1.46813E+00	1.35369E+00	8.52894E-01	7.20334E-01	6.63829E-01	3.77782E-01	2.09954E-01

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.66004E-02	5.31541E-02	1.31681E-01	4.41026E-01	1.17777E-01	2.07352E-01	7.27214E-01	5.24901E-01
2	8.65773E-02	5.31207E-02	1.31642E-01	4.40929E-01	1.17709E-01	2.07207E-01	7.26784E-01	5.24541E-01
3	8.66202E-02	5.32611E-02	1.31719E-01	4.41119E-01	1.17883E-01	2.07750E-01	7.27824E-01	5.25561E-01
4	8.68721E-02	5.39873E-02	1.32168E-01	4.42268E-01	1.18848E-01	2.10591E-01	7.33650E-01	5.31123E-01
5	8.74954E-02	5.58220E-02	1.33265E-01	4.45090E-01	1.21254E-01	2.17711E-01	7.48091E-01	5.44953E-01
6	8.81809E-02	5.79073E-02	1.34458E-01	4.48175E-01	1.23952E-01	2.25724E-01	7.64055E-01	5.60333E-01
7	8.86888E-02	5.95142E-02	1.35328E-01	4.50442E-01	1.25945E-01	2.31820E-01	7.75950E-01	5.71878E-01
8	8.91555E-02	6.10372E-02	1.36114E-01	4.52510E-01	1.27811E-01	2.37536E-01	7.86911E-01	5.82595E-01
9	8.95986E-02	6.18375E-02	1.36521E-01	4.53683E-01	1.28783E-01	2.40525E-01	7.92603E-01	5.88176E-01
10	8.94391E-02	6.19543E-02	1.36687E-01	4.53762E-01	1.28985E-01	2.40966E-01	7.93486E-01	5.89013E-01
11	8.94972E-02	6.21216E-02	1.36883E-01	4.54017E-01	1.29151E-01	2.41594E-01	7.94743E-01	5.90208E-01
12	8.95347E-02	6.22300E-02	1.36745E-01	4.54182E-01	1.29290E-01	2.42001E-01	7.95553E-01	5.90970E-01
13	8.96115E-02	6.24505E-02	1.36872E-01	4.54520E-01	1.29576E-01	2.42831E-01	7.97212E-01	5.92536E-01
14	8.98516E-02	6.31332E-02	1.37273E-01	4.55675E-01	1.30469E-01	2.45408E-01	8.02576E-01	5.97366E-01
15	9.01818E-02	6.40600E-02	1.37853E-01	4.57025E-01	1.31696E-01	2.48912E-01	8.09389E-01	6.03822E-01
16	9.03939E-02	6.46474E-02	1.38199E-01	4.57949E-01	1.32484E-01	2.51131E-01	8.13816E-01	6.07819E-01
17	9.05475E-02	6.50908E-02	1.38461E-01	4.58609E-01	1.33093E-01	2.52865E-01	8.17473E-01	6.11476E-01
18	9.07569E-02	6.57088E-02	1.38813E-01	4.59506E-01	1.33952E-01	2.55344E-01	8.22927E-01	6.17238E-01
19	9.09989E-02	6.64198E-02	1.39220E-01	4.60553E-01	1.34946E-01	2.58230E-01	8.29438E-01	6.24188E-01
20	9.13070E-02	6.73260E-02	1.39740E-01	4.61895E-01	1.36222E-01	2.61953E-01	8.38099E-01	6.33561E-01
21	9.15234E-02	6.79797E-02	1.40103E-01	4.62830E-01	1.37144E-01	2.64665E-01	8.44652E-01	6.40871E-01
22	9.15390E-02	6.80515E-02	1.40125E-01	4.62874E-01	1.37248E-01	2.64976E-01	8.45642E-01	6.42259E-01
23	9.14775E-02	6.78980E-02	1.40019E-01	4.62586E-01	1.37031E-01	2.64346E-01	8.44340E-01	6.41098E-01
24	9.14045E-02	6.77041E-02	1.39892E-01	4.62251E-01	1.36756E-01	2.63545E-01	8.42618E-01	6.39445E-01

0 int.	grp. 25	grp. 26	grp. 27
1	2.16177E-01	1.30156E-01	1.68247E-02
2	2.16028E-01	1.30066E-01	1.68266E-02
3	2.16572E-01	1.30593E-01	1.69881E-02
4	2.19435E-01	1.33224E-01	1.77167E-02
5	2.26562E-01	1.39805E-01	1.95694E-02
6	2.34528E-01	1.47246E-01	2.17378E-02
7	2.40648E-01	1.52954E-01	2.34877E-02
8	2.46178E-01	1.58368E-01	2.52294E-02
9	2.49120E-01	1.61213E-01	2.61617E-02
10	2.49546E-01	1.61596E-01	2.62683E-02
11	2.50151E-01	1.62140E-01	2.64199E-02
12	2.50542E-01	1.62490E-01	2.65176E-02
13	2.51336E-01	1.63202E-01	2.67159E-02
14	2.53747E-01	1.65345E-01	2.73022E-02
15	2.56886E-01	1.68091E-01	2.80273E-02
16	2.58764E-01	1.69699E-01	2.84318E-02
17	2.60646E-01	1.71616E-01	2.90585E-02
18	2.63760E-01	1.74960E-01	3.02029E-02
19	2.67558E-01	1.79023E-01	3.15437E-02
20	2.72740E-01	1.84559E-01	3.33080E-02

21	2.76874E-01	1.89076E-01	3.47586E-02
22	2.77773E-01	1.90231E-01	3.51897E-02
23	2.77252E-01	1.89831E-01	3.51395E-02
24	2.76401E-01	1.89098E-01	3.49777E-02

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.22774E-02	.00000E+00	1.25166E-02	1.04028E-02	3.17762E-03	1.09607E-02	9.98832E-01
2	.00000E+00	1.91850E-01	2.29592E-03	1.66186E-01	6.60876E-02	1.35819E-02	1.14487E-01	1.00004E+00
3	.00000E+00	2.15499E-01	2.60958E-02	1.60773E-01	8.10885E-02	1.55664E-02	1.44988E-01	1.00000E+00
4	.00000E+00	1.24085E-01	3.88498E-02	1.05171E-01	6.78165E-02	7.43247E-03	8.76831E-02	1.00001E+00
5	.00000E+00	1.64899E-01	6.78165E-02	2.59359E-01	9.47669E-02	4.44868E-03	1.33502E-01	9.99992E-01
6	.00000E+00	1.78374E-01	1.34568E-01	6.53782E-01	5.44055E-02	7.04576E-03	2.51482E-01	1.00003E+00
7	.00000E+00	8.83271E-02	9.84097E-02	7.45204E-01	3.63369E-02	7.63574E-03	1.42763E-01	1.00001E+00
8	.00000E+00	1.36205E-02	4.25737E-02	6.30972E-01	2.14889E-02	1.40324E-02	2.06705E-02	1.00004E+00
9	.00000E+00	9.88735E-04	2.17113E-02	5.35049E-01	2.06561E-02	2.31899E-02	-2.11456E-02	9.99991E-01
10	.00000E+00	7.34411E-05	2.06780E-02	4.59547E-01	1.06739E-02	3.60185E-02	-2.59414E-02	1.00001E+00
11	.00000E+00	5.77788E-06	1.06748E-02	4.20560E-01	8.12718E-03	5.84172E-02	-5.58644E-02	1.00001E+00
12	.00000E+00	4.05887E-07	8.12723E-03	2.37903E-01	9.35703E-03	6.38639E-02	-6.50903E-02	9.99959E-01
13	.00000E+00	6.44511E-08	9.35704E-03	1.76672E-01	6.15561E-03	5.84519E-02	-5.52509E-02	1.00001E+00
14	.00000E+00	1.27725E-08	6.15561E-03	1.51883E-01	7.45442E-03	8.08520E-02	-8.21511E-02	1.00000E+00
15	.00000E+00	1.44343E-09	7.54253E-03	8.50837E-02	8.92281E-03	6.68092E-03	-8.09078E-03	1.00190E+00
16	.00000E+00	4.23942E-10	9.09568E-03	4.31122E-02	9.67630E-03	4.51264E-03	-5.11392E-03	1.00146E+00
17	.00000E+00	1.36498E-10	7.83887E-03	1.49801E-02	7.67337E-03	5.73779E-03	-5.58201E-03	1.00072E+00
18	.00000E+00	9.77284E-11	7.29731E-03	1.02207E-02	5.54822E-03	1.75312E-02	-1.57871E-02	1.00022E+00
19	.00000E+00	1.38167E-10	7.70172E-03	2.52994E-02	9.31264E-03	7.78557E-03	-9.40703E-03	1.00062E+00
20	.00000E+00	2.24674E-10	1.07374E-02	1.05505E-01	9.96470E-03	2.54882E-02	-2.47475E-02	1.00091E+00
21	.00000E+00	3.28850E-11	9.51791E-03	2.29079E-02	8.87943E-03	2.18035E-02	-2.11760E-02	1.00036E+00
22	.00000E+00	3.81541E-11	1.27663E-02	4.69140E-02	1.05478E-02	6.34005E-02	-6.11984E-02	1.00023E+00
23	.00000E+00	3.64796E-11	1.57917E-02	1.77060E-01	1.94305E-02	1.23766E-01	-1.27465E-01	1.00042E+00
24	.00000E+00	9.92926E-12	2.34777E-02	1.20933E-01	2.33516E-02	1.22645E-01	-1.22564E-01	1.00030E+00
25	.00000E+00	2.90664E-12	1.99277E-02	4.55053E-02	1.49593E-02	6.73957E-02	-6.24438E-02	1.00022E+00
26	.00000E+00	2.03815E-12	9.74409E-03	3.14246E-02	6.67925E-03	6.06728E-02	-5.76195E-02	1.00017E+00
27	.00000E+00	4.85702E-13	2.09036E-03	4.65127E-03	1.12921E-03	1.68633E-02	-1.59088E-02	1.00009E+00
28	.00000E+00	1.00000E+00	6.30843E-01	5.44918E+00	6.30843E-01	9.37995E-01	6.39953E-02	1.00016E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.70174E-01	1.09607E-02	1.75054E-01	.00000E+00	2.23497E-03	2.60459E-03	.00000E+00	1.19203E-01
2	1.27029E+00	1.14487E-01	1.32142E+00	.00000E+00	1.73374E-05	1.18240E-02	.00000E+00	8.95746E-01
3	1.61311E+00	1.44988E-01	1.67662E+00	.00000E+00	.00000E+00	1.45423E-02	.00000E+00	1.13668E+00
4	1.00226E+00	8.76831E-02	1.04022E+00	.00000E+00	.00000E+00	6.28508E-03	.00000E+00	7.05515E-01
5	1.51516E+00	1.33502E-01	1.57460E+00	.00000E+00	.00000E+00	1.83944E-03	.00000E+00	1.06716E+00
6	2.91569E+00	2.51482E-01	3.02957E+00	.00000E+00	.00000E+00	1.62738E-03	.00000E+00	2.05279E+00
7	2.83676E+00	1.42763E-01	2.90454E+00	.00000E+00	.00000E+00	1.62640E-03	.00000E+00	1.97980E+00
8	2.06815E+00	2.06705E-02	2.07996E+00	.00000E+00	.00000E+00	1.67775E-03	.00000E+00	1.42852E+00
9	1.59821E+00	-2.11456E-02	1.58631E+00	.00000E+00	.00000E+00	2.26989E-03	.00000E+00	1.09549E+00
10	1.45810E+00	-2.59414E-02	1.44483E+00	.00000E+00	.00000E+00	4.83462E-03	.00000E+00	9.98583E-01
11	1.33243E+00	-5.58644E-02	1.30372E+00	.00000E+00	.00000E+00	1.01361E-02	.00000E+00	9.05949E-01
12	8.28860E-01	-6.50903E-02	7.95094E-01	.00000E+00	.00000E+00	1.31558E-02	.00000E+00	5.57221E-01
13	7.00288E-01	-5.52509E-02	6.72015E-01	.00000E+00	.00000E+00	1.35217E-02	.00000E+00	4.70885E-01
14	6.33755E-01	-8.21511E-02	5.91297E-01	.00000E+00	.00000E+00	8.78186E-03	.00000E+00	4.19398E-01
15	3.75527E-01	-8.09078E-03	3.71197E-01	.00000E+00	.00000E+00	2.20594E-03	.00000E+00	2.56839E-01
16	2.08346E-01	-5.11392E-03	2.05792E-01	.00000E+00	.00000E+00	1.50475E-03	.00000E+00	1.42426E-01
17	8.99308E-02	-5.58201E-03	8.66302E-02	.00000E+00	.00000E+00	2.00824E-03	.00000E+00	6.04393E-02
18	6.18088E-02	-1.57871E-02	5.32102E-02	.00000E+00	.00000E+00	2.00612E-03	.00000E+00	3.90798E-02
19	1.36508E-01	-9.40703E-03	1.31752E-01	.00000E+00	.00000E+00	3.19801E-03	.00000E+00	9.20951E-02
20	4.53547E-01	-2.47475E-02	4.41158E-01	.00000E+00	.00000E+00	1.65072E-02	.00000E+00	3.07527E-01
21	1.28750E-01	-2.11760E-02	1.17871E-01	.00000E+00	.00000E+00	1.39008E-02	.00000E+00	8.42857E-02
22	2.40409E-01	-6.11984E-02	2.07574E-01	.00000E+00	.00000E+00	3.96511E-02	.00000E+00	1.52340E-01
23	7.92361E-01	-1.27465E-01	7.27752E-01	.00000E+00	.00000E+00	8.00365E-02	.00000E+00	5.19793E-01
24	5.87945E-01	-1.22564E-01	5.25378E-01	.00000E+00	.00000E+00	7.97521E-02	.00000E+00	3.79811E-01

25	2.49004E-01	-6.24438E-02	2.16400E-01	.00000E+00	.00000E+00	4.57852E-02	.00000E+00	1.58399E-01
26	1.61109E-01	-5.76195E-02	1.30331E-01	.00000E+00	.00000E+00	4.20884E-02	.00000E+00	9.85518E-02
27	2.61330E-02	-1.59038E-02	1.68556E-02	.00000E+00	.00000E+00	1.18066E-02	.00000E+00	1.41831E-02
28	2.34541E+01	6.39931E-02	2.34271E+01	.00000E+00	2.25230E-03	4.35177E-01	.00000E+00	1.61386E+01

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-4.65661E-09	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-8.94070E-08	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.98023E-08	1.00000E+00
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.98023E-08	1.00000E+00
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-3.35276E-08	1.00000E+00
9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.96046E-08	9.99997E-01
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.23517E-08	9.99999E-01
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.96046E-08	1.00000E+00
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.23517E-08	1.00000E+00
14	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	4.47035E-08	9.99999E-01
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-9.31323E-10	1.00000E+00
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-9.31323E-10	1.00000E+00
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.58794E-09	1.00000E+00
22	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
23	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.96046E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.11759E-08	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-3.72529E-09	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-6.33259E-08	9.99999E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*df**2	total flux
1	1.69758E-01	1.09606E-02	1.70174E-01	1.09607E-02	.00000E+00	.00000E+00	.00000E+00	5.39889E-03
2	1.26624E+00	1.14487E-01	1.27029E+00	1.14487E-01	.00000E+00	.00000E+00	.00000E+00	4.02478E-02
3	1.60830E+00	1.44988E-01	1.61311E+00	1.44988E-01	.00000E+00	.00000E+00	.00000E+00	5.11145E-02
4	9.99590E-01	8.76831E-02	1.00226E+00	8.76831E-02	.00000E+00	.00000E+00	.00000E+00	3.17635E-02
5	1.51133E+00	1.33502E-01	1.51516E+00	1.33502E-01	.00000E+00	.00000E+00	.00000E+00	4.80215E-02
6	2.90884E+00	2.51482E-01	2.91569E+00	2.51482E-01	.00000E+00	.00000E+00	.00000E+00	9.24181E-02
7	2.83299E+00	1.42763E-01	2.83676E+00	1.42763E-01	.00000E+00	.00000E+00	.00000E+00	8.99634E-02
8	2.06738E+00	2.06705E-02	2.06815E+00	2.06705E-02	.00000E+00	.00000E+00	.00000E+00	6.56209E-02
9	1.59898E+00	-2.11456E-02	1.59821E+00	-2.11456E-02	.00000E+00	.00000E+00	.00000E+00	5.07319E-02
10	1.45881E+00	-2.59414E-02	1.45810E+00	-2.59414E-02	.00000E+00	.00000E+00	.00000E+00	4.62847E-02
11	1.33394E+00	-5.58644E-02	1.33243E+00	-5.58644E-02	.00000E+00	.00000E+00	.00000E+00	4.23099E-02
12	8.30691E-01	-6.50904E-02	8.28860E-01	-6.50908E-02	.00000E+00	.00000E+00	.00000E+00	2.63339E-02
13	7.01845E-01	-5.52508E-02	7.00288E-01	-5.52509E-02	.00000E+00	.00000E+00	.00000E+00	2.22492E-02
14	6.36066E-01	-8.21510E-02	6.33755E-01	-8.21511E-02	.00000E+00	.00000E+00	.00000E+00	2.01500E-02
15	3.75758E-01	-8.09079E-03	3.75527E-01	-8.09078E-03	.00000E+00	.00000E+00	.00000E+00	1.19211E-02
16	2.08491E-01	-5.11392E-03	2.08346E-01	-5.11392E-03	.00000E+00	.00000E+00	.00000E+00	6.61423E-03
17	8.95471E-02	-5.58201E-03	8.95908E-02	-5.58201E-03	.00000E+00	.00000E+00	.00000E+00	2.83929E-03
18	6.22593E-02	-1.57871E-02	6.18088E-02	-1.57871E-02	.00000E+00	.00000E+00	.00000E+00	1.96878E-03
19	1.36766E-01	-9.40703E-03	1.36508E-01	-9.40703E-03	.00000E+00	.00000E+00	.00000E+00	4.33614E-03
20	4.54255E-01	-2.47475E-02	4.53547E-01	-2.47475E-02	.00000E+00	.00000E+00	.00000E+00	1.44043E-02
21	1.29332E-01	-2.11760E-02	1.28750E-01	-2.11760E-02	.00000E+00	.00000E+00	.00000E+00	4.09518E-03
22	2.42103E-01	-6.11984E-02	2.40409E-01	-6.11984E-02	.00000E+00	.00000E+00	.00000E+00	7.65703E-03
23	7.95748E-01	-1.27465E-01	7.92361E-01	-1.27465E-01	.00000E+00	.00000E+00	.00000E+00	2.52013E-02
24	5.91151E-01	-1.22564E-01	5.87945E-01	-1.22564E-01	.00000E+00	.00000E+00	.00000E+00	1.87112E-02
25	2.50636E-01	-6.24438E-02	2.49004E-01	-6.24438E-02	.00000E+00	.00000E+00	.00000E+00	7.92895E-03

26	1.62576E-01	-5.76195E-02	1.61109E-01	-5.76195E-02	.00000E+00	.00000E+00	.00000E+00	5.13686E-03
27	2.65416E-02	-1.59038E-02	2.61330E-02	-1.59038E-02	.00000E+00	.00000E+00	.00000E+00	8.36021E-04
28	2.34499E+01	6.39952E-02	2.34541E+01	6.39931E-02	.00000E+00	.00000E+00	.00000E+00	7.44253E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	3.74152E-03	2.80474E-03	1.43732E-05	-2.71906E-03	1.00001E+00
2	.00000E+00	.00000E+00	4.89842E-04	2.58014E-02	1.85137E-02	5.12586E-05	-1.80754E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.62885E-03	5.00266E-02	1.58179E-02	1.36826E-04	-1.33248E-02	9.99993E-01
4	.00000E+00	.00000E+00	5.11053E-03	4.20489E-02	5.44442E-03	1.03225E-04	-4.36708E-04	9.99996E-01
5	.00000E+00	.00000E+00	1.10180E-02	8.15850E-02	5.15964E-03	1.51991E-04	5.70606E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.84231E-02	2.34979E-01	3.21046E-03	3.19974E-04	1.48927E-02	1.00000E+00
7	.00000E+00	.00000E+00	1.22704E-02	2.35139E-01	1.18193E-03	3.44682E-04	1.07440E-02	9.99999E-01
8	.00000E+00	.00000E+00	2.15752E-03	1.58516E-01	7.63277E-03	2.94795E-04	-5.77059E-03	1.00002E+00
9	.00000E+00	.00000E+00	7.66597E-03	1.05152E-01	8.76556E-04	1.10880E-03	5.68073E-03	9.99995E-01
10	.00000E+00	.00000E+00	8.77730E-04	8.55144E-02	8.48452E-04	8.35100E-04	-8.05790E-04	9.99999E-01
11	.00000E+00	.00000E+00	8.48513E-04	7.69778E-02	8.69351E-04	1.33568E-03	-1.35650E-03	1.00000E+00
12	.00000E+00	.00000E+00	8.69357E-04	4.67526E-02	8.69815E-04	4.16252E-05	-4.21554E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.69817E-04	3.95207E-02	8.06194E-04	6.00038E-05	3.62098E-06	1.00000E+00
14	.00000E+00	.00000E+00	8.06195E-04	3.60606E-02	6.79566E-04	9.60489E-05	3.05027E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.25794E-04	2.06752E-02	8.46087E-04	8.30211E-05	-2.04784E-04	9.99941E-01
16	.00000E+00	.00000E+00	9.47810E-04	1.09843E-02	9.51590E-04	5.17605E-05	-5.51790E-05	9.99941E-01
17	.00000E+00	.00000E+00	1.03311E-03	4.12690E-03	1.01585E-03	2.49315E-05	-7.62660E-06	9.99994E-01
18	.00000E+00	.00000E+00	1.06905E-03	2.74689E-03	8.86957E-04	1.88105E-05	1.63304E-04	9.99999E-01
19	.00000E+00	.00000E+00	9.19272E-04	6.84829E-03	1.01040E-03	4.43675E-05	-1.35426E-04	9.99993E-01
20	.00000E+00	.00000E+00	1.21060E-03	2.50055E-02	1.06307E-03	1.85918E-04	-3.75081E-05	9.99966E-01
21	.00000E+00	.00000E+00	1.34875E-03	6.04549E-03	1.44405E-03	6.66027E-05	-1.61819E-04	9.99997E-01
22	.00000E+00	.00000E+00	1.82261E-03	1.24574E-02	1.66489E-03	1.45151E-04	1.28821E-05	9.99995E-01
23	.00000E+00	.00000E+00	2.41147E-03	4.28920E-02	3.14899E-03	6.49560E-04	-1.38709E-03	1.00000E+00
24	.00000E+00	.00000E+00	3.85957E-03	3.01764E-02	4.14126E-03	7.02948E-04	-9.84915E-04	1.00000E+00
25	.00000E+00	.00000E+00	3.72886E-03	1.16002E-02	2.98574E-03	3.94554E-04	3.48464E-04	1.00000E+00
26	.00000E+00	.00000E+00	1.55394E-03	8.41237E-03	1.11172E-03	3.67335E-04	7.48336E-05	1.00000E+00
27	.00000E+00	.00000E+00	3.22360E-04	1.57936E-03	8.13744E-07	1.15516E-04	2.06027E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.49869E-02	1.40536E+00	8.49869E-02	7.74487E-03	-7.64218E-03	9.99981E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.68154E-01	8.24158E-03	1.69758E-01	1.09606E-02	1.00211E-04	.00000E+00	.00000E+00	3.65829E-02
2	1.24880E+00	9.64112E-02	1.26624E+00	1.14487E-01	.00000E+00	.00000E+00	.00000E+00	2.72274E-01
3	1.58525E+00	1.31664E-01	1.60830E+00	1.44988E-01	.00000E+00	.00000E+00	.00000E+00	3.45816E-01
4	9.84981E-01	8.72464E-02	9.99590E-01	8.76831E-02	.00000E+00	.00000E+00	.00000E+00	2.14974E-01
5	1.48825E+00	1.39208E-01	1.51133E+00	1.33502E-01	.00000E+00	.00000E+00	.00000E+00	3.24981E-01
6	2.86315E+00	2.66375E-01	2.90884E+00	2.51482E-01	.00000E+00	.00000E+00	.00000E+00	6.25403E-01
7	2.80668E+00	1.53507E-01	2.85299E+00	1.42763E-01	.00000E+00	.00000E+00	.00000E+00	6.11107E-01
8	2.06427E+00	1.48999E-02	2.06738E+00	2.06706E-02	.00000E+00	.00000E+00	.00000E+00	4.47640E-01
9	1.60213E+00	-1.54648E-02	1.59898E+00	-2.11456E-02	.00000E+00	.00000E+00	.00000E+00	3.46948E-01
10	1.46317E+00	-2.67472E-02	1.45881E+00	-2.59414E-02	.00000E+00	.00000E+00	.00000E+00	3.16648E-01
11	1.34321E+00	-5.72209E-02	1.33396E+00	-5.58644E-02	.00000E+00	.00000E+00	.00000E+00	2.90144E-01
12	8.41297E-01	-6.51325E-02	8.30691E-01	-6.50904E-02	.00000E+00	.00000E+00	.00000E+00	1.81242E-01
13	7.10886E-01	-5.52472E-02	7.01845E-01	-5.52508E-02	.00000E+00	.00000E+00	.00000E+00	1.53140E-01
14	6.49463E-01	-8.21205E-02	6.36066E-01	-8.21510E-02	.00000E+00	.00000E+00	.00000E+00	1.39883E-01
15	3.77182E-01	-8.29558E-03	3.75758E-01	-8.09079E-03	.00000E+00	.00000E+00	.00000E+00	8.15946E-02
16	2.09336E-01	-5.16910E-03	2.08491E-01	-5.11398E-03	.00000E+00	.00000E+00	.00000E+00	4.52811E-02
17	9.04515E-02	-5.58964E-03	8.95471E-02	-5.58201E-03	.00000E+00	.00000E+00	.00000E+00	1.95099E-02
18	6.47998E-02	-1.56238E-02	6.22595E-02	-1.57871E-02	.00000E+00	.00000E+00	.00000E+00	1.37856E-02
19	1.38299E-01	-9.54245E-03	1.36766E-01	-9.40708E-03	.00000E+00	.00000E+00	.00000E+00	2.98133E-02
20	4.58198E-01	-2.47850E-02	4.54235E-01	-2.47475E-02	.00000E+00	.00000E+00	.00000E+00	9.88956E-02
21	1.32694E-01	-2.13378E-02	1.29332E-01	-2.11760E-02	.00000E+00	.00000E+00	.00000E+00	2.84128E-02
22	2.51697E-01	-6.11855E-02	2.42103E-01	-6.11984E-02	.00000E+00	.00000E+00	.00000E+00	5.35756E-02
23	8.14928E-01	-1.28852E-01	7.95748E-01	-1.27465E-01	.00000E+00	.00000E+00	.00000E+00	1.74674E-01
24	6.08804E-01	-1.23549E-01	5.91151E-01	-1.22564E-01	.00000E+00	.00000E+00	.00000E+00	1.30177E-01
25	2.59214E-01	-6.20953E-02	2.50636E-01	-6.24438E-02	.00000E+00	.00000E+00	.00000E+00	5.53362E-02
26	1.70078E-01	-5.75446E-02	1.62576E-01	-5.76195E-02	.00000E+00	.00000E+00	.00000E+00	3.61325E-02

27	2.85232E-02	-1.56978E-02	2.65416E-02	-1.59038E-02	.00000E+00	.00000E+00	.00000E+00	5.99467E-03	
28	2.34239E+01	5.63513E-02	2.34499E+01	6.39932E-02	1.00211E-04	.00000E+00	.00000E+00	5.07947E+00	

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	5.91195E-03	7.82496E-03	4.17035E-04	-8.24157E-03	9.99949E-01
2	.00000E+00	.00000E+00	4.48981E-03	7.59598E-02	9.98352E-02	1.06965E-03	-9.64112E-02	9.99962E-01
3	.00000E+00	.00000E+00	4.73567E-02	6.88057E-02	1.79019E-01	5.40804E-06	-1.31663E-01	9.99977E-01
4	.00000E+00	.00000E+00	7.00592E-02	4.57825E-02	1.57304E-01	3.22595E-06	-8.72463E-02	9.99987E-01
5	.00000E+00	.00000E+00	1.29608E-01	1.48577E-01	2.68814E-01	3.77207E-06	-1.39208E-01	9.99991E-01
6	.00000E+00	.00000E+00	2.74570E-01	4.55137E-01	5.40954E-01	1.14731E-05	-2.66375E-01	9.99998E-01
7	.00000E+00	.00000E+00	5.52406E-01	7.94995E-01	7.05897E-01	2.53458E-05	-1.53507E-01	9.99987E-01
8	.00000E+00	.00000E+00	7.35272E-01	1.00050E+00	7.50191E-01	4.69920E-05	-1.48998E-02	9.99912E-01
9	.00000E+00	.00000E+00	7.40482E-01	9.15515E-01	7.25003E-01	9.58498E-05	1.54650E-02	9.99889E-01
10	.00000E+00	.00000E+00	7.21750E-01	8.64640E-01	6.94857E-01	2.11270E-04	2.67473E-02	9.99896E-01
11	.00000E+00	.00000E+00	6.99883E-01	8.04457E-01	6.42247E-01	4.56830E-04	5.72210E-02	9.99940E-01
12	.00000E+00	.00000E+00	5.59151E-01	4.19864E-01	4.93433E-01	5.96706E-04	6.51325E-02	9.99979E-01
13	.00000E+00	.00000E+00	4.89577E-01	3.37852E-01	4.33247E-01	8.97357E-04	5.52472E-02	9.99970E-01
14	.00000E+00	.00000E+00	4.70024E-01	3.23500E-01	3.86444E-01	1.46407E-03	8.21205E-02	9.99988E-01
15	.00000E+00	.00000E+00	2.51764E-01	1.29273E-01	2.42180E-01	1.28804E-03	8.29675E-03	9.99996E-01
16	.00000E+00	.00000E+00	1.67144E-01	5.46799E-02	1.61092E-01	8.85122E-04	5.17011E-03	9.99995E-01
17	.00000E+00	.00000E+00	8.62418E-02	1.54186E-02	8.02224E-02	4.30679E-04	5.58595E-03	1.00003E+00
18	.00000E+00	.00000E+00	7.66626E-02	1.10905E-02	6.06006E-02	3.39526E-04	1.56203E-02	1.00003E+00
19	.00000E+00	.00000E+00	1.26494E-01	3.50070E-02	1.16185E-01	7.67316E-04	9.53673E-03	1.00004E+00
20	.00000E+00	.00000E+00	3.09794E-01	2.49256E-01	2.81818E-01	3.18886E-03	2.47872E-02	1.00000E+00
21	.00000E+00	.00000E+00	1.46271E-01	4.75720E-02	1.23757E-01	1.17872E-03	2.13296E-02	1.00004E+00
22	.00000E+00	.00000E+00	2.78161E-01	1.37742E-01	2.14356E-01	2.61822E-03	6.11882E-02	9.99996E-01
23	.00000E+00	.00000E+00	6.61823E-01	7.94182E-01	5.21518E-01	1.14496E-02	1.28851E-01	1.00001E+00
24	.00000E+00	.00000E+00	6.75005E-01	6.98008E-01	5.38798E-01	1.26543E-02	1.23547E-01	1.00001E+00
25	.00000E+00	.00000E+00	4.34602E-01	2.83951E-01	3.65304E-01	7.20201E-03	6.20944E-02	1.00000E+00
26	.00000E+00	.00000E+00	3.42940E-01	3.01452E-01	2.78431E-01	6.96414E-03	5.75428E-02	1.00001E+00
27	.00000E+00	.00000E+00	1.13959E-01	6.29167E-02	9.58472E-02	2.39401E-03	1.56979E-02	9.99999E-01
28	.00000E+00	.00000E+00	9.16517E+00	9.08132E+00	9.16517E+00	5.66653E-02	-5.63700E-02	9.99968E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*adj**2	total flux
1	1.67374E-01	9.51706E-09	1.68154E-01	8.24158E-03	4.32742E-10	.00000E+00	.00000E+00	1.91561E-01
2	1.23737E+00	-5.43483E-08	1.24880E+00	9.64112E-02	.00000E+00	.00000E+00	.00000E+00	1.41672E+00
3	1.56766E+00	3.61414E-08	1.58525E+00	1.31664E-01	.00000E+00	.00000E+00	.00000E+00	1.79544E+00
4	9.71839E-01	3.75537E-08	9.84981E-01	8.72464E-02	.00000E+00	.00000E+00	.00000E+00	1.11344E+00
5	1.46584E+00	5.84933E-08	1.48825E+00	1.39208E-01	.00000E+00	.00000E+00	.00000E+00	1.67980E+00
6	2.81914E+00	-1.89576E-08	2.86315E+00	2.66375E-01	.00000E+00	.00000E+00	.00000E+00	3.23071E+00
7	2.78133E+00	1.01439E-07	2.80668E+00	1.53507E-01	.00000E+00	.00000E+00	.00000E+00	3.18526E+00
8	2.06435E+00	4.74046E-08	2.06427E+00	1.48999E-02	.00000E+00	.00000E+00	.00000E+00	2.36199E+00
9	1.60426E+00	1.44233E-07	1.60213E+00	-1.54648E-02	.00000E+00	.00000E+00	.00000E+00	1.83600E+00
10	1.46795E+00	3.97199E-08	1.46317E+00	-2.67472E-02	.00000E+00	.00000E+00	.00000E+00	1.67973E+00
11	1.35330E+00	7.56448E-08	1.34321E+00	-5.72209E-02	.00000E+00	.00000E+00	.00000E+00	1.54809E+00
12	8.52453E-01	-4.70533E-08	8.41297E-01	-6.51325E-02	.00000E+00	.00000E+00	.00000E+00	9.74828E-01
13	7.19952E-01	-9.27500E-09	7.10886E-01	-5.52472E-02	.00000E+00	.00000E+00	.00000E+00	8.23472E-01
14	6.65269E-01	-2.58478E-08	6.49463E-01	-8.21205E-02	.00000E+00	.00000E+00	.00000E+00	7.58190E-01
15	3.77714E-01	1.17395E-06	3.77182E-01	-8.29558E-03	.00000E+00	.00000E+00	.00000E+00	4.32571E-01
16	2.09915E-01	1.01414E-06	2.09336E-01	-5.16910E-03	.00000E+00	.00000E+00	.00000E+00	2.40820E-01
17	9.13696E-02	-3.68692E-06	9.04515E-02	-5.58964E-03	.00000E+00	.00000E+00	.00000E+00	1.04515E-01
18	6.76043E-02	-3.45730E-06	6.47998E-02	-1.56238E-02	.00000E+00	.00000E+00	.00000E+00	7.71151E-02
19	1.39831E-01	-5.72888E-06	1.38259E-01	-9.54245E-03	.00000E+00	.00000E+00	.00000E+00	1.59953E-01
20	4.62087E-01	2.19781E-06	4.58198E-01	-2.47850E-02	.00000E+00	.00000E+00	.00000E+00	5.28690E-01
21	1.36618E-01	-8.18188E-06	1.32694E-01	-2.13378E-02	.00000E+00	.00000E+00	.00000E+00	1.55996E-01
22	2.63122E-01	2.64454E-06	2.51697E-01	-6.11855E-02	.00000E+00	.00000E+00	.00000E+00	3.00082E-01
23	8.41693E-01	-5.58053E-07	8.14928E-01	-1.28852E-01	.00000E+00	.00000E+00	.00000E+00	9.60176E-01
24	6.38542E-01	-2.05871E-06	6.08804E-01	-1.23549E-01	.00000E+00	.00000E+00	.00000E+00	7.26469E-01
25	2.75942E-01	-8.83322E-07	2.59214E-01	-6.20953E-02	.00000E+00	.00000E+00	.00000E+00	3.13032E-01
26	1.88682E-01	-2.05815E-06	1.70078E-01	-5.75446E-02	.00000E+00	.00000E+00	.00000E+00	2.12332E-01
27	3.48789E-02	1.46157E-07	2.85232E-02	-1.56978E-02	.00000E+00	.00000E+00	.00000E+00	3.85081E-02

28	2.34641E+01	-1.91602E-05	2.34239E+01	5.63513E-02	4.32742E-10	.00000E+00	.00000E+00	2.68450E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.22774E-02	.00000E+00	2.21701E-02	2.10525E-02	3.60903E-03	9.51706E-09	9.98826E-01
2	.00000E+00	1.91850E-01	7.27557E-03	2.67948E-01	1.84436E-01	1.47028E-02	-5.43483E-08	1.00002E+00
3	.00000E+00	2.15499E-01	7.60814E-02	2.79605E-01	2.75875E-01	1.57086E-02	3.61414E-08	9.99986E-01
4	.00000E+00	1.24085E-01	1.14020E-01	1.93002E-01	2.30665E-01	7.53892E-03	3.75537E-08	1.00000E+00
5	.00000E+00	1.64899E-01	2.08442E-01	4.89321E-01	3.68741E-01	4.60445E-03	5.84953E-08	9.99989E-01
6	.00000E+00	1.78374E-01	4.27561E-01	1.34390E+00	5.98650E-01	7.37721E-03	-1.89578E-08	1.00001E+00
7	.00000E+00	8.83271E-02	6.63086E-01	1.77534E+00	7.43416E-01	8.00577E-03	1.01438E-07	9.99989E-01
8	.00000E+00	1.36205E-02	7.80008E-01	1.78998E+00	7.79313E-01	1.43741E-02	4.74046E-08	9.99920E-01
9	.00000E+00	9.88735E-04	7.69859E-01	1.55572E+00	7.46535E-01	2.43945E-02	1.44253E-07	9.99858E-01
10	.00000E+00	7.34411E-05	7.43306E-01	1.40970E+00	7.06389E-01	3.70648E-02	3.97199E-08	9.99879E-01
11	.00000E+00	5.77788E-06	7.11406E-01	1.30199E+00	6.51244E-01	6.02097E-02	7.56448E-08	9.99942E-01
12	.00000E+00	4.05887E-07	5.68147E-01	7.04020E-01	5.08660E-01	6.45025E-02	-4.70533E-08	9.99974E-01
13	.00000E+00	6.44511E-08	4.99609E-01	5.54084E-01	4.40209E-01	5.94095E-02	-9.27500E-09	9.99971E-01
14	.00000E+00	1.27725E-08	4.76986E-01	5.11443E-01	3.94578E-01	8.24122E-02	-2.58478E-08	9.99989E-01
15	.00000E+00	1.44343E-09	2.60030E-01	2.39080E-01	2.51949E-01	8.05198E-03	1.17395E-06	1.00011E+00
16	.00000E+00	4.23842E-10	1.77189E-01	1.08778E-01	1.71720E-01	5.44952E-03	1.01414E-06	1.00011E+00
17	.00000E+00	1.36498E-10	9.51138E-02	3.45256E-02	8.89116E-02	6.19340E-03	-3.68692E-06	1.00013E+00
18	.00000E+00	9.77284E-11	8.49290E-02	2.40580E-02	6.70158E-02	1.78958E-02	-3.45730E-06	1.00009E+00
19	.00000E+00	1.38167E-10	1.35115E-01	6.71547E-02	1.26508E-01	8.59726E-03	-5.72888E-06	1.00011E+00
20	.00000E+00	2.24674E-10	3.21742E-01	3.79767E-01	2.92846E-01	2.88629E-02	2.19781E-06	1.00010E+00
21	.00000E+00	3.28850E-11	1.57138E-01	7.65254E-02	1.34080E-01	2.30489E-02	-8.18188E-06	1.00011E+00
22	.00000E+00	3.81541E-11	2.92750E-01	1.97113E-01	2.26569E-01	6.61639E-02	2.64454E-06	1.00005E+00
23	.00000E+00	3.64796E-11	6.80026E-01	1.01413E+00	5.44097E-01	1.35865E-01	-5.58053E-07	1.00010E+00
24	.00000E+00	9.92926E-12	7.02342E-01	8.49118E-01	5.66291E-01	1.36003E-01	-2.05871E-06	1.00007E+00
25	.00000E+00	2.90664E-12	4.58258E-01	3.41057E-01	3.85249E-01	7.49908E-02	-8.83522E-07	1.00004E+00
26	.00000E+00	2.03815E-12	3.54238E-01	3.41289E-01	2.86222E-01	6.80043E-02	-2.05815E-06	1.00004E+00
27	.00000E+00	4.85702E-13	1.16352E-01	6.91474E-02	9.69772E-02	1.95729E-02	1.46157E-07	1.00001E+00
28	.00000E+00	1.00000E+00	9.88100E+00	1.59359E+01	9.88100E+00	1.00241E+00	-1.90419E-05	9.99997E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*adj**2	total flux
1	1.67374E-01	9.51706E-09	1.75054E-01	.00000E+00	2.33518E-03	2.60459E-03	.00000E+00	3.52741E-01
2	1.25737E+00	-5.43483E-08	1.32142E+00	.00000E+00	1.73374E-05	1.18240E-02	.00000E+00	2.62499E+00
3	1.56766E+00	3.61414E-08	1.67662E+00	.00000E+00	.00000E+00	1.45423E-02	.00000E+00	3.32905E+00
4	9.71839E-01	3.75537E-08	1.04022E+00	.00000E+00	.00000E+00	6.28508E-03	.00000E+00	2.06570E+00
5	1.46584E+00	5.84953E-08	1.57460E+00	.00000E+00	.00000E+00	1.83944E-03	.00000E+00	3.11997E+00
6	2.81914E+00	-1.89578E-08	3.02957E+00	.00000E+00	.00000E+00	1.62738E-03	.00000E+00	6.00132E+00
7	2.78133E+00	1.01438E-07	2.90454E+00	.00000E+00	.00000E+00	1.62640E-03	.00000E+00	5.86612E+00
8	2.06435E+00	4.74046E-08	2.07996E+00	.00000E+00	.00000E+00	1.67775E-03	.00000E+00	4.30877E+00
9	1.60426E+00	1.44253E-07	1.58631E+00	.00000E+00	.00000E+00	2.26989E-03	.00000E+00	3.32917E+00
10	1.46795E+00	3.97199E-08	1.44483E+00	.00000E+00	.00000E+00	4.83462E-03	.00000E+00	3.04124E+00
11	1.35330E+00	7.56448E-08	1.30372E+00	.00000E+00	.00000E+00	1.01361E-02	.00000E+00	2.78650E+00
12	8.52453E-01	-4.70533E-08	7.95094E-01	.00000E+00	.00000E+00	1.31558E-02	.00000E+00	1.75963E+00
13	7.19952E-01	-9.27500E-09	6.72015E-01	.00000E+00	.00000E+00	1.35217E-02	.00000E+00	1.46975E+00
14	6.63269E-01	-2.58478E-08	5.91297E-01	.00000E+00	.00000E+00	8.78186E-03	.00000E+00	1.33712E+00
15	3.77714E-01	1.17395E-06	3.71197E-01	.00000E+00	.00000E+00	2.20594E-03	.00000E+00	7.82927E-01
16	2.09915E-01	1.01414E-06	2.05792E-01	.00000E+00	.00000E+00	1.50475E-03	.00000E+00	4.34640E-01
17	9.13696E-02	-3.68692E-06	8.66302E-02	.00000E+00	.00000E+00	2.00824E-03	.00000E+00	1.87304E-01
18	6.76043E-02	-3.45730E-06	5.32102E-02	.00000E+00	.00000E+00	2.00612E-03	.00000E+00	1.31949E-01
19	1.39831E-01	-5.72888E-06	1.31732E-01	.00000E+00	.00000E+00	3.19801E-03	.00000E+00	2.86196E-01
20	4.62087E-01	2.19781E-06	4.41158E-01	.00000E+00	.00000E+00	1.65072E-02	.00000E+00	9.49516E-01
21	1.36618E-01	-8.18188E-06	1.17871E-01	.00000E+00	.00000E+00	1.39003E-02	.00000E+00	2.72790E-01
22	2.63122E-01	2.64454E-06	2.07574E-01	.00000E+00	.00000E+00	3.96511E-02	.00000E+00	5.13655E-01
23	8.41693E-01	-5.58053E-07	7.27752E-01	.00000E+00	.00000E+00	8.00365E-02	.00000E+00	1.67984E+00
24	6.38542E-01	-2.05871E-06	5.25378E-01	.00000E+00	.00000E+00	7.97521E-02	.00000E+00	1.25517E+00
25	2.75942E-01	-8.83522E-07	2.16400E-01	.00000E+00	.00000E+00	4.57852E-02	.00000E+00	5.34696E-01
26	1.88682E-01	-2.05815E-06	1.30331E-01	.00000E+00	.00000E+00	4.20884E-02	.00000E+00	3.52153E-01
27	3.48789E-02	1.46157E-07	1.68556E-02	.00000E+00	.00000E+00	1.18066E-02	.00000E+00	5.95219E-02
28	2.34641E+01	-1.91602E-05	2.34271E+01	.00000E+00	2.35251E-03	4.35177E-01	.00000E+00	4.88072E+01

- elapsed time .02 min.
0direct access unit 9 requires 516 blocks of length 1456 for cross section weighting.
1 transport cross section weighting function

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.35140E-03	2.47475E-02	3.15079E-02	1.90954E-02	2.92078E-02	5.58110E-02	3.17882E-02	4.62073E-03
2	3.68453E-03	3.84858E-02	4.87393E-02	2.94756E-02	4.48780E-02	8.45382E-02	4.79912E-02	6.94858E-03
3	2.99390E-03	3.28340E-02	4.30313E-02	2.71787E-02	4.23465E-02	8.03980E-02	4.59882E-02	5.55032E-03
4	1.03346E-03	1.20820E-02	1.64948E-02	1.09253E-02	1.74268E-02	3.33499E-02	1.92934E-02	1.99253E-03
5	1.71392E-03	1.88345E-02	2.47151E-02	1.56028E-02	2.43366E-02	4.64582E-02	2.66432E-02	3.30782E-03

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.73259E-03	5.81298E-03	1.24849E-02	1.44916E-02	1.23077E-02	1.81939E-02	1.83083E-03	1.14541E-03
2	7.10833E-03	8.72049E-03	1.87794E-02	2.18808E-02	1.85732E-02	2.76159E-02	2.71977E-03	1.71908E-03
3	5.71089E-03	8.18237E-03	1.75632E-02	2.02312E-02	1.71671E-02	2.55214E-02	2.54517E-03	1.59734E-03
4	1.90219E-03	3.32957E-03	7.13284E-03	8.12556E-03	6.98056E-03	1.02636E-02	1.11012E-03	6.69828E-04
5	3.31430E-03	4.73831E-03	1.01667E-02	1.17014E-02	9.95242E-03	1.47398E-02	1.52246E-03	9.39700E-04

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.24160E-03	3.40662E-03	2.11873E-03	5.53685E-03	4.65845E-03	1.33223E-02	2.81858E-02	2.69236E-02
2	1.87639E-03	5.30680E-03	3.16215E-03	8.31893E-03	7.11816E-03	2.05725E-02	4.28491E-02	4.12017E-02
3	1.73551E-03	4.87994E-03	2.94379E-03	7.69526E-03	6.60366E-03	1.90131E-02	3.98161E-02	3.82520E-02
4	7.00612E-04	1.92966E-03	1.20433E-03	3.13711E-03	2.65565E-03	7.62001E-03	1.65514E-02	1.56410E-02
5	1.00523E-03	2.77685E-03	1.71774E-03	4.48411E-03	3.79719E-03	1.08898E-02	2.31129E-02	2.21147E-02

0zone	grp. 25	grp. 26	grp. 27	grp. 28
1	1.36428E-02	1.24020E-02	3.25945E-03	3.84827E-01
2	2.09914E-02	1.93696E-02	5.34630E-03	5.87971E-01
3	1.98504E-02	1.78922E-02	4.91070E-03	5.41912E-01
4	7.84082E-03	7.13736E-03	1.79954E-03	2.18080E-01
5	1.11587E-02	1.01850E-02	2.66043E-03	3.12590E-01

1 400 d, sas2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp
0cell averaged fluxes

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.73149E-01	1.30112E+00	1.65109E+00	1.02480E+00	1.55011E+00	2.98179E+00	2.89576E+00	2.07500E+00
2	1.69963E-01	1.26825E+00	1.61066E+00	1.00089E+00	1.51319E+00	2.91216E+00	2.83481E+00	2.06776E+00
3	1.68800E-01	1.25632E+00	1.59565E+00	9.91924E-01	1.49952E+00	2.88571E+00	2.81975E+00	2.06548E+00
4	1.67370E-01	1.23781E+00	1.56870E+00	9.72832E-01	1.46767E+00	2.82272E+00	2.78300E+00	2.05570E+00
5	1.69470E-01	1.26114E+00	1.59940E+00	9.92436E-01	1.49894E+00	2.88325E+00	2.81830E+00	2.06769E+00

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59126E+00	1.45049E+00	1.31594E+00	8.09395E-01	6.89985E-01	6.09198E-01	3.73073E-01	2.06881E-01
2	1.59860E+00	1.45846E+00	1.33321E+00	8.29800E-01	7.01087E-01	6.34941E-01	3.75641E-01	2.08419E-01
3	1.60088E+00	1.46107E+00	1.33877E+00	8.36282E-01	7.06612E-01	6.43135E-01	3.76492E-01	2.08934E-01
4	1.60414E+00	1.46760E+00	1.35259E+00	8.51721E-01	7.19479E-01	6.62442E-01	3.77944E-01	2.09771E-01
5	1.59945E+00	1.46112E+00	1.33873E+00	8.35779E-01	7.06119E-01	6.42401E-01	3.76146E-01	2.08817E-01

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.77912E-02	5.67655E-02	1.33770E-01	4.46408E-01	1.22429E-01	2.21282E-01	7.55026E-01	5.51696E-01
2	8.94680E-02	6.20376E-02	1.36636E-01	4.53889E-01	1.29042E-01	2.41279E-01	7.94111E-01	5.89604E-01
3	9.00218E-02	6.36089E-02	1.37564E-01	4.56321E-01	1.31102E-01	2.47207E-01	8.05973E-01	6.00567E-01
4	9.13165E-02	6.73765E-02	1.39753E-01	4.61924E-01	1.36296E-01	2.62186E-01	8.38920E-01	6.34726E-01
5	8.99875E-02	6.33952E-02	1.37499E-01	4.56086E-01	1.31058E-01	2.46779E-01	8.07058E-01	6.03028E-01

0zone	grp. 25	grp. 26	grp. 27
1	2.30083E-01	1.43152E-01	2.06017E-02
2	2.49847E-01	1.61866E-01	2.63436E-02
3	2.55330E-01	1.66721E-01	2.76604E-02
4	2.73501E-01	1.85517E-01	3.36451E-02
5	2.56887E-01	1.69187E-01	2.85965E-02

0flux disadvantage factors (zone average/cell average-flux)

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.02171E+00	1.03170E+00	1.03232E+00	1.03261E+00	1.03413E+00	1.03417E+00	1.02089E+00	1.00854E+00
2	1.00291E+00	1.00562E+00	1.00704E+00	1.00852E+00	1.00950E+00	1.01003E+00	1.00586E+00	1.00003E+00
3	9.96045E-01	9.96177E-01	9.97657E-01	9.99484E-01	1.00038E+00	1.00085E+00	1.00051E+00	9.98934E-01

4	9.87609E-01	9.81500E-01	9.80807E-01	9.80247E-01	9.79134E-01	9.79005E-01	9.87477E-01	9.98073E-01
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	9.94874E-01	9.92725E-01	9.82973E-01	9.68429E-01	9.68653E-01	9.48313E-01	9.91829E-01	9.90727E-01
2	9.99464E-01	9.98179E-01	9.95877E-01	9.92846E-01	9.92873E-01	9.88386E-01	9.98656E-01	9.98094E-01
3	1.00089E+00	9.99960E-01	1.00003E+00	1.00060E+00	1.00070E+00	1.00114E+00	1.00092E+00	1.00056E+00
4	1.00295E+00	1.00443E+00	1.01085E+00	1.01907E+00	1.01892E+00	1.03120E+00	1.00478E+00	1.00552E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.75594E-01	8.95451E-01	9.72881E-01	9.78781E-01	9.34160E-01	8.96684E-01	9.35529E-01	9.14875E-01
2	9.94227E-01	9.78616E-01	9.93718E-01	9.95182E-01	9.84616E-01	9.77713E-01	9.83957E-01	9.77739E-01
3	1.00038E+00	1.00340E+00	1.00047E+00	1.00051E+00	1.00033E+00	1.00173E+00	9.98656E-01	9.96068E-01
4	1.01477E+00	1.06284E+00	1.01640E+00	1.01280E+00	1.03997E+00	1.06243E+00	1.03948E+00	1.05256E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

Ozone	grp. 25	grp. 26	grp. 27
1	8.95665E-01	8.46115E-01	7.20428E-01
2	9.72593E-01	9.56730E-01	9.21219E-01
3	9.93939E-01	9.85427E-01	9.67266E-01
4	1.06467E+00	1.09652E+00	1.17655E+00
5	1.00000E+00	1.00000E+00	1.00000E+00

Ocell averaged currents

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.35140E-03	2.47475E-02	3.15079E-02	1.90954E-02	2.92078E-02	5.58110E-02	3.17882E-02	4.62073E-03
2	3.68453E-03	3.84858E-02	4.87393E-02	2.94756E-02	4.48780E-02	8.45382E-02	4.79912E-02	6.94858E-03
3	2.99390E-03	3.28340E-02	4.30313E-02	2.71787E-02	4.23465E-02	8.03980E-02	4.59882E-02	5.55032E-03
4	1.03346E-03	1.20820E-02	1.64948E-02	1.09253E-02	1.74268E-02	3.33499E-02	1.92934E-02	1.99253E-03
5	1.71392E-03	1.88345E-02	2.47151E-02	1.56028E-02	2.43366E-02	4.64582E-02	2.66432E-02	3.30782E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.73259E-03	5.81293E-03	1.24849E-02	1.44916E-02	1.23077E-02	1.81939E-02	1.89083E-03	1.14541E-03
2	7.10833E-03	8.72049E-03	1.87794E-02	2.18808E-02	1.85732E-02	2.76159E-02	2.71977E-03	1.71908E-03
3	5.71089E-03	8.18257E-03	1.75632E-02	2.02312E-02	1.71671E-02	2.55214E-02	2.54517E-03	1.59734E-03
4	1.90219E-03	3.32957E-03	7.13284E-03	8.12554E-03	6.98064E-03	1.02636E-02	1.11012E-03	6.69828E-04
5	3.31430E-03	4.73831E-03	1.01667E-02	1.17014E-02	9.95242E-03	1.47398E-02	1.52246E-03	9.39700E-04

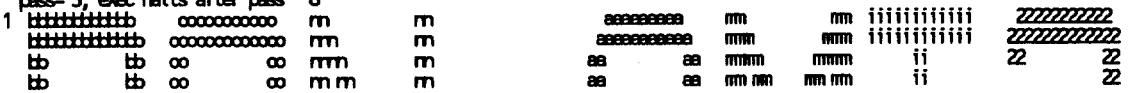
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.24160E-03	3.40662E-03	2.11873E-03	5.53585E-03	4.65845E-03	1.33223E-02	2.81858E-02	2.69236E-02
2	1.87639E-03	5.30680E-03	3.16215E-03	8.31895E-03	7.11816E-03	2.05725E-02	4.28491E-02	4.12017E-02
3	1.73551E-03	4.87994E-03	2.94379E-03	7.69526E-03	6.60364E-03	1.90131E-02	3.98161E-02	3.82520E-02
4	7.00612E-04	1.92966E-03	1.20433E-03	3.13711E-03	2.66565E-03	7.62001E-03	1.63514E-02	1.56410E-02
5	1.00523E-03	2.77685E-03	1.71774E-03	4.48411E-03	3.79719E-03	1.08898E-02	2.31129E-02	2.21147E-02

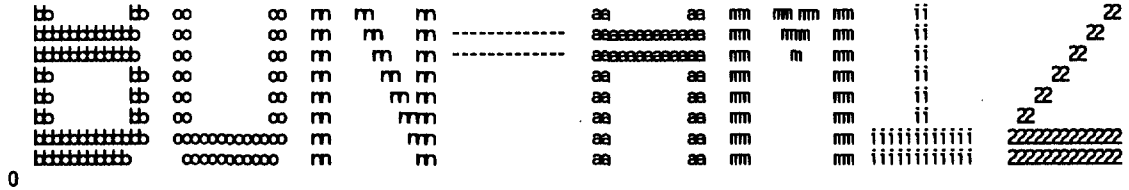
Ozone	grp. 25	grp. 26	grp. 27
1	1.36428E-02	1.24020E-02	3.25945E-03
2	2.09914E-02	1.93696E-02	5.34630E-03
3	1.93504E-02	1.78922E-02	4.91070E-03
4	7.84082E-03	7.13736E-03	1.79954E-03
5	1.11587E-02	1.01850E-02	2.66043E-03

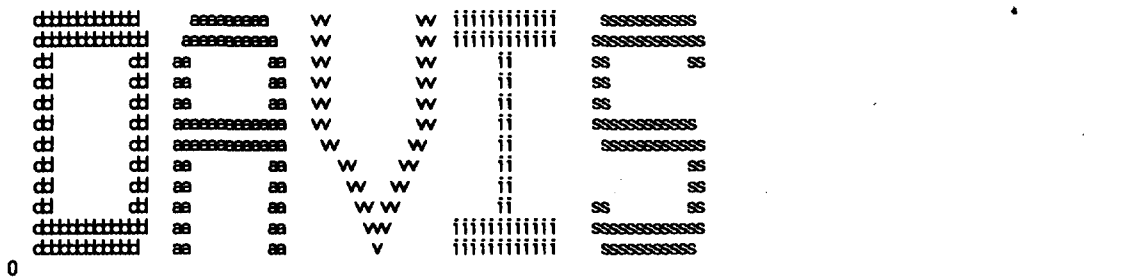
Ozone	volume	vol. fraction
1	6.88443E-01	3.30753E-01
2	3.17352E-02	1.52468E-02
3	2.16724E-01	1.04122E-01
4	1.14454E+00	5.49878E-01
5	2.08144E+00	1.00000E+00

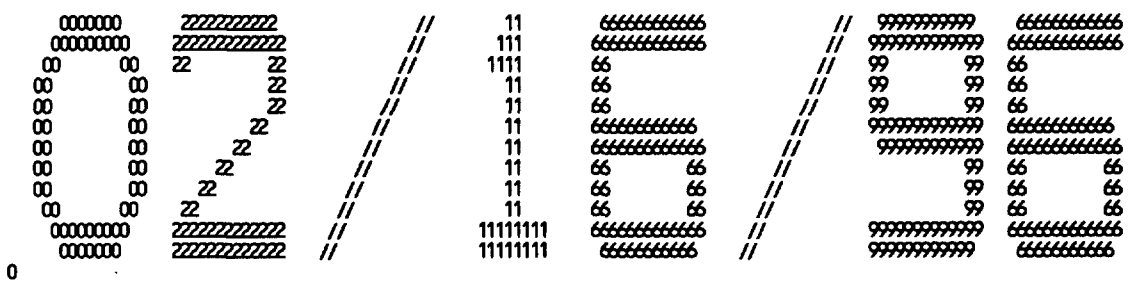
- elapsed time .03 min.

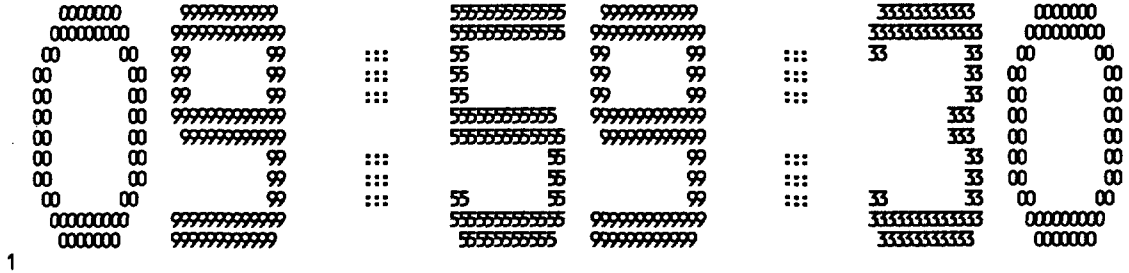
Orequested parm=halt8,skipcellwt,skipshipdata
pass= 3, exec halts after pass 8

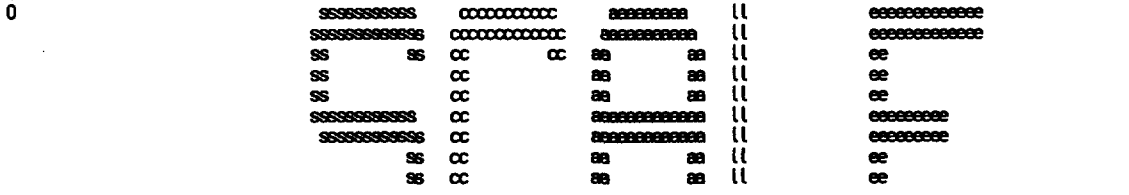












```
ss        ss  cc        cc  aa        aa  ll            ee
sssssssssssss  cccccccccccc  aa        aa  lllllllllllll  eeeeeeeeeeeee
 sssssssssss    cccccccccc   aa        aa  lllllllllllll  eeeeeeeeeeeee


*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                program verification information                   *****
*****                                                                   *****
*****               code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****            program:  c0c008                                       *****
*****                                                                   *****
*****       creation date:  04/27/95                                    *****
*****                                                                   *****
*****            library:  /neutronics/scale/exe                        *****
*****                                                                   *****
*****                                                                   *****
*****    this is not a   scale  configuration controlled code           *****
*****                                                                   *****
*****            jobname:  davis                                        *****
*****                                                                   *****
*****    date of execution:  02/16/96                                   *****
*****                                                                   *****
*****    time of execution:  09:59:30                                   *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has      6 entries.
0        2q array has      2 entries.
1logical assignments
0master library   12
 working library  17
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere              2
0izm--number of zones or material regions                     4
0ms--mixing table length                                     70
0ibl--shielded cross section edit option (0/1--no/yes)        0
0ibr--bondarenko factor edit option (0/1--no/yes)             0
0issopt--dancoff factor option                                0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has     70 entries.
0        4q array has     70 entries.
```

```
0       5q array has     70 entries.
0       6q array has      4 entries.
0       7q array has      4 entries.
0       8q array has      4 entries.
0       9q array has      4 entries.
0      10q array has     70 entries.
0      11q array has      4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope  number density  new identifier
     1        3     8016     2.09710E-02             201
     2        3     1001     4.19420E-02             202
     3        3     5010     3.81515E-06             203
     4        3     5011     1.54884E-05             204
     5        2    40302     4.25156E-02             205
     6        1    92235     1.78765E-04          200006
     7        1    92234     1.66922E-06          200007
     8        1    92236     1.01900E-05          200008
     9        1    92238     7.26421E-03          200009
    10        1     8016     1.50611E-02          200010
    11        1     8016     1.15315E-02          200011
    12        1    36083     2.39826E-07          200012
    13        1    36085     1.15802E-07          200013
    14        1    38090     2.60028E-06          200014
    15        1    39089     1.81056E-06          200015
    16        1    42095     2.02470E-06          200016
    17        1    40093     1.97826E-06          200017
    18        1    40094     3.06390E-06          200018
    19        1    40095     6.95210E-07          200019
    20        1    41094     1.19135E-12          200020
    21        1    43099     2.96592E-06          200021
    22        1    45103     1.45725E-06          200022
    23        1    45105     5.54075E-09          200023
    24        1    44101     2.61262E-06          200024
    25        1    44106     3.77085E-07          200025
    26        1    46105     8.23960E-07          200026
    27        1    46108     1.79948E-07          200027
    28        1    47109     1.29418E-07          200028
    29        1    51124     3.32722E-11          200029
    30        1    54131     1.37688E-06          200030
    31        1    54132     2.31720E-06          200031
    32        1    54135     2.18432E-09          200032
    33        1    54136     4.97240E-06          200033
    34        1    55134     7.36175E-08          200034
    35        1    55135     1.55852E-06          200035
    36        1    55137     3.13142E-06          200036
    37        1    56136     1.42899E-08          200037
    38        1    57139     3.11998E-06          200038
    39        1    59141     2.51929E-06          200039
    40        1    59143     1.30169E-07          200040
    41        1    58144     1.65612E-06          200041
    42        1    60143     2.56634E-06          200042
    43        1    60145     1.86380E-06          200043
    44        1    61147     8.21699E-07          200044
    45        1    61148     2.25854E-09          200045
    46        1    60147     4.38963E-08          200046
    47        1    62147     1.21021E-07          200047
    48        1    62149     2.48712E-08          200048
    49        1    62150     5.79478E-07          200049
    50        1    62151     9.50067E-08          200050
    51        1    62152     2.80778E-07          200051
```

52	1	64155	2.63991E-10	200052
53	1	63153	1.30658E-07	200053
54	1	63154	1.53097E-08	200054
55	1	63155	1.69086E-08	200055
56	1	40302	4.42681E-03	200056
57	1	1001	2.30630E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	3.23773E-06	200060
61	1	95237	4.09226E-07	200061
62	1	94238	2.63252E-08	200062
63	1	94239	2.16321E-05	200063
64	1	94240	2.36745E-06	200064
65	1	94241	8.29987E-07	200065
66	1	94242	3.87820E-08	200066
67	1	95241	1.12358E-08	200067
68	1	95243	1.41059E-09	200068
69	1	96244	5.44610E-11	200069
70	1	999	3.30753E-21	200070

0geometry and material description

0zone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.32460E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.23032E+01	0
3	3	8.14000E-01	6.07600E+02	3.54862E+00	0
4	1	2.96100E+00	9.75000E+02	2.32883E-01	0

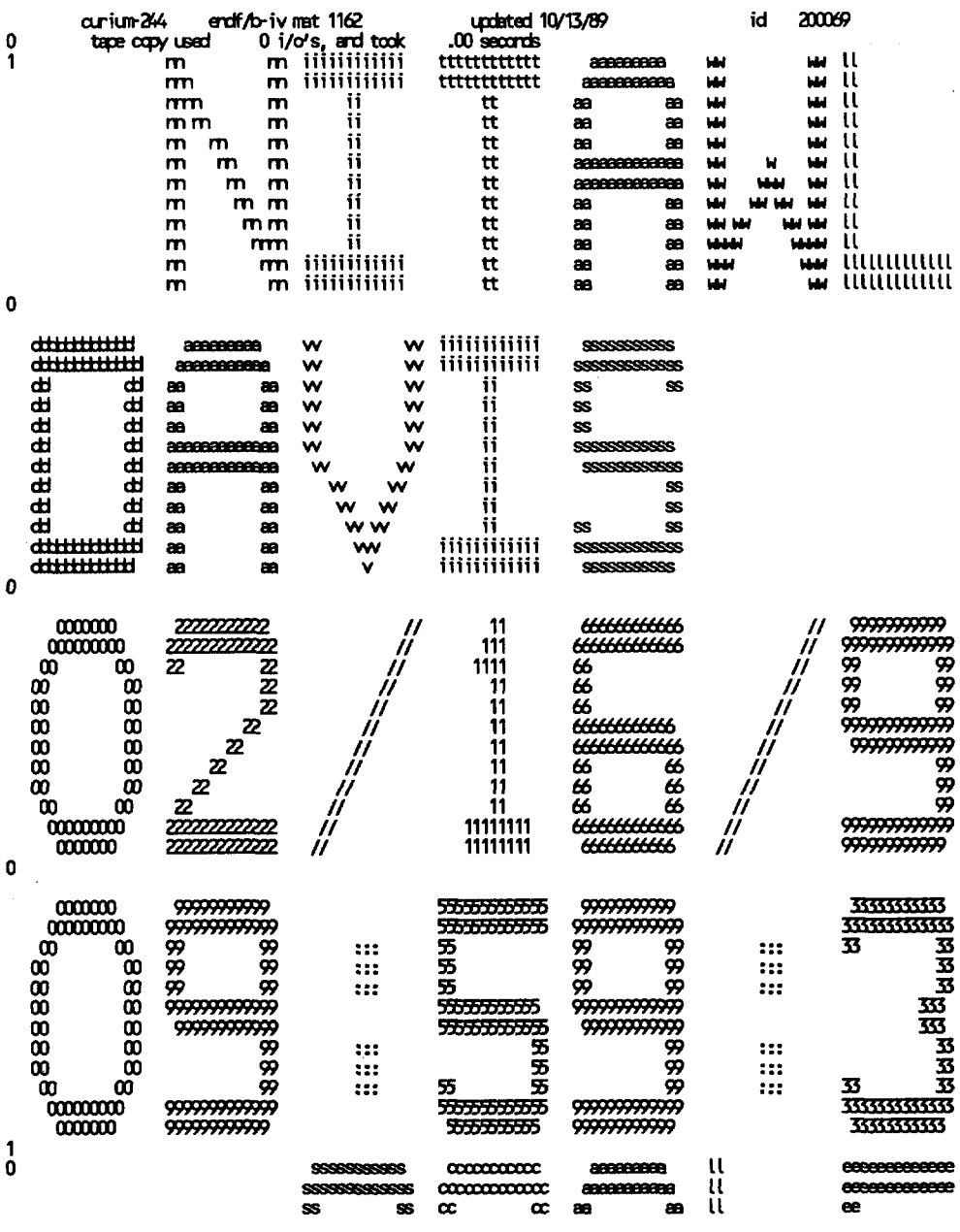
8067 locations of 200000 available are required to make a new master containing the self-shielded values

0no nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

0copy	999	1/v cross sectio	from log 12	to log 1	bondarenko	trigger 0
0copy	1001	hydrogen	from log 12	to log 18	bondarenko	trigger 0
0copy	1001	hydrogen	from log 18	to log 1	bondarenko	trigger 0
0copy	1001	hydrogen	from log 18	to log 1	bondarenko	trigger 0
0copy	5010	b-10 1273 218ngp	from log 12	to log 18	bondarenko	trigger 0
0copy	5010	b-10 1273 218ngp	from log 18	to log 1	bondarenko	trigger 0
0copy	5010	b-10 1273 218ngp	from log 18	to log 1	bondarenko	trigger 0
0copy	5011	boron-11	from log 12	to log 18	bondarenko	trigger 0
0copy	5011	boron-11	from log 18	to log 1	bondarenko	trigger 0
0copy	5011	boron-11	from log 18	to log 1	bondarenko	trigger 0
0copy	8016	oxygen-16	from log 12	to log 18	bondarenko	trigger 0
0copy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
0copy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
0copy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
0copy	36083	kr-83	from log 12	to log 1	bondarenko	trigger 0
0copy	36085	kr-85	from log 12	to log 1	bondarenko	trigger 0
0copy	38090	sr-90	from log 12	to log 1	bondarenko	trigger 0
0copy	39089	y-89	from log 12	to log 1	bondarenko	trigger 0
0copy	40093	zr-93	from log 12	to log 1	bondarenko	trigger 0
0copy	40094	zr-94	from log 12	to log 1	bondarenko	trigger 0
0copy	40095	zr-95	from log 12	to log 1	bondarenko	trigger 0
0copy	40302	zircalloy	from log 12	to log 18	bondarenko	trigger 0
0copy	40302	zircalloy	from log 18	to log 1	bondarenko	trigger 0
0copy	40302	zircalloy	from log 18	to log 1	bondarenko	trigger 0
0copy	41094	nb-94	from log 12	to log 1	bondarenko	trigger 0
0copy	42095	mo-95	from log 12	to log 1	bondarenko	trigger 0
0copy	43099	tc-99	from log 12	to log 1	bondarenko	trigger 0
0copy	44101	ru-101	from log 12	to log 1	bondarenko	trigger 0
0copy	44106	ru-106	from log 12	to log 1	bondarenko	trigger 0
0copy	45103	rh-103	from log 12	to log 1	bondarenko	trigger 0
0copy	45105	rh-105	from log 12	to log 1	bondarenko	trigger 0
0copy	46105	pd-105	from log 12	to log 1	bondarenko	trigger 0
0copy	46108	pd-108	from log 12	to log 1	bondarenko	trigger 0

```
0copy    47109  silver-109      from log 12 to log  1    bondarenko trigger 0
0copy    51124  sb-124          from log 12 to log  1    bondarenko trigger 0
0copy    54131  xe-131          from log 12 to log  1    bondarenko trigger 0
0copy    54132  xe-132          from log 12 to log  1    bondarenko trigger 0
0copy    54135  xenon-135       from log 12 to log  1    bondarenko trigger 0
0copy    54136  xe-136          from log 12 to log  1    bondarenko trigger 0
0copy    55133  cesium-133      from log 12 to log  1    bondarenko trigger 0
0copy    55134  cs-134          from log 12 to log  1    bondarenko trigger 0
0copy    55135  cs-135          from log 12 to log  1    bondarenko trigger 0
0copy    55137  cs-137          from log 12 to log  1    bondarenko trigger 0
0copy    56136  ba-136          from log 12 to log  1    bondarenko trigger 0
0copy    57139  la-139          from log 12 to log  1    bondarenko trigger 0
0copy    58144  ce-144          from log 12 to log  1    bondarenko trigger 0
0copy    59141  pr-141          from log 12 to log  1    bondarenko trigger 0
0copy    59143  pr-143          from log 12 to log  1    bondarenko trigger 0
0copy    60143  nd-143          from log 12 to log  1    bondarenko trigger 0
0copy    60145  nd-145          from log 12 to log  1    bondarenko trigger 0
0copy    60147  nd-147          from log 12 to log  1    bondarenko trigger 0
0copy    61147  pm-147          from log 12 to log  1    bondarenko trigger 0
0copy    61148  pm-148          from log 12 to log  1    bondarenko trigger 0
0copy    62147  sm-147          from log 12 to log  1    bondarenko trigger 0
0copy    62149  sm-149          from log 12 to log  1    bondarenko trigger 0
0copy    62150  sm-150          from log 12 to log  1    bondarenko trigger 0
0copy    62151  sm-151          from log 12 to log  1    bondarenko trigger 0
0copy    62152  sm-152          from log 12 to log  1    bondarenko trigger 0
0copy    63153  eu-153          from log 12 to log  1    bondarenko trigger 0
0copy    63154  eu-154          from log 12 to log  1    bondarenko trigger 0
0copy    63155  eu-155          from log 12 to log  1    bondarenko trigger 0
0copy    64155  gd-155          from log 12 to log  1    bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92235  uranium-235     from log 12 to log  1    bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92238  uranium-238     from log 12 to log  1    bondarenko trigger 0
0copy    93237  neptunium-237   from log 12 to log  1    bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1    bondarenko trigger 0
0copy    94239  plutonium-239   from log 12 to log  1    bondarenko trigger 0
0copy    94240  plutonium-240   from log 12 to log  1    bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1    bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1    bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1    bondarenko trigger 0
0copy    95243  am-243 1057 218 from log 12 to log  1    bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1    bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
            last updated      9/16/93
              l.m.petrie   -   ornl
        tape id                          4321        number of nuclides                  70
        number of neutron groups           27        number of gamma groups               0
        first thermal group                15        logical unit                         1
                                table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id   200070
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89              id      202
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89              id   200057
       b-10 1273 218ngp 042375 p-3 293k                                            id      203
       b-10 1273 218ngp 042375 p-3 293k                                            id   200058
        boron-11       endf/b-iv mat 1160            updated 10/13/89              id      204
        boron-11       endf/b-iv mat 1160            updated 10/13/89              id   200059
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id      201
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id   200010
```

```
 oxygen-16      endf/b-iv mat 1276            updated 10/13/89          id   200011
 kr-83          mt=102,103,103,105,106,107    updated 10/13/89          id   200012
 kr-85            mt=  102                                              id   200013
 sr-90          mt=102                        updated 10/13/89          id   200014
  y-89          mt=102                        updated 10/13/89          id   200015
 zr-93            mt=  102                                              id   200017
 zr-94          mt=102                        updated 10/13/89          id   200018
 zr-95          mt=102                        updated 10/13/89          id   200019
 zircalloy      endf/b-iv mat 1284            updated 10/13/89          id     205
 zircalloy      endf/b-iv mat 1284            updated 10/13/89          id   200056
 nb-94          mt=102                        updated 10/13/89          id   200020
 mo-95          mt=102                        updated 10/13/89          id   200016
 tc-99          mt=102                        updated 10/13/89          id   200021
 ru-101         mt=102                        updated 10/13/89          id   200024
 ru-106         mt=102                        updated 10/13/89          id   200025
 rh-103         mt=102                        updated 10/13/89          id   200022
 rh-105           mt=  102                                              id   200023
 pd-105         mt=102                        updated 10/13/89          id   200026
 pd-108         mt=102                        updated 10/13/89          id   200027
 silver-109     endf/b-iv mat 1139            updated 10/13/89          id   200028
 sb-124         mt=102                        updated 10/13/89          id   200029
 xe-131         mt=102,103,104,105,106        updated 10/13/89          id   200030
 xe-132         mt=102,103,104,105,106        updated 10/13/89          id   200031
 xenon-135      endf/b-iv mat 1294            updated 10/13/89          id   200032
 xe-136           mt=  102, 103, 104, 105, 107                          id   200033
 cesium-133     endf/b-iv mat 1141            updated 10/13/89          id   200060
 cs-134         mt=102                        updated 10/13/89          id   200034
 cs-135           mt=  102                                              id   200035
 cs-137         mt=102                        updated 10/13/89          id   200036
 ba-136         mt=102                        updated 10/13/89          id   200037
 la-139         mt=102                        updated 10/13/89          id   200038
 ce-144           mt=  102                                              id   200041
 pr-141         mt=102,103,104,105,106,107    updated 10/13/89          id   200039
 pr-143         mt=102                        updated 10/13/89          id   200040
 nd-143         mt=102                        updated 10/13/89          id   200042
 nd-145         mt=102                        updated 10/13/89          id   200043
 nd-147         mt=102                        updated 10/13/89          id   200046
 pm-147         mt=102                        updated 10/13/89          id   200044
 pm-148           mt=  102                                              id   200045
 sm-147         endf/b-v fission product      updated 10/13/89          id   200047
 sm-149         mt=102,103,107                updated 10/13/89          id   200048
 sm-150         mt=102                        updated 10/13/89          id   200049
 sm-151         mt=102,103,104,105,106,107    updated 10/13/89          id   200050
 sm-152         mt=102,103,104,105,106,107    updated 10/13/89          id   200051
 eu-153         mt=102,103,104,105,106,107    updated 10/13/89          id   200053
 eu-154         mt=102,103,104,105,106,107    updated 10/13/89          id   200054
 eu-155         mt=102,103,104,105,106,107    updated 10/13/89          id   200055
 gd-155         mt=102                        updated 10/13/89          id   200052
u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                     id   200007
 uranium-235    endf/b-iv mat 1261            updated 10/13/89          id   200006
u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                     id   200008
 uranium-238    endf/b-iv mat 1262            updated 10/13/89          id   200009
 neptunium-237  endf/b-iv mat 1263            updated 10/13/89          id   200061
pu-238 1060 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                    id   200062
 plutonium-239  endf/b-iv mat 1264            updated 10/13/89          id   200063
 plutonium-240  endf/b-iv mat 1265            updated 10/13/89          id   200064
 plutonium-241  endf/b-iv mat 1266            updated 10/13/89          id   200065
 plutonium-242  endf/b-iv mat 1161            updated 10/13/89          id   200066
am-241 1056 sigo=5+4 newklacs 218ngp p-3 293k                           id   200067
am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                            id   200068
```


curium-244 endf/b-iv mat 1162 updated 10/13/89 id 200069
tape copy used 0 i/o's, and took .00 seconds

```
ss          cc          aa      aa  ll          ee
ss          cc          aa      aa  ll          ee
ssssssssssss cc         aaaaaaaaaaaa ll         eeeeeeeee
 ssssssssssss cc        aaaaaaaaaaaa ll         eeeeeeeee
         ss  cc          aa      aa  ll          ee
         ss  cc          aa      aa  ll          ee
ss       ss  cc      cc  aa      aa  ll          ee
ssssssssssss cccccccccccc aa      aa  llllllllllll eeeeeeeeeeee
 ssssssssss   cccccccccc  aa      aa  llllllllllll eeeeeeeeeeee
```

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****              program verification information                      *****
*****                                                                   *****
*****             code system:    scale  version:    4.2                *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****            program:  c0c002                                       *****
*****                                                                   *****
*****       creation date:  04/27/95                                    *****
*****                                                                   *****
*****            library:  /neutronics/scale/exe                        *****
*****                                                                   *****
*****                                                                   *****
*****   this is not a   scale  configuration controlled code            *****
*****                                                                   *****
*****            jobname:  davis                                        *****
*****                                                                   *****
*****   date of execution:  02/16/96                                    *****
*****                                                                   *****
*****   time of execution:  09:59:31                                    *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
```

```
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has     12 entries.
0select  5 nuclides from the master  library on logical  1
        65 nuclides from the working library on logical  3
         0 nuclides from the working library on logical  0
           to create the new working library on logical  4

         1 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has     70 entries.
0        3q array has     15 entries.
0        4q array has      5 entries.
```

```
0 general information concerning cross section library
    tape identification number                4349
    number of nuclides on tape                  65
    number of neutron energy groups             27
    first thermal neutron energy group          15
    number of gamma energy groups                0
0   direct access unit number  9 requires  72 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                          based on endf-b version 4 data with endf-b version 5 fission products
                            compiled for nrc      1/27/89
                              last updated        9/16/93
                                l.m.petrie   -   ornl
-  work tape   4349

 xsdrn weighted tape--parent case entitled--  400 d, sas2h: babcock wilcox 15x15,
  3.00wt%, 20gwd/mtu burn high temp



0 nuclides from xsdrn tape
     1     hydrogen        endf/b-iv mat 1269/thrml002    updated 10/13/89          202
     2   b-10 1273 218ngp 042375 p-3 293k                                            203
     3     boron-11        endf/b-iv mat 1160             updated 10/13/89          204
     4     oxygen-16       endf/b-iv mat 1276             updated 10/13/89          201
     5     zircalloy       endf/b-iv mat 1284             updated 10/13/89          205
0 nuclides from  work tape
     6   1/v cross sections normalized to 1.0 at 0.0253 ev                          999
     7     hydrogen        endf/b-iv mat 1269/thrml002    updated 10/13/89         1001
     8   b-10 1273 218ngp 042375 p-3 293k                                         5010
     9     boron-11        endf/b-iv mat 1160             updated 10/13/89         5011
    10     oxygen-16       endf/b-iv mat 1276             updated 10/13/89         8016
    11     oxygen-16       endf/b-iv mat 1276             updated 10/13/89            6
    12     kr-83           mt=102,103,103,105,106,107     updated 10/13/89        36083
    13     kr-85             mt=  102                                              36085
    14     sr-90           mt=102                         updated 10/13/89        38090
    15      y-89           mt=102                         updated 10/13/89        39089
    16     zr-93             mt=  102                                              40093
    17     zr-94           mt=102                         updated 10/13/89        40094
    18     zr-95           mt=102                         updated 10/13/89        40095
    19     zircalloy       endf/b-iv mat 1284             updated 10/13/89        40302
    20     nb-94           mt=102                         updated 10/13/89        41094
    21     mo-95           mt=102                         updated 10/13/89        42095
    22     tc-99           mt=102                         updated 10/13/89        43099
    23     ru-101          mt=102                         updated 10/13/89        44101
    24     ru-106          mt=102                         updated 10/13/89        44106
    25     rh-103          mt=102                         updated 10/13/89        45103
    26     rh-105            mt=  102                                              45105
    27     pd-105          mt=102                         updated 10/13/89        46105
    28     pd-108          mt=102                         updated 10/13/89        46108
    29     silver-109      endf/b-iv mat 1139             updated 10/13/89        47109
    30     sb-124          mt=102                         updated 10/13/89        51124
    31     xe-131          mt=102,103,104,105,106         updated 10/13/89        54131
    32     xe-132          mt=102,103,104,105,106         updated 10/13/89        54132
    33     xenon-135       endf/b-iv mat 1294             updated 10/13/89        54135
    34     xe-136            mt=  102, 103, 104, 105, 107                          54136
    35     cesium-133      endf/b-iv mat 1141             updated 10/13/89        55133
    36     cs-134          mt=102                         updated 10/13/89        55134
    37     cs-135            mt=  102                                              55135
    38     cs-137          mt=102                         updated 10/13/89        55137
```

```
   39    ba-136        mt=102                        updated 10/13/89          56136
   40    la-139        mt=102                        updated 10/13/89          57139
   41    ce-144          mt=  102                                              58144
   42    pr-141        mt=102,103,104,105,106,107    updated 10/13/89          59141
   43    pr-143        mt=102                        updated 10/13/89          59143
   44    nd-143        mt=102                        updated 10/13/89          60143
   45    nd-145        mt=102                        updated 10/13/89          60145
   46    nd-147        mt=102                        updated 10/13/89          60147
   47    pm-147        mt=102                        updated 10/13/89          61147
   48    pm-148          mt=  102                                              61148
   49    sm-147        endf/b-v fission product      updated 10/13/89          62147
   50    sm-149        mt=102,103,107                updated 10/13/89          62149
   51    sm-150        mt=102                        updated 10/13/89          62150
   52    sm-151        mt=102,103,104,105,106,107    updated 10/13/89          62151
   53    sm-152        mt=102,103,104,105,106,107    updated 10/13/89          62152
   54    eu-153        mt=102,103,104,105,106,107    updated 10/13/89          63153
   55    eu-154        mt=102,103,104,105,106,107    updated 10/13/89          63154
   56    eu-155        mt=102,103,104,105,106,107    updated 10/13/89          63155
   57    gd-155        mt=102                        updated 10/13/89          64155
   58    u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                   92234
   59    uranium-235   endf/b-iv mat 1261            updated 10/13/89          92235
   60    u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                   92236
   61    uranium-238   endf/b-iv mat 1262            updated 10/13/89          92238
   62    neptunium-237 endf/b-iv mat 1263            updated 10/13/89          93237
   63    pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                  94238
   64    plutonium-239 endf/b-iv mat 1264            updated 10/13/89          94239
   65    plutonium-240 endf/b-iv mat 1265            updated 10/13/89          94240
   66    plutonium-241 endf/b-iv mat 1266            updated 10/13/89          94241
   67    plutonium-242 endf/b-iv mat 1161            updated 10/13/89          94242
   68    am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                         95241
   69    am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                          95243
   70    curium-244    endf/b-iv mat 1162            updated 10/13/89          96244
0 hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89          202    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                          203    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160             updated 10/13/89          204    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276             updated 10/13/89          201    temperature=   607.60
0 zircalloy      endf/b-iv mat 1284             updated 10/13/89          205    temperature=   650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)       =   650.000
0potential scatter sigma  =     6.385          lumped nuclear density    = 4.2515602E-02
0spin factor (g)          =     1.079          lump dimension (a-bar)    = 6.7309999E-01
0inner radius             = 6.3246000E-01      dancoff correction (c)    = 1.6805907E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   8      -1.156752E-03    .000000E+00   -7.806033E-01
   9      -4.625978E-02    .000000E+00   -2.073270E+00
  10      -5.962230E-02    .000000E+00   -1.351984E+00
  11      -1.761672E-01    .000000E+00   -7.350731E-01
0excess resonance integrals
0                  resolved
0absorption       2.92402E-01
 fission           .00000E+00
-  elapsed time    .00 min.
-  elapsed time    .02 min.
1     this xsdrn working tape was created 02/16/96 at 09:59:31
```

the title of the parent case is as follows
xsdrn weighted tape--parent case entitled-- 400 d, sas2h: babcock wilcox 15x15,
3.00wt%, 20gwd/mtu burn high temp

tape id	8670	number of nuclides	70
number of neutron groups	27	number of gamma groups	0
first thermal group	15	logical unit	4

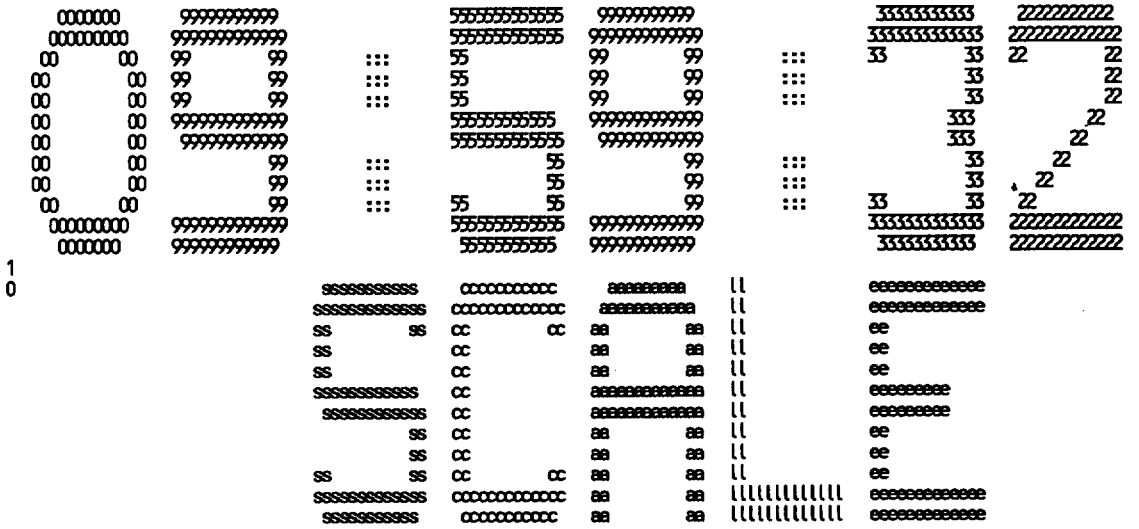
table of contents

hydrogen	endf/b-iv mat 1269/thrml002	updated 10/13/89	id	202
b-10 1273 218ngp 042375 p-3 293k			id	203
boron-11	endf/b-iv mat 1160	updated 10/13/89	id	204
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	201
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id	205
1/v cross sections normalized to 1.0 at 0.0253 ev			id	999
hydrogen	endf/b-iv mat 1269/thrml002	updated 10/13/89	id	1001
b-10 1273 218ngp 042375 p-3 293k			id	5010
boron-11	endf/b-iv mat 1160	updated 10/13/89	id	5011
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	8016
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	6
kr-83	mt=102,103,103,105,106,107	updated 10/13/89	id	36083
kr-85	mt= 102		id	36085
sr-90	mt=102	updated 10/13/89	id	38090
y-89	mt=102	updated 10/13/89	id	39089
zr-93	mt= 102		id	40093
zr-94	mt=102	updated 10/13/89	id	40094
zr-95	mt=102	updated 10/13/89	id	40095
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id	40802
nb-94	mt=102	updated 10/13/89	id	41094
mo-95	mt=102	updated 10/13/89	id	42095
tc-99	mt=102	updated 10/13/89	id	43099
ru-101	mt=102	updated 10/13/89	id	44101
ru-106	mt=102	updated 10/13/89	id	44106
rh-103	mt=102	updated 10/13/89	id	45103
rh-105	mt= 102		id	45105
pd-105	mt=102	updated 10/13/89	id	46105
pd-108	mt=102	updated 10/13/89	id	46108
silver-109	endf/b-iv mat 1139	updated 10/13/89	id	47109
sb-124	mt=102	updated 10/13/89	id	51124
xe-131	mt=102,103,104,105,106	updated 10/13/89	id	54131
xe-132	mt=102,103,104,105,106	updated 10/13/89	id	54132
xenon-135	endf/b-iv mat 1294	updated 10/13/89	id	54135
xe-136	mt= 102, 103, 104, 105, 107		id	54136
cesium-133	endf/b-iv mat 1141	updated 10/13/89	id	55133
cs-134	mt=102	updated 10/13/89	id	55134
cs-135	mt= 102		id	55135
cs-137	mt=102	updated 10/13/89	id	55137
ba-136	mt=102	updated 10/13/89	id	56136
la-139	mt=102	updated 10/13/89	id	57139
ce-144	mt= 102		id	58144
pr-141	mt=102,103,104,105,106,107	updated 10/13/89	id	59141
pr-143	mt=102	updated 10/13/89	id	59143
nd-143	mt=102	updated 10/13/89	id	60143
nd-145	mt=102	updated 10/13/89	id	60145
nd-147	mt=102	updated 10/13/89	id	60147
pm-147	mt=102	updated 10/13/89	id	61147
pm-148	mt= 102		id	61148
sm-147	endf/b-v fission product	updated 10/13/89	id	62147
sm-149	mt=102,103,107	updated 10/13/89	id	62149
sm-150	mt=102	updated 10/13/89	id	62150
sm-151	mt=102,103,104,105,106,107	updated 10/13/89	id	62151

```
      sm-152        mt=102,103,104,105,106,107    updated 10/13/89          id    62152
      eu-153        mt=102,103,104,105,106,107    updated 10/13/89          id    63153
      eu-154        mt=102,103,104,105,106,107    updated 10/13/89          id    63154
      eu-155        mt=102,103,104,105,106,107    updated 10/13/89          id    63155
      gd-155        mt=102                        updated 10/13/89          id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92234
      uranium-235   endf/b-iv mat 1261            updated 10/13/89          id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92236
      uranium-238   endf/b-iv mat 1262            updated 10/13/89          id    92238
      neptunium-237 endf/b-iv mat 1263            updated 10/13/89          id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    94238
      plutonium-239 endf/b-iv mat 1264            updated 10/13/89          id    94239
      plutonium-240 endf/b-iv mat 1265            updated 10/13/89          id    94240
      plutonium-241 endf/b-iv mat 1266            updated 10/13/89          id    94241
      plutonium-242 endf/b-iv mat 1161            updated 10/13/89          id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                          id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           id    95243
      curium-244    endf/b-iv mat 1162            updated 10/13/89          id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
1 xx        xx  sssssssssss  ddddddddddd  rrrrrrrrrrrr  rn        rn  pppppppppp  mm        mm
   xx      xx  sssssssssssss ddddddddddd  rrrrrrrrrrrr  rnn       rn  pppppppppp  mmm      mmm
    xx    xx   ss       ss  dd       dd  rr       rr  rnnn      rn  pp       pp  mmmm    mmmm
     xx  xx    ss           dd       dd  rr       rr  rn rn     rn  pp       pp  mm mm   mm mm
      xx xx    ss           dd       dd  rr       rr  rn  rn    rn  pp       pp  mm  mm mm  mm
       xxx     sssssssssssss dd       dd  rrrrrrrrrrrr  rn   rn   rn  pppppppppp  mm   mmm   mm
       xxx      sssssssssssss dd       dd  rrrrrrrrrrrr  rn    rn  rn  pppppppppp  mm    m    mm
      xx xx              ss  dd       dd  rr      rr   rn     rn rn  pp          mm        mm
     xx  xx              ss  dd       dd  rr       rr  rn      rn rn  pp          mm        mm
    xx    xx   ss       ss  dd       dd  rr        rr  rn       rnn  pp          mm        mm
   xx      xx  sssssssssssss ddddddddddd  rr         rr rn        rnn  pp          mm        mm
  xx        xx  sssssssssss  ddddddddddd  rr         rr rn         rn  pp          mm        mm
0

  ddddddddddd    aaaaaaaaa   w        w  iiiiiiiiiiii   sssssssssss
  ddddddddddd   aaaaaaaaaaa  w        w  iiiiiiiiiiii  sssssssssssss
  dd       dd  aa       aa  w        w      ii        ss       ss
  dd       dd  aa       aa  w        w      ii        ss
  dd       dd  aa       aa  w        w      ii        ss
  dd       dd  aaaaaaaaaaaaa w        w      ii        sssssssssssss
  dd       dd  aaaaaaaaaaaaa  w      w      ii         sssssssssssss
  dd       dd  aa       aa    w    w        ii                  ss
  dd       dd  aa       aa     w  w         ii                  ss
  dd       dd  aa       aa      w w         ii        ss       ss
  ddddddddddd  aa       aa       ww     iiiiiiiiiiii  sssssssssssss
  ddddddddddd  aa       aa        v     iiiiiiiiiiii   sssssssssss
0

    0000000     22222222222          //      11      666666666666          //  99999999999   666666666666
   000000000    22222222222          //     111      666666666666          //  999999999999  666666666666
  00      00   22       22            //    1111      66                    //  99        99  66
 00        00           22           //      11      66                    //  99        99  66
 00        00           22           //      11      66                    //  99        99  66
 00        00         22            //      11      666666666666          //  999999999999  666666666666
 00        00       22              //      11      666666666666          //   99999999999  666666666666
 00        00     22               //      11      66        66          //          99  66        66
 00        00   22                //      11      66        66          //          99  66        66
  00      00   22                //      11      66        66          //          99  66        66
   000000000   22222222222222   //    11111111  666666666666          //  999999999999  666666666666
    0000000    22222222222222   //    11111111   66666666666          //  999999999999   66666666666
0
```




```
**********************************************************************
**********************************************************************
**********************************************************************
******                                                          ******
******                program verification information          ******
******                                                          ******
******              code system:   scale  version:   4.2        ******
******                                                          ******
**********************************************************************
**********************************************************************
******                                                          ******
******                                                          ******
******           program:  c0c001                               ******
******                                                          ******
******      creation date:  04/27/95                            ******
******                                                          ******
******           library:  /neutronics/scale/exe                ******
******                                                          ******
******                                                          ******
******  this is not a  scale  configuration controlled code     ******
******                                                          ******
******           jobname:  davis                                ******
******                                                          ******
******  date of execution:  02/16/96                            ******
******                                                          ******
******  time of execution:  09:59:32                            ******
******                                                          ******
******                                                          ******
**********************************************************************
```

```
                    ********************************************************************************
                    ********************************************************************************
1
                   400 d, second part of sas2h pass to make library
0      -1q array has      1 entries.
0       0q array has     11 entries.
0       1q array has     15 entries.
0       2q array has     10 entries.
0       3q array has     12 entries.
0       4q array has      9 entries.
0       5q array has     12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                   400 d, second part of sas2h pass to make library
0general problem description data block
0                              general problem data

 ige  1/2/3 = plane/cylinder/sphere      2      isn  quadrature order                  8
 izm  number of zones                    4      isct order of scattering               3
 im   number of special intervals       28      ievt 0/1/2/3/4/5/6=o/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1      iim  inner iteration maximum         20
 ibr  right boundary condition           3      iom  outer iteration maximum         25
 mxx  number of mixtures                 3      iclc -1/0/n--flat res/sn/qpt           0
 ms   mixing table length               70      ith  0/1 = forward/adjoint            0
 igm  number of energy groups           27      iflu not used(always wgtd)             0
 nng  number of neutron groups          27      iprt -2/-1/0/n=mixture xsec print     -2
 ngg  number of gamma groups             0      idl  0/1/2/3=no/prt nd/pch n/both    14
 iftg number of first thermal group     15      ipbt -1/0/1=none/fine/all bal. prt     0
0                            special options

 ifg  0/1 = none/weighting calculation   1      ipn  0/1/2 diff. coef. param           0
 iqm  volumetric sources (0/n=no/yes)    0      idfm 0/1 = none/density factors 39*    0
 ipm  boundary sources (0/n=no/yes)      0      iaz  0/n = none/n activities by zone   0
 ifn  0/1/2 = input 33*/34*/use last    14      iai  0/1=none/activities by interval  0
 itmx maximum time (minutes)            10      ifct 0/1=no/yes upscatter scaling     0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0      ipvt 0/1/2=no/k/alpha parametric srch 0
 isx  broad group fluxes                 0      isen outer iteration acceleration     0
 ibln activity data unit                 0      nbnd band rebaln parameter            0
 jbkl 0/1/2 buckling geometry            0
0                          weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1      ihtf total xsect psn in brd gp tables  3
 igmf number of broad groups             3      ndsf psn g-g or file number            4
 itp  0/10/20/30/40 0/c/e/ac/a           0      nusf table length or max order         6
 ipp  -2/-1/0/n=wgted xsect print       -2      mxm extra 1-d x-sect positions         0
 iap  -1/n anisn xsect print            -1
0                           floating point parameters

 eps  overall convergence       1.00000E-04      dy  cyl/pla ht for buckling     .00000E+00
 ptc  point convergence         1.00000E-04      dz  plane depth for buckling  2.00000E+02
 xnf  normalization factor      1.00000E+00      vsc  void streaming correction .00000E+00
 ev   eigenvalue guess           .00000E+00      pv  ipvt=1/2--k/alpha         1.00000E+00
 evm  eigenvalue modifier        .00000E+00      eql  ev change eps for search  1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00      xnpm new param mod for search  7.50000E-01
     this case will require      2611 locations for mixing
     this case has been allocated 200000 locations
1                   400 d, second part of sas2h pass to make library
0       13q array has     70 entries.
0       14q array has     70 entries.
0       15q array has     70 entries.
0                              data block 2 (mixing table, etc.)
```

0	nuclides on tape	cccc identification	mixing table mixture	mixing table component	atom density	extra xsect id's
1	202		3	201	2.09710E-02	
2	203		3	202	4.19420E-02	
3	204		3	203	3.81515E-06	
4	201		3	204	1.54884E-05	
5	205		2	205	4.25156E-02	
6	999		1	92235	1.78765E-04	
7	1001		1	92234	1.66922E-06	
8	5010		1	92236	1.01900E-05	
9	5011		1	92238	7.26421E-03	
10	8016		1	8016	1.50611E-02	
11	6		1	6	1.15315E-02	
12	36083		1	36083	2.39826E-07	
13	36085		1	36085	1.15802E-07	
14	38090		1	38090	2.60028E-06	
15	39089		1	39089	1.81056E-06	
16	40093		1	42095	2.02470E-06	
17	40094		1	40093	1.97826E-06	
18	40095		1	40094	3.06390E-06	
19	40802		1	40095	6.95210E-07	
20	41094		1	41094	1.19135E-12	
21	42095		1	43099	2.96592E-06	
22	43099		1	45103	1.45725E-06	
23	44101		1	45105	5.54075E-09	
24	44106		1	44101	2.61262E-06	
25	45103		1	44106	3.77085E-07	
26	45105		1	46105	8.23960E-07	
27	46105		1	46108	1.79948E-07	
28	46108		1	47109	1.29418E-07	
29	47109		1	51124	3.32722E-11	
30	51124		1	54131	1.37688E-06	
31	54131		1	54132	2.31720E-06	
32	54132		1	54135	2.18632E-09	
33	54135		1	54136	4.97240E-06	
34	54136		1	55134	7.36175E-08	
35	55133		1	55135	1.55832E-06	
36	55134		1	55137	3.13142E-06	
37	55135		1	56136	1.42899E-08	
38	55137		1	57139	3.11998E-06	
39	56136		1	59141	2.51929E-06	
40	57139		1	59143	1.30169E-07	
41	58144		1	58144	1.65612E-06	
42	59141		1	60143	2.56634E-06	
43	59143		1	60145	1.86380E-06	
44	60143		1	61147	8.21699E-07	
45	60145		1	61148	2.25854E-09	
46	60147		1	60147	4.38963E-08	
47	61147		1	62147	1.21021E-07	
48	61148		1	62149	2.48712E-08	
49	62147		1	62150	5.79478E-07	
50	62149		1	62151	9.50067E-08	
51	62150		1	62152	2.80778E-07	
52	62151		1	64155	2.63991E-10	
53	62152		1	63153	1.30668E-07	
54	63153		1	63154	1.53097E-08	
55	63154		1	63155	1.69086E-08	
56	63155		1	40802	4.42681E-05	
57	64155		1	1001	2.30630E-02	
58	92234		1	5010	2.09787E-06	

59	92235	1	5011	8.51673E-06
60	92236	1	55133	3.23773E-06
61	92238	1	95237	4.09226E-07
62	95237	1	94238	2.63252E-08
63	94238	1	94239	2.16321E-05
64	94239	1	94240	2.36745E-06
65	94240	1	94241	8.29987E-07
66	94241	1	94242	3.87820E-08
67	94242	1	95241	1.12358E-08
68	95241	1	95243	1.41059E-09
69	95243	1	96244	5.44610E-11
70	96244	1	999	3.30753E-21

- elapsed time .00 min.
0 24259 locations will be used
0 35q array has 29 entries.
0 36q array has 28 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 400 d, second part of sas2h pass to make library

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	1	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	1	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	1	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	1	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	2	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	2	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	2	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	2	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	2	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	2	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01086E+07	2	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	2	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	2	0	14	1.00000E+00	
15	3.04999E+00	1.50080E+01	2.10601E+06	2	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	2	0	16	1.00000E+00	
17	1.29999E+00	1.58557E+01	1.52545E+06	2	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	2	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	2	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	2	0	20	1.00000E+00	
21	4.00000E-01	1.70344E+01	8.17974E+05	3	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	3	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86953E+05	3	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	3	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	3	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	3	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	3	0	27	1.00000E+00	
28	1.00000E-05	2.76310E+01						

1 400 d, second part of sas2h pass to make library

0	mixture by zone	order p(l) by zone	activity table matl no.	activity table reaction	quadrature constants weights	quadrature constants directions	quadrature constants refl direc	quadrature constants wt x cos
1	3	3			0	-2.79004E-01	3	0
2	2	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	3	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	1	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02

6				5.55953E-02	-2.31301E-01	7	-1.28595E-02
7				5.55953E-02	2.31301E-01	6	1.28595E-02
8				5.55953E-02	5.58410E-01	5	3.10450E-02
9				0	-8.50774E-01	15	0
10				5.22844E-02	-8.21784E-01	15	-4.29665E-02
11				5.22844E-02	-6.01588E-01	14	-3.14537E-02
12				5.22844E-02	-2.20196E-01	13	-1.15128E-02
13				5.22844E-02	2.20196E-01	12	1.15128E-02
14				5.22844E-02	6.01588E-01	11	3.14537E-02
15				5.22844E-02	8.21784E-01	10	4.29665E-02
16				0	-9.83032E-01	24	0
17				4.53365E-02	-9.64143E-01	24	-4.37099E-02
18				4.53365E-02	-8.17361E-01	23	-3.70655E-02
19				4.53365E-02	-5.46143E-01	22	-2.47597E-02
20				4.53365E-02	-1.91780E-01	21	-8.69444E-03
21				4.53365E-02	1.91780E-01	20	8.69444E-03
22				4.53365E-02	5.46143E-01	19	2.47597E-02
23				4.53365E-02	8.17361E-01	18	3.70655E-02
24				4.53365E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86855E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83032E-01	-4.49528E-01	8.36885E-01	5.00703E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20262E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20262E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17236E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17236E-01
22	5.46143E-01	-4.49528E-01	-3.20262E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20262E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.97644E-02	1	0	4.90881E-05		0	
2	3.95287E-02	5.92931E-02	1	2.48366E-01	1.47264E-02		0	
3	7.90575E-02	1.18586E-01	1	4.96733E-01	5.89057E-02		0	
4	1.58115E-01	1.97644E-01	1	9.93466E-01	9.81762E-02		0	
5	2.37172E-01	2.76701E-01	1	1.49020E+00	1.37447E-01			
6	3.16230E-01	3.55759E-01	1	1.98693E+00	1.76717E-01			
7	3.95288E-01	4.34816E-01	1	2.48366E+00	2.15988E-01			
8	4.74345E-01	5.13874E-01	1	2.98040E+00	2.56258E-01			
9	5.53403E-01	5.73167E-01	1	3.47713E+00	1.42355E-01			
10	5.92931E-01	6.12696E-01	1	3.72550E+00	1.52173E-01			
11	6.32460E-01	6.42620E-01	2	3.97386E+00	8.20460E-02			
12	6.52780E-01	6.62940E-01	2	4.10154E+00	8.46405E-02			
13	6.73100E-01	6.96589E-01	3	4.22921E+00	2.05562E-01			
14	7.20067E-01	7.43550E-01	3	4.52431E+00	2.19422E-01			

15	7.67033E-01	7.90517E-01	3	4.81941E+00	2.33282E-01
16	8.14000E-01	8.62795E-01	4	5.11451E+00	5.29051E-01
17	9.11591E-01	9.60386E-01	4	5.72769E+00	5.88891E-01
18	1.00918E+00	1.10677E+00	4	6.34088E+00	1.35731E+00
19	1.20436E+00	1.30195E+00	4	7.56724E+00	1.59667E+00
20	1.39955E+00	1.49714E+00	4	8.79360E+00	1.83603E+00
21	1.59473E+00	1.69232E+00	4	1.00200E+01	2.07540E+00
22	1.78991E+00	1.88750E+00	4	1.12463E+01	2.31476E+00
23	1.98509E+00	2.08268E+00	4	1.24727E+01	2.55412E+00
24	2.18027E+00	2.27786E+00	4	1.36991E+01	2.79349E+00
25	2.37545E+00	2.47305E+00	4	1.49254E+01	3.03285E+00
26	2.57064E+00	2.66823E+00	4	1.61518E+01	3.27221E+00
27	2.76582E+00	2.81461E+00	4	1.73781E+01	1.72587E+00
28	2.86341E+00	2.91220E+00	4	1.79913E+01	1.78571E+00
29	2.96100E+00			1.86045E+01	

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	209	-6.79447E-06	1.10245E+00	-1.13242E-01	1.00000E+00	-3.37148E-02	.00000E+00	.0000
2	310	9.83679E-06	1.11343E+00	-1.52187E-03	-1.43890E-02	-4.02258E-03	.00000E+00	.0167
3	391	-1.79683E-07	1.11486E+00	-1.88561E-04	-1.61512E-03	-8.38010E-04	.00000E+00	.0167
4	450	3.41931E-07	1.11512E+00	-3.48739E-05	-3.42568E-04	-1.73054E-04	.00000E+00	.0167
5	490	-3.09952E-07	1.11519E+00	-7.12395E-06	-7.15464E-05	-3.53365E-05	.00000E+00	.0167

grp to grp		inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	1	17	1.87323E-06	28	1.00000E+00	1
2	2	1	17	2.27993E-06	28	1.00000E+00	1
3	3	1	17	2.11385E-06	28	1.00000E+00	1
4	4	1	17	2.06738E-06	28	1.00000E+00	1
5	5	1	17	2.17286E-06	28	1.00000E+00	1
6	6	1	17	1.48735E-06	28	1.00000E+00	1
7	7	1	24	8.67078E-07	28	1.00000E+00	2
8	8	1	3	1.58248E-07	20	1.00000E+00	2
9	9	1	27	9.38686E-06	28	1.00001E+00	3
10	10	1	26	2.98893E-06	28	1.00000E+00	3
11	11	1	26	2.40436E-06	28	1.00000E+00	3
12	12	1	26	6.88131E-07	28	1.00000E+00	3
13	13	1	26	3.40379E-06	28	9.99997E-01	3
14	14	1	25	1.09215E-06	28	9.99999E-01	3
15	15	1	2	3.61842E-05	28	9.99959E-01	2
16	16	1	2	4.45262E-05	28	9.99963E-01	2
17	17	1	27	9.69786E-05	28	1.00002E+00	3
18	18	1	2	5.90621E-05	28	9.99926E-01	3
19	19	1	2	5.16568E-05	28	9.99895E-01	3
20	20	1	2	4.13515E-05	28	9.99919E-01	3
21	21	1	2	6.33971E-05	28	9.99945E-01	3
22	22	1	23	2.90040E-05	28	9.99968E-01	3
23	23	1	27	2.77437E-05	28	1.00001E+00	4
24	24	1	1	3.29003E-05	9	1.00002E+00	4
25	25	1	1	3.33667E-05	8	1.00002E+00	5
26	26	1	1	2.69977E-05	6	1.00002E+00	6
27	27	1	1	2.52230E-05	5	1.00001E+00	8

6	517	-1.47045E-06	1.11521E+00	-1.32887E-06	-1.47463E-05	-7.73286E-06	.00000E+00	.0167

final monitor
lambda 1.11520E+00 production/absorption 1.12981E+00 angular flux on 16

- elapsed time .02 min.

1 400 d, second part of sas2h pass to make library

0 int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1	3.95287E-02	5.92931E-02	2.48366E-01	1.47264E-02	.00000E+00

3	1	7.90575E-02	1.18586E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1	1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1	2.37172E-01	2.76701E-01	1.49020E+00	1.37447E-01	.00000E+00
6	1	3.16230E-01	3.55759E-01	1.98693E+00	1.76717E-01	.00000E+00
7	1	3.95288E-01	4.34816E-01	2.48366E+00	2.15988E-01	.00000E+00
8	1	4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1	5.53403E-01	5.73167E-01	3.47713E+00	1.42355E-01	.00000E+00
10	1	5.92931E-01	6.12696E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2	6.32460E-01	6.42620E-01	3.97386E+00	8.20460E-02	.00000E+00
12	2	6.52780E-01	6.62940E-01	4.10154E+00	8.46405E-02	.00000E+00
13	3	6.73100E-01	6.96583E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3	7.20067E-01	7.43550E-01	4.52431E+00	2.19422E-01	.00000E+00
15	3	7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4	8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.53798E-02
17	4	9.11591E-01	9.60386E-01	5.72769E+00	5.88891E-01	2.76386E-02
18	4	1.00918E+00	1.10657E+00	6.34088E+00	1.35731E+00	6.24247E-02
19	4	1.20436E+00	1.30195E+00	7.56724E+00	1.59667E+00	7.19621E-02
20	4	1.39955E+00	1.49714E+00	8.79360E+00	1.85603E+00	8.15879E-02
21	4	1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	9.12662E-02
22	4	1.78991E+00	1.88750E+00	1.12463E+01	2.31478E+00	1.01001E-01
23	4	1.98509E+00	2.08268E+00	1.24727E+01	2.55412E+00	1.10800E-01
24	4	2.18027E+00	2.27786E+00	1.36991E+01	2.79349E+00	1.20679E-01
25	4	2.37545E+00	2.47305E+00	1.49254E+01	3.05285E+00	1.30655E-01
26	4	2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.40759E-01
27	4	2.76582E+00	2.81461E+00	1.73781E+01	1.72587E+00	7.42165E-02
28	4	2.86341E+00	2.91220E+00	1.79913E+01	1.78571E+00	7.68256E-02
29		2.96100E+00		1.86045E+01		

1 400 d, second part of sas2h pass to make library

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.25057E-02	8.95631E-02	1.11854E-01	6.87739E-02	1.02549E-01	1.92650E-01	1.92996E-01	1.46916E-01
2	1.25006E-02	8.95125E-02	1.11789E-01	6.87356E-02	1.02498E-01	1.92564E-01	1.92956E-01	1.46910E-01
3	1.25013E-02	8.95252E-02	1.11810E-01	6.87536E-02	1.02531E-01	1.92634E-01	1.93010E-01	1.46921E-01
4	1.25078E-02	8.96048E-02	1.11923E-01	6.88518E-02	1.02660E-01	1.92877E-01	1.93166E-01	1.46950E-01
5	1.25196E-02	8.97448E-02	1.12117E-01	6.89647E-02	1.02877E-01	1.93276E-01	1.93415E-01	1.46993E-01
6	1.25358E-02	8.99574E-02	1.12386E-01	6.91479E-02	1.03174E-01	1.93826E-01	1.93754E-01	1.47050E-01
7	1.25562E-02	9.01839E-02	1.12730E-01	6.93857E-02	1.03563E-01	1.94544E-01	1.94197E-01	1.47120E-01
8	1.25808E-02	9.04917E-02	1.13168E-01	6.96928E-02	1.04059E-01	1.95481E-01	1.94774E-01	1.47203E-01
9	1.26015E-02	9.07625E-02	1.13561E-01	6.99745E-02	1.04537E-01	1.96350E-01	1.95311E-01	1.47272E-01
10	1.26156E-02	9.09748E-02	1.13889E-01	7.02224E-02	1.04958E-01	1.97137E-01	1.95799E-01	1.47320E-01
11	1.26275E-02	9.11508E-02	1.14163E-01	7.04305E-02	1.05312E-01	1.97814E-01	1.96217E-01	1.47365E-01
12	1.26404E-02	9.12817E-02	1.14336E-01	7.05388E-02	1.05481E-01	1.98151E-01	1.96420E-01	1.47408E-01
13	1.26674E-02	9.15202E-02	1.14605E-01	7.06764E-02	1.05671E-01	1.98492E-01	1.96613E-01	1.47477E-01
14	1.27071E-02	9.19001E-02	1.15057E-01	7.09315E-02	1.06047E-01	1.99153E-01	1.96993E-01	1.47568E-01
15	1.27538E-02	9.23889E-02	1.15679E-01	7.13178E-02	1.06644E-01	2.00227E-01	1.97623E-01	1.47669E-01
16	1.28264E-02	9.31720E-02	1.16692E-01	7.19625E-02	1.07660E-01	2.02071E-01	1.98718E-01	1.47838E-01
17	1.28981E-02	9.39521E-02	1.17705E-01	7.26107E-02	1.08693E-01	2.03969E-01	1.99864E-01	1.48035E-01
18	1.29553E-02	9.45857E-02	1.18537E-01	7.31472E-02	1.09561E-01	2.05610E-01	2.00884E-01	1.48239E-01
19	1.30052E-02	9.51495E-02	1.19286E-01	7.36332E-02	1.10365E-01	2.07143E-01	2.01854E-01	1.48451E-01
20	1.30346E-02	9.54890E-02	1.19744E-01	7.39536E-02	1.10853E-01	2.08131E-01	2.02496E-01	1.48606E-01
21	1.30531E-02	9.57079E-02	1.20045E-01	7.41316E-02	1.11184E-01	2.08806E-01	2.02943E-01	1.48722E-01
22	1.30650E-02	9.58513E-02	1.20245E-01	7.42641E-02	1.11408E-01	2.09273E-01	2.03259E-01	1.48809E-01
23	1.30725E-02	9.59439E-02	1.20376E-01	7.43514E-02	1.11557E-01	2.09592E-01	2.03478E-01	1.48872E-01
24	1.30769E-02	9.59995E-02	1.20456E-01	7.44048E-02	1.11650E-01	2.09796E-01	2.03620E-01	1.48914E-01
25	1.30788E-02	9.60249E-02	1.20494E-01	7.44305E-02	1.11695E-01	2.09900E-01	2.03694E-01	1.48935E-01
26	1.30785E-02	9.60221E-02	1.20492E-01	7.44295E-02	1.11695E-01	2.09908E-01	2.03701E-01	1.48936E-01
27	1.30768E-02	9.60022E-02	1.20466E-01	7.44120E-02	1.11666E-01	2.09853E-01	2.03664E-01	1.48922E-01
28	1.30743E-02	9.59726E-02	1.20426E-01	7.43853E-02	1.11622E-01	2.09762E-01	2.03600E-01	1.48902E-01

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.15851E-01	1.07023E-01	1.00742E-01	6.53261E-02	5.58631E-02	5.34703E-02	2.91697E-02	1.62050E-02

2	1.15851E-01	1.07025E-01	1.00746E-01	6.53311E-02	5.58579E-02	5.34771E-02	2.91719E-02	1.62060E-02
3	1.15849E-01	1.07015E-01	1.00725E-01	6.53072E-02	5.58457E-02	5.34451E-02	2.91656E-02	1.62027E-02
4	1.15845E-01	1.06994E-01	1.00675E-01	6.52498E-02	5.57924E-02	5.33681E-02	2.91503E-02	1.61949E-02
5	1.15838E-01	1.06960E-01	1.00599E-01	6.51622E-02	5.57115E-02	5.32510E-02	2.91274E-02	1.61831E-02
6	1.15828E-01	1.06915E-01	1.00498E-01	6.50432E-02	5.56021E-02	5.30922E-02	2.90972E-02	1.61674E-02
7	1.15815E-01	1.06854E-01	1.00359E-01	6.48873E-02	5.54593E-02	5.28844E-02	2.90591E-02	1.61475E-02
8	1.15801E-01	1.06774E-01	1.00179E-01	6.46818E-02	5.52724E-02	5.26115E-02	2.90112E-02	1.61220E-02
9	1.15790E-01	1.06698E-01	1.00009E-01	6.44900E-02	5.50989E-02	5.23572E-02	2.89682E-02	1.60988E-02
10	1.15790E-01	1.06627E-01	9.98521E-02	6.43155E-02	5.49420E-02	5.21263E-02	2.89306E-02	1.60782E-02
11	1.15795E-01	1.06571E-01	9.97279E-02	6.41785E-02	5.48174E-02	5.19440E-02	2.88976E-02	1.60607E-02
12	1.15790E-01	1.06550E-01	9.96815E-02	6.41249E-02	5.47661E-02	5.18708E-02	2.88794E-02	1.60521E-02
13	1.15745E-01	1.06523E-01	9.96181E-02	6.40429E-02	5.46928E-02	5.17622E-02	2.88642E-02	1.60436E-02
14	1.15674E-01	1.06459E-01	9.94736E-02	6.38652E-02	5.45380E-02	5.15298E-02	2.88375E-02	1.60279E-02
15	1.15597E-01	1.06352E-01	9.92370E-02	6.35855E-02	5.42961E-02	5.11648E-02	2.88021E-02	1.60034E-02
16	1.15490E-01	1.06178E-01	9.88450E-02	6.31250E-02	5.38967E-02	5.05607E-02	2.87335E-02	1.59609E-02
17	1.15395E-01	1.06001E-01	9.84532E-02	6.26647E-02	5.34921E-02	4.99536E-02	2.86511E-02	1.59139E-02
18	1.15326E-01	1.05864E-01	9.81182E-02	6.22715E-02	5.31377E-02	4.94330E-02	2.85619E-02	1.58667E-02
19	1.15272E-01	1.05718E-01	9.78056E-02	6.19052E-02	5.28019E-02	4.89466E-02	2.84672E-02	1.58180E-02
20	1.15246E-01	1.05632E-01	9.76034E-02	6.16686E-02	5.25803E-02	4.86311E-02	2.83957E-02	1.57823E-02
21	1.15233E-01	1.05573E-01	9.74629E-02	6.15042E-02	5.24238E-02	4.84108E-02	2.83411E-02	1.57555E-02
22	1.15227E-01	1.05532E-01	9.73628E-02	6.13871E-02	5.23111E-02	4.82535E-02	2.82996E-02	1.57351E-02
23	1.15223E-01	1.05503E-01	9.72917E-02	6.13038E-02	5.22305E-02	4.81415E-02	2.82689E-02	1.57202E-02
24	1.15221E-01	1.05483E-01	9.72433E-02	6.12472E-02	5.21755E-02	4.80653E-02	2.82479E-02	1.57100E-02
25	1.15218E-01	1.05471E-01	9.72144E-02	6.12134E-02	5.21430E-02	4.80202E-02	2.82361E-02	1.57043E-02
26	1.15216E-01	1.05467E-01	9.72050E-02	6.12026E-02	5.21336E-02	4.80065E-02	2.82344E-02	1.57034E-02
27	1.15213E-01	1.05469E-01	9.72108E-02	6.12094E-02	5.21414E-02	4.80166E-02	2.82396E-02	1.57060E-02
28	1.15212E-01	1.05475E-01	9.72264E-02	6.12279E-02	5.21608E-02	4.80427E-02	2.82492E-02	1.57106E-02

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.18856E-03	5.77404E-03	1.11361E-02	3.67568E-02	1.17026E-02	2.45114E-02	8.23524E-02	6.72903E-02
2	7.18914E-03	5.77505E-03	1.11370E-02	3.67591E-02	1.17035E-02	2.45130E-02	8.23472E-02	6.72749E-02
3	7.18674E-03	5.76971E-03	1.11326E-02	3.67463E-02	1.16958E-02	2.44814E-02	8.22286E-02	6.71417E-02
4	7.18094E-03	5.75685E-03	1.11221E-02	3.67161E-02	1.16714E-02	2.44096E-02	8.19679E-02	6.68551E-02
5	7.17216E-03	5.73712E-03	1.11061E-02	3.66707E-02	1.16377E-02	2.43017E-02	8.15812E-02	6.64307E-02
6	7.16031E-03	5.71012E-03	1.10846E-02	3.66099E-02	1.15919E-02	2.41561E-02	8.10660E-02	6.58652E-02
7	7.14487E-03	5.67441E-03	1.10567E-02	3.65314E-02	1.15322E-02	2.39668E-02	8.04095E-02	6.51457E-02
8	7.12469E-03	5.62686E-03	1.10205E-02	3.64299E-02	1.14537E-02	2.37201E-02	7.95802E-02	6.42412E-02
9	7.10594E-03	5.58210E-03	1.09870E-02	3.63366E-02	1.13805E-02	2.34919E-02	7.88345E-02	6.34329E-02
10	7.08890E-03	5.54098E-03	1.09567E-02	3.62528E-02	1.13135E-02	2.32861E-02	7.81864E-02	6.27365E-02
11	7.07524E-03	5.50932E-03	1.09324E-02	3.61859E-02	1.12621E-02	2.31311E-02	7.77151E-02	6.22517E-02
12	7.06955E-03	5.49788E-03	1.09222E-02	3.61580E-02	1.12443E-02	2.30792E-02	7.75701E-02	6.21288E-02
13	7.06188E-03	5.47757E-03	1.09090E-02	3.61211E-02	1.12153E-02	2.29849E-02	7.72897E-02	6.18219E-02
14	7.04569E-03	5.43221E-03	1.08814E-02	3.60443E-02	1.11489E-02	2.27717E-02	7.66667E-02	6.11202E-02
15	7.02004E-03	5.36034E-03	1.08383E-02	3.59251E-02	1.10431E-02	2.24408E-02	7.57563E-02	6.01143E-02
16	6.97771E-03	5.24065E-03	1.07667E-02	3.57294E-02	1.08713E-02	2.19032E-02	7.43599E-02	5.86188E-02
17	6.93481E-03	5.12525E-03	1.06925E-02	3.55267E-02	1.07018E-02	2.13714E-02	7.29415E-02	5.71296E-02
18	6.89685E-03	5.03035E-03	1.06245E-02	3.53387E-02	1.05580E-02	2.09211E-02	7.15856E-02	5.57125E-02
19	6.85046E-03	4.94801E-03	1.05580E-02	3.51531E-02	1.04257E-02	2.05008E-02	7.02214E-02	5.42902E-02
20	6.83605E-03	4.89816E-03	1.05126E-02	3.50242E-02	1.03364E-02	2.02279E-02	6.92483E-02	5.32798E-02
21	6.81853E-03	4.86493E-03	1.04798E-02	3.49297E-02	1.02749E-02	2.00342E-02	6.85188E-02	5.25261E-02
22	6.80577E-03	4.84202E-03	1.04558E-02	3.48596E-02	1.02306E-02	1.98945E-02	6.79658E-02	5.19580E-02
23	6.79658E-03	4.82608E-03	1.04385E-02	3.48083E-02	1.01987E-02	1.97930E-02	6.75511E-02	5.15330E-02
24	6.79052E-03	4.81535E-03	1.04266E-02	3.47728E-02	1.01764E-02	1.97221E-02	6.72513E-02	5.12251E-02
25	6.78670E-03	4.80890E-03	1.04197E-02	3.47518E-02	1.01627E-02	1.96769E-02	6.70536E-02	5.10182E-02
26	6.78581E-03	4.80639E-03	1.04178E-02	3.47450E-02	1.01574E-02	1.96571E-02	6.69571E-02	5.09080E-02
27	6.78691E-03	4.80730E-03	1.04192E-02	3.47503E-02	1.01588E-02	1.96581E-02	6.69476E-02	5.08833E-02
28	6.78947E-03	4.81043E-03	1.04236E-02	3.47628E-02	1.01648E-02	1.96738E-02	6.69992E-02	5.09185E-02

0 int.	grp. 25	grp. 26	grp. 27
1	3.03898E-02	2.19068E-02	4.15995E-03
2	3.03783E-02	2.18929E-02	4.15685E-03
3	3.03061E-02	2.18294E-02	4.14383E-03

4	3.01527E-02	2.16951E-02	4.11622E-03
5	2.99252E-02	2.14969E-02	4.07445E-03
6	2.96217E-02	2.12253E-02	4.01718E-03
7	2.92355E-02	2.08794E-02	3.94217E-03
8	2.87521E-02	2.04428E-02	3.86524E-03
9	2.83226E-02	2.00533E-02	3.75744E-03
10	2.79580E-02	1.97200E-02	3.68178E-03
11	2.77139E-02	1.95052E-02	3.63597E-03
12	2.76618E-02	1.94729E-02	3.63295E-03
13	2.74883E-02	1.93123E-02	3.58986E-03
14	2.70915E-02	1.89801E-02	3.48563E-03
15	2.65368E-02	1.83881E-02	3.32999E-03
16	2.57315E-02	1.76111E-02	3.10172E-03
17	2.49430E-02	1.68792E-02	2.90579E-03
18	2.41993E-02	1.62261E-02	2.75982E-03
19	2.34580E-02	1.55963E-02	2.62914E-03
20	2.29381E-02	1.51746E-02	2.55060E-03
21	2.25547E-02	1.48750E-02	2.49817E-03
22	2.22691E-02	1.46591E-02	2.46212E-03
23	2.20574E-02	1.45025E-02	2.43669E-03
24	2.19050E-02	1.43925E-02	2.41907E-03
25	2.18021E-02	1.43185E-02	2.40741E-03
26	2.17446E-02	1.42760E-02	2.40071E-03
27	2.17277E-02	1.42609E-02	2.39818E-03
28	2.17389E-02	1.42640E-02	2.39807E-03

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	4.87090E-04	6.44704E-04	5.36821E-05	-6.98354E-04	9.99954E-01
2	.00000E+00	.00000E+00	3.69919E-04	6.08007E-03	7.99113E-03	1.73746E-04	-7.79466E-03	9.99963E-01
3	.00000E+00	.00000E+00	3.79336E-03	5.43308E-03	1.41368E-02	9.22434E-05	-1.04344E-02	9.99978E-01
4	.00000E+00	.00000E+00	5.54790E-03	3.58874E-03	1.23306E-02	4.18804E-05	-6.82441E-03	9.99988E-01
5	.00000E+00	.00000E+00	1.02112E-02	1.15085E-02	2.08499E-02	4.99949E-05	-1.06881E-02	9.99992E-01
6	.00000E+00	.00000E+00	2.14361E-02	3.44799E-02	4.09796E-02	8.42484E-05	-1.96277E-02	9.99999E-01
7	.00000E+00	.00000E+00	4.21852E-02	6.09506E-02	5.41196E-02	6.12018E-05	-1.19949E-02	9.99988E-01
8	.00000E+00	.00000E+00	5.63323E-02	7.83160E-02	5.87228E-02	3.63888E-05	-2.42176E-03	9.99912E-01
9	.00000E+00	.00000E+00	5.77629E-02	7.25727E-02	5.74709E-02	2.92600E-05	2.69312E-04	9.99886E-01
10	.00000E+00	.00000E+00	5.70519E-02	6.91067E-02	5.55375E-02	3.60291E-05	1.48434E-03	9.99895E-01
11	.00000E+00	.00000E+00	5.58257E-02	6.55068E-02	5.22981E-02	5.50836E-05	3.47392E-03	9.99935E-01
12	.00000E+00	.00000E+00	4.53517E-02	3.50518E-02	4.12427E-02	6.05735E-05	4.04963E-03	9.99979E-01
13	.00000E+00	.00000E+00	4.05122E-02	2.85695E-02	3.66385E-02	8.46320E-05	3.79026E-03	9.99969E-01
14	.00000E+00	.00000E+00	3.94478E-02	2.83211E-02	3.38517E-02	1.36678E-04	5.47987E-03	9.99988E-01
15	.00000E+00	.00000E+00	2.17288E-02	1.09097E-02	2.04384E-02	1.13197E-04	1.17730E-03	9.99999E-01
16	.00000E+00	.00000E+00	1.42777E-02	4.61551E-03	1.35977E-02	7.69714E-05	6.02984E-04	1.00000E+00
17	.00000E+00	.00000E+00	7.35010E-03	1.32571E-03	6.88720E-03	3.78928E-05	4.25050E-04	9.99994E-01
18	.00000E+00	.00000E+00	6.53283E-03	1.02357E-03	5.59193E-03	3.20218E-05	9.08861E-04	1.00000E+00
19	.00000E+00	.00000E+00	1.09093E-02	3.03867E-03	1.00851E-02	6.80572E-05	7.56118E-04	1.00001E+00
20	.00000E+00	.00000E+00	2.68510E-02	2.16304E-02	2.44561E-02	2.82106E-04	2.11265E-03	1.00001E+00
21	.00000E+00	.00000E+00	1.30419E-02	4.41230E-03	1.14784E-02	1.10653E-04	1.45278E-03	1.00000E+00
22	.00000E+00	.00000E+00	2.60528E-02	1.37924E-02	2.14639E-02	2.64914E-04	4.32368E-03	1.00001E+00
23	.00000E+00	.00000E+00	6.85292E-02	8.34136E-02	5.47754E-02	1.21087E-03	1.23403E-02	1.00004E+00
24	.00000E+00	.00000E+00	7.33842E-02	7.84564E-02	6.05612E-02	1.42736E-03	1.13952E-02	1.00003E+00
25	.00000E+00	.00000E+00	4.88734E-02	3.32269E-02	4.27465E-02	8.44487E-04	5.28160E-03	1.00002E+00
26	.00000E+00	.00000E+00	3.90251E-02	3.71057E-02	3.42702E-02	8.58082E-04	3.89626E-03	1.00001E+00
27	.00000E+00	.00000E+00	1.32287E-02	8.05151E-03	1.22656E-02	3.06472E-04	6.56606E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.05411E-01	8.00971E-01	8.05411E-01	6.62813E-03	-6.60952E-03	9.99977E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.26224E-02	-6.98354E-04	1.25098E-02	.00000E+00	3.56540E-11	.00000E+00	1.95222E-05	1.57829E-02
2	9.10870E-02	-7.79466E-03	8.96060E-02	.00000E+00	.00000E+00	.00000E+00	8.81274E-05	1.13399E-01
3	1.14068E-01	-1.04344E-02	1.11905E-01	.00000E+00	.00000E+00	.00000E+00	9.18164E-05	1.41773E-01

4	7.03623E-02	-6.82441E-03	6.88079E-02	.00000E+00	.00000E+00	.00000E+00	4.16276E-05	8.72793E-02
5	1.05198E-01	-1.06881E-02	1.02598E-01	.00000E+00	.00000E+00	.00000E+00	4.98024E-05	1.30290E-01
6	1.97587E-01	-1.96277E-02	1.92734E-01	.00000E+00	.00000E+00	.00000E+00	8.33793E-05	2.44749E-01
7	1.96079E-01	-1.99949E-02	1.93039E-01	.00000E+00	.00000E+00	.00000E+00	5.92586E-05	2.44207E-01
8	1.47344E-01	-2.42176E-03	1.46923E-01	.00000E+00	.00000E+00	.00000E+00	3.27104E-05	1.84890E-01
9	1.15793E-01	2.69312E-04	1.15850E-01	.00000E+00	.00000E+00	.00000E+00	2.16620E-05	1.45540E-01
10	1.06585E-01	1.48434E-03	1.07020E-01	.00000E+00	.00000E+00	.00000E+00	1.91432E-05	1.34253E-01
11	9.97614E-02	3.47392E-03	1.00734E-01	.00000E+00	.00000E+00	.00000E+00	1.78840E-05	1.26061E-01
12	6.42154E-02	4.04963E-03	6.53172E-02	.00000E+00	.00000E+00	.00000E+00	1.04989E-05	8.14795E-02
13	5.48522E-02	3.79026E-03	5.58546E-02	.00000E+00	.00000E+00	.00000E+00	8.74493E-06	6.96388E-02
14	5.19940E-02	5.47987E-03	5.34581E-02	.00000E+00	.00000E+00	.00000E+00	8.50472E-06	6.63766E-02
15	2.89100E-02	1.17730E-03	2.91671E-02	.00000E+00	.00000E+00	.00000E+00	4.49456E-06	3.65061E-02
16	1.60667E-02	6.02984E-04	1.62088E-02	.00000E+00	.00000E+00	.00000E+00	2.25859E-06	2.02853E-02
17	7.07912E-03	4.25050E-04	7.18759E-03	.00000E+00	.00000E+00	.00000E+00	9.18383E-07	8.97278E-03
18	5.51736E-03	9.08861E-04	5.77216E-03	.00000E+00	.00000E+00	.00000E+00	7.10512E-07	7.11580E-03
19	1.09396E-02	7.56118E-04	1.11345E-02	.00000E+00	.00000E+00	.00000E+00	1.45276E-06	1.38842E-02
20	3.62062E-02	2.11265E-03	3.67535E-02	.00000E+00	.00000E+00	.00000E+00	5.37749E-06	4.58796E-02
21	1.12751E-02	1.45278E-03	1.17000E-02	.00000E+00	.00000E+00	.00000E+00	1.52665E-06	1.44687E-02
22	2.31684E-02	4.32368E-03	2.45039E-02	.00000E+00	.00000E+00	.00000E+00	2.74687E-06	3.00478E-02
23	7.78185E-02	1.23403E-02	8.25315E-02	.00000E+00	.00000E+00	.00000E+00	8.31792E-06	1.00848E-01
24	6.23427E-02	1.13952E-02	6.72752E-02	.00000E+00	.00000E+00	.00000E+00	5.00516E-06	8.16554E-02
25	2.77532E-02	5.28160E-03	3.03848E-02	.00000E+00	.00000E+00	.00000E+00	1.73456E-06	3.66298E-02
26	1.95322E-02	3.89626E-03	2.19042E-02	.00000E+00	.00000E+00	.00000E+00	9.13946E-07	2.61344E-02
27	3.63920E-03	6.56606E-04	4.16017E-03	.00000E+00	.00000E+00	.00000E+00	1.07667E-07	4.92792E-03
28	1.75780E+00	-6.60954E-03	1.76484E+00	.00000E+00	3.56540E-11	.00000E+00	5.87347E-04	2.21307E+00

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.15383E-04	1.61457E-04	2.42210E-06	-1.58120E-04	1.00001E+00
2	.00000E+00	.00000E+00	2.81981E-05	1.44083E-03	1.05387E-03	1.38776E-05	-1.01956E-03	1.00000E+00
3	.00000E+00	.00000E+00	1.47884E-04	2.75496E-03	8.71089E-04	2.01597E-05	-7.43311E-04	9.99995E-01
4	.00000E+00	.00000E+00	2.84131E-04	2.29810E-03	2.97554E-04	1.30594E-05	-2.64714E-05	9.99998E-01
5	.00000E+00	.00000E+00	6.11481E-04	4.41046E-03	2.78928E-04	1.68406E-05	3.15690E-04	1.00000E+00
6	.00000E+00	.00000E+00	1.01580E-03	1.23994E-02	1.69411E-04	2.70556E-05	8.19316E-04	1.00000E+00
7	.00000E+00	.00000E+00	6.69131E-04	1.25914E-02	6.32907E-05	2.68088E-05	5.79052E-04	1.00000E+00
8	.00000E+00	.00000E+00	1.17079E-04	9.20419E-03	4.43196E-04	2.21031E-05	-3.48250E-04	1.00001E+00
9	.00000E+00	.00000E+00	4.45026E-04	6.35590E-03	5.29835E-05	7.66649E-05	3.15394E-04	9.99977E-01
10	.00000E+00	.00000E+00	5.30482E-05	4.98332E-03	4.94432E-05	5.92845E-05	-5.56846E-05	1.00000E+00
11	.00000E+00	.00000E+00	4.94466E-05	4.44910E-03	5.02461E-05	8.99049E-05	-9.07094E-05	1.00000E+00
12	.00000E+00	.00000E+00	5.02464E-05	2.75837E-03	5.13184E-05	5.66705E-06	-6.74324E-06	1.00000E+00
13	.00000E+00	.00000E+00	5.13185E-05	2.35694E-03	4.80759E-05	6.31536E-06	-3.07290E-06	9.99999E-01
14	.00000E+00	.00000E+00	4.80800E-05	2.23846E-03	4.21840E-05	8.54857E-06	-2.65427E-06	1.00000E+00
15	.00000E+00	.00000E+00	4.47981E-05	1.22002E-03	4.99316E-05	6.31821E-06	-1.14141E-05	9.99969E-01
16	.00000E+00	.00000E+00	5.60781E-05	6.49257E-04	5.62444E-05	3.84793E-06	-3.98967E-06	9.99963E-01
17	.00000E+00	.00000E+00	6.20020E-05	2.49363E-04	6.13815E-05	1.85364E-06	-1.21919E-06	9.99971E-01
18	.00000E+00	.00000E+00	6.47016E-05	1.82791E-04	5.90224E-05	1.52182E-06	4.16732E-06	9.99990E-01
19	.00000E+00	.00000E+00	6.02860E-05	4.18390E-04	6.17296E-05	3.24660E-06	-4.67128E-06	9.99977E-01
20	.00000E+00	.00000E+00	7.57261E-05	1.52450E-03	6.48122E-05	1.31067E-05	-2.13273E-06	9.99973E-01
21	.00000E+00	.00000E+00	8.70456E-05	3.99105E-04	9.53318E-05	4.94723E-06	-1.32096E-05	9.99985E-01
22	.00000E+00	.00000E+00	1.26263E-04	8.95497E-04	1.19680E-04	1.15625E-05	-4.96162E-06	9.99996E-01
23	.00000E+00	.00000E+00	1.82549E-04	3.17792E-03	2.33312E-04	5.19052E-05	-1.02700E-04	1.00000E+00
24	.00000E+00	.00000E+00	2.99436E-04	2.40298E-03	3.29773E-04	5.89847E-05	-8.95902E-05	1.00001E+00
25	.00000E+00	.00000E+00	3.05008E-04	9.67478E-04	2.49016E-04	3.42378E-05	2.17282E-05	1.00000E+00
26	.00000E+00	.00000E+00	1.29578E-04	7.56319E-04	9.99495E-05	3.39527E-05	-4.33787E-06	1.00000E+00
27	.00000E+00	.00000E+00	2.89815E-05	1.59608E-04	8.22357E-08	1.18415E-05	1.70544E-05	1.00001E+00
28	.00000E+00	.00000E+00	5.09332E-03	8.14601E-02	5.09332E-03	6.26039E-04	-6.20222E-04	9.99994E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.26481E-02	-8.56474E-04	1.26224E-02	-6.98354E-04	5.76869E-06	.00000E+00	1.59470E-06	2.10592E-03
2	9.13489E-02	-8.81422E-03	9.10870E-02	-7.79466E-03	.00000E+00	.00000E+00	1.10152E-05	1.52047E-02
3	1.14414E-01	-1.11777E-02	1.14068E-01	-1.04344E-02	.00000E+00	.00000E+00	1.26247E-05	1.90441E-02
4	7.05789E-02	-6.85088E-03	7.03623E-02	-6.82441E-03	.00000E+00	.00000E+00	7.41779E-06	1.17490E-02

5	1.05537E-01	-1.03724E-02	1.05198E-01	-1.06881E-02	.00000E+00	.00000E+00	8.62403E-06	1.75684E-02
6	1.98262E-01	-1.88084E-02	1.97587E-01	-1.96277E-02	.00000E+00	.00000E+00	1.01711E-05	3.30015E-02
7	1.96485E-01	-1.14159E-02	1.96079E-01	-1.19949E-02	.00000E+00	.00000E+00	8.35158E-06	3.27240E-02
8	1.47432E-01	-2.77001E-03	1.47344E-01	-2.42178E-03	.00000E+00	.00000E+00	5.27251E-06	2.45674E-02
9	1.15782E-01	5.84706E-04	1.15793E-01	2.69312E-04	.00000E+00	.00000E+00	4.58111E-06	1.93011E-02
10	1.06545E-01	1.42866E-03	1.06585E-01	1.48434E-03	.00000E+00	.00000E+00	4.90574E-06	1.77622E-02
11	9.96685E-02	3.38521E-03	9.97614E-02	3.47392E-03	.00000E+00	.00000E+00	4.75836E-06	1.66194E-02
12	6.41083E-02	4.04285E-03	6.42154E-02	4.04963E-03	.00000E+00	.00000E+00	3.21119E-06	1.06952E-02
13	5.47497E-02	3.78719E-03	5.48522E-02	3.79026E-03	.00000E+00	.00000E+00	2.73684E-06	9.13298E-03
14	5.18477E-02	5.47721E-03	5.19940E-02	5.47987E-03	.00000E+00	.00000E+00	2.58635E-06	8.65217E-03
15	2.88734E-02	1.16589E-03	2.89100E-02	1.17730E-03	.00000E+00	.00000E+00	1.41874E-06	4.81530E-03
16	1.60494E-02	5.98994E-04	1.60667E-02	6.02984E-04	.00000E+00	.00000E+00	7.88577E-07	2.67637E-03
17	7.06775E-03	4.23830E-04	7.07912E-03	4.25050E-04	.00000E+00	.00000E+00	3.47178E-07	1.17887E-03
18	5.49442E-03	9.13028E-04	5.51736E-03	9.08861E-04	.00000E+00	.00000E+00	2.70079E-07	9.17358E-04
19	1.09191E-02	7.51447E-04	1.09396E-02	7.56118E-04	.00000E+00	.00000E+00	5.36007E-07	1.82142E-03
20	3.61504E-02	2.11051E-03	3.62062E-02	2.11265E-03	.00000E+00	.00000E+00	1.77184E-06	6.02934E-03
21	1.12395E-02	1.43957E-03	1.12751E-02	1.45278E-03	.00000E+00	.00000E+00	5.50306E-07	1.87573E-03
22	2.30646E-02	4.31871E-03	2.31684E-02	4.32368E-03	.00000E+00	.00000E+00	1.12842E-06	3.85126E-03
23	7.75285E-02	1.22576E-02	7.78185E-02	1.23403E-02	.00000E+00	.00000E+00	3.77857E-06	1.29418E-02
24	6.20970E-02	1.13098E-02	6.23427E-02	1.13952E-02	.00000E+00	.00000E+00	3.00818E-06	1.03661E-02
25	2.76489E-02	5.30333E-03	2.77532E-02	5.28160E-03	.00000E+00	.00000E+00	1.33133E-06	4.61513E-03
26	1.94675E-02	3.89192E-03	1.95322E-02	3.89626E-03	.00000E+00	.00000E+00	9.27235E-07	3.24852E-03
27	3.63316E-03	6.73660E-04	3.63920E-03	6.56606E-04	.00000E+00	.00000E+00	1.67621E-07	6.05812E-04
28	1.75864E+00	-7.22974E-03	1.75780E+00	-6.60954E-03	5.76869E-06	.00000E+00	1.03875E-04	2.93069E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.58233E-04	3.41793E-04	2.84598E-05	-3.70235E-04	9.99985E-01
2	.00000E+00	.00000E+00	1.96114E-04	3.26545E-03	4.26555E-03	9.27431E-05	-4.16202E-03	9.99988E-01
3	.00000E+00	.00000E+00	2.02449E-03	2.90447E-03	7.55686E-03	4.93124E-05	-5.58153E-03	9.99991E-01
4	.00000E+00	.00000E+00	2.96483E-03	1.92142E-03	6.60181E-03	2.24228E-05	-3.65952E-03	9.99994E-01
5	.00000E+00	.00000E+00	5.46216E-03	6.17154E-03	1.11810E-02	2.65958E-05	-5.74531E-03	9.99996E-01
6	.00000E+00	.00000E+00	1.14852E-02	1.84847E-02	2.19692E-02	4.51656E-05	-1.05312E-02	9.99999E-01
7	.00000E+00	.00000E+00	2.26100E-02	3.23819E-02	2.87528E-02	3.25154E-05	-6.17498E-03	9.99991E-01
8	.00000E+00	.00000E+00	2.99803E-02	4.11483E-02	3.08538E-02	1.91192E-05	-8.89860E-04	9.99919E-01
9	.00000E+00	.00000E+00	3.04122E-02	3.79673E-02	3.00666E-02	1.53077E-05	3.33720E-04	9.99889E-01
10	.00000E+00	.00000E+00	2.98807E-02	3.60666E-02	2.89849E-02	1.88035E-05	8.80195E-04	9.99900E-01
11	.00000E+00	.00000E+00	2.91533E-02	3.40130E-02	2.71547E-02	2.86010E-05	1.97182E-03	9.99945E-01
12	.00000E+00	.00000E+00	2.35738E-02	1.80730E-02	2.12652E-02	3.11292E-05	2.27803E-03	9.99982E-01
13	.00000E+00	.00000E+00	2.09422E-02	1.47182E-02	1.88751E-02	4.35999E-05	2.02418E-03	9.99974E-01
14	.00000E+00	.00000E+00	2.03471E-02	1.44569E-02	1.72699E-02	6.97695E-05	3.00769E-03	9.99991E-01
15	.00000E+00	.00000E+00	1.11306E-02	5.67224E-03	1.06264E-02	5.88538E-05	4.45320E-04	1.00000E+00
16	.00000E+00	.00000E+00	7.36354E-03	2.40001E-03	7.07066E-03	4.00243E-05	2.52656E-04	1.00000E+00
17	.00000E+00	.00000E+00	3.79802E-03	6.83820E-04	3.55788E-03	1.95752E-05	2.20581E-04	9.99995E-01
18	.00000E+00	.00000E+00	3.37567E-03	5.13196E-04	2.80421E-03	1.60581E-05	5.55392E-04	1.00000E+00
19	.00000E+00	.00000E+00	5.61321E-03	1.56669E-03	5.19969E-03	3.50891E-05	3.78374E-04	1.00001E+00
20	.00000E+00	.00000E+00	1.38132E-02	1.11805E-02	1.26411E-02	1.45818E-04	1.02620E-03	1.00001E+00
21	.00000E+00	.00000E+00	6.68412E-03	2.23468E-03	5.81345E-03	5.60422E-05	8.14637E-04	1.00000E+00
22	.00000E+00	.00000E+00	1.32322E-02	6.86523E-03	1.06858E-02	1.31863E-04	2.41643E-03	1.00001E+00
23	.00000E+00	.00000E+00	3.39578E-02	4.16726E-02	2.73653E-02	6.04941E-04	5.96659E-03	1.00002E+00
24	.00000E+00	.00000E+00	3.61385E-02	3.85702E-02	2.97727E-02	7.01708E-04	5.66290E-03	1.00003E+00
25	.00000E+00	.00000E+00	2.38928E-02	1.61333E-02	2.07555E-02	4.10039E-04	2.71696E-03	1.00001E+00
26	.00000E+00	.00000E+00	1.89825E-02	1.76232E-02	1.62774E-02	4.07566E-04	2.29739E-03	1.00001E+00
27	.00000E+00	.00000E+00	6.39842E-03	3.72451E-03	5.67391E-03	1.41769E-04	5.82721E-04	1.00000E+00
28	.00000E+00	.00000E+00	4.13381E-01	4.10651E-01	4.13381E-01	3.29289E-03	-3.28245E-03	9.99975E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.27800E-02	-1.22671E-03	1.26481E-02	-8.56474E-04	1.89021E-11	.00000E+00	1.02438E-05	8.36737E-03
2	9.26692E-02	-1.29762E-02	9.13489E-02	-8.81422E-03	.00000E+00	.00000E+00	4.70411E-05	6.05306E-02
3	1.16041E-01	-1.67592E-02	1.14414E-01	-1.11777E-02	.00000E+00	.00000E+00	4.90841E-05	7.57903E-02
4	7.15465E-02	-1.05102E-02	7.05789E-02	-6.85088E-03	.00000E+00	.00000E+00	2.28774E-05	4.67294E-02
5	1.07001E-01	-1.61177E-02	1.05537E-01	-1.03724E-02	.00000E+00	.00000E+00	2.64389E-05	6.98691E-02

6	2.00871E-01	-2.93395E-02	1.98262E-01	-1.88084E-02	.00000E+00	.00000E+00	4.46996E-05	1.31210E-01
7	1.98001E-01	-1.75909E-02	1.96485E-01	-1.14159E-02	.00000E+00	.00000E+00	3.14830E-05	1.29743E-01
8	1.47723E-01	-3.65987E-03	1.47432E-01	-2.77001E-03	.00000E+00	.00000E+00	1.71865E-05	9.71437E-02
9	1.15554E-01	9.18426E-04	1.15782E-01	5.84706E-04	.00000E+00	.00000E+00	1.13528E-05	7.61409E-02
10	1.06287E-01	2.30885E-03	1.06545E-01	1.42866E-03	.00000E+00	.00000E+00	9.99080E-06	7.00663E-02
11	9.90944E-02	5.35503E-03	9.96685E-02	3.38321E-03	.00000E+00	.00000E+00	9.28590E-06	6.54545E-02
12	6.34182E-02	6.32092E-03	6.41083E-02	4.04289E-03	.00000E+00	.00000E+00	5.41334E-06	4.20115E-02
13	5.41521E-02	5.81137E-03	5.47497E-02	3.78719E-03	.00000E+00	.00000E+00	4.50513E-06	3.58759E-02
14	5.09467E-02	8.48490E-03	5.18477E-02	5.47721E-03	.00000E+00	.00000E+00	4.34136E-06	3.38829E-02
15	2.87815E-02	1.61121E-03	2.88734E-02	1.16589E-03	.00000E+00	.00000E+00	2.33683E-06	1.89804E-02
16	1.59893E-02	8.51850E-04	1.60494E-02	5.98994E-04	.00000E+00	.00000E+00	1.17450E-06	1.05481E-02
17	7.00473E-03	6.44412E-04	7.06775E-03	4.23830E-04	.00000E+00	.00000E+00	4.74431E-07	4.63528E-03
18	5.31703E-03	1.46842E-03	5.49442E-03	9.13088E-04	.00000E+00	.00000E+00	3.56304E-07	3.56840E-03
19	1.08129E-02	1.12982E-03	1.09191E-02	7.51447E-04	.00000E+00	.00000E+00	7.49018E-07	7.15846E-03
20	3.58560E-02	3.13671E-03	3.61504E-02	2.11051E-03	.00000E+00	.00000E+00	2.77957E-06	2.37147E-02
21	1.09799E-02	2.25421E-03	1.12395E-02	1.43957E-03	.00000E+00	.00000E+00	6.71905E-07	7.32790E-03
22	2.22435E-02	6.73514E-03	2.30644E-02	4.31871E-03	.00000E+00	.00000E+00	1.36727E-06	1.49566E-02
23	7.52274E-02	1.82042E-02	7.75285E-02	1.22576E-02	.00000E+00	.00000E+00	4.15556E-06	5.03827E-02
24	5.95316E-02	1.69667E-02	6.20970E-02	1.13038E-02	.00000E+00	.00000E+00	2.46060E-06	4.01429E-02
25	2.62168E-02	8.02088E-03	2.76489E-02	5.30533E-03	.00000E+00	.00000E+00	8.42212E-07	1.77855E-02
26	1.80720E-02	6.18931E-03	1.94675E-02	3.89192E-03	.00000E+00	.00000E+00	4.34099E-07	1.24131E-02
27	3.23510E-03	1.25638E-03	3.63316E-03	6.73660E-04	.00000E+00	.00000E+00	4.98052E-08	2.27959E-03
28	1.75535E+00	-1.05122E-02	1.75864E+00	-7.22974E-03	1.89021E-11	.00000E+00	3.11186E-04	1.15671E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.25011E-02	.00000E+00	2.08848E-02	1.98131E-02	3.68826E-03	1.22670E-03	9.98900E-01
2	.00000E+00	1.92525E-01	6.85378E-03	2.48705E-01	1.71191E-01	1.52242E-02	1.29761E-02	1.00002E+00
3	.00000E+00	2.15618E-01	7.06590E-02	2.56701E-01	2.53277E-01	1.62444E-02	1.67591E-02	9.99988E-01
4	.00000E+00	1.24001E-01	1.04953E-01	1.76351E-01	2.10673E-01	7.77117E-03	1.05101E-02	1.00000E+00
5	.00000E+00	1.64661E-01	1.91269E-01	4.44024E-01	3.34607E-01	5.20950E-03	1.61176E-02	9.99990E-01
6	.00000E+00	1.77976E-01	3.90072E-01	1.19096E+00	5.30432E-01	8.26884E-03	2.95394E-02	1.00001E+00
7	.00000E+00	8.80747E-02	5.92882E-01	1.56441E+00	6.55091E-01	8.28064E-03	1.75914E-02	9.99990E-01
8	.00000E+00	1.35773E-02	6.89252E-01	1.57537E+00	6.85878E-01	1.33484E-02	3.65991E-03	9.99920E-01
9	.00000E+00	9.85518E-04	6.77986E-01	1.37120E+00	6.57991E-01	2.19720E-02	-9.12558E-04	9.99865E-01
10	.00000E+00	7.32011E-05	6.55054E-01	1.26591E+00	6.24316E-01	3.31867E-02	-2.30688E-03	9.99896E-01
11	.00000E+00	5.75899E-06	6.28420E-01	1.15921E+00	5.79823E-01	5.39952E-02	-5.35353E-03	9.99940E-01
12	.00000E+00	4.04559E-07	5.05087E-01	6.33429E-01	4.53159E-01	5.82623E-02	-6.32114E-03	9.99975E-01
13	.00000E+00	6.42403E-08	4.47809E-01	5.02815E-01	3.99520E-01	5.41136E-02	-5.81247E-03	9.99974E-01
14	.00000E+00	1.27307E-08	4.30994E-01	4.71038E-01	3.63406E-01	7.60782E-02	-8.48526E-03	9.99990E-01
15	.00000E+00	1.43871E-09	2.37987E-01	2.16462E-01	2.32045E-01	7.52740E-03	-1.61600E-03	1.00013E+00
16	.00000E+00	4.22456E-10	1.62648E-01	1.00537E-01	1.58397E-01	5.08498E-03	-8.55121E-04	1.00013E+00
17	.00000E+00	1.36051E-10	8.74822E-02	3.19811E-02	8.23589E-02	5.75978E-03	-6.43208E-04	1.00008E+00
18	.00000E+00	9.74088E-11	7.82237E-02	2.25708E-02	6.28919E-02	1.67968E-02	-1.47086E-03	1.00007E+00
19	.00000E+00	1.37715E-10	1.24769E-01	6.25565E-02	1.17844E-01	8.04437E-03	-1.13503E-03	1.00011E+00
20	.00000E+00	2.23939E-10	2.98152E-01	3.55475E-01	2.74113E-01	2.71452E-02	-3.14665E-03	1.00014E+00
21	.00000E+00	3.27775E-11	1.48254E-01	7.32826E-02	1.28399E-01	2.21013E-02	-2.25739E-03	1.00007E+00
22	.00000E+00	3.80293E-11	2.83287E-01	1.95241E-01	2.24417E-01	6.55885E-02	-6.75878E-03	1.00007E+00
23	.00000E+00	3.63602E-11	6.84853E-01	1.04821E+00	5.62382E-01	1.40511E-01	-1.81967E-02	1.00008E+00
24	.00000E+00	9.89678E-12	7.26704E-01	8.98956E-01	5.99529E-01	1.44098E-01	-1.69675E-02	1.00007E+00
25	.00000E+00	2.89713E-12	4.80701E-01	3.63702E-01	4.08696E-01	8.00860E-02	-8.01983E-03	1.00004E+00
26	.00000E+00	2.03149E-12	3.72577E-01	3.64711E-01	3.05864E-01	7.26891E-02	-6.18951E-03	1.00003E+00
27	.00000E+00	4.84114E-13	1.22721E-01	7.36785E-02	1.03332E-01	2.06441E-02	-1.25642E-03	1.00001E+00
28	.00000E+00	1.00000E+00	9.19945E+00	1.46682E+01	9.19945E+00	9.91732E-01	1.04954E-02	9.99999E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.30728E-02	-8.23645E-09	1.27800E-02	-1.22671E-03	2.19980E-03	2.45359E-03	2.88454E-04	3.32292E-01
2	9.59542E-02	-9.25967E-08	9.26692E-02	-1.29762E-02	1.60923E-05	1.09749E-02	1.57752E-03	2.43648E+00
3	1.20401E-01	-8.61707E-08	1.16041E-01	-1.67592E-02	.00000E+00	1.33511E-02	1.82264E-03	3.05635E+00
4	7.43687E-02	-7.48999E-08	7.15465E-02	-1.05102E-02	.00000E+00	5.74283E-03	8.82679E-04	1.88748E+00
5	1.11593E-01	-1.30847E-07	1.07001E-01	-1.61177E-02	.00000E+00	1.66916E-03	1.03129E-03	2.83115E+00
6	2.09705E-01	-1.39526E-07	2.00871E-01	-2.93395E-02	.00000E+00	1.44218E-03	1.73119E-03	5.31835E+00

7	2.08560E-01	4.72277E-07	1.98001E-01	-1.75909E-02	.00000E+00	1.43317E-03	1.22604E-03	5.16917E+00
8	1.48889E-01	3.86691E-08	1.47723E-01	-3.65987E-03	.00000E+00	1.47659E-03	6.97612E-04	3.78777E+00
9	1.15211E-01	5.85745E-06	1.15554E-01	9.18426E-04	.00000E+00	2.00066E-03	4.70875E-04	2.93430E+00
10	1.05478E-01	1.96873E-06	1.06287E-01	2.30865E-03	.00000E+00	4.27290E-03	4.28297E-04	2.68789E+00
11	9.72367E-02	1.50113E-06	9.90944E-02	5.35503E-03	.00000E+00	9.02446E-03	3.86574E-04	2.48091E+00
12	6.12403E-02	-2.23212E-07	6.34182E-02	6.32092E-03	.00000E+00	1.18367E-02	2.27595E-04	1.56520E+00
13	5.21739E-02	-1.09516E-06	5.41521E-02	5.81137E-03	.00000E+00	1.22719E-02	1.95662E-04	1.33390E+00
14	4.80601E-02	-3.63766E-07	5.09467E-02	8.48490E-03	.00000E+00	8.08807E-03	1.76823E-04	1.23149E+00
15	2.82560E-02	-4.76584E-06	2.87815E-02	1.61121E-03	.00000E+00	2.03167E-03	1.11532E-04	7.21075E-01
16	1.57140E-02	-3.27042E-06	1.59893E-02	8.51850E-04	.00000E+00	1.38800E-03	5.82700E-05	4.00918E-01
17	6.79082E-03	1.20404E-06	7.00473E-03	6.44412E-04	.00000E+00	1.86023E-03	2.28359E-05	1.73500E-01
18	4.81286E-03	-2.43980E-06	5.31703E-03	1.46842E-03	.00000E+00	1.88211E-03	1.34026E-05	1.23795E-01
19	1.04274E-02	-5.21187E-06	1.08129E-02	1.12982E-03	.00000E+00	2.97904E-03	3.57887E-05	2.66599E-01
20	3.47734E-02	-9.93118E-06	3.58560E-02	3.13671E-03	.00000E+00	1.54512E-02	1.28599E-04	8.88591E-01
21	1.01693E-02	-3.17838E-06	1.09799E-02	2.25421E-03	.00000E+00	1.33112E-02	2.91887E-05	2.61231E-01
22	1.96854E-02	-3.64302E-06	2.22435E-02	6.73514E-03	.00000E+00	3.92745E-02	5.30524E-05	5.08776E-01
23	6.70355E-02	7.43641E-06	7.52274E-02	1.82042E-02	.00000E+00	8.27260E-02	1.80689E-04	1.73629E+00
24	5.09464E-02	-7.86148E-07	5.95316E-02	1.69667E-02	.00000E+00	8.44330E-02	1.07313E-04	1.32884E+00
25	2.17490E-02	4.55754E-07	2.62168E-02	8.02028E-03	.00000E+00	4.88251E-02	3.65120E-05	5.70198E-01
26	1.42682E-02	-2.01242E-07	1.80720E-02	6.18951E-03	.00000E+00	4.49767E-02	1.79214E-05	3.76520E-01
27	2.39824E-03	-3.56412E-08	3.23510E-03	1.25638E-03	.00000E+00	1.25808E-02	1.83465E-06	6.34222E-02
28	1.74397E+00	-1.67794E-05	1.75535E+00	-1.05122E-02	2.21589E-03	4.37757E-01	1.19400E-02	4.44723E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.25011E-02	.00000E+00	2.18455E-02	2.09611E-02	3.77288E-03	-8.23645E-09	9.98898E-01
2	.00000E+00	1.92525E-01	7.44801E-03	2.59471E-01	1.84482E-01	1.55046E-02	-9.29967E-08	1.00001E+00
3	.00000E+00	2.15618E-01	7.66247E-02	2.67793E-01	2.75841E-01	1.64062E-02	-8.61707E-08	9.99987E-01
4	.00000E+00	1.24001E-01	1.13750E-01	1.84159E-01	2.29509E-01	7.84853E-03	-7.46999E-08	9.99999E-01
5	.00000E+00	1.64661E-01	2.07554E-01	4.66115E-01	3.66916E-01	5.30253E-03	-1.30847E-07	9.99990E-01
6	.00000E+00	1.77976E-01	4.24007E-01	1.25632E+00	5.98550E-01	8.42531E-03	-1.39526E-07	1.00001E+00
7	.00000E+00	8.80747E-02	6.58346E-01	1.67033E+00	7.38026E-01	8.40117E-03	4.72277E-07	9.99990E-01
8	.00000E+00	1.35773E-02	7.75682E-01	1.70404E+00	7.75897E-01	1.34260E-02	3.86691E-08	9.99919E-01
9	.00000E+00	9.85518E-04	7.66606E-01	1.48809E+00	7.45581E-01	2.20952E-02	5.85745E-06	9.99885E-01
10	.00000E+00	7.32011E-05	7.42040E-01	1.35607E+00	7.08888E-01	3.33008E-02	1.96873E-06	9.99895E-01
11	.00000E+00	5.75899E-06	7.13446E-01	1.26318E+00	6.59526E-01	5.41668E-02	1.50113E-06	9.99940E-01
12	.00000E+00	4.04559E-07	5.74063E-01	6.89512E-01	5.15718E-01	5.83594E-02	-2.23212E-07	9.99975E-01
13	.00000E+00	6.42403E-08	5.09315E-01	5.48460E-01	4.55082E-01	5.42482E-02	-1.09516E-06	9.99973E-01
14	.00000E+00	1.27307E-08	4.90837E-01	5.16054E-01	4.14550E-01	7.62932E-02	-3.63766E-07	9.99989E-01
15	.00000E+00	1.43871E-09	2.70891E-01	2.34264E-01	2.63160E-01	7.70577E-03	-4.76584E-06	1.00011E+00
16	.00000E+00	4.22456E-10	1.84345E-01	1.08002E-01	1.79121E-01	5.20583E-03	-3.27042E-06	1.00011E+00
17	.00000E+00	1.36051E-10	9.86924E-02	3.42380E-02	9.28654E-02	5.81911E-03	1.20404E-06	1.00007E+00
18	.00000E+00	9.74088E-11	8.81969E-02	2.42902E-02	7.13471E-02	1.68464E-02	-2.43980E-06	1.00007E+00
19	.00000E+00	1.37715E-10	1.41352E-01	6.75802E-02	1.33192E-01	8.15078E-03	-5.21187E-06	1.00010E+00
20	.00000E+00	2.23959E-10	3.38892E-01	3.89810E-01	3.11275E-01	2.75863E-02	-9.93118E-06	1.00012E+00
21	.00000E+00	3.27775E-11	1.68067E-01	8.05287E-02	1.45788E-01	2.22730E-02	-3.17838E-06	1.00006E+00
22	.00000E+00	3.80298E-11	3.22699E-01	2.16794E-01	2.56684E-01	6.59968E-02	-3.64302E-06	1.00007E+00
23	.00000E+00	3.63602E-11	7.87302E-01	1.17648E+00	6.44756E-01	1.42479E-01	7.43641E-06	1.00008E+00
24	.00000E+00	9.89678E-12	8.36526E-01	1.01839E+00	6.90193E-01	1.46281E-01	-7.86148E-07	1.00006E+00
25	.00000E+00	2.89713E-12	5.53762E-01	4.14030E-01	4.72447E-01	8.12947E-02	4.55754E-07	1.00004E+00
26	.00000E+00	2.03149E-12	4.30514E-01	4.20194E-01	3.56512E-01	7.39887E-02	-2.01242E-07	1.00003E+00
27	.00000E+00	4.84114E-13	1.42578E-01	8.56141E-02	1.21272E-01	2.11042E-02	-3.56412E-08	1.00001E+00
28	.00000E+00	1.00000E+00	1.04233E+01	1.59613E+01	1.04233E+01	1.00228E+00	-1.67535E-05	9.99997E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.30728E-02	-8.23645E-09	1.25098E-02	.00000E+00	2.20557E-03	2.45359E-03	3.19615E-04	3.58548E-01
2	9.59542E-02	-9.29967E-08	8.96060E-02	.00000E+00	1.60923E-05	1.09749E-02	1.72350E-03	2.62561E+00
3	1.20401E-01	-8.61707E-08	1.11909E-01	.00000E+00	.00000E+00	1.33511E-02	1.97616E-03	3.29296E+00
4	7.43687E-02	-7.46999E-08	6.88079E-02	.00000E+00	.00000E+00	5.74283E-03	9.54011E-04	2.05324E+00
5	1.11593E-01	-1.30847E-07	1.02598E-01	.00000E+00	.00000E+00	1.66916E-03	1.11566E-03	3.04888E+00
6	2.09705E-01	-1.39526E-07	1.92734E-01	.00000E+00	.00000E+00	1.44218E-03	1.86944E-03	5.72731E+00
7	2.08560E-01	4.72277E-07	1.98089E-01	.00000E+00	.00000E+00	1.43317E-03	1.32514E-03	5.57585E+00

8	1.48889E-01	3.86691E-08	1.46923E-01	.00000E+00	.00000E+00	1.47659E-03	7.52782E-04	4.09437E+00
9	1.15211E-01	5.85745E-06	1.15850E-01	.00000E+00	.00000E+00	2.00065E-03	5.08451E-04	3.17528E+00
10	1.05478E-01	1.96873E-06	1.07020E-01	.00000E+00	.00000E+00	4.27290E-03	4.62357E-04	2.90997E+00
11	9.72367E-02	1.50113E-06	1.00734E-01	.00000E+00	.00000E+00	9.02446E-03	4.18502E-04	2.68904E+00
12	6.12403E-02	-2.23212E-07	6.53172E-02	.00000E+00	.00000E+00	1.18367E-02	2.46718E-04	1.69958E+00
13	5.21738E-02	-1.09516E-06	5.58546E-02	.00000E+00	.00000E+00	1.22719E-02	2.11649E-04	1.44854E+00
14	4.80601E-02	-3.63766E-07	5.34581E-02	.00000E+00	.00000E+00	8.08807E-03	1.92255E-04	1.34040E+00
15	2.82560E-02	-4.78584E-06	2.91671E-02	.00000E+00	.00000E+00	2.03167E-03	1.19782E-04	7.81377E-01
16	1.57140E-02	-3.27042E-06	1.62088E-02	.00000E+00	.00000E+00	1.38800E-03	6.24918E-05	4.34428E-01
17	6.79082E-03	1.20404E-06	7.18759E-03	.00000E+00	.00000E+00	1.86023E-03	2.45759E-05	1.88286E-01
18	4.81286E-03	-2.43980E-06	5.77216E-03	.00000E+00	.00000E+00	1.88211E-03	1.47395E-05	1.35394E-01
19	1.04274E-02	-5.21187E-06	1.11345E-02	.00000E+00	.00000E+00	2.97904E-03	3.85265E-05	2.89463E-01
20	3.47734E-02	-9.93118E-06	3.67535E-02	.00000E+00	.00000E+00	1.54512E-02	1.38527E-04	9.64214E-01
21	1.01693E-02	-3.17838E-06	1.17000E-02	.00000E+00	.00000E+00	1.33112E-02	3.17376E-05	2.84908E-01
22	1.96854E-02	-3.64302E-06	2.45089E-02	.00000E+00	.00000E+00	3.92745E-02	5.82949E-05	5.57652E-01
23	6.70355E-02	7.43641E-06	8.23315E-02	.00000E+00	.00000E+00	8.27260E-02	1.96941E-04	1.90047E+00
24	5.09464E-02	-7.86148E-07	6.72752E-02	.00000E+00	.00000E+00	8.44330E-02	1.17787E-04	1.46100E+00
25	2.17490E-02	4.55754E-07	3.03848E-02	.00000E+00	.00000E+00	4.88251E-02	4.04201E-05	6.29229E-01
26	1.42682E-02	-2.01242E-07	2.19042E-02	.00000E+00	.00000E+00	4.49767E-02	2.01967E-05	4.18116E-01
27	2.39824E-03	-3.56412E-08	4.16017E-03	.00000E+00	.00000E+00	1.25803E-02	2.15974E-06	7.12356E-02
28	1.74397E+00	-1.67794E-05	1.76484E+00	.00000E+00	2.22166E-03	4.37757E-01	1.29424E-02	4.81351E+01

- elapsed time .02 min.
0direct access unit 9 requires 556 blocks of length 216 for cross section weighting.
1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.11943E-03	5.00459E-03	5.27398E-03	2.50524E-03	3.18195E-03	5.52755E-03	3.71888E-03	1.74298E-03
2	6.81981E-04	4.94262E-03	5.77093E-03	3.43856E-03	4.29882E-03	6.15941E-03	4.33682E-03	2.14774E-03
3	1.14767E-03	5.42478E-03	5.85714E-03	2.91225E-03	3.86410E-03	6.78687E-03	4.38250E-03	1.82336E-03
4	7.88463E-04	4.26023E-03	4.91986E-03	2.38575E-03	2.82822E-03	4.80213E-03	3.32695E-03	1.79706E-03
5	8.11503E-04	4.32615E-03	4.96356E-03	2.41016E-03	2.87801E-03	4.89087E-03	3.37614E-03	1.79733E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.11254E-03	1.01473E-03	1.09556E-03	8.73455E-04	7.88082E-04	1.02144E-03	3.14856E-04	1.58611E-04
2	1.79015E-03	1.95321E-03	2.04368E-03	1.60047E-03	1.41666E-03	1.67774E-03	6.25492E-04	3.42242E-04
3	1.12161E-03	1.05598E-03	1.29907E-03	1.22050E-03	1.11105E-03	1.54174E-03	3.75369E-04	1.92933E-04
4	1.19457E-03	1.09447E-03	1.03050E-03	6.77876E-04	6.01821E-04	6.40114E-04	3.11243E-04	1.61381E-04
5	1.19269E-03	1.09511E-03	1.04602E-03	7.05350E-04	6.27420E-04	6.85339E-04	3.14842E-04	1.63104E-04

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.69412E-05	1.52564E-04	1.49957E-04	4.60023E-04	2.50989E-04	7.31279E-04	2.15102E-03	1.94689E-03
2	1.71057E-04	2.46103E-04	2.79257E-04	8.64857E-04	4.13486E-04	1.14295E-03	3.34340E-03	3.00861E-03
3	1.22631E-04	2.54226E-04	2.13178E-04	6.21447E-04	3.97153E-04	1.17985E-03	3.26851E-03	3.01913E-03
4	7.01335E-05	7.05929E-05	1.14890E-04	3.85285E-04	1.34023E-04	3.36726E-04	1.09508E-03	8.83210E-04
5	7.27610E-05	7.98759E-05	1.19833E-04	3.97241E-04	1.47339E-04	3.79755E-04	1.20878E-03	9.95644E-04

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	8.90710E-04	6.32943E-04	9.64885E-05	4.20055E-02
2	1.39218E-03	1.01683E-03	1.74955E-04	5.52802E-02
3	1.41951E-03	1.06838E-03	1.99854E-04	5.18804E-02
4	3.70880E-04	2.25540E-04	2.79488E-05	3.45350E-02
5	4.25833E-04	2.69089E-04	3.60738E-05	3.54158E-02

1broad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.0000E+07	2.6459E+06	1.9663E+09	7.1931E-01
2	9.0000E+05	1.5094E+05	9.7744E+06	2.8069E-01
3	4.0000E-01	1.2654E-01	3.6728E+05	1.2248E-10
4	1.0000E-05			

1 400 d, second part of sas2h pass to make library
0cell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3
1	3.88749E-01	1.13781E+00	2.34521E-01
2	3.98985E-01	1.13922E+00	2.24999E-01

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    3 3.96952E-01  1.13956E+00  2.20714E-01
    4 4.14091E-01  1.14221E+00  1.90284E-01
    5 4.12403E-01  1.14193E+00  1.93240E-01
0flux disadvantage factors (zone average/cell average-flux)

0zone  grp. 1     grp. 2     grp. 3
    1 9.42642E-01 9.96394E-01 1.21363E+00
    2 9.55339E-01 9.97625E-01 1.16435E+00
    3 9.62485E-01 9.97925E-01 1.14218E+00
    4 1.00409E+00 1.00025E+00 9.84705E-01
    5 1.00000E+00 1.00000E+00 1.00000E+00
0cell averaged currents

0zone  grp. 1     grp. 2     grp. 3
    1 1.70852E-02 1.82180E-02 6.70026E-03
    2 1.91329E-02 2.56549E-02 1.04924E-02
    3 1.92059E-02 2.21225E-02 1.05520E-02
    4 1.51825E-02 1.62791E-02 3.07336E-03
    5 1.53894E-02 1.65639E-02 3.46246E-03
0zone      volume      vol. fraction

   1    1.25665E+00    4.56236E-02
   2    1.66687E-01    6.05165E-03
   3    6.58265E-01    2.38987E-02
   4    2.54624E+01    9.24426E-01
   5    2.75440E+01    1.00000E+00
- elapsed time    .03 min.
1  cccccccccc    cccccccccc   uu       uu  pppppppppp   ll          eeeeeeeeeeee
   cccccccccccc  cccccccccccc  uu       uu  pppppppppppp  ll          eeeeeeeeeeee
   cc        cc  oo        oo  uu       uu  pp       pp   ll          ee
   cc            oo        oo  uu       uu  pp       pp   ll          ee
   cc            oo        oo  uu       uu  pp       pp   ll          ee
   cc            oo        oo  uu       uu  pppppppppppp  ll          eeeeeeeee
   cc            oo        oo  uu       uu  pppppppppp    ll          eeeeeeeee
   cc            oo        oo  uu       uu  pp            ll          ee
   cc            oo        oo  uu       uu  pp            ll          ee
   cc        cc  oo        oo  uu       uu  pp            ll          ee
   cccccccccccc  cccccccccccc  uuuuuuuuuuuu  pp            llllllllllll eeeeeeeeeeee
    cccccccccc    cccccccccc    uuuuuuuuuu   pp            llllllllllll eeeeeeeeeeee
0

   dddddddddd     aaaaaaaa    w        w  iiiiiiiiiiii   sssssssssss
   dddddddddddd   aaaaaaaaaa   w        w  iiiiiiiiiiii   sssssssssssss
   dd        dd  aa        aa  w        w      ii        ss        ss
   dd        dd  aa        aa  w        w      ii        ss
   dd        dd  aa        aa  w        w      ii        ss
   dd        dd  aaaaaaaaaaaa  w        w      ii        sssssssssssss
   dd        dd  aaaaaaaaaaaa   w      w      ii         sssssssssssss
   dd        dd  aa        aa    w    w       ii                  ss
   dd        dd  aa        aa     w  w        ii                  ss
   dd        dd  aa        aa      w w        ii        ss        ss
   dddddddddddd  aa        aa       ww    iiiiiiiiiiii   sssssssssssss
   dddddddddddd  aa        aa        v    iiiiiiiiiiii    sssssssssss
0

     0000000     22222222222          //      11      666666666666          //  99999999999   666666666666
    000000000    2222222222222        //     111      666666666666          //  9999999999999  666666666666
   00       00  22        22          //    1111      66                    //  99        99  66
  00         00            22         //      11      66                    //  99        99  66
  00         00            22        //       11      66                    //  99        99  66
```
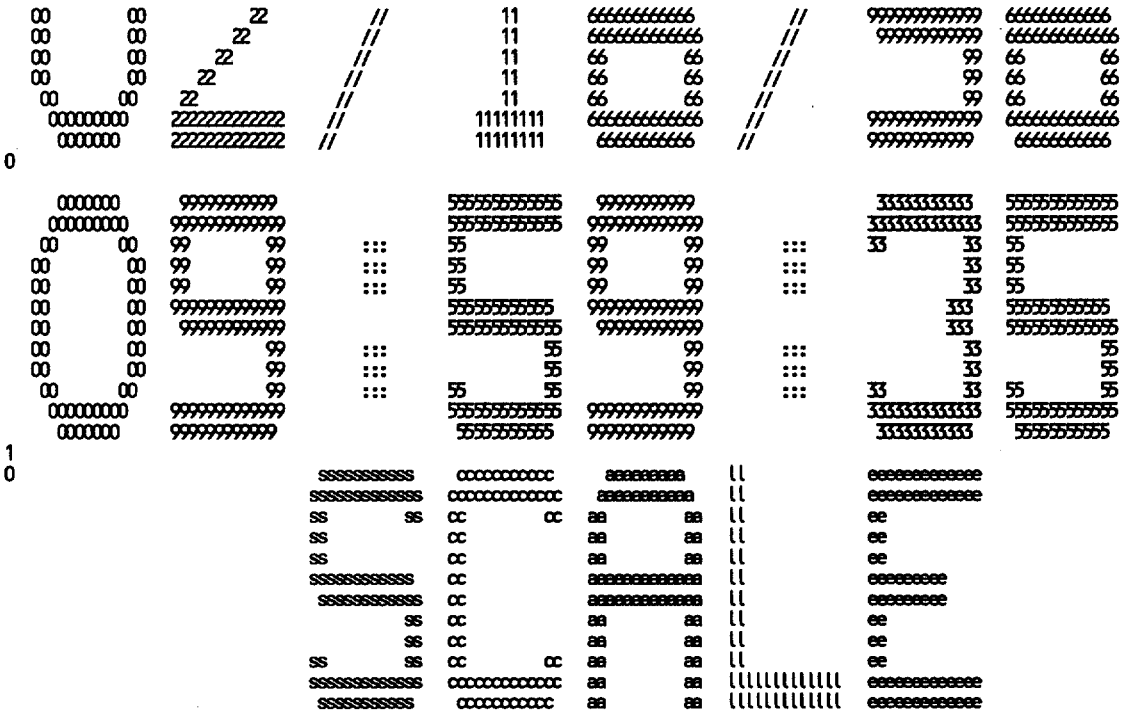



program verification information

code system: scale version: 4.2

program: c0c005

creation date: 04/27/95

library: /neutronics/scale/exe

this is not a scale configuration controlled code

```
                    *****              jobname:  davis                                  *****
                    *****                                                               *****
                    *****    date of execution:  02/16/96                               *****
                    *****                                                               *****
                    *****    time of execution:  09:59:36                               *****
                    *****                                                               *****
                    *****                                                               *****
                    ***********************************************************************
                    ***********************************************************************
                    ***********************************************************************
1
0       -1q array has      1 entries.
0        0q array has      1 entries.
0        0q array has      1 entries.
0        1q array has      1 entries.
0        1q array has      1 entries.
0        1q array has      1 entries.
0        1q array has      1 entries.
0        1q array has      1 entries.
0        2q array has      1 entries.
0         * core allocated to array-data (by -1$$ or default) was   200000 words. *
1          * broad 3-group flux weighting factors *
0
0                 therm =    .5096
0                 res   =    .4040
0                 fast  =   3.0945
0 user requested (see jadd) that only the nuclide transitions presently included in
0 origen library be updated.
1cross sections, available from ampx (normalized to thermal flux), barns

                    10010 to  10020  2.78615E-01
                    10010 tot-cap    2.78615E-01
                    50100 to  40100  2.20952E-02
                    50100 to  10010  2.20952E-02
                    50100 to  40090  3.32705E-03
                    50100 to  10020  3.32705E-03
                    50100 to  30070  3.20410E+03
                    50100 to  20040  3.20427E+03
                    50100 to  10030  8.26806E-02
                    50100 tot-cap    3.20421E+03
                    50110 to  50100  9.51898E-06
                    50110 to  50120  4.23931E-03
                    50110 to  40110  1.21472E-06
                    50110 to  10010  1.21472E-06
                    50110 to  40090  1.08401E-05
                    50110 to  10030  1.08401E-05
                    50110 to  30080  1.41512E-04
                    50110 to  20040  1.41512E-04
                    50110 tot-cap    4.40240E-03
                    80160 to  80170  1.48835E-04
                    80160 to  70160  8.32895E-05
                    80160 to  10010  8.32895E-05
                    80160 to  70150  1.57083E-05
                    80160 to  10020  1.57083E-05
                    80160 to  60130  2.35267E-02
                    80160 to  20040  2.35267E-02
                    80160 to  80161  3.65278E-03
                    80160 tot-cap    2.37745E-02
                   360830 to 360820  1.89114E-02
                   360830 to 360810  1.99657E-09
```

360830 to 360840 1.50352E+02
360830 to 350830 7.81413E-04
360830 to 10010 7.81413E-04
360830 to 350820 6.24591E-06
360830 to 10020 6.24591E-06
360830 to 350810 2.18306E-06
360830 to 10030 2.18306E-06
360830 to 340810 3.53311E-08
360830 to 20030 3.53311E-08
360830 to 340800 4.15132E-05
360830 to 20040 4.15132E-05
360830 tot-cap 1.50371E+02
360850 to 360860 1.35661E+00
360850 tot-cap 1.35661E+00
380900 to 380910 6.18195E-01
380900 tot-cap 6.18195E-01
390890 to 390900 9.64542E-01
390890 tot-cap 9.64542E-01
400930 to 400940 1.24328E+01
400930 tot-cap 1.24328E+01
400940 to 400950 1.73545E-01
400940 tot-cap 1.73545E-01
400950 to 400960 2.06668E+00
400950 tot-cap 2.06668E+00
410940 to 410950 3.60758E+01
410940 tot-cap 3.60758E+01
420950 to 420960 3.64035E+01
420950 tot-cap 3.64035E+01
430990 to 430980 5.75799E-03
430990 to 431000 8.45651E+01
430990 tot-cap 8.45608E+01
441010 to 441020 2.61938E+01
441010 tot-cap 2.61938E+01
441060 to 441070 8.02991E-01
441060 tot-cap 8.02991E-01
451030 to 451020 2.07809E-03
451030 to 451040 3.46027E+02
451030 tot-cap 3.46029E+02
451050 to 451060 8.01728E+03
451050 tot-cap 8.01728E+03
461050 to 461060 3.17534E+01
461050 tot-cap 3.17534E+01
461080 to 461090 6.36886E+01
461080 tot-cap 6.36886E+01
471090 to 471080 4.83245E-03
471090 to 471100 3.49156E+02
471090 to 461090 2.75182E-04
471090 to 10010 2.75182E-04
471090 to 451060 2.26861E-04
471090 to 20040 2.26861E-04
471090 to 471091 5.85322E-01
471090 tot-cap 3.49162E+02
511240 to 511250 1.13599E+01
511240 tot-cap 1.13599E+01
541310 to 541300 5.85952E-02
541310 to 541290 1.22524E-05
541310 to 541320 2.46987E+02
541310 to 531310 3.55357E-05
541310 to 10010 3.55357E-05
541310 to 531300 4.91379E-07

541310 to 10020 4.91379E-07
541310 to 531290 5.03860E-07
541310 to 10030 5.03860E-07
541310 to 521280 1.65901E-05
541310 to 20040 1.65901E-05
541310 tot-cap 2.47045E+02
541320 to 541310 9.46579E-03
541320 to 541300 2.00762E-05
541320 to 541330 8.72308E-01
541320 to 531320 7.24232E-06
541320 to 10010 7.24232E-06
541320 to 531310 3.05084E-07
541320 to 10020 3.05084E-07
541320 to 531300 4.10795E-08
541320 to 10030 4.10795E-08
541320 to 521290 8.89626E-07
541320 to 20040 8.89626E-07
541320 tot-cap 8.81797E-01
541350 to 541360 1.45326E+06
541350 tot-cap 1.45326E+06
541360 to 541350 1.61918E-02
541360 to 541340 4.94538E-05
541360 to 541370 1.20415E-01
541360 to 531360 2.99028E-07
541360 to 10010 2.99028E-07
541360 to 531350 1.11314E-07
541360 to 10020 1.11314E-07
541360 to 531340 2.51478E-08
541360 to 10030 2.51478E-08
541360 to 521330 2.50809E-07
541360 to 20040 2.50809E-07
541360 tot-cap 1.36657E-01
551330 to 551320 7.58235E-03
551330 to 551340 9.64131E+01
551330 to 541330 8.28029E-04
551330 to 10010 8.28029E-04
551330 to 531300 1.29558E-05
551330 to 20040 1.29558E-05
551330 tot-cap 9.64215E+01
551340 to 551350 1.24610E+02
551340 tot-cap 1.24610E+02
551350 to 551360 2.00841E+01
551350 tot-cap 2.00841E+01
551370 to 551380 2.15936E-01
551370 tot-cap 2.15936E-01
561360 to 561370 8.46268E-01
561360 tot-cap 8.46268E-01
571390 to 571400 7.70902E+00
571390 tot-cap 7.70902E+00
581440 to 581450 1.18140E+00
581440 tot-cap 1.18140E+00
591410 to 591400 5.43332E-03
591410 to 591390 1.56113E-06
591410 to 571370 2.34117E-06
591410 to 20040 4.85729E-05
591410 to 581400 1.65777E-05
591410 to 10010 4.73127E-05
591410 to 591420 1.14107E+01
591410 to 581410 4.45780E-05
591410 to 10020 1.38430E-05

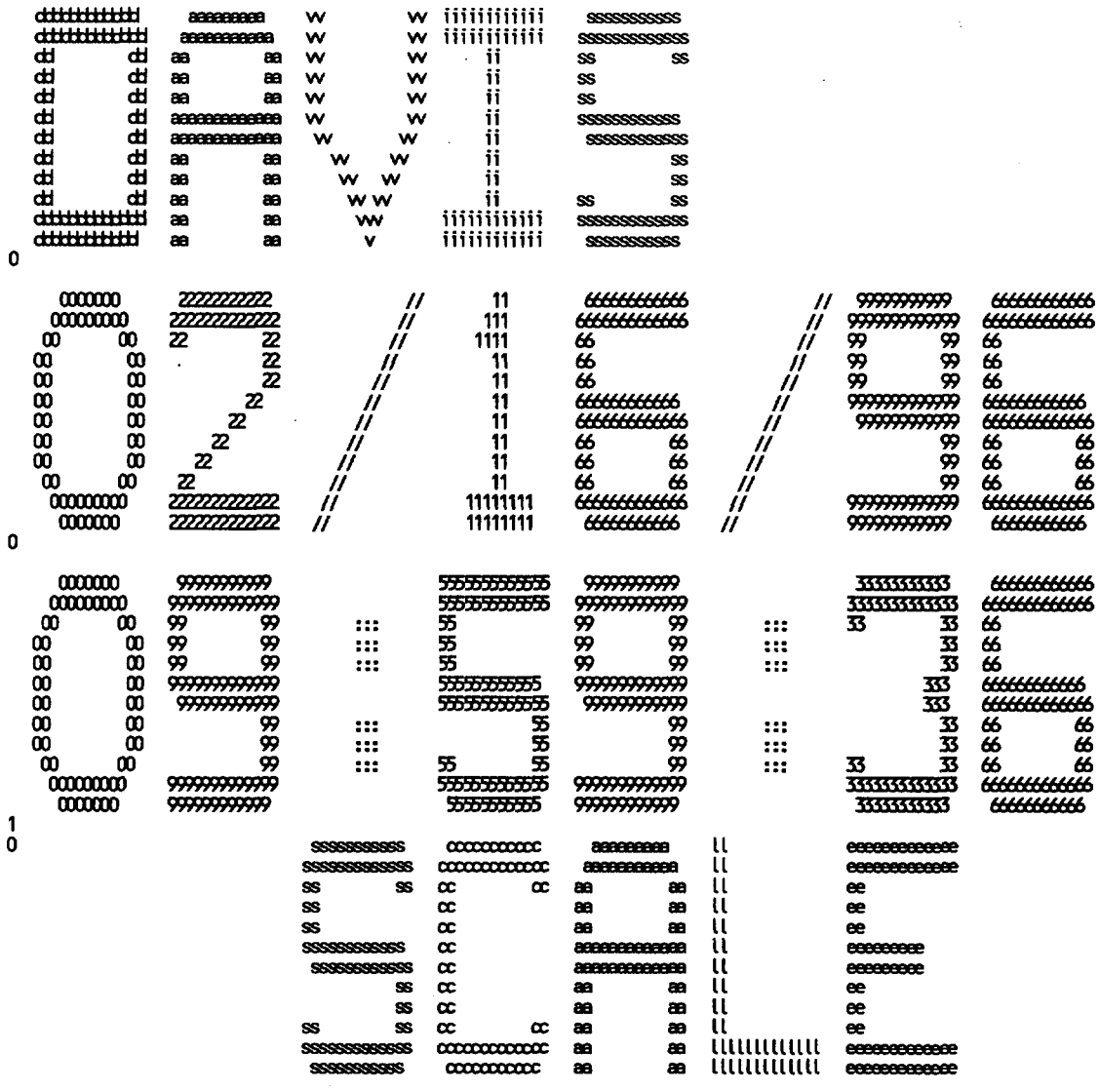
591410 to 581390 1.45175E-06
591410 to 10080 1.45175E-06
591410 to 571390 1.40204E-08
591410 to 20080 1.40204E-08
591410 to 571380 4.60317E-05
591410 tot-cap 1.14163E+01
591430 to 591440 9.39733E+01
591430 tot-cap 9.39733E+01
601430 to 601420 8.31713E-02
601430 to 601410 8.48474E-06
601430 to 581390 1.85769E-05
601430 to 20040 5.19298E-04
601430 to 591420 3.55170E-06
601430 to 10010 3.66370E-05
601430 to 601440 1.96475E+02
601430 to 591430 3.52989E-05
601430 to 10020 2.21360E-06
601430 to 591410 3.18980E-06
601430 to 10030 3.18980E-06
601430 to 581410 1.53257E-08
601430 to 20030 1.53257E-08
601430 to 581400 5.00721E-04
601430 tot-cap 1.96559E+02
601450 to 601440 1.06753E-01
601450 to 601430 1.08331E-04
601450 to 581410 7.70777E-06
601450 to 20040 1.95360E-04
601450 to 591440 2.03493E-06
601450 to 10010 1.32486E-05
601450 to 601460 7.45570E+01
601450 to 591450 1.24369E-05
601450 to 10020 1.22524E-06
601450 to 591430 1.92846E-06
601450 to 10030 1.92846E-06
601450 to 581430 3.92636E-09
601450 to 20030 3.92636E-09
601450 to 581420 1.85652E-04
601450 tot-cap 7.46641E+01
601470 to 601480 1.76354E+02
601470 tot-cap 1.76354E+02
611470 to 611460 2.91898E-02
611470 to 611450 9.10767E-05
611470 to 591430 8.10818E-06
611470 to 20040 7.52552E-05
611470 to 601460 1.11681E-05
611470 to 10010 2.54828E-05
611470 to 611480 5.53018E+02
611470 to 601470 2.27148E-05
611470 to 10020 8.40014E-06
611470 to 601450 3.17158E-06
611470 to 10030 3.17158E-06
611470 to 591450 4.76856E-09
611470 to 20030 4.76856E-09
611470 to 591440 6.71520E-05
611470 tot-cap 5.53047E+02
611480 to 611490 1.17726E+04
611480 tot-cap 1.17726E+04
621470 to 621460 7.61521E-02
621470 to 621450 6.85655E-03
621470 to 601430 5.97975E-05

621470 to 20040 1.15630E-03
621470 to 611460 1.38191E-04
621470 to 10010 1.97999E-04
621470 to 621480 2.17637E+02
621470 to 611470 1.74704E-04
621470 to 10020 1.14896E-04
621470 to 611450 1.23372E-04
621470 to 10030 1.23372E-04
621470 to 601450 5.67657E-06
621470 to 20030 5.67657E-06
621470 to 601440 1.09651E-03
621470 to 621471 1.53107E+00
621470 tot-cap 2.17722E+02
621490 to 621480 4.30478E-02
621490 to 621470 3.41769E-05
621490 to 621500 4.48465E+04
621490 to 611490 4.42693E-04
621490 to 10010 4.42693E-04
621490 to 601460 4.42693E-04
621490 to 20040 4.42693E-04
621490 tot-cap 4.48465E+04
621500 to 621510 1.28523E+02
621500 tot-cap 1.28523E+02
621510 to 621500 1.43962E-01
621510 to 621490 1.28605E-04
621510 to 601470 1.44849E-05
621510 to 20040 1.13153E-04
621510 to 611500 1.76098E-06
621510 to 10010 1.37227E-05
621510 to 621520 4.86412E+03
621510 to 611510 1.26468E-05
621510 to 10020 6.85087E-07
621510 to 611490 1.24510E-06
621510 to 10030 1.24510E-06
621510 to 601490 1.28269E-09
621510 to 20030 1.28269E-09
621510 to 601480 9.86677E-05
621510 tot-cap 4.86427E+03
621520 to 621510 1.72216E-02
621520 to 621500 1.16367E-04
621520 to 601480 2.60120E-06
621520 to 20040 1.08056E-05
621520 to 611510 7.45938E-07
621520 to 10010 2.20124E-06
621520 to 621530 7.01828E+02
621520 to 611520 1.95538E-06
621520 to 10020 5.00079E-07
621520 to 611500 1.30059E-07
621520 to 10030 1.30059E-07
621520 to 601500 3.94152E-10
621520 to 20030 3.94152E-10
621520 to 601490 8.20436E-06
621520 tot-cap 7.01846E+02
631530 to 631520 1.67262E-02
631530 to 631510 2.49775E-05
631530 to 611490 4.05236E-05
631530 to 20040 5.82415E-04
631530 to 621520 7.00077E-06
631530 to 10010 5.92402E-05
631530 to 631540 5.87260E+02

631530	to 621530	5.68491E-05
631530	to 10020	4.60967E-06
631530	to 621510	1.03267E-06
631530	to 10030	1.03267E-06
631530	to 611510	2.36057E-08
631530	to 20030	2.36057E-08
631530	to 611500	5.41891E-04
631530	tot-cap	5.87278E+02
631540	to 631530	2.67389E-02
631540	to 631520	9.60517E-06
631540	to 611500	9.33931E-11
631540	to 20040	6.96791E-04
631540	to 621530	2.10257E-06
631540	to 10010	1.12821E-03
631540	to 631550	1.04373E+03
631540	to 621540	1.12821E-03
631540	to 10020	2.10140E-06
631540	to 621520	3.55999E-06
631540	to 10030	3.55999E-06
631540	to 611520	1.50913E-08
631540	to 20030	1.50913E-08
631540	to 611510	6.96791E-04
631540	tot-cap	1.04376E+03
631550	to 631540	2.19537E-02
631550	to 631530	6.14752E-05
631550	to 611510	1.65527E-06
631550	to 20040	8.14666E-06
631550	to 621540	3.35213E-06
631550	to 10010	7.04497E-06
631550	to 631560	2.52414E+03
631550	to 621550	5.41398E-06
631550	to 10020	1.72109E-06
631550	to 621530	5.69740E-07
631550	to 10030	5.69740E-07
631550	to 611530	1.29134E-10
631550	to 20030	1.29134E-10
631550	to 611520	6.49139E-06
631550	tot-cap	2.52417E+03
641550	to 641560	1.67300E+04
641550	tot-cap	1.67300E+04
922340	to 922330	5.75156E-03
922340	fission	4.07947E+00
922340	nu-sigf	1.07202E+01
922340	to 922320	8.33942E-05
922340	to 922350	1.75502E+02
922340	to 922341	2.74562E+00
922340	tot-cap	1.79587E+02
922350	to 922340	2.63156E-02
922350	fission	3.55154E+02
922350	nu-sigf	8.59993E+02
922350	to 922330	2.51212E-05
922350	to 922360	8.29762E+01
922350	to 922351	7.80918E-02
922350	tot-cap	4.38156E+02
922360	to 922350	2.92998E-02
922360	fission	1.74637E+00
922360	nu-sigf	4.79174E+00
922360	to 922340	3.90467E-04
922360	to 922370	7.08938E+01
922360	to 922361	3.00576E+00

922360	tot-cap	7.26699E+01
922380	to 922370	5.85224E-02
922380	fission	8.74312E-01
922380	nu-sigf	2.46057E+00
922380	to 922360	3.78177E-04
922380	to 922390	7.93024E+00
922380	tot-cap	8.86345E+00
952370	to 952360	1.33402E-02
952370	fission	4.73060E+00
952370	nu-sigf	1.42424E+01
952370	to 952350	5.10554E-05
952370	to 952380	2.86381E+02
952370	to 952371	7.04022E-01
952370	tot-cap	2.91125E+02
942380	to 942370	2.14425E-03
942380	fission	2.09637E+01
942380	nu-sigf	5.93916E+01
942380	to 942360	1.20008E-05
942380	to 942390	2.60244E+02
942380	to 942381	2.74889E+00
942380	tot-cap	2.81210E+02
942390	to 942380	1.13665E-02
942390	fission	8.48173E+02
942390	nu-sigf	2.43855E+03
942390	to 942370	1.95198E-05
942390	to 942360	1.91520E-08
942390	to 942400	4.78014E+02
942390	tot-cap	1.32620E+03
942400	to 942390	5.34014E-03
942400	fission	5.45402E+00
942400	nu-sigf	1.70563E+01
942400	to 942380	5.21113E-05
942400	to 942410	1.75951E+03
942400	tot-cap	1.76497E+03
942410	to 942400	6.76750E-02
942410	fission	8.92208E+02
942410	nu-sigf	2.61778E+03
942410	to 942390	1.11504E-04
942410	to 942420	2.95726E+02
942410	tot-cap	1.18600E+03
942420	to 942410	2.17690E-02
942420	fission	4.09857E+00
942420	nu-sigf	1.28855E+01
942420	to 942400	2.64650E-04
942420	to 942430	3.10808E+02
942420	tot-cap	3.14929E+02
952410	fission	1.19256E+01
952410	nu-sigf	3.84612E+01
952410	to 952420	1.00850E+03
952410	tot-cap	1.02042E+03
952430	fission	3.16277E+00
952430	nu-sigf	1.06299E+01
952430	to 952440	3.97104E+02
952430	tot-cap	4.00267E+02
962440	to 962430	5.23168E-03
962440	fission	1.42353E+01
962440	nu-sigf	4.76814E+01
962440	to 962420	5.21723E-05
962440	to 962450	1.31908E+02
962440	to 962441	3.50653E+00

```
                962440 tot-cap   1.46148E+02
Othe reaction  50100 to  30070 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
Othe reaction  50100 to  40090 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
Othe reaction  50110 to  40090 was not used, because  50110 is not in library., (in subr pool)
                                    in the search of library number 3
Othe reaction  50100 to  40100 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
Othe reaction  80160 to  80161 was not used, because  80161 is not in library., (in subr pool)
Othe reaction 621470 to 621471 was not used, because 621471 is not in library., (in subr pool)
Othe fission product transitions for  922340 were not used.  library fissile nuclides are
  922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction 922340 to 922341 was not used, because 922341 is not in library., (in subr pool)
Othe reaction 922350 to 922351 was not used, because 922351 is not in library., (in subr pool)
Othe fission product transitions for  922360 were not used.  library fissile nuclides are
  922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction 922360 to 922361 was not used, because 922361 is not in library., (in subr pool)
Othe fission product transitions for  952370 were not used.  library fissile nuclides are
  922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction 952370 to 952371 was not used, because 952371 is not in library., (in subr pool)
Othe fission product transitions for  942380 were not used.  library fissile nuclides are
  922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction 942380 to 942381 was not used, because 942381 is not in library., (in subr pool)
Othe fission product transitions for  942400 were not used.  library fissile nuclides are
  922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe fission product transitions for  942420 were not used.  library fissile nuclides are
  922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe fission product transitions for  952410 were not used.  library fissile nuclides are
  922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe fission product transitions for  952430 were not used.  library fissile nuclides are
  922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe fission product transitions for  962440 were not used.  library fissile nuclides are
  922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction 962440 to 962441 was not used, because 962441 is not in library., (in subr pool)
1
0                          case completed.  date,   2/16/1996
0 * normal termination *
1   ooooooooooo   rrrrrrrrrrr   iiiiiiiiiiii    gggggggggg   eeeeeeeeeeee  mm         mm  sssssssssss
    ooooooooooooo  rrrrrrrrrrrr  iiiiiiiiiiii   gggggggggggg  eeeeeeeeeeee  mm         mm  sssssssssssss
    oo         oo  rr         rr       ii      gg         gg  ee            mmm       mm  ss         ss
    oo         oo  rr         rr       ii      gg             ee            mm m      mm  ss
    oo         oo  rr         rr       ii      gg             ee            mm  m     mm  ss
    oo         oo  rrrrrrrrrrrr        ii      gg    ggggggg  eeeeeeeee     mm   m    mm  sssssssssss
    oo         oo  rrrrrrrrrrr         ii      gg    ggggggg  eeeeeeeee     mm    m   mm   sssssssssss
    oo         oo  rr       rr         ii      gg         gg  ee            mm     m  mm            ss
    oo         oo  rr        rr        ii      gg         gg  ee            mm     m  mm            ss
    oo         oo  rr         rr       ii      gg         gg  ee            mm        mm  ss         ss
    ooooooooooooo  rr          rr  iiiiiiiiiiii   gggggggggggg  eeeeeeeeeeee  mm        mm  sssssssssssss
     ooooooooooo   rr          rr  iiiiiiiiiiii    gggggggggg   eeeeeeeeeeee  mm        mm  sssssssssss
0
```



```
  dddddddddd    aaaaaaaa   w        w iiiiiiiiiiii   sssssssssss
  dddddddddd   aaaaaaaaaa  w        w iiiiiiiiiiii  sssssssssssss
  dd      dd  aa       aa  w        w     ii        ss       ss
  dd      dd  aa       aa  w        w     ii        ss
  dd      dd  aa       aa  w        w     ii        ss
  dd      dd  aaaaaaaaaaaa w        w     ii        sssssssssssss
  dd      dd  aaaaaaaaaaaa  w      w     ii         sssssssssssss
  dd      dd  aa       aa    w    w      ii                  ss
  dd      dd  aa       aa     w  w       ii                  ss
  dd      dd  aa       aa      w w       ii        ss       ss
  dddddddddd  aa       aa       ww   iiiiiiiiiiii  sssssssssssss
  dddddddddd  aa       aa        v   iiiiiiiiiiii   sssssssssss
0

    0000000    2222222222          //      11      66666666666          //  99999999999   66666666666
   000000000   2222222222222        //     111      66666666666         //  999999999999  66666666666
  00      00  22       22          //     1111      66                 //  99       99   66
 00       00           22          //       11      66                 //  99       99   66
 00       00           22          //       11      66                 //  99       99   66
 00       00         22           //       11      66666666666       //   999999999999  66666666666
 00       00       22            //        11      66666666666      //     99999999999  66666666666
 00       00     22             //         11      66       66     //                99  66       66
 00       00   22              //          11      66       66    //                 99  66       66
  00      00  22              //           11      66       66   //                  99  66       66
   000000000  2222222222222  //          11111111  66666666666  //        999999999999  66666666666
    0000000   2222222222222  //          11111111   66666666666  //        99999999999   66666666666
0

    0000000    9999999999            555555555555  9999999999              3333333333   66666666666
   000000000   999999999999          555555555555  999999999999           333333333333  66666666666
  00      00  99       99      :::   55          99       99      :::   33       33   66
 00       00  99       99      :::   55          99       99      :::              33   66
 00       00  99       99      :::   55          99       99      :::              33   66
 00       00  999999999999          555555555555  999999999999                  333   66666666666
 00       00   9999999999           555555555555   9999999999                  333   66666666666
 00       00           99      :::          55           99      :::              33   66       66
 00       00           99      :::          55           99      :::              33   66       66
  00      00           99      :::   55       55           99      :::   33       33   66       66
   000000000  999999999999          555555555555  999999999999           333333333333  66666666666
    0000000   99999999999            55555555555   99999999999             3333333333   66666666666
1
0                      sssssssssss   cccccccccc   aaaaaaaa   ll          eeeeeeeeeeee
                      sssssssssssss  cccccccccccc  aaaaaaaaaa  ll          eeeeeeeeeeee
                      ss       ss  cc       cc  aa       aa  ll          ee
                      ss           cc           aa       aa  ll          ee
                      ss           cc           aa       aa  ll          ee
                      sssssssssss  cc           aaaaaaaaaaaa  ll          eeeeeeeee
                       sssssssssss  cc           aaaaaaaaaaaa  ll          eeeeeeeee
                              ss  cc           aa       aa  ll          ee
                              ss  cc           aa       aa  ll          ee
                      ss       ss  cc       cc  aa       aa  ll          ee
                      sssssssssssss  cccccccccccc  aa       aa  llllllllllll  eeeeeeeeeeee
                       sssssssssss   cccccccccc   aa       aa  llllllllllll  eeeeeeeeeeee
```

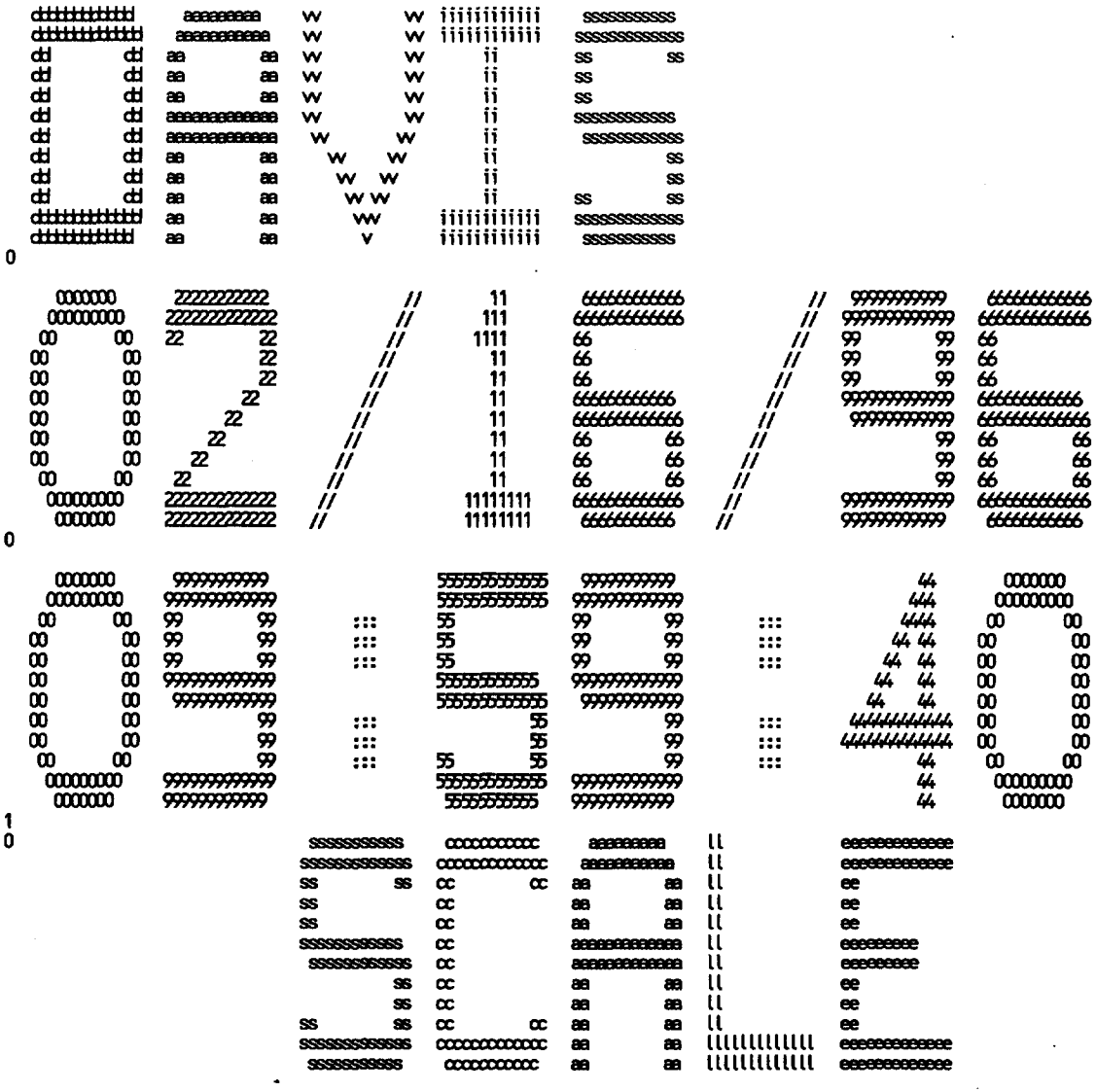
****

```
                    ********************************************************************************
                    ********************************************************************************
                    *****                                                                      *****
                    *****                  program verification information                   *****
                    *****                                                                      *****
                    *****                code system:   scale  version:   4.2                  *****
                    *****                                                                      *****
                    ********************************************************************************
                    ********************************************************************************
                    *****                                                                      *****
                    *****                                                                      *****
                    *****              program:  c0c004                                        *****
                    *****                                                                      *****
                    *****         creation date:  04/27/95                                     *****
                    *****                                                                      *****
                    *****              library:  /neutronics/scale/exe                         *****
                    *****                                                                      *****
                    *****                                                                      *****
                    *****     this is not a   scale  configuration controlled code            *****
                    *****                                                                      *****
                    *****              jobname:  davis                                         *****
                    *****                                                                      *****
                    *****     date of execution:  02/16/96                                     *****
                    *****                                                                      *****
                    *****     time of execution:  09:59:36                                     *****
                    *****                                                                      *****
                    *****                                                                      *****
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0        dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0            short-lived split test fraction, qm =    9.1188E-04
0            half-norm of matrix used, axn =    7.0000E+00
0            4-place-accuracy-retention ratio, ratio4 =    6.4516E-13
0       1q array has     20 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       4q array has      1 entries.
0      54q array has     12 entries.
1library information...

         cross-section data taken from position number  1 of library on unit 15.

         pass  3
         pass  1
         pass  0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
           pass 0 applies start-up fuel densiities
           pass n applies mid time densities of nth library interval
         first library updated was...
         pass  1
         pass  0
```

```
      *scale-system control module sas2 library*
      used a time-dependent neutron spectrum, for each of the above passes
        pass 0 applies start-up fuel densiities
        pass n applies mid time densities of nth library interval
      first library updated was...
      ************************************************************************
      *                                                                      *
      *          prelim lwr origen-s binary working library--id = 1143       *
      *        made from modified card-image origen-s libraries of scale 4.2 *
      *      data from the light element, actinide, and fission product libraries *
      *        decay data, including gamma and total energy, are from endf/b-vi *
      *                                                                      *
      *      neutron flux spectrum factors and cross sections were produced from *
      *     the "presas2" case updating all nuclides on the scale "burnup" library *
      *                                                                      *
      *                  fission product yields are from endf/b-v            *
      *                                                                      *
      *              photon libraries use an 18-energy-group structure       *
      *             the photon data are from the master photon data base,    *
      *              produced to include bremsstrahlung from uo2 matrix      *
      *                                                                      *
      *       see information above this box (if present) for later updates  *
      *                                                                      *
      ************************************************************************
      *                                                                      *
0     ************************************************************************
0              .other identification and sizes of library.
0               data set name:  ft15f001
0             2/16/1996    date library was produced
0                  1697    total number of nuclides in library
                    689    number of light-element nuclides
                    129    number of actinide nuclides
                    879    number of fission product nuclides
0                  7935    number of nonzero off-diagonal matrix elements
0     ************************************************************************
1
   sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                actinides        page   1
     power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.62E+13n/cm**2-sec
0                                        nuclide concentrations, gram atoms
                                         basis = converted to atoms/(barn-cm)
          charge   360.0 d   400.0 d   440.0 d   480.0 d   480.0 d   520.0 d   560.0 d
   u230 9.43E-22 1.21E-21 1.49E-21 1.82E-21 2.18E-21 2.18E-21 2.60E-21 3.08E-21
   u231 2.22E-20 2.82E-20 3.39E-20 4.04E-20 4.77E-20 4.75E-20 5.59E-20 6.51E-20
   u232 2.94E-13 3.63E-13 4.42E-13 5.32E-13 6.36E-13 6.36E-13 7.53E-13 8.86E-13
   u233 1.71E-11 1.90E-11 2.09E-11 2.26E-11 2.43E-11 2.43E-11 2.59E-11 2.74E-11
   u234 5.14E-06 5.09E-06 5.04E-06 4.99E-06 4.95E-06 4.95E-06 4.90E-06 4.85E-06
   u235 5.67E-04 5.54E-04 5.40E-04 5.27E-04 5.15E-04 5.15E-04 5.02E-04 4.90E-04
   u236 2.59E-05 2.84E-05 3.09E-05 3.32E-05 3.55E-05 3.55E-05 3.77E-05 3.98E-05
   u237 4.08E-08 4.44E-08 4.67E-08 4.88E-08 5.11E-08 5.10E-08 5.32E-08 5.54E-08
   u238 2.20E-02 2.20E-02 2.20E-02 2.20E-02 2.19E-02 2.19E-02 2.19E-02 2.19E-02
   u239 3.23E-09 5.73E-09 5.72E-09 5.71E-09 5.71E-09 2.52E-09 5.71E-09 5.71E-09
   u240  .00E+00 1.49E-36 4.66E-36 1.30E-35 3.28E-35 3.28E-35 7.67E-35 1.68E-34
   u241  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00
  np235 7.21E-15 9.47E-15 1.20E-14 1.49E-14 1.80E-14 1.80E-14 2.15E-14 2.52E-14
 np236m 1.60E-14 2.01E-14 2.32E-14 2.66E-14 2.98E-14 2.94E-14 3.33E-14 3.69E-14
  np236 5.75E-13 7.68E-13 9.92E-13 1.25E-12 1.54E-12 1.54E-12 1.87E-12 2.23E-12
  np237 9.17E-07 1.08E-06 1.24E-06 1.42E-06 1.60E-06 1.60E-06 1.79E-06 1.98E-06
  np238 1.09E-09 1.31E-09 1.52E-09 1.73E-09 1.95E-09 1.94E-09 2.18E-09 2.41E-09
  np239 8.03E-07 8.27E-07 8.26E-07 8.25E-07 8.24E-07 8.23E-07 8.24E-07 8.24E-07
 np240m  .00E+00 1.27E-38 3.98E-38 1.11E-37 2.80E-37 2.80E-37 6.55E-37 1.43E-36
```

```
     np240   1.09E-11  1.42E-11  1.42E-11  1.42E-11  1.41E-11  1.04E-11  1.41E-11  1.42E-11
     np241    .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
     pu236   7.27E-13  9.64E-13  1.24E-12  1.54E-12  1.89E-12  1.89E-12  2.27E-12  2.69E-12
     pu237   8.31E-14  9.77E-14  1.11E-13  1.24E-13  1.37E-13  1.37E-13  1.49E-13  1.61E-13
     pu238   4.76E-08  6.27E-08  8.03E-08  1.00E-07  1.23E-07  1.23E-07  1.49E-07  1.77E-07
     pu239   5.57E-05  6.11E-05  6.61E-05  7.07E-05  7.50E-05  7.50E-05  7.90E-05  8.27E-05
     pu240   5.13E-06  6.16E-06  7.22E-06  8.30E-06  9.39E-06  9.39E-06  1.05E-05  1.16E-05
     pu241   1.47E-06  1.90E-06  2.41E-06  2.98E-06  3.61E-06  3.61E-06  4.30E-06  5.05E-06
     pu242   5.43E-08  8.09E-08  1.15E-07  1.57E-07  2.08E-07  2.08E-07  2.69E-07  3.41E-07
     pu243   6.51E-12  1.05E-11  1.48E-11  2.02E-11  2.69E-11  2.52E-11  3.48E-11  4.41E-11
     pu244   2.08E-26  7.43E-26  2.32E-25  6.46E-25  1.63E-24  1.64E-24  3.82E-24  8.35E-24
     pu245    .00E+00  5.35E-32  1.67E-31  4.64E-31  1.17E-30  1.14E-30  2.74E-30  6.00E-30
     pu246    .00E+00  1.58E-34  5.23E-34  1.50E-33  3.90E-33  3.89E-33  9.31E-33  2.08E-32
     am239   2.33E-19  3.67E-19  5.17E-19  7.02E-19  9.24E-19  8.99E-19  1.19E-18  1.49E-18
     am240   1.02E-16  1.58E-16  2.23E-16  3.03E-16  3.99E-16  3.96E-16  5.13E-16  6.46E-16
     am241   1.60E-08  2.37E-08  3.35E-08  4.54E-08  5.98E-08  5.98E-08  7.69E-08  9.66E-08
     am242m  1.84E-10  2.98E-10  4.54E-10  6.59E-10  9.19E-10  9.19E-10  1.24E-09  1.63E-09
     am242   1.81E-11  2.70E-11  3.80E-11  5.16E-11  6.79E-11  6.65E-11  8.72E-11  1.10E-10
     am243   1.57E-09  2.70E-09  4.32E-09  6.57E-09  9.57E-09  9.57E-09  1.35E-08  1.85E-08
     am244m   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
     am244   5.06E-13  9.10E-13  1.46E-12  2.21E-12  3.22E-12  3.12E-12  4.53E-12  6.22E-12
     am245   1.35E-30  4.91E-30  1.52E-29  4.19E-29  1.05E-28  1.05E-28  2.42E-28  5.23E-28
     am246    .00E+00  3.95E-37  1.31E-36  3.75E-36  9.74E-36  9.73E-36  2.33E-35  5.19E-35
   totals    2.26E-02  2.26E-02  2.26E-02  2.26E-02  2.26E-02  2.26E-02  2.26E-02  2.26E-02
0    flux              1.62E+13  1.62E+13  1.62E+13  1.62E+13   .00E+00  1.62E+13  1.62E+13
0  .results on logical unit no. 71, position  1, for time step  7, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  2, for time step  5, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  3, for time step  4, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0     .terminated logical unit no. 71 with zero flag record.
1  * normal termination of execution *
0                                    table of contents for material tables
0                                      case or subcase printed      page

                                                  1                 1
0ndset          33
          15          4          1         27          6          0          0          0          0          0
           0          0          0          0          0          0         -1       1698        690        130
         880       7935          0          5         99          2         16         96         18         18
          18          0         71
0       56q array has      2 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       57q array has      3 entries.
0        1q array has     20 entries.
0        1q array has     10 entries.
     l90   97376
     l116  60826
     l32   33663 rudata (library) storage size
     l44   33734
     l103  75953
0       58q array has      4 entries.
0       60q array has      7 entries.
0       58q array has      7 entries.
```

```
0       66q array has      1 entries.
0       73q array has   1697 entries.
0       74q array has   1697 entries.
0       75q array has   1697 entries.
     l140  66991
     used   101044 in size   200000
0jqpt            12
            0           0           0           0           0           0           0           0           0           0
            0           0
0therm            4
  5.096365E-01 4.040221E-01 3.094528E+00 1.000000E-31
0non              5
         7935          20           6          18        1697
0mm              19
            7           7           0           0           1           1           0           0           0           0
           21         100        1697           4           3          74           4           1           0
0tconst           5
  8.640000E+04 3.200192E+02  .000000E+00  .000000E+00 1.000000E-08
0mzero            4
            0         689         129         879
0pow              3
   .000000E+00  .000000E+00  .000000E+00
0 linp            9
            6           0          51          26           2        3000        1000        1697          94
 n-gamma, fission and total mev/fission =              5.7355E+00      1.9541E+02      2.0115E+02
 start of interval flux =         1.61872E+13
 n-gamma, fission and total mev/fission =              5.8325E+00      1.9552E+02      2.0136E+02
 start of interval flux =         1.61661E+13
 n-gamma, fission and total mev/fission =              5.9353E+00      1.9563E+02      2.0157E+02
 start of interval flux =         1.61526E+13
 n-gamma, fission and total mev/fission =              6.0383E+00      1.9574E+02      2.0178E+02
 start of interval flux =         1.61473E+13
 start of interval flux =          .00000E+00
 n-gamma, fission and total mev/fission =              6.1508E+00      1.9584E+02      2.0199E+02
 start of interval flux =         1.61482E+13
 n-gamma, fission and total mev/fission =              6.2440E+00      1.9593E+02      2.0218E+02
 start of interval flux =         1.61575E+13
0 case or subcase    1  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       56q array has     20 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has     20 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has     20 entries.
0       56q array has     20 entries.
0requested parm=halt8,skipcellwt,skipshipdata
  pass= 4, exec halts after pass   8
1 bbbbbbbbbbb    ooooooooooo   nn         nn                 aaaaaaaaa    nnn         nnn  iiiiiiiiiiii    22222222222
  bbbbbbbbbbb   ooooooooooooo  nnn        nn                aaaaaaaaaaa   nnnn       nnnn  iiiiiiiiiiii   2222222222222
  bb        bb  oo         oo  nnnn       nn               aa         aa  nnnnn     nnnnn      ii        22        22
  bb        bb  oo         oo  nn nn      nn               aa         aa  nn nn    nn nn      ii                  22
  bb        bb  oo         oo  nn  nn     nn               aa         aa  nn  nn nn  nn      ii                  22
  bbbbbbbbbbb   oo         oo  nn   nn    nn  -------------  aaaaaaaaaaaaa  nn   nnnn  nn      ii                22
  bbbbbbbbbbb   oo         oo  nn    nn   nn  -------------  aaaaaaaaaaaaa  nn    n    nn      ii              22
  bb        bb  oo         oo  nn     nn  nn               aa         aa  nn         nn      ii            22
  bb        bb  oo         oo  nn      nn nn               aa         aa  nn         nn      ii          22
  bb        bb  oo         oo  nn       nnn                aa         aa  nn         nn      ii        22
  bbbbbbbbbbb   ooooooooooooo  nn        nn                aa         aa  nn         nn  iiiiiiiiiiii   2222222222222
  bbbbbbbbbb     ooooooooooo   nn         nn                aa         aa  nn         nn  iiiiiiiiiiii   2222222222222
```



```
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************
                    *****                                                                    *****
                    *****                  program verification information                 *****
                    *****                                                                    *****
                    *****                  code system:    scale  version:    4.2           *****
                    *****                                                                    *****
                    ********************************************************************************
                    ********************************************************************************
                    *****                                                                    *****
                    *****                                                                    *****
                    *****              program:  c0c008                                      *****
                    *****                                                                    *****
                    *****         creation date:  04/27/95                                   *****
                    *****                                                                    *****
                    *****              library:  /neutronics/scale/exe                       *****
                    *****                                                                    *****
                    *****                                                                    *****
                    *****    this is not a   scale  configuration controlled code           *****
                    *****                                                                    *****
                    *****              jobname:  davis                                       *****
                    *****                                                                    *****
                    *****    date of execution:  02/16/96                                    *****
                    *****                                                                    *****
                    *****    time of execution:  09:59:41                                    *****
                    *****                                                                    *****
                    *****                                                                    *****
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has      6 entries.
0        2q array has      2 entries.
1logical assignments
0master library   12
 working library   0
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere                2
0izm--number of zones or material regions                       4
0ms--mixing table length                                       66
0ibl--shielded cross section edit option (0/1--no/yes)          0
0ibr--bondarenko factor edit option (0/1--no/yes)               0
0issopt--dancoff factor option                                  0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has     66 entries.
0        4q array has     66 entries.
0        5q array has     66 entries.
0        6q array has      4 entries.
0        7q array has      4 entries.
0        8q array has      4 entries.
0        9q array has      4 entries.
0       10q array has     66 entries.
0       11q array has      4 entries.
0m i x i n g   t a b l e
```

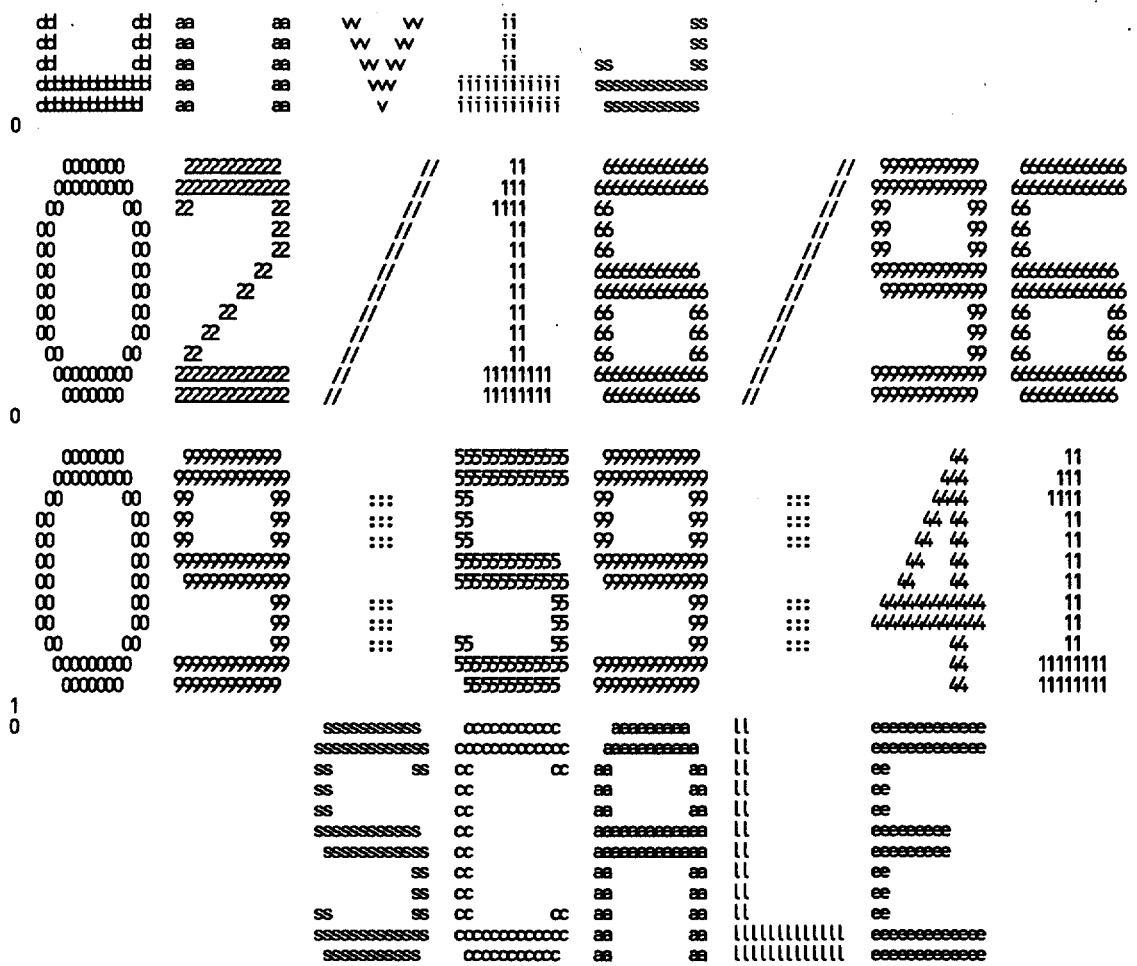
Oentry	mixture	isotope	number density	new identifier
1	1	92235	4.90251E-04	92235
2	1	92234	4.84938E-06	92234
3	1	92236	3.98238E-05	92236
4	1	92238	2.19185E-02	92238
5	1	8016	4.55359E-02	8016
6	3	8016	2.09710E-02	6
7	1	36083	9.77039E-07	36083
8	1	36085	4.70956E-07	36085
9	1	38090	1.06191E-05	38090
10	1	39089	7.90165E-06	39089
11	1	42095	9.68029E-06	42095
12	1	40093	8.21428E-06	40093
13	1	40094	1.27843E-05	40094
14	1	40095	2.07596E-06	40095
15	1	41094	5.48977E-12	41094
16	1	43099	1.24470E-05	43099
17	1	45103	6.47551E-06	45103
18	1	45105	1.88693E-08	45105
19	1	44101	1.10665E-05	44101
20	1	44106	1.65007E-06	44106
21	1	46105	3.81543E-06	46105
22	1	46108	9.30327E-07	46108
23	1	47109	6.68335E-07	47109
24	1	51124	1.62036E-10	51124
25	1	54131	5.77241E-06	54131
26	1	54132	1.00606E-05	54132
27	1	54135	6.65420E-09	54135
28	1	54136	2.10435E-05	54136
29	1	55134	4.21443E-07	55134
30	1	55135	6.63814E-06	55135
31	1	55137	1.31904E-05	55137
32	1	56136	8.15114E-08	56136
33	1	57139	1.31073E-05	57139
34	1	59141	1.09870E-05	59141
35	1	59143	3.85024E-07	59143
36	1	58144	5.87019E-06	58144
37	1	60143	1.06631E-05	60143
38	1	60145	7.73967E-06	60145
39	1	61147	3.14142E-06	61147
40	1	61148	8.83978E-09	61148
41	1	60147	1.31597E-07	60147
42	1	62147	6.67818E-07	62147
43	1	62149	8.02025E-08	62149
44	1	62150	2.54419E-06	62150
45	1	62151	3.32006E-07	62151
46	1	62152	1.24460E-06	62152
47	1	64155	1.18571E-09	64155
48	1	63153	6.30790E-07	63153
49	1	63154	9.52980E-08	63154
50	1	63155	7.31344E-08	63155
51	2	40302	4.25156E-02	40302
52	3	1001	4.19420E-02	1001
53	3	5010	3.81515E-06	5010
54	3	5011	1.54884E-05	5011
55	1	55133	1.36295E-05	55133
56	1	95237	1.97949E-06	95237
57	1	94238	1.77348E-07	94238
58	1	94239	8.26635E-05	94239
59	1	94240	1.15798E-05	94240

```
  60      1       94241    5.05481E-06          94241
  61      1       94242    3.41071E-07          94242
  62      1       95241    9.66355E-08          95241
  63      1       95243    1.84683E-08          95243
  64      1       96244    1.04617E-09          96244
  65      1         999    1.00000E-20            999
  66      4         999    1.00000E-20             66
0geometry and material description
0zone   mixture   outer dimension   temperature      extra xs   type (0/1--fuel/mod)
   1      1         4.68122E-01    9.75000E+02    9.05844E-01            0
   2      4         4.78790E-01    2.93000E+02    5.49010E-01            0
   3      2         5.46100E-01    6.50000E+02     .00000E+00            0
   4      3         8.13968E-01    6.07600E+02     .00000E+00            0
     7711 locations of   200000 available are required to make a new master containing the self-shielded values
0no nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical  1
0copy      999  1/v cross sectio from log 12 to log 18    bondarenko trigger 0
0copy      999  1/v cross sectio from log 18 to log  1    bondarenko trigger 0
0copy      999  1/v cross sectio from log 18 to log  1    bondarenko trigger 0
0copy     1001   hydrogen        from log 12 to log  1    bondarenko trigger 0
0copy     5010  b-10 1273 218ngp from log 12 to log  1    bondarenko trigger 0
0copy     5011   boron-11        from log 12 to log  1    bondarenko trigger 0
0copy     8016   oxygen-16       from log 12 to log 18    bondarenko trigger 0
0copy     8016   oxygen-16       from log 18 to log  1    bondarenko trigger 0
0copy     8016   oxygen-16       from log 18 to log  1    bondarenko trigger 0
0copy    36083   kr-83           from log 12 to log  1    bondarenko trigger 0
0copy    36085   kr-85           from log 12 to log  1    bondarenko trigger 0
0copy    38090   sr-90           from log 12 to log  1    bondarenko trigger 0
0copy    39089    y-89           from log 12 to log  1    bondarenko trigger 0
0copy    40093   zr-93           from log 12 to log  1    bondarenko trigger 0
0copy    40094   zr-94           from log 12 to log  1    bondarenko trigger 0
0copy    40095   zr-95           from log 12 to log  1    bondarenko trigger 0
0copy    40302   zircalloy       from log 12 to log  1    bondarenko trigger 0
0copy    41094   nb-94           from log 12 to log  1    bondarenko trigger 0
0copy    42095   mo-95           from log 12 to log  1    bondarenko trigger 0
0copy    43099   tc-99           from log 12 to log  1    bondarenko trigger 0
0copy    44101   ru-101          from log 12 to log  1    bondarenko trigger 0
0copy    44106   ru-106          from log 12 to log  1    bondarenko trigger 0
0copy    45103   rh-103          from log 12 to log  1    bondarenko trigger 0
0copy    45105   rh-105          from log 12 to log  1    bondarenko trigger 0
0copy    46105   pd-105          from log 12 to log  1    bondarenko trigger 0
0copy    46108   pd-108          from log 12 to log  1    bondarenko trigger 0
0copy    47109   silver-109      from log 12 to log  1    bondarenko trigger 0
0copy    51124   sb-124          from log 12 to log  1    bondarenko trigger 0
0copy    54131   xe-131          from log 12 to log  1    bondarenko trigger 0
0copy    54132   xe-132          from log 12 to log  1    bondarenko trigger 0
0copy    54135   xenon-135       from log 12 to log  1    bondarenko trigger 0
0copy    54136   xe-136          from log 12 to log  1    bondarenko trigger 0
0copy    55133   cesium-133      from log 12 to log  1    bondarenko trigger 0
0copy    55134   cs-134          from log 12 to log  1    bondarenko trigger 0
0copy    55135   cs-135          from log 12 to log  1    bondarenko trigger 0
0copy    55137   cs-137          from log 12 to log  1    bondarenko trigger 0
0copy    56136   ba-136          from log 12 to log  1    bondarenko trigger 0
0copy    57139   la-139          from log 12 to log  1    bondarenko trigger 0
0copy    58144   ce-144          from log 12 to log  1    bondarenko trigger 0
0copy    59141   pr-141          from log 12 to log  1    bondarenko trigger 0
0copy    59143   pr-143          from log 12 to log  1    bondarenko trigger 0
0copy    60143   nd-143          from log 12 to log  1    bondarenko trigger 0
0copy    60145   nd-145          from log 12 to log  1    bondarenko trigger 0
0copy    60147   nd-147          from log 12 to log  1    bondarenko trigger 0
0copy    61147   pm-147          from log 12 to log  1    bondarenko trigger 0
```

```
0copy    61148  pm-148          from log 12 to log  1    bondarenko trigger 0
0copy    62147  sm-147          from log 12 to log  1    bondarenko trigger 0
0copy    62149  sm-149          from log 12 to log  1    bondarenko trigger 0
0copy    62150  sm-150          from log 12 to log  1    bondarenko trigger 0
0copy    62151  sm-151          from log 12 to log  1    bondarenko trigger 0
0copy    62152  sm-152          from log 12 to log  1    bondarenko trigger 0
0copy    63153  eu-153          from log 12 to log  1    bondarenko trigger 0
0copy    63154  eu-154          from log 12 to log  1    bondarenko trigger 0
0copy    63155  eu-155          from log 12 to log  1    bondarenko trigger 0
0copy    64155  gd-155          from log 12 to log  1    bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92235  uranium-235     from log 12 to log  1    bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92238  uranium-238     from log 12 to log  1    bondarenko trigger 0
0copy    93237  neptunium-237   from log 12 to log  1    bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1    bondarenko trigger 0
0copy    94239  plutonium-239   from log 12 to log  1    bondarenko trigger 0
0copy    94240  plutonium-240   from log 12 to log  1    bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1    bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1    bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1    bondarenko trigger 0
0copy    95243  am-243 1057 218 from log 12 to log  1    bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1    bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
             last updated     9/16/93
                l.m.petrie   -   ornl
        tape id                          4321        number of nuclides                  66
        number of neutron groups           27        number of gamma groups               0
        first thermal group                15        logical unit                         1
                                 table of contents
      1/v cross sections normalized to 1.0 at 0.0253 ev                          id      999
      1/v cross sections normalized to 1.0 at 0.0253 ev                          id       66
       hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89             id     1001
      b-10 1273 218ngp 042375 p-3 293k                                           id     5010
       boron-11       endf/b-iv mat 1160            updated 10/13/89             id     5011
       oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id     8016
       oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id        6
       kr-83          mt=102,103,103,105,106,107    updated 10/13/89             id    36083
       kr-85             mt=  102                                                id    36085
       sr-90          mt=102                        updated 10/13/89             id    38090
        y-89          mt=102                        updated 10/13/89             id    39089
       zr-93             mt=  102                                                id    40093
       zr-94          mt=102                        updated 10/13/89             id    40094
       zr-95          mt=102                        updated 10/13/89             id    40095
       zircalloy      endf/b-iv mat 1284            updated 10/13/89             id    40302
       nb-94          mt=102                        updated 10/13/89             id    41094
       mo-95          mt=102                        updated 10/13/89             id    42095
       tc-99          mt=102                        updated 10/13/89             id    43099
       ru-101         mt=102                        updated 10/13/89             id    44101
       ru-106         mt=102                        updated 10/13/89             id    44106
       rh-103         mt=102                        updated 10/13/89             id    45103
       rh-105            mt=  102                                                id    45105
       pd-105         mt=102                        updated 10/13/89             id    46105
       pd-108         mt=102                        updated 10/13/89             id    46108
       silver-109     endf/b-iv mat 1139            updated 10/13/89             id    47109
       sb-124         mt=102                        updated 10/13/89             id    51124
       xe-131         mt=102,103,104,105,106        updated 10/13/89             id    54131
       xe-132         mt=102,103,104,105,106        updated 10/13/89             id    54132
```

```
      xenon-135      endf/b-iv mat 1294          updated 10/13/89          id    54135
      xe-136           mt=  102, 103, 104, 105, 107                        id    54136
      cesium-133     endf/b-iv mat 1141          updated 10/13/89          id    55133
      cs-134         mt=102                      updated 10/13/89          id    55134
      cs-135           mt=  102                                            id    55135
      cs-137         mt=102                      updated 10/13/89          id    55137
      ba-136         mt=102                      updated 10/13/89          id    56136
      la-139         mt=102                      updated 10/13/89          id    57139
      ce-144           mt=  102                                            id    58144
      pr-141         mt=102,103,104,105,106,107  updated 10/13/89          id    59141
      pr-143         mt=102                      updated 10/13/89          id    59143
      nd-143         mt=102                      updated 10/13/89          id    60143
      nd-145         mt=102                      updated 10/13/89          id    60145
      nd-147         mt=102                      updated 10/13/89          id    60147
      pm-147         mt=102                      updated 10/13/89          id    61147
      pm-148           mt=  102                                            id    61148
      sm-147         endf/b-v fission product    updated 10/13/89          id    62147
      sm-149         mt=102,103,107              updated 10/13/89          id    62149
      sm-150         mt=102                      updated 10/13/89          id    62150
      sm-151         mt=102,103,104,105,106,107  updated 10/13/89          id    62151
      sm-152         mt=102,103,104,105,106,107  updated 10/13/89          id    62152
      eu-153         mt=102,103,104,105,106,107  updated 10/13/89          id    63153
      eu-154         mt=102,103,104,105,106,107  updated 10/13/89          id    63154
      eu-155         mt=102,103,104,105,106,107  updated 10/13/89          id    63155
      gd-155         mt=102                      updated 10/13/89          id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92234
      uranium-235    endf/b-iv mat 1261          updated 10/13/89          id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92236
      uranium-238    endf/b-iv mat 1262          updated 10/13/89          id    92238
      neptunium-237  endf/b-iv mat 1263          updated 10/13/89          id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                   id    94238
      plutonium-239  endf/b-iv mat 1264          updated 10/13/89          id    94239
      plutonium-240  endf/b-iv mat 1265          updated 10/13/89          id    94240
      plutonium-241  endf/b-iv mat 1266          updated 10/13/89          id    94241
      plutonium-242  endf/b-iv mat 1161          updated 10/13/89          id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                          id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           id    95243
      curium-244     endf/b-iv mat 1162          updated 10/13/89          id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
1              nn          nn iiiiiiiiiiii   tttttttttttt     aaaaaaaaa    ww          ww  ll
               nnn         nn iiiiiiiiiiii   tttttttttttt    aaaaaaaaaaa   ww          ww  ll
               nnnn        nn      ii            tt        aa         aa  ww          ww  ll
               nn nn       nn      ii            tt        aa         aa  ww          ww  ll
               nn   nn     nn      ii            tt        aa         aa  ww          ww  ll
               nn    nn    nn      ii            tt        aaaaaaaaaaaaa  ww     w    ww  ll
               nn     nn   nn      ii            tt        aaaaaaaaaaaaa  ww    www   ww  ll
               nn      nn  nn      ii            tt        aa         aa  ww   ww ww  ww  ll
               nn       nn nn      ii            tt        aa         aa  ww ww    ww ww  ll
               nn        nnnn      ii            tt        aa         aa  wwww      wwww  ll
               nn         nnn iiiiiiiiiiii        tt        aa         aa  www        www  llllllllllll
               nn          nn iiiiiiiiiiii        tt        aa         aa  ww          ww  llllllllllll
0

   dddddddddddd     aaaaaaaaa    w         w  iiiiiiiiiiii    sssssssssss
   dddddddddddd    aaaaaaaaaaa   w         w  iiiiiiiiiiii   sssssssssssss
   dd        dd   aa        aa   w         w      ii        ss         ss
   dd        dd   aa        aa   w         w      ii        ss
   dd        dd   aa        aa   w         w      ii        ss
   dd        dd   aaaaaaaaaaaaa   w         w      ii        sssssssssssss
   dd        dd   aaaaaaaaaaaaa    w       w      ii         sssssssssssss
```

```
  dd      dd  aa      aa    w    w      ii              ss
  dd      dd  aa      aa     w  w       ii              ss
  dd      dd  aa      aa      w w       ii      ss      ss
  dddddddddd  aa      aa       ww    iiiiiiiiiiii  sssssssssssss
  dddddddddd  aa      aa        v    iiiiiiiiiiii   sssssssssss
0

   0000000    22222222222          //      11      666666666666          //  99999999999   666666666666
  000000000   22222222222          //     111      666666666666          //  99999999999   666666666666
 00      00   22      22          //     1111      66                    //  99      99   66
00        00          22          //       11      66                    //  99      99   66
00        00          22         //        11      66                    //  99      99   66
00        00        22          //         11      666666666666          //  99999999999   666666666666
00        00      22           //          11      666666666666          //   99999999999   666666666666
00        00    22            //           11      66      66           //           99   66      66
00        00  22             //            11      66      66          //            99   66      66
 00      00   22            //             11      66      66         //             99   66      66
  000000000   22222222222  //            11111111  666666666666      //   99999999999   666666666666
   0000000    22222222222 //             11111111   66666666666      //    99999999999   66666666666
0

   0000000    9999999999              5555555555555  9999999999                    44        11
  000000000   99999999999             5555555555555  99999999999                  444       111
 00      00   99      99      :::     55             99      99      :::         4444      1111
00        00  99      99      :::     55             99      99      :::        44 44        11
00        00  99      99      :::     55             99      99      :::       44  44        11
00        00  99999999999             555555555555  99999999999                44  44        11
00        00   9999999999             5555555555555  9999999999                44   44        11
00        00          99      :::             55             99      :::     44444444444      11
00        00          99      :::             55             99      :::     44444444444      11
 00      00           99      :::     55      55             99      :::            44        11
  000000000   99999999999             5555555555555  99999999999                    44     11111111
   0000000    9999999999               55555555555  9999999999                    44     11111111
1
0                        sssssssssss   cccccccccc    aaaaaaaa    ll          eeeeeeeeeeee
                        sssssssssssss  cccccccccccc  aaaaaaaaaa  ll          eeeeeeeeeeee
                        ss       ss  cc       cc  aa      aa  ll          ee
                        ss           cc           aa      aa  ll          ee
                        ss           cc           aa      aa  ll          ee
                        sssssssssss  cc           aaaaaaaaaaaa ll          eeeeeeee
                         sssssssssss cc           aaaaaaaaaaaa ll          eeeeeeee
                                 ss  cc           aa      aa  ll          ee
                                 ss  cc           aa      aa  ll          ee
                        ss       ss  cc       cc  aa      aa  ll          ee
                        sssssssssssss  cccccccccccc  aa      aa  llllllllllll eeeeeeeeeeee
                         sssssssssss   cccccccccc   aa      aa  llllllllllll eeeeeeeeeeee
```



```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****              program verification information                      *****
*****                                                                   *****
*****             code system:   scale  version:   4.2                  *****
*****                                                                   *****
*****************************************************************************
```

```
                    ********************************************************************************
                    *****                                                                      *****
                    *****                                                                      *****
                    *****              program:  c0c002                                        *****
                    *****                                                                      *****
                    *****         creation date:  04/27/95                                     *****
                    *****                                                                      *****
                    *****              library:  /neutronics/scale/exe                         *****
                    *****                                                                      *****
                    *****                                                                      *****
                    *****    this is not a   scale  configuration controlled code             *****
                    *****                                                                      *****
                    *****              jobname:  davis                                         *****
                    *****                                                                      *****
                    *****    date of execution:  02/16/96                                      *****
                    *****                                                                      *****
                    *****    time of execution:  09:59:41                                      *****
                    *****                                                                      *****
                    *****                                                                      *****
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************

1
0       -1q array has       1 entries.
0        0q array has       9 entries.
0        1q array has      12 entries.
0select 65 nuclides from the master  library on logical  1
         0 nuclides from the working library on logical  2
         0 nuclides from the working library on logical  3
           to create the new working library on logical  4

        61 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has      65 entries.
0        3q array has     915 entries.
0        4q array has      65 entries.
0 general information concerning cross section library
    tape identification number                  4321
    number of nuclides on tape                    66
    number of neutron energy groups               27
    first thermal neutron energy group            15
    number of gamma energy groups                  0
0   direct access unit number  9 requires 117 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                           based on endf-b version 4 data with endf-b version 5 fission products
                              compiled for nrc      1/27/89
                                 last updated       9/16/93
                                    l.m.petrie   -   ornl
0 nuclides from xsdrn tape
     1    1/v cross sections normalized to 1.0 at 0.0253 ev                                  999
     2     hydrogen        endf/b-iv mat 1269/thrmf1002    updated 10/13/89                1001
     3    b-10 1273 218ngp 042375 p-3 293k                                                 5010
     4     boron-11        endf/b-iv mat 1160              updated 10/13/89                5011
     5     oxygen-16       endf/b-iv mat 1276              updated 10/13/89                8016
     6     oxygen-16       endf/b-iv mat 1276              updated 10/13/89                   6
     7     kr-83           mt=102,103,103,105,106,107      updated 10/13/89               36083
     8     kr-85             mt=  102                                                     36085
     9     sr-90           mt=102                          updated 10/13/89               38090
```

```
10      y-89          mt=102                          updated 10/13/89          39089
11      zr-93            mt=  102                                               40093
12      zr-94         mt=102                          updated 10/13/89          40094
13      zr-95         mt=102                          updated 10/13/89          40095
14      zircalloy     endf/b-iv mat 1284              updated 10/13/89          40302
15      nb-94         mt=102                          updated 10/13/89          41094
16      mo-95         mt=102                          updated 10/13/89          42095
17      tc-99         mt=102                          updated 10/13/89          43099
18      ru-101        mt=102                          updated 10/13/89          44101
19      ru-106        mt=102                          updated 10/13/89          44106
20      rh-103        mt=102                          updated 10/13/89          45103
21      rh-105           mt=  102                                               45105
22      pd-105        mt=102                          updated 10/13/89          46105
23      pd-108        mt=102                          updated 10/13/89          46108
24      silver-109    endf/b-iv mat 1139              updated 10/13/89          47109
25      sb-124        mt=102                          updated 10/13/89          51124
26      xe-131        mt=102,103,104,105,106          updated 10/13/89          54131
27      xe-132        mt=102,103,104,105,106          updated 10/13/89          54132
28      xenon-135     endf/b-iv mat 1294              updated 10/13/89          54135
29      xe-136           mt=  102, 103, 104, 105, 107                           54136
30      cesium-133    endf/b-iv mat 1141              updated 10/13/89          55133
31      cs-134        mt=102                          updated 10/13/89          55134
32      cs-135           mt=  102                                               55135
33      cs-137        mt=102                          updated 10/13/89          55137
34      ba-136        mt=102                          updated 10/13/89          56136
35      la-139        mt=102                          updated 10/13/89          57139
36      ce-144           mt=  102                                               58144
37      pr-141        mt=102,103,104,105,106,107      updated 10/13/89          59141
38      pr-143        mt=102                          updated 10/13/89          59143
39      nd-143        mt=102                          updated 10/13/89          60143
40      nd-145        mt=102                          updated 10/13/89          60145
41      nd-147        mt=102                          updated 10/13/89          60147
42      pm-147        mt=102                          updated 10/13/89          61147
43      pm-148           mt=  102                                               61148
44      sm-147        endf/b-v fission product        updated 10/13/89          62147
45      sm-149        mt=102,103,107                  updated 10/13/89          62149
46      sm-150        mt=102                          updated 10/13/89          62150
47      sm-151        mt=102,103,104,105,106,107      updated 10/13/89          62151
48      sm-152        mt=102,103,104,105,106,107      updated 10/13/89          62152
49      eu-153        mt=102,103,104,105,106,107      updated 10/13/89          63153
50      eu-154        mt=102,103,104,105,106,107      updated 10/13/89          63154
51      eu-155        mt=102,103,104,105,106,107      updated 10/13/89          63155
52      gd-155        mt=102                          updated 10/13/89          64155
53     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      92234
54      uranium-235   endf/b-iv mat 1261              updated 10/13/89          92235
55     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      92236
56      uranium-238   endf/b-iv mat 1262              updated 10/13/89          92238
57      neptunium-237 endf/b-iv mat 1263              updated 10/13/89          93237
58     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      94238
59      plutonium-239 endf/b-iv mat 1264              updated 10/13/89          94239
60      plutonium-240 endf/b-iv mat 1265              updated 10/13/89          94240
61      plutonium-241 endf/b-iv mat 1266              updated 10/13/89          94241
62      plutonium-242 endf/b-iv mat 1161              updated 10/13/89          94242
63     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                            95241
64     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                             95243
65      curium-244    endf/b-iv mat 1162              updated 10/13/89          96244
01/v cross sections normalized to 1.0 at 0.0253 ev                      999     temperature=   975.00
0 hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89        1001     temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                       5010     temperature=   607.60
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                        thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 boron-11      endf/b-iv mat 1160          updated 10/13/89          5011    temperature=  607.60
                        thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 oxygen-16     endf/b-iv mat 1276          updated 10/13/89          8016    temperature=  975.00
0 oxygen-16     endf/b-iv mat 1276          updated 10/13/89             6    temperature=  607.60
0 kr-83         mt=102,103,103,105,106,107  updated 10/13/89         36083    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   82.202          temperature(kelvin)     =  975.000
0potential scatter sigma =   7.004          lumped nuclear density  = 9.7703935E-07
0spin factor (g)        = 4988.190          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =  15.995           sigma(per absorber atom)= 1.747725E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    = 237.953           sigma(per absorber atom)= 1.9499170E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11     -1.385983E-03    .000000E+00   -1.759590E-03
  12      2.166790E-02    .000000E+00    9.901676E-03
  13     -3.216016E-01    .000000E+00   -9.862398E-02
  14      4.782765E-05    .000000E+00   -1.722850E-05
0excess resonance integrals
0               resolved
0absorption    1.44905E+02
 fission         .00000E+00
- elapsed time   .00 min.
0 kr-85          mt=  102                                              36085    temperature=  975.00
0 sr-90         mt=102                      updated 10/13/89          38090    temperature=  975.00
0  y-89         mt=102                      updated 10/13/89          39089    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   88.142          temperature(kelvin)     =  975.000
0potential scatter sigma =    3.644         lumped nuclear density  = 7.9016527E-06
0spin factor (g)        =   78.664          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =  15.995           sigma(per absorber atom)= 2.1610631E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    = 237.953           sigma(per absorber atom)= 2.4110725E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   9     -1.668715E-06    .000000E+00   -8.242978E-05
  10     -4.720001E-05    .000000E+00   -1.330676E-04
0excess resonance integrals
0               resolved
0absorption    1.46444E-01
 fission         .00000E+00
- elapsed time   .00 min.
0 zr-93          mt=  102                                              40093    temperature=  975.00
0 zr-94         mt=102                      updated 10/13/89          40094    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   93.100          temperature(kelvin)     =  975.000
0potential scatter sigma =    3.779         lumped nuclear density  = 1.2784308E-05
0spin factor (g)        =  180.853          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =  15.995           sigma(per absorber atom)= 1.3356976E+04
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0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.4902220E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   8      -6.747734E-07     .000000E+00   -6.500250E-04
   9      -2.446607E-05     .000000E+00   -2.167085E-03
0excess resonance integrals
0                 resolved
0absorption       3.43940E-02
 fission           .00000E+00
-  elapsed time    .00 min.
0 zr-95          mt=102                    updated 10/13/89          40095     temperature=   975.00
0 zircalloy      endf/b-iv mat 1284        updated 10/13/89          40302     temperature=   650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)      =   650.000
0potential scatter sigma  =     6.385          lumped nuclear density   = 4.2515602E-02
0spin factor (g)          =     1.079          lump dimension (a-bar)   = 5.4610002E-01
0inner radius             = 4.7878999E-01      dancoff correction (c)   = 5.0364637E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   8      -1.780596E-03     .000000E+00   -1.286907E+00
   9      -5.893373E-02     .000000E+00   -2.695297E+00
  10      -6.959935E-02     .000000E+00   -1.601321E+00
  11      -1.883937E-01     .000000E+00   -7.920912E-01
0excess resonance integrals
0                 resolved
0absorption       2.28539E-01
 fission           .00000E+00
-  elapsed time    .02 min.
0 rb-94          mt=102                    updated 10/13/89          41094     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    93.101          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.779          lumped nuclear density   = 5.4897688E-12
0spin factor (g)          = 43808.801          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 3.1105079E+10
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 3.4703569E+10
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  13       1.043419E-02     .000000E+00    9.253895E-04
  14       9.836701E-03     .000000E+00   -4.064784E-04
0excess resonance integrals
0                 resolved
0absorption       9.15001E+01
 fission           .00000E+00
-  elapsed time    .02 min.
0 mo-95          mt=102                    updated 10/13/89          42095     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    94.091          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.806          lumped nuclear density   = 9.6802851E-06
0spin factor (g)          =   607.724          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
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0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.763994E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.968067E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  10      -2.101411E-03     .000000E+00   -1.219284E-02
  11      -3.741213E-03     .000000E+00   -6.328940E-03
  12      -2.768852E+00     .000000E+00   -3.186731E+00
  13       1.591845E-04     .000000E+00   -2.397025E-05
0excess resonance integrals
0                 resolved
0absorption      9.97889E+01
 fission          .00000E+00
-  elapsed time    .02 min.
0 tc-99          mt=102                  updated 10/13/89          43099     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   98.150          temperature(kelvin)      =   975.000
0potential scatter sigma  =    6.000          lumped nuclear density   = 1.2446981E-05
0spin factor (g)          =  4527.940          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.371896AE+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.530608?E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  11      -1.596682E-02     .000000E+00   -7.532893E-03
  12      -4.130031E-03     .000000E+00   -1.416189E-04
  13      -2.602912E-01     .000000E+00   -1.372298E-02
  14      -5.629467E+00     .000000E+00   -1.798383E-01
  15       1.070845E-02     .000000E+00   -5.397120E-04
  16       4.836022E-03     .000000E+00   -2.802316E-04
  17       2.074402E-04     .000000E+00   -1.192082E-05
0excess resonance integrals
0                 resolved
0absorption      3.27549E+02
 fission          .00000E+00
-  elapsed time    .03 min.
0 ru-101         mt=102                  updated 10/13/89          44101     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =  100.039          temperature(kelvin)      =   975.000
0potential scatter sigma  =    3.965          lumped nuclear density   = 1.1066534E-05
0spin factor (g)          =  8785.290          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.543027?E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.721537?E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  11      -3.600798E-02     .000000E+00   -3.661688E-03
  12      -7.148226E-02     .000000E+00   -2.072446E-02
  13      -2.960912E-01     .000000E+00   -7.977196E-03
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  14      2.374839E-04     .000000E+00   -4.170895E-05
0excess resonance integrals
0                  resolved
0absorption       7.95266E+01
 fission           .00000E+00
-  elapsed time    .03 min.
0 ru-106        mt=102                    updated 10/13/89          44106    temperature=   975.00
0 rh-103        mt=102                    updated 10/13/89          45103    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   102.021          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.408          lumped nuclear density   = 6.4755109E-06
0spin factor (g)          =      .500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 2.6370074E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 2.9420779E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   9       1.271471E-03    .000000E+00    1.996385E-03
  10      -2.977085E-03    .000000E+00   -4.186531E-03
  11      -1.281989E-02    .000000E+00   -1.136710E-02
  12      -1.833917E-04    .000000E+00   -1.934018E-05
  13        .000000E+00    .000000E+00     .000000E+00
  14        .000000E+00    .000000E+00     .000000E+00
  15       2.293552E-01    .000000E+00    3.324061E-03
  16       3.506692E+01    .000000E+00   -5.387979E-02
  17      -1.842000E+02    .000000E+00   -1.504310E-01
  18       8.739133E+01    .000000E+00    2.613078E-01
  19       1.151897E+01    .000000E+00   -1.560780E-03
  20       1.089838E+00    .000000E+00   -2.493795E-03
  21       2.165939E-01    .000000E+00    1.924895E-03
  22       2.583943E-01    .000000E+00    2.928526E-03
  23      -9.880321E-02    .000000E+00    1.799034E-03
0excess resonance integrals
0                  resolved
0absorption       1.15157E+03
 fission           .00000E+00
-  elapsed time    .07 min.
0 rh-105           mt=  102                                          45105    temperature=   975.00
0 pd-105        mt=102                    updated 10/13/89          46105    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   104.004          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.069          lumped nuclear density   = 3.8154349E-06
0spin factor (g)          = 15210.000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 4.4754977E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 4.9932598E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  12      -5.267409E-02    .000000E+00   -1.049825E-03
  13       5.370175E-03    .000000E+00   -3.614218E-04
  14       7.773445E-04    .000000E+00   -8.157203E-05
0excess resonance integrals
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0                resolved
0absorption      6.12702E+01
 fission         .00000E+00
- elapsed time   .07 min.
0 pd-108        mt=102                  updated 10/13/89          46108    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  106.977          temperature(kelvin)     =  975.000
0potential scatter sigma  =    4.146          lumped nuclear density  = 9.3032725E-07
0spin factor (g)          = 21175.100          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 1.8354798E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.933             sigma(per absorber atom)= 2.0478253E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      1.170385E-04     .000000E+00    3.531856E-04
  12     -8.421333E-01     .000000E+00   -6.202699E-01
  13      6.858835E-03     .000000E+00    1.834003E-03
  14      8.561365E-02     .000000E+00   -3.207094E-05
  15     -1.840486E-01     .000000E+00    8.083802E-05
  16      2.946586E-04     .000000E+00   -9.255640E-06
0excess resonance integrals
0                resolved
0absorption      2.13080E+02
 fission         .00000E+00
- elapsed time   .07 min.
0 silver-109    endf/b-iv mat 1139        updated 10/13/89          47109    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  107.969          temperature(kelvin)     =  975.000
0potential scatter sigma  =    4.988          lumped nuclear density  = 6.6833451E-07
0spin factor (g)          = 1441.870          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 2.5550033E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.933             sigma(per absorber atom)= 2.8505872E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10     -5.320484E-05     .000000E+00   -3.392181E-05
  11     -2.755409E-03     .000000E+00   -2.078532E-03
  12     -7.117940E-01     .000000E+00   -3.246696E-02
  13      7.671432E-01     .000000E+00    3.380747E-02
  14     -6.185493E+00     .000000E+00   -5.847073E-01
0excess resonance integrals
0                resolved
0absorption      1.39527E+03
 fission         .00000E+00
- elapsed time   .07 min.
0 sb-124        mt=102                  updated 10/13/89          51124    temperature=  975.00
0 xe-131        mt=102,103,104,105,106  updated 10/13/89          54131    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  129.781          temperature(kelvin)     =  975.000
0potential scatter sigma  =    4.301          lumped nuclear density  = 5.7724055E-06
0spin factor (g)          =  246.825          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
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0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 2.9582066E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 3.3004363E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9      -1.746571E-06     .000000E+00   -1.644019E-05
  10      -1.217036E-04     .000000E+00   -1.011729E-04
  11      -1.522097E-03     .000000E+00   -1.149261E-03
  12      -2.946790E-02     .000000E+00   -2.748222E-03
  13      -4.860811E+01     .000000E+00   -1.140201E+02
  14       1.086607E-02     .000000E+00    1.520949E-02
0excess resonance integrals
0                 resolved
0absorption      7.85722E+02
 fission          .00000E+00
- elapsed time    .08 min.
0 xe-132        mt=102,103,104,105,106        updated 10/13/89              54132     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   130.771              temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.301              lumped nuclear density   = 1.0060623E-05
0spin factor (g)          =   675.899              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.6973074E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.8936658E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9      -1.536122E-05     .000000E+00   -6.967560E-05
  10      -4.775116E-03     .000000E+00   -6.079132E-02
  11       3.338609E-08     .000000E+00   -9.216575E-07
0excess resonance integrals
0                 resolved
0absorption      9.76256E-01
 fission          .00000E+00
- elapsed time    .08 min.
0 xenon-135     endf/b-iv mat 1294          updated 10/13/89              54135     temperature=   975.00
0 xe-136          mt=  102, 103, 104, 105, 107                            54136     temperature=   975.00
0 cesium-133    endf/b-iv mat 1141          updated 10/13/89              55133     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   131.764              temperature(kelvin)      =   975.000
0potential scatter sigma  =     7.100              lumped nuclear density   = 1.3629538E-05
0spin factor (g)          =   374.437              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.2528647E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.3438617E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9      -3.902142E-05     .000000E+00   -2.371830E-04
  10      -1.855911E-03     .000000E+00   -3.566480E-03
  11      -7.030141E-02     .000000E+00   -1.231307E-01
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  12      -1.087364E-01     .000000E+00   -1.514590E-02
  13      -1.806647E-01     .000000E+00   -9.834943E-03
  14      -8.027154E+00     .000000E+00   -3.517231E-01
  15       5.625014E-03     .000000E+00   -4.054422E-04
  16       2.777885E-03     .000000E+00   -2.215274E-04
  17       2.352273E-03     .000000E+00   -1.830700E-04
  18       2.215057E-03     .000000E+00   -1.679488E-04
  19       1.317054E-03     .000000E+00   -9.671629E-05
0excess resonance integrals
0                  resolved
0absorption       3.56736E+02
 fission           .00000E+00
- elapsed time     .10 min.
0 cs-134        mt=102                    updated 10/13/89          55134    temperature=   975.00
0 cs-135          mt=  102                                          55135    temperature=   975.00
0 cs-137        mt=102                    updated 10/13/89          55137    temperature=   975.00
0 ba-136        mt=102                    updated 10/13/89          56136    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   134.737          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.835          lumped nuclear density   = 8.1511402E-08
0spin factor (g)          =  1247.690          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 2.0949178E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953          sigma(per absorber atom)= 2.3372750E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  10       1.264037E-06     .000000E+00    5.433292E-07
  11       1.019501E-05     .000000E+00    8.952431E-06
0excess resonance integrals
0                  resolved
0absorption       1.38475E+00
 fission           .00000E+00
- elapsed time     .10 min.
0 la-139        mt=102                    updated 10/13/89          57139    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   137.713          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.906          lumped nuclear density   = 1.3107317E-05
0spin factor (g)          =   145.855          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.3027813E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953          sigma(per absorber atom)= 1.4534978E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9       1.241050E-05     .000000E+00    2.717702E-03
  10      -2.747689E-04     .000000E+00   -1.731751E-02
  11        .000000E+00     .000000E+00     .000000E+00
  12      -4.498419E-02     .000000E+00   -2.717459E-02
0excess resonance integrals
0                  resolved
0absorption       8.09612E+00
 fission           .00000E+00
- elapsed time     .12 min.
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0 ce-144          mt=  102                                          58144     temperature=   975.00
0 pr-141        mt=102,103,104,105,106,107     updated 10/13/89     59141     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   139.697          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.953          lumped nuclear density   = 1.0987034E-05
0spin factor (g)          =  1026.500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.5541928E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953          sigma(per absorber atom)= 1.7339945E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  10      -4.312013E-03      .000000E+00    -1.464163E-01
  11      -7.124887E-02      .000000E+00    -9.475036E-01
  12      -1.590714E-03      .000000E+00    -1.548419E-04
0excess resonance integrals
0                  resolved
0absorption       1.21742E+01
 fission           .00000E+00
-  elapsed time    .12 min.
0 pr-143        mt=102                       updated 10/13/89     59143     temperature=   975.00
0 nd-143        mt=102                       updated 10/13/89     60143     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   141.682          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.000          lumped nuclear density   = 1.0663101E-05
0spin factor (g)          =  1964.860          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.6014073E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953          sigma(per absorber atom)= 1.7866713E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  10      -1.073421E-04      .000000E+00    -4.672364E-05
  11      -2.502638E-01      .000000E+00    -2.911259E+00
  12      -1.644718E-01      .000000E+00    -8.092445E-02
0excess resonance integrals
0                  resolved
0absorption       5.10661E+01
 fission           .00000E+00
-  elapsed time    .12 min.
0 nd-145        mt=102                       updated 10/13/89     60145     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   143.668          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.047          lumped nuclear density   = 7.7396689E-06
0spin factor (g)          =  1007.250          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 2.2062920E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953          sigma(per absorber atom)= 2.4615338E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
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  10      -3.127119E-03     .000000E+00   -4.923112E-02
  11      -4.765503E-02     .000000E+00   -1.440322E-01
  12      -1.169613E+00     .000000E+00   -7.364430E+00
  13       9.609872E-05     .000000E+00    2.040021E-04
  14      -1.043070E+00     .000000E+00   -2.743980E-02
  15       5.904867E-03     .000000E+00   -4.619551E-04
  16       1.326684E-03     .000000E+00   -1.451367E-04
  17       9.642499E-04     .000000E+00   -1.063983E-04
  18       8.539784E-04     .000000E+00   -9.314087E-05
  19       7.634346E-04     .000000E+00   -8.070501E-05
  20       2.838992E-05     .000000E+00   -2.919078E-06
0excess resonance integrals
0                  resolved
0absorption       2.07412E+02
 fission           .00000E+00
-  elapsed time    .13 min.
0 nd-147         mt=102                    updated 10/13/89          60147    temperature=   975.00
0 pm-147         mt=102                    updated 10/13/89          61147    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 3.1414177E-06
0spin factor (g)          = 21589.500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 5.4357527E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 6.0646055E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12      -1.563805E-01     .000000E+00   -5.028190E-02
  13      -4.012225E-02     .000000E+00   -2.350455E-03
  14      -7.182008E+01     .000000E+00   -3.089703E+01
  15       4.130403E-02     .000000E+00    6.981774E-03
  16       1.697950E-02     .000000E+00    1.746737E-03
  17       1.369752E-02     .000000E+00    1.150408E-03
  18       1.253762E-02     .000000E+00    9.649074E-04
  19       6.999463E-04     .000000E+00    5.069173E-05
0excess resonance integrals
0                  resolved
0absorption       2.02910E+03
 fission           .00000E+00
-  elapsed time    .13 min.
0 pm-148          mt=  102                                            61148    temperature=   975.00
0 sm-147         endf/b-v fission product  updated 10/13/89          62147    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 6.6781757E-07
0spin factor (g)          =      .000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 2.5569811E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 2.8527938E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11       2.836913E-01     .000000E+00    1.112904E+00
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```
  12     1.088846E+00     .000000E+00   -1.408553E+00
  13    -2.806831E+00     .000000E+00   -1.302609E+00
  14    -2.406620E-01     .000000E+00   -1.391501E-03
  15     3.117676E-01     .000000E+00   -1.918673E-03
  16     7.287842E-03     .000000E+00   -3.738702E-04
  17     4.281479E-03     .000000E+00   -2.401535E-04
  18     3.510398E-03     .000000E+00   -1.997058E-04
  19     2.910600E-03     .000000E+00   -1.649439E-04
  20     8.434995E-04     .000000E+00   -4.626885E-05
0excess resonance integrals
0                resolved
0absorption     7.23525E+02
 fission         .00000E+00
- elapsed time   .15 min.
                          thermal scattering matrix number  3 at a temperature of   900.03 was selected.
0 sm-149       mt=102,103,107              updated 10/13/89            62149    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   147.638          temperature(kelvin)     =   975.000
0potential scatter sigma =    3.260          lumped nuclear density  = 8.0202490E-08
0spin factor (g)        = 10407.900          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995           sigma(per absorber atom)= 2.1291073E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.953           sigma(per absorber atom)= 2.3754198E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11     8.546618E-03     .000000E+00    3.071172E-02
  12    -5.400369E-02     .000000E+00   -1.796964E-01
  13     2.356363E-02     .000000E+00    2.899016E-03
  14     9.786990E-03     .000000E+00   -7.090896E-03
0excess resonance integrals
0                resolved
0absorption     8.04343E+02
 fission         .00000E+00
- elapsed time   .15 min.
0 sm-150       mt=102                      updated 10/13/89            62150    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   148.629          temperature(kelvin)     =   975.000
0potential scatter sigma =    5.162          lumped nuclear density  = 2.5441905E-06
0spin factor (g)        = 4376.420           lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995           sigma(per absorber atom)= 6.7117500E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.953           sigma(per absorber atom)= 7.4882203E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10    -8.860412E-04     .000000E+00   -8.258277E-03
  11    -1.909252E-02     .000000E+00   -2.169535E-01
  12    -6.202067E-02     .000000E+00   -1.874718E-02
  13    -4.471614E+00     .000000E+00   -3.522457E+00
  14     1.065973E-04     .000000E+00   -6.409712E-05
0excess resonance integrals
0                resolved
0absorption     2.89862E+02
```

```
 fission          .00000E+00
- elapsed time    .15 min.
0 sm-151        mt=102,103,104,105,106,107     updated 10/13/89              62151     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   149.623              temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.185              lumped nuclear density   = 3.3200570E-07
0spin factor (g)          = 75574.703              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 5.1432759E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953              sigma(per absorber atom)= 5.7382925E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  14      -1.902656E-01     .000000E+00   -1.953556E-02
  15       1.489455E+01     .000000E+00    7.541747E-02
  16      -2.179166E+01     .000000E+00   -6.184455E-02
  17       1.737730E+02     .000000E+00    8.287368E-01
  18      -3.205274E+02     .000000E+00   -1.782191E+00
  19       6.255297E+01     .000000E+00    3.868173E-01
  20       1.141397E+00     .000000E+00   -1.408118E-04
  21      -7.117594E-02     .000000E+00    1.244095E-02
  22       6.952561E-02     .000000E+00    3.838921E-03
  23      -1.091915E-02     .000000E+00    3.374035E-04
0excess resonance integrals
0                 resolved
0absorption      2.05658E+03
 fission          .00000E+00
- elapsed time    .15 min.
0 sm-152        mt=102,103,104,105,106,107     updated 10/13/89              62152     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   150.615              temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.208              lumped nuclear density   = 1.2446013E-06
0spin factor (g)          =   863.594              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 1.3720031E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953              sigma(per absorber atom)= 1.5307278E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9       2.402917E-06     .000000E+00    1.158824E-04
  10      -9.668040E-04     .000000E+00   -1.527281E-02
  11      -1.426155E-02     .000000E+00   -5.438628E-02
  12      -9.672706E-02     .000000E+00   -3.073028E-01
  13       4.225402E-02     .000000E+00    1.027757E-01
  14      -8.745422E+01     .000000E+00   -1.690672E+02
0excess resonance integrals
0                 resolved
0absorption      2.79773E+03
 fission          .00000E+00
- elapsed time    .17 min.
0 eu-153        mt=102,103,104,105,106,107     updated 10/13/89              63153     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   151.607              temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.731              lumped nuclear density   = 6.3078977E-07
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0spin factor (g)          = 12265.900              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995                  sigma(per absorber atom)= 2.7070775E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.953                  sigma(per absorber atom)= 3.0202547E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss       res scat
  12      -2.772844E-01      .000000E+00   -5.409002E-02
  13      -1.013753E-01      .000000E+00   -2.071329E-03
  14      -6.824808E-01      .000000E+00    1.708121E-03
  15       2.400970E+00      .000000E+00   -2.694528E-02
  16      -3.294738E+00      .000000E+00    8.158251E-03
  17       1.506605E-01      .000000E+00   -3.437719E-03
  18       7.726888E-02      .000000E+00   -2.231196E-03
  19       5.055466E-02      .000000E+00   -1.541131E-03
  20      -1.253801E-01      .000000E+00   -1.275065E-03
0excess resonance integrals
0                  resolved
0absorption       1.35519E+03
 fission           .00000E+00
-  elapsed time    .17 min.
0 eu-154        mt=102,103,104,105,106,107     updated 10/13/89            63154     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   152.601              temperature(kelvin)       =   975.000
0potential scatter sigma  =     9.731              lumped nuclear density    = 9.5298013E-08
0spin factor (g)          = 19135.801              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995                  sigma(per absorber atom)= 1.7918495E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.953                  sigma(per absorber atom)= 1.9991453E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss       res scat
  12      -3.879111E-01      .000000E+00   -6.058521E-02
  13      -3.050694E-01      .000000E+00   -2.464727E-02
  14       3.428014E-01      .000000E+00    1.488880E-02
  15       1.895024E-01      .000000E+00    2.110245E-02
  16       7.259676E+00      .000000E+00    9.253874E-02
  17      -1.438728E+02      .000000E+00   -1.895837E+00
  18       1.137163E+02      .000000E+00    1.859022E+00
  19      -1.014623E+02      .000000E+00    1.187256E+00
0excess resonance integrals
0                  resolved
0absorption       2.13692E+03
 fission           .00000E+00
-  elapsed time    .18 min.
0 eu-155        mt=102,103,104,105,106,107     updated 10/13/89            63155     temperature=   975.00
0 gd-155        mt=102                         updated 10/13/89            64155     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   153.592              temperature(kelvin)       =   975.000
0potential scatter sigma  =     5.277              lumped nuclear density    = 1.1837075E-09
0spin factor (g)          = 12700.100              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995                  sigma(per absorber atom)= 1.4425835E+08
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0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.6094734E+08
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12      -1.439291E+00     .000000E+00    -1.839456E-01
  13       1.541241E+00     .000000E+00     1.985186E-01
  14       2.190766E-01     .000000E+00     9.807291E-03
  15      -3.322711E-01     .000000E+00    -3.651623E-05
  16       1.477359E+00     .000000E+00    -4.148859E-03
  17       1.568654E-01     .000000E+00    -1.479120E-03
  18       9.605173E-02     .000000E+00    -1.078083E-03
  19       6.295319E-02     .000000E+00    -8.026669E-04
  20       1.670382E-02     .000000E+00     1.627042E-04
  21        .000000E+00     .000000E+00      .000000E+00
  22        .000000E+00     .000000E+00      .000000E+00
  23        .000000E+00     .000000E+00      .000000E+00
  24        .000000E+00     .000000E+00      .000000E+00
  25      -2.127761E+03     .000000E+00    -1.621977E+00
  26      -5.205660E+03     .000000E+00     1.961465E+00
  27      -1.659969E+03     .000000E+00     7.392578E-01
0excess resonance integrals
0                 resolved
0absorption      3.97057E+04
 fission          .00000E+00
-  elapsed time    .18 min.
0u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    92234     temperature=   975.00
0resonance data for this nuclide
0mass number (a)        =   232.029          temperature(kelvin)      =   975.000
0potential scatter sigma =    10.021         lumped nuclear density   = 4.8493789E-06
0spin factor (g)        =  6948.450          lump dimension (a-bar)   = 4.6812201E-01
0inner radius           =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 3.5212695E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.955          sigma(per absorber atom)= 3.9274359E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11      -2.320080E-02     .000000E+00    -6.765317E-02
  12      -1.891160E-01     .000000E+00    -7.924187E-02
  13       7.759874E-04     .000000E+00    -6.471546E-04
  14      -1.852598E+01     .000000E+00    -3.033657E+00
0excess resonance integrals
0                 resolved
0absorption      5.81870E+02
 fission          .00000E+00
-  elapsed time    .20 min.
0 uranium-235   endf/b-iv mat 1261          updated 10/13/89            92235     temperature=   975.00
0resonance data for this nuclide
0mass number (a)        =   233.025          temperature(kelvin)      =   975.000
0potential scatter sigma =    11.500         lumped nuclear density   = 4.9025129E-04
0spin factor (g)        = 15171.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius           =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 3.4831055E+02
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.049          sigma(per absorber atom)= 3.7379553E+02
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0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12      -2.044447E+00    -1.273228E+00    -4.783008E-02
  13      -7.108612E+00    -3.537716E+00    -1.535470E-01
  14      -5.710854E+00    -3.502140E+00    -3.895792E-02
0excess resonance integrals
0                  resolved
0absorption       2.10693E+02
 fission          1.25499E+02
-  elapsed time     .22 min.
0u-236 1163 sigo=5+4 new+lacs p-3 293k f-1/e-m(1.+5)                    92236     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   234.017          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.995          lumped nuclear density   = 3.9823801E-05
0spin factor (g)          =  6328.490          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 4.2878804E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.934          sigma(per absorber atom)= 4.7831025E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11      -1.949282E-01     .000000E+00    -4.880892E-01
  12      -1.041916E+00     .000000E+00    -7.155065E-01
  13      -6.303462E-02     .000000E+00    -3.415031E-03
  14      -3.580088E+01     .000000E+00    -3.132152E+00
0excess resonance integrals
0                  resolved
0absorption       2.87438E+02
 fission           .00000E+00
-  elapsed time     .22 min.
0 uranium-238    endf/b-iv mat 1262          updated 10/13/89          92238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.006          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density   = 2.1918545E-02
0spin factor (g)          =   656.527          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 7.7906489E+00
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   235.041          sigma(per absorber atom)= 3.3544329E-01
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9      -3.939976E-02     .000000E+00    -4.046979E-01
  10      -1.025897E+00    -1.750593E-05    -6.481733E+00
  11      -9.708024E+00     .000000E+00    -2.689807E+01
  12      -4.304811E+01     .000000E+00    -4.998778E+01
  13      -5.401412E+01     .000000E+00    -1.769151E+01
  14      -1.045006E+02     .000000E+00    -6.059761E+00
0excess resonance integrals
0                  resolved
0absorption       1.80080E+01
 fission          5.03965E-04
-  elapsed time     .23 min.
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0 neptunium-237  endf/b-iv mat 1263              updated 10/13/89              93237     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   235.012              temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.500              lumped nuclear density    = 1.9794916E-06
0spin factor (g)          = 10100.800              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995               sigma(per absorber atom)= 8.6264414E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  238.051               sigma(per absorber atom)= 9.2529891E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
  11      -6.338631E-02    -2.012413E-06    -7.400325E-03
  12       3.148655E-02    -9.852385E-05     7.995239E-03
  13      -4.917675E-03     8.935276E-05    -4.406471E-04
  14      -4.483762E-02    -5.801127E-06    -1.160987E-03
0excess resonance integrals
0                 resolved
0absorption      2.93103E+02
 fission         1.38574E-01
-  elapsed time    .27 min.
0pu-238 1050 sigo=5+4 nawklacs p-3 293k f-1/e-m(1.+5)                          94238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.167              temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.850              lumped nuclear density    = 1.7734772E-07
0spin factor (g)          = 13130.600              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995               sigma(per absorber atom)= 9.6285250E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  238.051               sigma(per absorber atom)= 1.0527856E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
  11      -8.062604E-04    -1.198825E-04    -8.325950E-04
  12      -5.152005E-04    -5.715002E-05    -2.714376E-04
  13       4.091211E-01     7.547670E-02    -9.684728E-03
  14      -3.823655E-01    -6.990144E-02     8.539011E-03
0excess resonance integrals
0                 resolved
0absorption      8.2543E+01
 fission         9.0849E+00
-  elapsed time    .27 min.
0 plutonium-239  endf/b-iv mat 1264            updated 10/13/89              94239     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.999              temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.200              lumped nuclear density    = 8.2663486E-05
0spin factor (g)          =  6435.710              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995               sigma(per absorber atom)= 2.0657207E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  238.051               sigma(per absorber atom)= 2.2157563E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
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  11     -1.731143E-01   -6.962558E-02   -5.309264E-02
  12     -1.543953E+00   -5.794014E-01   -2.033134E-01
  13     -5.069869E+00   -2.983939E+00   -7.734127E-02
  14     -1.616615E+00   -8.598555E-01   -1.447852E-02
0excess resonance integrals
0                resolved
0absorption     3.09609E+02
 fission        1.73873E+02
- elapsed time    .28 min.
0 plutonium-240  endf/b-iv mat 1265          updated 10/13/89          94240     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   237.992          temperature(kelvin)     =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density  = 1.1579618E-05
0spin factor (g)          =   669.244          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.4746573E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 1.5817633E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9     -3.527370E-05   -8.454460E-07   -1.122160E-04
  10     -2.741197E-03   -1.699441E-04   -1.253630E-02
  11     -8.856678E-02   -5.120134E-04   -1.178721E-01
  12     -1.236512E+00   -6.752137E-03   -1.188553E+00
  13     -1.511770E-01   -9.269665E-04   -1.101984E-02
  14      .000000E+00     .000000E+00     .000000E+00
  15      1.744944E-02    3.330303E-06    3.451913E-03
  16      3.075249E+00    5.869248E-04    3.877850E-01
  17      4.904770E+02    9.360970E-02    4.406704E+01
  18     -6.409365E+03   -1.225256E+00   -5.070545E+02
  19      7.663346E+02    1.462583E-01    5.942957E+01
  20     -9.327890E+01   -1.780269E-02    1.798134E+00
0excess resonance integrals
0                resolved
0absorption     5.56424E+03
 fission        2.07910E+00
- elapsed time    .30 min.
0 plutonium-241  endf/b-iv mat 1266          updated 10/13/89          94241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   238.978          temperature(kelvin)     =   975.000
0potential scatter sigma  =    10.939          lumped nuclear density  = 5.0548110E-06
0spin factor (g)          = 16402.100          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 3.3781617E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 3.6235211E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  12      5.990875E-03    5.138614E-03    6.305210E-04
  13     -3.513053E-01   -2.733082E-01   -1.095470E-02
  14     -2.874569E-01   -1.940983E-01   -1.548980E-05
  15      1.794422E-02    1.608441E-02   -4.673214E-04
0excess resonance integrals
0                resolved
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0absorption       5.08611E+02
 fission          4.26404E+02
- elapsed time     .32 min.
0 plutonium-242  endf/b-iv mat 1161            updated 10/13/89              94242     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   240.145              temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.694              lumped nuclear density   = 3.4107089E-07
0spin factor (g)          =  6606.710              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 5.0065744E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051              sigma(per absorber atom)= 5.3702075E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -7.865986E-04     .000000E+00    -2.272786E-03
  12      -1.841652E-02     .000000E+00    -3.615677E-02
  13       5.776821E-05     .000000E+00     4.300362E-06
  14       8.144961E-02     .000000E+00     1.525802E-02
  15      -6.458304E+00     .000000E+00    -5.533113E-01
  16       4.032914E-02     .000000E+00    -3.457235E-03
  17       1.550392E-02     .000000E+00    -1.848240E-03
  18       1.112569E-02     .000000E+00    -1.430698E-03
0excess resonance integrals
0                 resolved
0absorption       1.10786E+03
 fission          .00000E+00
- elapsed time     .32 min.
0am-241 1056 sigp=5+4 newklacs 218ngp p-3 295k                                  95241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   238.950              temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.511              lumped nuclear density   = 9.6635489E-08
0spin factor (g)          = 82058.203              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 1.7670494E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051              sigma(per absorber atom)= 1.8953921E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  13       4.908576E-01     1.212019E-02    4.871396E-03
  14      -4.369514E-01    -1.113387E-02   -4.605611E-03
0excess resonance integrals
0                 resolved
0absorption       1.93465E+02
 fission          1.07605E+00
- elapsed time     .32 min.
0am-243 1057 218 gp wt f-1/e-m 090376 p3 295k                                   95243     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   240.940              temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.511              lumped nuclear density   = 1.8468327E-08
0spin factor (g)          = 82052.602              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 9.2460830E+06
0moderator-1 will be treated by the nordheim integral method.
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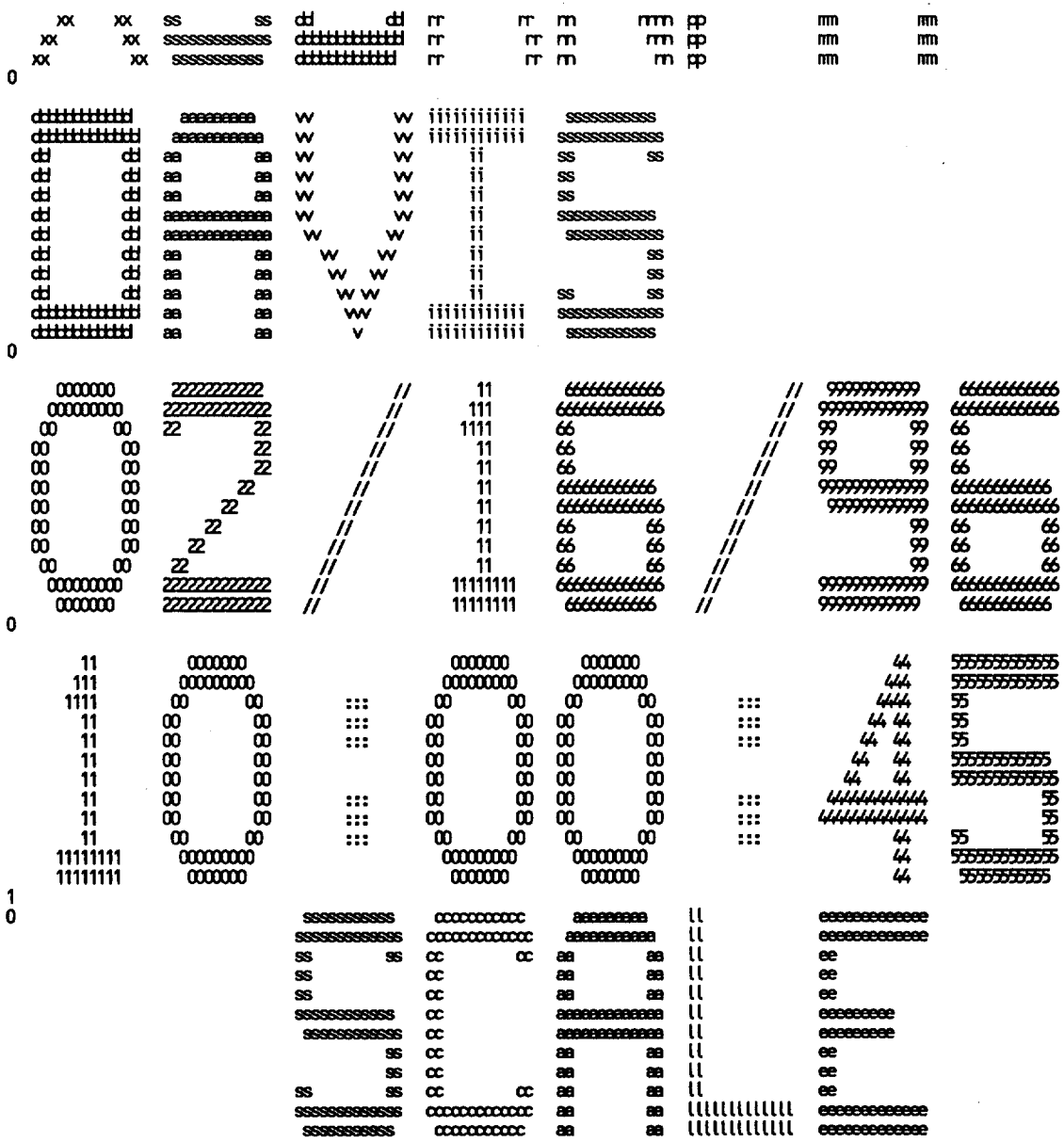
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 9.9176360E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  13      -6.806792E-03     .000000E+00     4.328656E-04
  14       2.134225E-02     .000000E+00     2.224311E-04
0excess resonance integrals
0                  resolved
0absorption       1.60150E+02
 fission           .00000E+00
-  elapsed time    .32 min.
0 curium-244     endf/b-iv mat 1162          updated 10/13/89          96244     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   242.133          temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.320          lumped nuclear density    = 1.0461749E-09
0spin factor (g)          =  5251.150          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.6322288E+08
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.7507795E+08
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11       2.553260E-04     6.986240E-06     3.015316E-04
  12       6.831913E-04     3.211379E-05     1.340608E-04
  13       2.703539E-03     1.329417E-04     7.121908E-04
  14       7.958634E-02     4.761576E-03     1.462926E-02
0excess resonance integrals
0                  resolved
0absorption       6.13898E+02
 fission          3.54218E+01
-  elapsed time    .33 min.
-  elapsed time    .33 min.
1     this xsdrn working tape was created 02/16/96 at 09:59:42
      the title of the parent case is as follows
      scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc      1/27/89
         tape id                          4321        number of nuclides                  65
         number of neutron groups           27        number of gamma groups               0
         first thermal group                15        logical unit                         4
                                   table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id      999
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89              id     1001
       b-10 1273 218ngp 042375 p-3 293k                                            id     5010
        boron-11       endf/b-iv mat 1160            updated 10/13/89              id     5011
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id     8016
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id        6
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89              id    36083
        kr-85            mt=  102                                                  id    36085
        sr-90          mt=102                        updated 10/13/89              id    38090
         y-89          mt=102                        updated 10/13/89              id    39089
        zr-93            mt=  102                                                  id    40093
        zr-94          mt=102                        updated 10/13/89              id    40094
        zr-95          mt=102                        updated 10/13/89              id    40095
        zircalloy      endf/b-iv mat 1284            updated 10/13/89              id    40302
        nb-94          mt=102                        updated 10/13/89              id    41094
```

```
        mo-95          mt=102                          updated 10/13/89          id    42095
        tc-99          mt=102                          updated 10/13/89          id    43099
        ru-101         mt=102                          updated 10/13/89          id    44101
        ru-106         mt=102                          updated 10/13/89          id    44106
        rh-103         mt=102                          updated 10/13/89          id    45103
        rh-105           mt=  102                                                id    45105
        pd-105         mt=102                          updated 10/13/89          id    46105
        pd-108         mt=102                          updated 10/13/89          id    46108
        silver-109     endf/b-iv mat 1139              updated 10/13/89          id    47109
        sb-124         mt=102                          updated 10/13/89          id    51124
        xe-131         mt=102,103,104,105,106          updated 10/13/89          id    54131
        xe-132         mt=102,103,104,105,106          updated 10/13/89          id    54132
        xenon-135      endf/b-iv mat 1294              updated 10/13/89          id    54135
        xe-136           mt=  102, 103, 104, 105, 107                            id    54136
        cesium-133     endf/b-iv mat 1141              updated 10/13/89          id    55133
        cs-134         mt=102                          updated 10/13/89          id    55134
        cs-135           mt=  102                                                id    55135
        cs-137         mt=102                          updated 10/13/89          id    55137
        ba-136         mt=102                          updated 10/13/89          id    56136
        la-139         mt=102                          updated 10/13/89          id    57139
        ce-144           mt=  102                                                id    58144
        pr-141         mt=102,103,104,105,106,107      updated 10/13/89          id    59141
        pr-143         mt=102                          updated 10/13/89          id    59143
        nd-143         mt=102                          updated 10/13/89          id    60143
        nd-145         mt=102                          updated 10/13/89          id    60145
        nd-147         mt=102                          updated 10/13/89          id    60147
        pm-147         mt=102                          updated 10/13/89          id    61147
        pm-148           mt=  102                                                id    61148
        sm-147         endf/b-v fission product        updated 10/13/89          id    62147
        sm-149         mt=102,103,107                  updated 10/13/89          id    62149
        sm-150         mt=102                          updated 10/13/89          id    62150
        sm-151         mt=102,103,104,105,106,107      updated 10/13/89          id    62151
        sm-152         mt=102,103,104,105,106,107      updated 10/13/89          id    62152
        eu-153         mt=102,103,104,105,106,107      updated 10/13/89          id    63153
        eu-154         mt=102,103,104,105,106,107      updated 10/13/89          id    63154
        eu-155         mt=102,103,104,105,106,107      updated 10/13/89          id    63155
        gd-155         mt=102                          updated 10/13/89          id    64155
       u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    92234
        uranium-235    endf/b-iv mat 1261              updated 10/13/89          id    92235
       u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    92236
        uranium-238    endf/b-iv mat 1262              updated 10/13/89          id    92238
        neptunium-237  endf/b-iv mat 1263              updated 10/13/89          id    93237
       pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    94238
        plutonium-239  endf/b-iv mat 1264              updated 10/13/89          id    94239
        plutonium-240  endf/b-iv mat 1265              updated 10/13/89          id    94240
        plutonium-241  endf/b-iv mat 1266              updated 10/13/89          id    94241
        plutonium-242  endf/b-iv mat 1161              updated 10/13/89          id    94242
       am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                             id    95241
       am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                              id    95243
        curium-244     endf/b-iv mat 1162              updated 10/13/89          id    96244
0        tape copy used      0 i/o's, and took      .00 seconds
1  xx        xx   sssssssssss   ddddddddddd   rrrrrrrrrrrr   rrn        rrn  pppppppppp   mm        mm
    xx       xx   sssssssssssss  ddddddddddd   rrrrrrrrrrrr   rrrn       rrn  pppppppppp   mmm       mmm
     xx     xx   ss        ss   dd        dd   rr        rr   rrrrn      rrn  pp        pp   mmmm     mmmm
      xx   xx    ss             dd        dd   rr        rr   rrn rrn     rrn  pp        pp   mm mm   mm mm
       xx xx     ss             dd        dd   rr        rr   rrn  rrn    rrn  pp        pp   mm  mm mm  mm
        xxx      sssssssssssss  dd        dd   rrrrrrrrrrrr   rrn   rrn   rrn  pppppppppp   mm   mmm   mm
        xxx       sssssssssssss dd        dd   rrrrrrrrrrrr   rrn    rrn  rrn  pppppppppp   mm    m    mm
       xx xx               ss   dd        dd   rr       rr   rrn     rrn rrn  pp            mm         mm
      xx   xx              ss   dd        dd   rr       rr   rrn      rrn rrn  pp            mm         mm
```



```
**********************************************************************
**********************************************************************
**********************************************************************
*****                                                            *****
*****                 program verification information            *****
*****                                                            *****
*****                 code system:    scale  version:    4.2     *****
*****                                                            *****
**********************************************************************
**********************************************************************
*****                                                            *****
*****                                                            *****
*****              program:  c0c001                              *****
*****                                                            *****
*****         creation date:  04/27/95                           *****
*****                                                            *****
*****              library:  /neutronics/scale/exe               *****
*****                                                            *****
*****                                                            *****
*****    this is not a   scale  configuration controlled code    *****
*****                                                            *****
*****              jobname:  davis                               *****
*****                                                            *****
*****    date of execution:  02/16/96                            *****
*****                                                            *****
*****    time of execution:  10:00:45                            *****
*****                                                            *****
*****                                                            *****
**********************************************************************
**********************************************************************
**********************************************************************
```

```
1
                    560 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       -1q array has      1 entries.
0        1q array has     15 entries.
0        2q array has     10 entries.
0        3q array has     12 entries.
0        4q array has      9 entries.
0        5q array has     12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                    560 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0general problem description data block
0                            general problem data

 ige  1/2/3 = plane/cylinder/sphere      2       isn  quadrature order                    8
 izm  number of zones                    4       isct order of scattering                 3
 im   number of special intervals       24       ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h     1
 ibl  0/1/2/3 = vacuum/refl/per/white    1       iim  inner iteration maximum           20
 ibr  right boundary condition           3       iom  outer iteration maximum           25
 mxx  number of mixtures                 3       iclc -1/0/n--flat res/sry/opt          0
 ms   mixing table length               65       ith  0/1 = forward/adjoint             0
 ign  number of energy groups           27       iflu not used(always wgtd)             0
 nrg  number of neutron groups          27       iprt -2/-1/0/n=mixture xsec print     -2
 ngg  number of gamma groups             0       icl  0/1/2/3=no/prt nd/pch n/both     53
 iftg number of first thermal group     15       ipbt -1/0/1=none/fine/all bal. prt     0
0                           special options
```

ifg	0/1 = none/weighting calculation	1	ipn	0/1/2 diff. coef. param	0
iqm	volumetric sources (0/n=no/yes)	0	idfm	0/1 = none/density factors 38*	1
ipm	boundary sources (0/n=no/yes)	0	iaz	0/n = none/n activities by zone	0
ifn	0/1/2 = input 33*/34*/use last	53	iai	0/1=none/activities by interval	0
itmx	maximum time (minutes)	10	ifct	0/1=no/yes upscatter scaling	0
idt1	0/1/2/3=no/xsect/srce/flux--out	0	ipvt	0/1/2=no/k/alpha parametric srch	0
isx	broad group fluxes	0	isen	outer iteration acceleration	0
ibln	activity data unit	0	nbnd	band rebaln parameter	0
jbkl	0/1/2 buckling geometry	0			

0 weighting data (ifg=1)

icon	-1/0/1=cell/zone/region weight	-1	ihtf	total xsect psn in brd gp tables	3
igmf	number of broad groups	27	ndsf	psn g-g or file number	4
itp	0/10/20/30/40 0/c/e/ac/a	0	nusf	table length or max order	4
ipp	-2/-1/0/n=wgted xsect print	-2	mxm	extra 1-d x-sect positions	0
iap	-1/n anisn xsect print	-1			

0 floating point parameters

eps	overall convergence	1.00000E-04	dy	cyl/pla ht for buckling	.00000E+00
ptc	point convergence	1.00000E-04	dz	plane depth for buckling	.00000E+00
xnf	normalization factor	1.00000E+00	vsc	void streaming correction	.00000E+00
ev	eigenvalue guess	.00000E+00	pv	ipvt=1/2--k/alpha	1.00000E+00
evm	eigenvalue modifier	.00000E+00	eql	ev change eps for search	1.00000E-03
bf	buckling factor=1.420892	1.42089E+00	xrpm	new param mod for search	7.50000E-01

this case will require 2535 locations for mixing
this case has been allocated 200000 locations

1 560 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 13q array has 65 entries.
0 14q array has 65 entries.
0 15q array has 65 entries.
0 data block 2 (mixing table, etc.)

	nuclides on tape	cccc identification	mixing table mixture	mixing table component	mixing table atom density	extra xsect id's
1	999		1	92235	4.90251E-04	
2	1001		1	92234	4.84938E-06	
3	5010		1	92236	3.98238E-05	
4	5011		1	92238	2.19185E-02	
5	8016		1	8016	4.55359E-02	
6	6		3	6	2.09710E-02	
7	36083		1	36083	9.77039E-07	
8	36085		1	36085	4.70956E-07	
9	38090		1	38090	1.06191E-05	
10	39089		1	39089	7.90165E-06	
11	40093		1	42095	9.68029E-06	
12	40094		1	40093	8.21428E-06	
13	40095		1	40094	1.27843E-05	
14	40302		1	40095	2.07596E-06	
15	41094		1	41094	5.48977E-12	
16	42095		1	43099	1.24470E-05	
17	43099		1	45103	6.47551E-06	
18	44101		1	45105	1.88693E-08	
19	44106		1	44101	1.10665E-05	
20	45103		1	44106	1.65007E-06	
21	45105		1	46105	3.81543E-06	
22	46105		1	46108	9.30527E-07	
23	46108		1	47109	6.68335E-07	
24	47109		1	51124	1.62036E-10	
25	51124		1	54131	5.77241E-06	
26	54131		1	54132	1.00606E-05	
27	54132		1	54135	6.65420E-09	

28	54135	1	54136	2.10435E-05
29	54136	1	55134	4.21443E-07
30	55133	1	55135	6.63814E-06
31	55134	1	55137	1.31904E-05
32	55135	1	56136	8.15114E-08
33	55137	1	57139	1.31073E-05
34	56136	1	59141	1.09870E-05
35	57139	1	59143	3.85024E-07
36	58144	1	58144	5.87019E-06
37	59141	1	60143	1.06631E-05
38	59143	1	60145	7.73967E-06
39	60143	1	61147	3.14142E-06
40	60145	1	61148	8.83978E-09
41	60147	1	60147	1.31597E-07
42	61147	1	62147	6.67818E-07
43	61148	1	62149	8.02025E-08
44	62147	1	62150	2.54419E-06
45	62149	1	62151	3.32006E-07
46	62150	1	62152	1.24460E-06
47	62151	1	64155	1.18371E-09
48	62152	1	63153	6.30790E-07
49	63153	1	63154	9.52980E-08
50	63154	1	63155	7.31344E-08
51	63155	2	40802	4.25156E-02
52	64155	3	1001	4.19420E-02
53	92234	3	5010	3.81515E-06
54	92235	3	5011	1.54884E-05
55	92236	1	55133	1.36295E-05
56	92238	1	95237	1.97949E-06
57	95237	1	94238	1.77348E-07
58	94238	1	94239	8.26635E-05
59	94239	1	94240	1.15796E-05
60	94240	1	94241	5.05481E-06
61	94241	1	94242	3.41071E-07
62	94242	1	95241	9.66355E-08
63	95241	1	95243	1.84683E-08
64	95243	1	96244	1.04617E-09
65	96244	1	999	1.00000E-20

- elapsed time .00 min.
0 21649 locations will be used
0 35q array has 25 entries.
0 36q array has 24 entries.
0 38q array has 24 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 560 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	2	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	3	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	4	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	5	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	6	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	7	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	8	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	9	0	9	1.00000E+00	

10	3.00000E+03	8.11173E+00	4.82126E+07	10	0	10	1.00000E+00
11	5.50000E+02	9.80818E+00	2.05946E+07	11	0	11	1.00000E+00
12	1.00000E+02	1.15129E+01	1.01036E+07	12	0	12	1.00000E+00
13	3.00000E+01	1.27169E+01	5.69595E+06	13	0	13	1.00000E+00
14	1.00000E+01	1.38155E+01	3.20957E+06	14	0	14	1.00000E+00
15	3.04999E+00	1.50030E+01	2.10601E+06	15	0	15	1.00000E+00
16	1.77000E+00	1.55471E+01	1.70522E+06	16	0	16	1.00000E+00
17	1.29999E+00	1.58557E+01	1.52545E+06	17	0	17	1.00000E+00
18	1.12999E+00	1.59959E+01	1.42867E+06	18	0	18	1.00000E+00
19	1.00000E+00	1.61181E+01	1.31002E+06	19	0	19	1.00000E+00
20	8.00000E-01	1.63412E+01	9.05898E+05	20	0	20	1.00000E+00
21	4.00000E-01	1.70344E+01	8.17974E+05	21	0	21	1.00000E+00
22	3.25000E-01	1.72420E+01	6.90070E+05	22	0	22	1.00000E+00
23	2.25000E-01	1.76098E+01	4.86953E+05	23	0	23	1.00000E+00
24	9.99999E-02	1.84207E+01	3.57766E+05	24	0	24	1.00000E+00
25	5.00000E-02	1.91138E+01	2.71895E+05	25	0	25	1.00000E+00
26	3.00000E-02	1.96247E+01	1.87283E+05	26	0	26	1.00000E+00
27	1.00000E-02	2.07233E+01	8.88201E+04	27	0	27	1.00000E+00
28	1.00000E-05	2.76310E+01					

1 560 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0

	mixture by zone	order p(l) by zone	activity table matl no.	activity table reaction	quadrature constants weights	quadrature constants directions	quadrature constants refl direc	quadrature constants wt x cos
1	1	3			0	-2.79004E-01	3	0
2	1	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	2	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	3	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28593E-02
7					5.55953E-02	2.31301E-01	6	1.28593E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02
16					0	-9.83032E-01	24	0
17					4.53365E-02	-9.64143E-01	24	-4.37099E-02
18					4.53365E-02	-8.17361E-01	23	-3.70655E-02
19					4.53365E-02	-5.46143E-01	22	-2.47597E-02
20					4.53365E-02	-1.91780E-01	21	-8.69444E-03
21					4.53365E-02	1.91780E-01	20	8.69444E-03
22					4.53365E-02	5.46143E-01	19	2.47597E-02
23					4.53365E-02	8.17361E-01	18	3.70655E-02
24					4.53365E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.85235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.85235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.85235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86855E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01

13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83032E-01	-4.49528E-01	8.36885E-01	5.00703E-01	-7.51005E-01
17	-9.66143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.26438E-01
18	-8.17361E-01	-4.49528E-01	3.20262E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20262E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17236E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17236E-01
22	5.46143E-01	-4.49528E-01	-3.20262E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20262E-01	-4.16320E-01	-1.46514E-01
24	9.66143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.26438E-01

1 int radii mid pts zone no. areas volumes dens fact radius mod spec(int)

1	0	1.29551E-02	1	0	2.10906E-03	1.00000E+00	0
2	2.59102E-02	4.33406E-02	1	1.62798E-01	9.49318E-03	1.00000E+00	0
3	6.07710E-02	8.75100E-02	1	3.81835E-01	2.94045E-02	1.00000E+00	0
4	1.14249E-01	1.74155E-01	1	7.17848E-01	1.31104E-01	1.00000E+00	0
5	2.34061E-01	2.93967E-01	1	1.47065E+00	2.21259E-01	1.00000E+00	
6	3.53873E-01	3.80612E-01	1	2.22345E+00	1.27890E-01	1.00000E+00	
7	4.07351E-01	4.24781E-01	1	2.55946E+00	9.30429E-02	1.00000E+00	
8	4.42212E-01	4.55167E-01	1	2.77850E+00	7.41004E-02	1.00000E+00	
9	4.68122E-01	4.68814E-01	2	2.94130E+00	4.07946E-03	0	
10	4.69507E-01	4.71481E-01	2	2.95000E+00	1.16988E-02	0	
11	4.73456E-01	4.75431E-01	2	2.97481E+00	1.17968E-02	0	
12	4.77405E-01	4.78098E-01	2	2.99962E+00	4.16023E-03	0	
13	4.78790E-01	4.83159E-01	3	3.00833E+00	2.65268E-02	1.00000E+00	
14	4.87528E-01	4.99987E-01	3	3.06323E+00	7.82768E-02	1.00000E+00	
15	5.12445E-01	5.24903E-01	3	3.21979E+00	8.21777E-02	1.00000E+00	
16	5.37362E-01	5.41731E-01	3	3.37634E+00	2.97427E-02	1.00000E+00	
17	5.46100E-01	5.53513E-01	4	3.43125E+00	5.15631E-02	1.00000E+00	
18	5.60926E-01	5.70900E-01	4	3.52440E+00	7.15548E-02	1.00000E+00	
19	5.80874E-01	5.96175E-01	4	3.64974E+00	1.14628E-01	1.00000E+00	
20	6.11475E-01	6.45755E-01	4	3.84201E+00	2.78169E-01	1.00000E+00	
21	6.80034E-01	7.14313E-01	4	4.27278E+00	3.07702E-01	1.00000E+00	
22	7.48592E-01	7.63893E-01	4	4.70354E+00	1.46875E-01	1.00000E+00	
23	7.79193E-01	7.89167E-01	4	4.89582E+00	9.89116E-02	1.00000E+00	
24	7.99141E-01	8.06554E-01	4	5.02115E+00	7.51357E-02	1.00000E+00	
25	8.13968E-01			5.11431E+00			

- elapsed time .00 min.

1 outer iter | inner iters | 1 - balance | eigenvalue | 1 - source ratio | 1 - scatter ratio | 1 - upscat ratio | search parameter | time (min)

1	134	1.17436E-05	1.07271E+00	-8.01027E-02	1.00000E+00	-2.70213E-02	.00000E+00	.0000
2	209	-9.52064E-06	1.08075E+00	-1.44108E-03	-8.42885E-03	-3.60698E-03	.00000E+00	.0000
3	269	1.26498E-05	1.08152E+00	-2.11928E-04	-1.04968E-03	-7.90823E-04	.00000E+00	.0000
4	314	3.15023E-06	1.08185E+00	-4.38725E-05	-2.33586E-04	-1.69522E-04	.00000E+00	.0167
5	343	-1.49547E-05	1.08211E+00	-9.74334E-06	-4.97663E-05	-3.29620E-05	.00000E+00	.0167

grp to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	1	1.84055E-08	24	1.00000E+00	1
2	1	1	1.97450E-08	24	1.00000E+00	1
3	1	1	1.70296E-08	24	1.00000E+00	1
4	1	1	1.49748E-08	24	1.00000E+00	1
5	1	1	8.71266E-09	24	1.00000E+00	1
6	1	1	3.09274E-09	24	1.00000E+00	1
7	1	2	1.84924E-09	24	1.00000E+00	1
8	1	24	1.01951E-09	24	1.00000E+00	1
9	1	1	1.96840E-09	24	1.00000E+00	1
10	1	1	1.75084E-09	24	1.00000E+00	1
11	1	1	1.78388E-09	24	1.00000E+00	1
12	1	24	3.26841E-09	24	1.00000E+00	1

						13	13	1	24	4.40522E-09	24	1.00000E+00	1
						14	14	1	24	4.21909E-09	24	1.00000E+00	1
						15	15	1	24	3.79112E-05	24	9.99977E-01	1
						16	16	1	24	4.69885E-05	24	9.99982E-01	1
						17	17	1	24	6.01809E-05	24	9.99989E-01	1
						18	18	1	18	2.16487E-05	24	9.99959E-01	1
						19	19	1	24	5.91300E-05	24	9.99984E-01	1
						20	20	1	24	4.62845E-05	24	9.99967E-01	1
						21	21	1	18	2.49877E-05	24	9.99945E-01	1
						22	22	1	24	4.22500E-05	24	9.99989E-01	1
						23	23	1	24	1.98220E-06	24	1.00000E+00	1
						24	24	1	2	9.31992E-06	24	1.00001E+00	1
						25	25	1	24	1.63619E-05	24	1.00000E+00	1
						26	26	1	1	1.06731E-05	24	9.99996E-01	2
						27	27	1	2	4.91808E-06	24	1.00000E+00	2
6	370	-3.35889E-07	1.08195E+00	-2.18376E-06	-9.78602E-06	-6.60634E-06	.00000E+00		.0167				

final monitor
lambda 1.08195E+00 production/absorption 1.08195E+00 angular flux on 16
- elapsed time .02 min.

1 560 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 int. zone number radius int. midpoint area volume prod density

int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.29551E-02	.00000E+00	2.10906E-03	3.16533E-03
2	1	2.59102E-02	4.33406E-02	1.62798E-01	9.49318E-03	1.42456E-02
3	1	6.07710E-02	8.75100E-02	3.81835E-01	2.94045E-02	4.42066E-02
4	1	1.14249E-01	1.74155E-01	7.17848E-01	1.31104E-01	1.98987E-01
5	1	2.34061E-01	2.93967E-01	1.47065E+00	2.21299E-01	3.43822E-01
6	1	3.53873E-01	3.80612E-01	2.22345E+00	1.27890E-01	2.03851E-01
7	1	4.07351E-01	4.24781E-01	2.55946E+00	9.30429E-02	1.51156E-01
8	1	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02	1.22515E-01
9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07944E-03	.00000E+00
10	2	4.69507E-01	4.71481E-01	2.95000E+00	1.16988E-02	.00000E+00
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	2	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.65268E-02	.00000E+00
14	3	4.87528E-01	4.99387E-01	3.06323E+00	7.82768E-02	.00000E+00
15	3	5.12445E-01	5.24903E-01	3.21979E+00	8.21777E-02	.00000E+00
16	3	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02	.00000E+00
17	4	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02	.00000E+00
18	4	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	4	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01	.00000E+00
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01	.00000E+00
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	4	7.48592E-01	7.63893E-01	4.70354E+00	1.46875E-01	.00000E+00
23	4	7.79193E-01	7.89167E-01	4.89582E+00	9.89116E-02	.00000E+00
24	4	7.99141E-01	8.06554E-01	5.02115E+00	7.51357E-02	.00000E+00
25		8.13968E-01		5.11431E+00		

1 560 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 total flux

int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.77256E-01	1.32813E+00	1.68069E+00	1.04172E+00	1.57595E+00	3.03114E+00	2.90546E+00	2.08063E+00
2	1.77319E-01	1.32876E+00	1.68142E+00	1.04222E+00	1.57665E+00	3.03244E+00	2.90613E+00	2.08069E+00
3	1.77263E-01	1.32814E+00	1.68064E+00	1.04174E+00	1.57586E+00	3.03083E+00	2.90510E+00	2.08050E+00
4	1.76865E-01	1.32388E+00	1.67519E+00	1.03842E+00	1.57058E+00	3.02033E+00	2.89878E+00	2.07944E+00
5	1.75833E-01	1.31293E+00	1.66134E+00	1.03008E+00	1.55730E+00	2.99433E+00	2.88322E+00	2.07684E+00
6	1.74643E-01	1.30044E+00	1.64574E+00	1.02064E+00	1.54254E+00	2.96584E+00	2.86626E+00	2.07395E+00
7	1.73694E-01	1.29066E+00	1.63371E+00	1.01349E+00	1.53144E+00	2.94482E+00	2.85385E+00	2.07178E+00
8	1.72753E-01	1.28113E+00	1.62217E+00	1.00674E+00	1.52110E+00	2.92562E+00	2.84261E+00	2.06973E+00
9	1.72238E-01	1.27597E+00	1.61597E+00	1.00315E+00	1.51567E+00	2.91563E+00	2.83681E+00	2.06865E+00
10	1.72131E-01	1.27493E+00	1.61473E+00	1.00246E+00	1.51467E+00	2.91384E+00	2.83582E+00	2.06846E+00
11	1.71973E-01	1.27342E+00	1.61295E+00	1.00147E+00	1.51325E+00	2.91130E+00	2.83442E+00	2.06817E+00

12	1.71870E-01	1.27263E+00	1.61178E+00	1.00083E+00	1.51233E+00	2.90967E+00	2.83353E+00	2.06798E+00
13	1.71677E-01	1.27058E+00	1.60956E+00	9.99585E-01	1.51052E+00	2.90623E+00	2.83160E+00	2.06760E+00
14	1.71152E-01	1.26533E+00	1.60304E+00	9.95751E-01	1.50471E+00	2.89496E+00	2.82517E+00	2.06656E+00
15	1.70564E-01	1.25897E+00	1.59465E+00	9.90433E-01	1.49631E+00	2.87831E+00	2.81558E+00	2.06543E+00
16	1.70276E-01	1.25545E+00	1.58963E+00	9.86962E-01	1.49058E+00	2.86676E+00	2.80887E+00	2.06491E+00
17	1.70138E-01	1.25343E+00	1.58652E+00	9.84632E-01	1.48661E+00	2.85880E+00	2.80420E+00	2.06477E+00
18	1.69956E-01	1.25082E+00	1.58253E+00	9.81660E-01	1.48154E+00	2.84882E+00	2.79833E+00	2.06463E+00
19	1.69730E-01	1.24772E+00	1.57791E+00	9.78296E-01	1.47586E+00	2.83767E+00	2.79176E+00	2.06440E+00
20	1.69426E-01	1.24370E+00	1.57203E+00	9.74080E-01	1.46878E+00	2.82382E+00	2.78361E+00	2.06407E+00
21	1.69218E-01	1.24090E+00	1.56790E+00	9.71095E-01	1.46376E+00	2.81400E+00	2.77792E+00	2.06397E+00
22	1.69219E-01	1.24077E+00	1.56760E+00	9.70813E-01	1.46324E+00	2.81298E+00	2.77748E+00	2.06420E+00
23	1.69296E-01	1.24163E+00	1.56873E+00	9.71542E-01	1.46441E+00	2.81528E+00	2.77896E+00	2.06448E+00
24	1.69384E-01	1.24264E+00	1.57009E+00	9.72439E-01	1.46587E+00	2.81813E+00	2.78076E+00	2.06475E+00

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58702E+00	1.44599E+00	1.30607E+00	7.95512E-01	6.71182E-01	5.87528E-01	3.70105E-01	2.04382E-01
2	1.58694E+00	1.44589E+00	1.30487E+00	7.95281E-01	6.70971E-01	5.87241E-01	3.70074E-01	2.04359E-01
3	1.58713E+00	1.44610E+00	1.30533E+00	7.95829E-01	6.71429E-01	5.87937E-01	3.70151E-01	2.04404E-01
4	1.58816E+00	1.44733E+00	1.30797E+00	7.98909E-01	6.74040E-01	5.91827E-01	3.70574E-01	2.04662E-01
5	1.59075E+00	1.45033E+00	1.31447E+00	8.06515E-01	6.80488E-01	6.01479E-01	3.71595E-01	2.05292E-01
6	1.59363E+00	1.45361E+00	1.32158E+00	8.14890E-01	6.87572E-01	6.12163E-01	3.72694E-01	2.05979E-01
7	1.59582E+00	1.45601E+00	1.32681E+00	8.21098E-01	6.92817E-01	6.20137E-01	3.73485E-01	2.06482E-01
8	1.59789E+00	1.45819E+00	1.33158E+00	8.26798E-01	6.97627E-01	6.27489E-01	3.74189E-01	2.06939E-01
9	1.59899E+00	1.45931E+00	1.33404E+00	8.29780E-01	7.00126E-01	6.31313E-01	3.74551E-01	2.07175E-01
10	1.59919E+00	1.45950E+00	1.33444E+00	8.30236E-01	7.00535E-01	6.31923E-01	3.74612E-01	2.07216E-01
11	1.59947E+00	1.45978E+00	1.33501E+00	8.30917E-01	7.01118E-01	6.32795E-01	3.74695E-01	2.07274E-01
12	1.59966E+00	1.45998E+00	1.33537E+00	8.31357E-01	7.01496E-01	6.33360E-01	3.74755E-01	2.07312E-01
13	1.60003E+00	1.46027E+00	1.33612E+00	8.32255E-01	7.02268E-01	6.34513E-01	3.74871E-01	2.07388E-01
14	1.60106E+00	1.46138E+00	1.33851E+00	8.35064E-01	7.04683E-01	6.38123E-01	3.75243E-01	2.07629E-01
15	1.60220E+00	1.46296E+00	1.34188E+00	8.38940E-01	7.08014E-01	6.43096E-01	3.75771E-01	2.07962E-01
16	1.60273E+00	1.46401E+00	1.34410E+00	8.41440E-01	7.10162E-01	6.46296E-01	3.76120E-01	2.08177E-01
17	1.60303E+00	1.46480E+00	1.34578E+00	8.43278E-01	7.11708E-01	6.48629E-01	3.76309E-01	2.08315E-01
18	1.60346E+00	1.46587E+00	1.34802E+00	8.45791E-01	7.13803E-01	6.51808E-01	3.76518E-01	2.08491E-01
19	1.60401E+00	1.46708E+00	1.35060E+00	8.48682E-01	7.16220E-01	6.55472E-01	3.76763E-01	2.08698E-01
20	1.60477E+00	1.46862E+00	1.35388E+00	8.52367E-01	7.19299E-01	6.60142E-01	3.77061E-01	2.08956E-01
21	1.60534E+00	1.46972E+00	1.35622E+00	8.54994E-01	7.21465E-01	6.63449E-01	3.77208E-01	2.09115E-01
22	1.60540E+00	1.46982E+00	1.35644E+00	8.55225E-01	7.21609E-01	6.63707E-01	3.77117E-01	2.09092E-01
23	1.60525E+00	1.46955E+00	1.35585E+00	8.54542E-01	7.20998E-01	6.62816E-01	3.76970E-01	2.09013E-01
24	1.60505E+00	1.46921E+00	1.35512E+00	8.53700E-01	7.20258E-01	6.61726E-01	3.76822E-01	2.08927E-01

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.44235E-02	4.40822E-02	1.26326E-01	4.31233E-01	1.11295E-01	1.89516E-01	6.92656E-01	5.05696E-01
2	8.43974E-02	4.40589E-02	1.26282E-01	4.31129E-01	1.11225E-01	1.89182E-01	6.92536E-01	5.05349E-01
3	8.44475E-02	4.42477E-02	1.26374E-01	4.31332E-01	1.11413E-01	1.89775E-01	6.95574E-01	5.06328E-01
4	8.47397E-02	4.51693E-02	1.26900E-01	4.32512E-01	1.12444E-01	1.92806E-01	6.99364E-01	5.11670E-01
5	8.54635E-02	4.75197E-02	1.28185E-01	4.35412E-01	1.15019E-01	2.00427E-01	7.13720E-01	5.24952E-01
6	8.62611E-02	5.02350E-02	1.29583E-01	4.38580E-01	1.17893E-01	2.09044E-01	7.29600E-01	5.39721E-01
7	8.68531E-02	5.23698E-02	1.30602E-01	4.40906E-01	1.20059E-01	2.15638E-01	7.41441E-01	5.50804E-01
8	8.73979E-02	5.44291E-02	1.31522E-01	4.43027E-01	1.22073E-01	2.21852E-01	7.52356E-01	5.61089E-01
9	8.76817E-02	5.55185E-02	1.31996E-01	4.44127E-01	1.23122E-01	2.25109E-01	7.58025E-01	5.66447E-01
10	8.77287E-02	5.56665E-02	1.32074E-01	4.44309E-01	1.23284E-01	2.25578E-01	7.58900E-01	5.67250E-01
11	8.77959E-02	5.58785E-02	1.32185E-01	4.44571E-01	1.23514E-01	2.26249E-01	7.60149E-01	5.68392E-01
12	8.78394E-02	5.60162E-02	1.32256E-01	4.44739E-01	1.23664E-01	2.26685E-01	7.60954E-01	5.69128E-01
13	8.79284E-02	5.62956E-02	1.32403E-01	4.45085E-01	1.23968E-01	2.27568E-01	7.62600E-01	5.70632E-01
14	8.82066E-02	5.71589E-02	1.32869E-01	4.46165E-01	1.24921E-01	2.30314E-01	7.67724E-01	5.75269E-01
15	8.85891E-02	5.83268E-02	1.33521E-01	4.47648E-01	1.26228E-01	2.34044E-01	7.74681E-01	5.81468E-01
16	8.88349E-02	5.90646E-02	1.33947E-01	4.48597E-01	1.27066E-01	2.36404E-01	7.79071E-01	5.85305E-01
17	8.90140E-02	5.96209E-02	1.34253E-01	4.49267E-01	1.27712E-01	2.38245E-01	7.82691E-01	5.88816E-01
18	8.92589E-02	6.03961E-02	1.34665E-01	4.50175E-01	1.28623E-01	2.40875E-01	7.88088E-01	5.94347E-01
19	8.95415E-02	6.12874E-02	1.35141E-01	4.51235E-01	1.29677E-01	2.43936E-01	7.94526E-01	6.01025E-01
20	8.99014E-02	6.24211E-02	1.35747E-01	4.52592E-01	1.31030E-01	2.47880E-01	8.03091E-01	6.10031E-01
21	9.01556E-02	6.32566E-02	1.36172E-01	4.53533E-01	1.32009E-01	2.50746E-01	8.09564E-01	6.17057E-01

22	9.01746E-02	6.33218E-02	1.36197E-01	4.53566E-01	1.32115E-01	2.51067E-01	8.10532E-01	6.18991E-01
23	9.01057E-02	6.31275E-02	1.36075E-01	4.53270E-01	1.31882E-01	2.50393E-01	8.09236E-01	6.17274E-01
24	9.00219E-02	6.28831E-02	1.35927E-01	4.52920E-01	1.31588E-01	2.49540E-01	8.07525E-01	6.15685E-01

0 int.	grp. 25	grp. 26	grp. 27
1	2.09171E-01	1.26496E-01	1.64760E-02
2	2.09027E-01	1.26407E-01	1.64770E-02
3	2.09545E-01	1.26908E-01	1.66308E-02
4	2.12277E-01	1.29414E-01	1.73268E-02
5	2.19075E-01	1.35680E-01	1.90952E-02
6	2.26671E-01	1.42760E-01	2.11622E-02
7	2.32408E-01	1.48185E-01	2.28270E-02
8	2.37771E-01	1.53328E-01	2.44812E-02
9	2.40573E-01	1.56030E-01	2.53661E-02
10	2.40980E-01	1.56395E-01	2.54678E-02
11	2.41557E-01	1.56913E-01	2.56125E-02
12	2.41930E-01	1.57247E-01	2.57058E-02
13	2.42688E-01	1.57924E-01	2.58950E-02
14	2.44988E-01	1.59966E-01	2.64544E-02
15	2.47983E-01	1.62583E-01	2.71464E-02
16	2.49775E-01	1.64114E-01	2.75324E-02
17	2.51572E-01	1.65943E-01	2.81312E-02
18	2.54545E-01	1.69133E-01	2.92247E-02
19	2.58174E-01	1.73011E-01	3.05063E-02
20	2.63128E-01	1.78296E-01	3.21929E-02
21	2.67081E-01	1.82611E-01	3.35798E-02
22	2.67942E-01	1.83714E-01	3.39921E-02
23	2.67426E-01	1.83334E-01	3.39442E-02
24	2.66632E-01	1.82635E-01	3.37896E-02

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.25466E-02	.00000E+00	1.26592E-02	1.05289E-02	3.20981E-03	1.10953E-02	9.98834E-01
2	.00000E+00	1.92653E-01	2.32567E-03	1.66826E-01	6.63876E-02	1.36156E-02	1.14985E-01	1.00004E+00
3	.00000E+00	2.15639E-01	2.62332E-02	1.61016E-01	8.11843E-02	1.55567E-02	1.45130E-01	1.00001E+00
4	.00000E+00	1.23985E-01	3.89532E-02	1.05308E-01	6.78544E-02	7.41953E-03	8.76617E-02	1.00001E+00
5	.00000E+00	1.64616E-01	6.79468E-02	2.59535E-01	9.47660E-02	4.42974E-03	1.33369E-01	9.99992E-01
6	.00000E+00	1.77901E-01	1.34714E-01	6.53812E-01	5.43928E-02	6.99367E-03	2.51218E-01	1.00003E+00
7	.00000E+00	8.80271E-02	9.84539E-02	7.45017E-01	3.63365E-02	7.55446E-03	1.42590E-01	1.00001E+00
8	.00000E+00	1.35691E-02	4.25773E-02	6.30878E-01	2.14972E-02	1.39252E-02	2.07217E-02	1.00004E+00
9	.00000E+00	9.84911E-04	2.17199E-02	5.35315E-01	2.06733E-02	2.30517E-02	-2.10198E-02	9.99991E-01
10	.00000E+00	7.31557E-05	2.06952E-02	4.60513E-01	1.69902E-02	3.57908E-02	-2.57133E-02	1.00001E+00
11	.00000E+00	5.75541E-06	1.06912E-02	4.22014E-01	8.14066E-03	5.82081E-02	-5.56523E-02	1.00001E+00
12	.00000E+00	4.04308E-07	8.14071E-03	2.38761E-01	9.36720E-03	6.39537E-02	-6.51767E-02	9.99958E-01
13	.00000E+00	6.42004E-08	9.36721E-03	1.77659E-01	6.15371E-03	5.89860E-02	-5.57729E-02	1.00001E+00
14	.00000E+00	1.27228E-08	6.15371E-03	1.51950E-01	7.41755E-03	8.22587E-02	-8.35227E-02	1.00000E+00
15	.00000E+00	1.43782E-09	7.50496E-03	8.47901E-02	8.89666E-03	6.76067E-03	-8.19649E-03	1.00282E+00
16	.00000E+00	4.22198E-10	9.06421E-03	4.28271E-02	9.61462E-03	4.94331E-03	-5.52444E-03	1.00211E+00
17	.00000E+00	1.35967E-10	7.74308E-03	1.46958E-02	7.51474E-03	6.68130E-03	-6.46574E-03	1.00090E+00
18	.00000E+00	9.73489E-11	7.17519E-03	9.31984E-03	4.81169E-03	2.21906E-02	-1.98332E-02	1.00022E+00
19	.00000E+00	1.37630E-10	7.02763E-03	2.44088E-02	8.96944E-03	8.96632E-03	-1.09213E-02	1.00073E+00
20	.00000E+00	2.29800E-10	1.02650E-02	1.03125E-01	9.74678E-03	2.57831E-02	-2.53119E-02	1.00132E+00
21	.00000E+00	3.27571E-11	9.21705E-03	2.17326E-02	8.43469E-03	2.33262E-02	-2.25584E-02	1.00046E+00
22	.00000E+00	3.80057E-11	1.21888E-02	4.32563E-02	9.73527E-03	6.75239E-02	-6.50853E-02	1.00030E+00
23	.00000E+00	3.63377E-11	1.48498E-02	1.68759E-01	1.85353E-02	1.22697E-01	-1.26468E-01	1.00060E+00
24	.00000E+00	9.89064E-12	2.25067E-02	1.16323E-01	2.24844E-02	1.17694E-01	-1.17733E-01	1.00044E+00
25	.00000E+00	2.89533E-12	1.92130E-02	4.39144E-02	1.44653E-02	6.43358E-02	-5.96142E-02	1.00033E+00
26	.00000E+00	2.03022E-12	9.42399E-03	3.04365E-02	6.47986E-03	5.78554E-02	-5.49278E-02	1.00025E+00
27	.00000E+00	4.83813E-13	2.02860E-03	4.52622E-03	1.10064E-03	1.61192E-02	-1.51956E-02	1.00014E+00
28	.00000E+00	1.00000E+00	6.26179E-01	5.42938E+00	6.26179E-01	9.39831E-01	6.20714E-02	1.00023E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux

1	1.72266E-01	1.10953E-02	1.77195E-01	.00000E+00	2.25841E-03	2.62977E-03	.00000E+00	1.20666E-01
2	1.27624E+00	1.14985E-01	1.32751E+00	.00000E+00	1.71854E-05	1.18502E-02	.00000E+00	8.99916E-01
3	1.61630E+00	1.45130E-01	1.67978E+00	.00000E+00	.00000E+00	1.45322E-02	.00000E+00	1.13888E+00
4	1.00333E+00	8.76617E-02	1.04123E+00	.00000E+00	.00000E+00	6.27267E-03	.00000E+00	7.06237E-01
5	1.51593E+00	1.33369E-01	1.57523E+00	.00000E+00	.00000E+00	1.82307E-03	.00000E+00	1.06764E+00
6	2.91611E+00	2.51218E-01	3.02978E+00	.00000E+00	.00000E+00	1.58370E-03	.00000E+00	2.05301E+00
7	2.85707E+00	1.42590E-01	2.90473E+00	.00000E+00	.00000E+00	1.55715E-03	.00000E+00	1.97997E+00
8	2.06870E+00	2.07217E-02	2.08063E+00	.00000E+00	.00000E+00	1.58895E-03	.00000E+00	1.42891E+00
9	1.59894E+00	-2.10198E-02	1.58711E+00	.00000E+00	.00000E+00	2.13181E-03	.00000E+00	1.09602E+00
10	1.45926E+00	-2.57133E-02	1.44611E+00	.00000E+00	.00000E+00	4.54090E-03	.00000E+00	9.99431E-01
11	1.33394E+00	-5.56523E-02	1.30533E+00	.00000E+00	.00000E+00	9.59878E-03	.00000E+00	9.07030E-01
12	8.29634E-01	-6.51767E-02	7.95806E-01	.00000E+00	.00000E+00	1.25419E-02	.00000E+00	5.57729E-01
13	7.00018E-01	-5.57729E-02	6.71440E-01	.00000E+00	.00000E+00	1.33688E-02	.00000E+00	4.70578E-01
14	6.31151E-01	-8.35227E-02	5.87894E-01	.00000E+00	.00000E+00	8.47353E-03	.00000E+00	4.17286E-01
15	3.76539E-01	-8.19649E-03	3.70150E-01	.00000E+00	.00000E+00	2.09234E-03	.00000E+00	2.56137E-01
16	2.07166E-01	-5.52444E-03	2.04111E-01	.00000E+00	.00000E+00	1.44179E-03	.00000E+00	1.41533E-01
17	8.76693E-02	-6.46574E-03	8.44542E-02	.00000E+00	.00000E+00	1.82542E-03	.00000E+00	5.90743E-02
18	5.54811E-02	-1.98332E-02	4.41396E-02	.00000E+00	.00000E+00	1.59461E-03	.00000E+00	3.35806E-02
19	1.31977E-01	-1.09213E-02	1.26380E-01	.00000E+00	.00000E+00	2.89268E-03	.00000E+00	8.86652E-02
20	4.44088E-01	-2.53119E-02	4.31366E-01	.00000E+00	.00000E+00	1.60106E-02	.00000E+00	3.00687E-01
21	1.23085E-01	-2.25584E-02	1.11389E-01	.00000E+00	.00000E+00	1.45424E-02	.00000E+00	8.00656E-02
22	2.24985E-01	-6.50933E-02	1.89539E-01	.00000E+00	.00000E+00	4.15271E-02	.00000E+00	1.40645E-01
23	7.57785E-01	-1.26468E-01	6.98485E-01	.00000E+00	.00000E+00	7.74830E-02	.00000E+00	4.96109E-01
24	5.66222E-01	-1.17733E-01	5.06153E-01	.00000E+00	.00000E+00	7.46668E-02	.00000E+00	3.65856E-01
25	2.40462E-01	-5.96142E-02	2.07985E-01	.00000E+00	.00000E+00	4.26923E-02	.00000E+00	1.53130E-01
26	1.55931E-01	-5.49278E-02	1.26664E-01	.00000E+00	.00000E+00	3.92310E-02	.00000E+00	9.55977E-02
27	2.53388E-02	-1.51936E-02	1.65069E-02	.00000E+00	.00000E+00	1.10368E-02	.00000E+00	1.38219E-02
28	2.33536E+01	6.20715E-02	2.33257E+01	.00000E+00	2.27559E-03	4.19530E-01	.00000E+00	1.60682E+01

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	4.65661E-09	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.98023E-08	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.96046E-08	1.00000E+00
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.98023E-08	1.00000E+00
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	6.89179E-08	9.99997E-01
9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-6.70552E-08	1.00000E+00
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	8.56817E-08	9.99998E-01
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.23517E-08	1.00000E+00
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
14	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-9.77889E-09	1.00000E+00
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	4.65661E-09	9.99999E-01
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.58794E-09	1.00000E+00
19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.79397E-09	1.00000E+00
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.11759E-08	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
22	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
23	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.96046E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.98023E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-3.72529E-09	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-9.31323E-10	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.14553E-07	9.99997E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dj**2	total flux
1	1.71843E-01	1.10953E-02	1.72266E-01	1.10953E-02	.00000E+00	.00000E+00	.00000E+00	5.46010E-03

2	1.27218E+00	1.14985E-01	1.27624E+00	1.14985E-01	.00000E+00	.00000E+00	.00000E+00	4.04362E-02
3	1.61148E+00	1.45130E-01	1.61630E+00	1.45130E-01	.00000E+00	.00000E+00	.00000E+00	5.12156E-02
4	1.00066E+00	8.76617E-02	1.00333E+00	8.76617E-02	.00000E+00	.00000E+00	.00000E+00	3.17976E-02
5	1.51210E+00	1.33369E-01	1.51593E+00	1.33369E-01	.00000E+00	.00000E+00	.00000E+00	4.80460E-02
6	2.90926E+00	2.51218E-01	2.91611E+00	2.51218E-01	.00000E+00	.00000E+00	.00000E+00	9.24314E-02
7	2.83331E+00	1.42590E-01	2.83707E+00	1.42590E-01	.00000E+00	.00000E+00	.00000E+00	8.99735E-02
8	2.06794E+00	2.07218E-02	2.06870E+00	2.07217E-02	.00000E+00	.00000E+00	.00000E+00	6.56385E-02
9	1.59971E+00	-2.10199E-02	1.59894E+00	-2.10198E-02	.00000E+00	.00000E+00	.00000E+00	5.07551E-02
10	1.45997E+00	-2.57133E-02	1.45926E+00	-2.57133E-02	.00000E+00	.00000E+00	.00000E+00	4.63216E-02
11	1.33546E+00	-5.56522E-02	1.33394E+00	-5.56523E-02	.00000E+00	.00000E+00	.00000E+00	4.23678E-02
12	8.31467E-01	-6.51767E-02	8.29634E-01	-6.51767E-02	.00000E+00	.00000E+00	.00000E+00	2.63585E-02
13	7.01591E-01	-5.57729E-02	7.00018E-01	-5.57729E-02	.00000E+00	.00000E+00	.00000E+00	2.22409E-02
14	6.33502E-01	-8.35227E-02	6.31151E-01	-8.35227E-02	.00000E+00	.00000E+00	.00000E+00	2.00680E-02
15	3.74774E-01	-8.19649E-03	3.74539E-01	-8.19649E-03	.00000E+00	.00000E+00	.00000E+00	1.18858E-02
16	2.07323E-01	-5.52445E-03	2.07166E-01	-5.52444E-03	.00000E+00	.00000E+00	.00000E+00	6.57697E-03
17	8.78504E-02	-6.46573E-03	8.76693E-02	-6.46574E-03	.00000E+00	.00000E+00	.00000E+00	2.78515E-03
18	5.60524E-02	-1.98332E-02	5.54811E-02	-1.98332E-02	.00000E+00	.00000E+00	.00000E+00	1.76994E-03
19	1.32275E-01	-1.09213E-02	1.31977E-01	-1.09213E-02	.00000E+00	.00000E+00	.00000E+00	4.19314E-03
20	4.44792E-01	-2.53119E-02	4.44088E-01	-2.53119E-02	.00000E+00	.00000E+00	.00000E+00	1.41044E-02
21	1.23706E-01	-2.25584E-02	1.23085E-01	-2.25584E-02	.00000E+00	.00000E+00	.00000E+00	3.91608E-03
22	2.26792E-01	-6.50933E-02	2.24985E-01	-6.50933E-02	.00000E+00	.00000E+00	.00000E+00	7.16938E-03
23	7.61147E-01	-1.26468E-01	7.57785E-01	-1.26468E-01	.00000E+00	.00000E+00	.00000E+00	2.41036E-02
24	5.69301E-01	-1.17733E-01	5.66222E-01	-1.17733E-01	.00000E+00	.00000E+00	.00000E+00	1.80198E-02
25	2.42020E-01	-5.96142E-02	2.40462E-01	-5.96142E-02	.00000E+00	.00000E+00	.00000E+00	7.65666E-03
26	1.57328E-01	-5.49278E-02	1.55931E-01	-5.49278E-02	.00000E+00	.00000E+00	.00000E+00	4.97139E-03
27	2.57287E-02	-1.51936E-02	2.53388E-02	-1.51936E-02	.00000E+00	.00000E+00	.00000E+00	8.10510E-04
28	2.33496E+01	6.20716E-02	2.33536E+01	6.20715E-02	.00000E+00	.00000E+00	.00000E+00	7.41067E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	3.78748E-03	2.83920E-03	1.45497E-05	-2.75248E-03	1.00002E+00
2	.00000E+00	.00000E+00	4.95860E-04	2.59223E-02	1.86005E-02	5.14987E-05	-1.81564E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.64593E-03	5.01259E-02	1.58473E-02	1.37098E-04	-1.33394E-02	9.99993E-01
4	.00000E+00	.00000E+00	5.13070E-03	4.20944E-02	5.45031E-03	1.03337E-04	-4.22552E-04	9.99996E-01
5	.00000E+00	.00000E+00	1.10582E-02	8.16275E-02	5.16252E-03	1.52070E-04	5.74346E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.84734E-02	2.35015E-01	3.21094E-03	3.20023E-04	1.49424E-02	1.00000E+00
7	.00000E+00	.00000E+00	1.22958E-02	2.35167E-01	1.18207E-03	3.44723E-04	1.07690E-02	1.00000E+00
8	.00000E+00	.00000E+00	2.16023E-03	1.58558E-01	7.63480E-03	2.94873E-04	-5.76991E-03	1.00002E+00
9	.00000E+00	.00000E+00	7.66809E-03	1.05199E-01	8.76950E-04	1.10930E-03	5.68217E-03	9.99986E-01
10	.00000E+00	.00000E+00	8.78127E-04	8.55812E-02	8.49114E-04	8.35752E-04	-8.06693E-04	9.99998E-01
11	.00000E+00	.00000E+00	8.49175E-04	7.70634E-02	8.70317E-04	1.33717E-03	-1.35857E-03	1.00000E+00
12	.00000E+00	.00000E+00	8.70323E-04	4.67963E-02	8.70630E-04	4.16641E-05	-4.20883E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.70631E-04	3.95089E-02	8.05955E-04	5.99859E-05	4.71622E-06	1.00000E+00
14	.00000E+00	.00000E+00	8.05956E-04	3.59234E-02	6.76981E-04	9.56835E-05	3.32668E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.20969E-04	2.06197E-02	8.43898E-04	8.28063E-05	-2.05243E-04	9.99946E-01
16	.00000E+00	.00000E+00	9.43792E-04	1.09248E-02	9.46429E-04	5.14799E-05	-5.37680E-05	9.99947E-01
17	.00000E+00	.00000E+00	1.01657E-03	4.05272E-03	9.97588E-04	2.44834E-05	-5.33555E-06	9.99979E-01
18	.00000E+00	.00000E+00	1.04767E-03	2.49420E-03	8.05368E-04	1.70802E-05	2.25250E-04	9.99999E-01
19	.00000E+00	.00000E+00	8.46045E-04	6.63142E-03	9.78406E-04	4.29625E-05	-1.75057E-04	9.99978E-01
20	.00000E+00	.00000E+00	1.16855E-03	2.44908E-02	1.04119E-03	1.82091E-04	-5.39571E-05	9.99971E-01
21	.00000E+00	.00000E+00	1.30334E-03	5.79153E-03	1.38339E-03	6.38049E-05	-1.43764E-04	9.99996E-01
22	.00000E+00	.00000E+00	1.74531E-03	1.17026E-02	1.56402E-03	1.36356E-04	4.52399E-05	9.99996E-01
23	.00000E+00	.00000E+00	2.29337E-03	4.10463E-02	3.01349E-03	6.21609E-04	-1.34172E-03	1.00000E+00
24	.00000E+00	.00000E+00	3.70552E-03	2.90597E-02	3.98800E-03	6.76935E-04	-9.59478E-04	1.00000E+00
25	.00000E+00	.00000E+00	3.59428E-03	1.11990E-02	2.88248E-03	3.80907E-04	3.30856E-04	1.00000E+00
26	.00000E+00	.00000E+00	1.50017E-03	8.13769E-03	1.07542E-03	3.55341E-04	6.95463E-05	1.00000E+00
27	.00000E+00	.00000E+00	3.11885E-04	1.53002E-03	7.88322E-07	1.11907E-04	1.99131E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.43998E-02	1.40005E+00	8.43998E-02	7.64549E-03	-7.54130E-03	9.99984E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.70219E-01	8.34280E-05	1.71843E-01	1.10953E-02	1.01442E-04	.00000E+00	.00000E+00	3.70523E-02
2	1.25465E+00	9.68289E-02	1.27218E+00	1.14985E-01	.00000E+00	.00000E+00	.00000E+00	2.73550E-01

3	1.58841E+00	1.31790E-01	1.61148E+00	1.45130E-01	.00000E+00	.00000E+00	.00000E+00	3.46502E-01
4	9.86054E-01	8.72391E-02	1.00066E+00	8.76617E-02	.00000E+00	.00000E+00	.00000E+00	2.15206E-01
5	1.48904E+00	1.39112E-01	1.51210E+00	1.33369E-01	.00000E+00	.00000E+00	.00000E+00	3.25150E-01
6	2.86361E+00	2.66161E-01	2.90926E+00	2.51218E-01	.00000E+00	.00000E+00	.00000E+00	6.25499E-01
7	2.80702E+00	1.53359E-01	2.83331E+00	1.42590E-01	.00000E+00	.00000E+00	.00000E+00	6.11180E-01
8	2.06482E+00	1.49519E-02	2.06794E+00	2.07218E-02	.00000E+00	.00000E+00	.00000E+00	4.47759E-01
9	1.60284E+00	-1.53377E-02	1.59971E+00	-2.10199E-02	.00000E+00	.00000E+00	.00000E+00	3.47104E-01
10	1.46429E+00	-2.65200E-02	1.45997E+00	-2.57133E-02	.00000E+00	.00000E+00	.00000E+00	3.16895E-01
11	1.34468E+00	-5.70106E-02	1.33546E+00	-5.56522E-02	.00000E+00	.00000E+00	.00000E+00	2.90467E-01
12	8.42086E-01	-6.52188E-02	8.31467E-01	-6.51767E-02	.00000E+00	.00000E+00	.00000E+00	1.81412E-01
13	7.10716E-01	-5.57682E-02	7.01591E-01	-5.57729E-02	.00000E+00	.00000E+00	.00000E+00	1.53094E-01
14	6.47122E-01	-8.34894E-02	6.33502E-01	-8.35227E-02	.00000E+00	.00000E+00	.00000E+00	1.38853E-01
15	3.76217E-01	-8.40173E-03	3.74774E-01	-8.19649E-03	.00000E+00	.00000E+00	.00000E+00	8.13838E-02
16	2.08234E-01	-5.57822E-03	2.07323E-01	-5.52445E-03	.00000E+00	.00000E+00	.00000E+00	4.50355E-02
17	8.88982E-02	-6.47107E-03	8.78504E-02	-6.46573E-03	.00000E+00	.00000E+00	.00000E+00	1.91592E-02
18	5.92547E-02	-1.96079E-02	5.60524E-02	-1.98332E-02	.00000E+00	.00000E+00	.00000E+00	1.25175E-02
19	1.34059E-01	-1.10963E-02	1.32275E-01	-1.09213E-02	.00000E+00	.00000E+00	.00000E+00	2.88692E-02
20	4.48850E-01	-2.53659E-02	4.44792E-01	-2.53119E-02	.00000E+00	.00000E+00	.00000E+00	9.68602E-02
21	1.27287E-01	-2.27022E-02	1.23706E-01	-2.25584E-02	.00000E+00	.00000E+00	.00000E+00	2.72195E-02
22	2.37005E-01	-6.50481E-02	2.26792E-01	-6.50933E-02	.00000E+00	.00000E+00	.00000E+00	5.03294E-02
23	7.80174E-01	-1.27805E-01	7.61147E-01	-1.26468E-01	.00000E+00	.00000E+00	.00000E+00	1.67158E-01
24	5.86248E-01	-1.18693E-01	5.69301E-01	-1.17733E-01	.00000E+00	.00000E+00	.00000E+00	1.25360E-01
25	2.50204E-01	-5.92833E-02	2.42080E-01	-5.96142E-02	.00000E+00	.00000E+00	.00000E+00	5.34229E-02
26	1.64475E-01	-5.48584E-02	1.57328E-01	-5.49278E-02	.00000E+00	.00000E+00	.00000E+00	3.49527E-02
27	2.76194E-02	-1.49945E-02	2.57287E-02	-1.51936E-02	.00000E+00	.00000E+00	.00000E+00	5.80739E-03
28	2.33241E+01	5.45300E-02	2.33496E+01	6.20716E-02	1.01442E-04	.00000E+00	.00000E+00	5.05778E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	5.98456E-03	7.92106E-03	4.22157E-04	-8.34281E-03	9.99951E-01
2	.00000E+00	.00000E+00	4.54495E-03	7.63158E-02	1.00303E-01	1.07467E-03	-9.68289E-02	9.99961E-01
3	.00000E+00	.00000E+00	4.75877E-02	6.89432E-02	1.79577E-01	5.41885E-06	-1.31790E-01	9.99977E-01
4	.00000E+00	.00000E+00	7.02395E-02	4.58529E-02	1.57477E-01	3.22950E-06	-8.72391E-02	9.99987E-01
5	.00000E+00	.00000E+00	1.29849E-01	1.48457E-01	2.68960E-01	3.77411E-06	-1.39112E-01	9.99991E-01
6	.00000E+00	.00000E+00	2.74878E-01	4.55215E-01	5.41027E-01	1.14751E-05	-2.66161E-01	9.99998E-01
7	.00000E+00	.00000E+00	5.52647E-01	7.95099E-01	7.05989E-01	2.53491E-05	-1.53359E-01	9.99987E-01
8	.00000E+00	.00000E+00	7.35415E-01	1.00075E+00	7.50386E-01	4.70041E-05	-1.49520E-02	9.99912E-01
9	.00000E+00	.00000E+00	7.40666E-01	9.15908E-01	7.25314E-01	9.58909E-05	1.53377E-02	9.99889E-01
10	.00000E+00	.00000E+00	7.22087E-01	8.65279E-01	6.95380E-01	2.11426E-04	2.65199E-02	9.99896E-01
11	.00000E+00	.00000E+00	7.00356E-01	8.05312E-01	6.42980E-01	4.57316E-04	5.70105E-02	9.99940E-01
12	.00000E+00	.00000E+00	5.59704E-01	4.19760E-01	4.95899E-01	5.97270E-04	6.52188E-02	9.99979E-01
13	.00000E+00	.00000E+00	4.89846E-01	3.37792E-01	4.33195E-01	8.97250E-04	5.57682E-02	9.99969E-01
14	.00000E+00	.00000E+00	4.70148E-01	3.22462E-01	3.85204E-01	1.45957E-03	8.34894E-02	9.99989E-01
15	.00000E+00	.00000E+00	2.51253E-01	1.28945E-01	2.41567E-01	1.28478E-03	8.40238E-03	9.99998E-01
16	.00000E+00	.00000E+00	1.66756E-01	5.44103E-02	1.60298E-01	8.80758E-04	5.57890E-03	9.99994E-01
17	.00000E+00	.00000E+00	8.58657E-02	1.51818E-02	7.89905E-02	4.24066E-04	6.47153E-03	9.99996E-01
18	.00000E+00	.00000E+00	7.61187E-02	1.02846E-02	5.61972E-02	3.14669E-04	1.96048E-02	1.00008E+00
19	.00000E+00	.00000E+00	1.26710E-01	3.40075E-02	1.12868E-01	7.45409E-04	1.10970E-02	9.99998E-01
20	.00000E+00	.00000E+00	3.04630E-01	2.44252E-01	2.76137E-01	3.12458E-03	2.53677E-02	1.00000E+00
21	.00000E+00	.00000E+00	1.42879E-01	4.57608E-02	1.19045E-01	1.13385E-03	2.26951E-02	1.00008E+00
22	.00000E+00	.00000E+00	2.70382E-01	1.30851E-01	2.02865E-01	2.47774E-03	6.50501E-02	9.99996E-01
23	.00000E+00	.00000E+00	6.38528E-01	7.61024E-01	4.99744E-01	1.09715E-02	1.27809E-01	1.00001E+00
24	.00000E+00	.00000E+00	6.49668E-01	6.72083E-01	5.18787E-01	1.21843E-02	1.18696E-01	1.00000E+00
25	.00000E+00	.00000E+00	4.18654E-01	2.73939E-01	3.52423E-01	6.94805E-03	5.98226E-02	1.00000E+00
26	.00000E+00	.00000E+00	3.30556E-01	2.91208E-01	2.68969E-01	6.72748E-03	5.48562E-02	1.00001E+00
27	.00000E+00	.00000E+00	1.09957E-01	6.08041E-02	9.26287E-02	2.31363E-03	1.49946E-02	9.99999E-01
28	.00000E+00	.00000E+00	9.05787E+00	8.98535E+00	9.05787E+00	5.48425E-02	-5.45342E-02	9.99966E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*df**2	total flux
1	1.69430E-01	-6.09055E-09	1.70219E-01	8.34280E-05	4.38057E-10	.00000E+00	.00000E+00	1.93914E-01
2	1.24317E+00	-1.05055E-08	1.25465E+00	9.68289E-02	.00000E+00	.00000E+00	.00000E+00	1.42536E+00
3	1.57079E+00	1.33290E-08	1.58841E+00	1.31790E-01	.00000E+00	.00000E+00	.00000E+00	1.79908E+00

4	9.72908E-01	-1.06295E-08	9.86054E-01	8.72391E-02	.00000E+00	.00000E+00	.00000E+00	1.11467E+00
5	1.46663E+00	-4.71665E-08	1.48904E+00	1.39112E-01	.00000E+00	.00000E+00	.00000E+00	1.68071E+00
6	2.81963E+00	4.11372E-08	2.86361E+00	2.66161E-01	.00000E+00	.00000E+00	.00000E+00	3.23127E+00
7	2.78169E+00	1.78610E-08	2.80702E+00	1.53359E-01	.00000E+00	.00000E+00	.00000E+00	3.18568E+00
8	2.06488E+00	-1.28764E-07	2.06482E+00	1.49519E-02	.00000E+00	.00000E+00	.00000E+00	2.36260E+00
9	1.60495E+00	-4.49942E-08	1.60284E+00	-1.53377E-02	.00000E+00	.00000E+00	.00000E+00	1.83679E+00
10	1.46903E+00	-6.20540E-08	1.46429E+00	-2.65200E-02	.00000E+00	.00000E+00	.00000E+00	1.68097E+00
11	1.35474E+00	-7.11370E-08	1.34468E+00	-5.70106E-02	.00000E+00	.00000E+00	.00000E+00	1.54974E+00
12	8.53259E-01	-1.05156E-08	8.42086E-01	-6.52188E-02	.00000E+00	.00000E+00	.00000E+00	9.75749E-01
13	7.19872E-01	-1.09993E-08	7.10716E-01	-5.57682E-02	.00000E+00	.00000E+00	.00000E+00	8.23374E-01
14	6.61157E-01	-1.69050E-09	6.47122E-01	-8.34894E-02	.00000E+00	.00000E+00	.00000E+00	7.55758E-01
15	3.76753E-01	6.47627E-07	3.76217E-01	-8.40173E-03	.00000E+00	.00000E+00	.00000E+00	4.31476E-01
16	2.08885E-01	6.75455E-07	2.08254E-01	-5.57822E-03	.00000E+00	.00000E+00	.00000E+00	2.39135E-01
17	8.99783E-02	4.58511E-07	8.88982E-02	-6.47107E-03	.00000E+00	.00000E+00	.00000E+00	1.02910E-01
18	6.27563E-02	-3.11249E-06	5.92547E-02	-1.96079E-02	.00000E+00	.00000E+00	.00000E+00	7.15116E-02
19	1.35851E-01	6.49765E-07	1.34059E-01	-1.10963E-02	.00000E+00	.00000E+00	.00000E+00	1.55387E-01
20	4.52750E-01	1.84102E-06	4.48850E-01	-2.53669E-02	.00000E+00	.00000E+00	.00000E+00	5.18034E-01
21	1.31440E-01	-7.10584E-06	1.27287E-01	-2.27022E-02	.00000E+00	.00000E+00	.00000E+00	1.50057E-01
22	2.49090E-01	2.05832E-06	2.37005E-01	-6.50481E-02	.00000E+00	.00000E+00	.00000E+00	2.83981E-01
23	8.06606E-01	-3.86636E-07	7.80174E-01	-1.27809E-01	.00000E+00	.00000E+00	.00000E+00	9.20888E-01
24	6.14815E-01	3.47787E-06	5.86248E-01	-1.18698E-01	.00000E+00	.00000E+00	.00000E+00	6.99487E-01
25	2.66193E-01	-7.20197E-07	2.50204E-01	-5.92833E-02	.00000E+00	.00000E+00	.00000E+00	3.01994E-01
26	1.82258E-01	-2.24975E-06	1.64475E-01	-5.48584E-02	.00000E+00	.00000E+00	.00000E+00	2.05116E-01
27	3.36952E-02	1.04078E-07	2.76196E-02	-1.49945E-02	.00000E+00	.00000E+00	.00000E+00	3.72151E-02
28	2.33632E+01	-3.95649E-06	2.33241E+01	5.45300E-02	4.38057E-10	.00000E+00	.00000E+00	2.67300E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.25466E-02	.00000E+00	2.24312E-02	2.12892E-02	3.64651E-03	-6.09055E-09	9.98829E-01
2	.00000E+00	1.92653E-01	7.36648E-03	2.69064E-01	1.85291E-01	1.47418E-02	-1.05055E-08	1.00002E+00
3	.00000E+00	2.15639E-01	7.64668E-02	2.80085E-01	2.76410E-01	1.56992E-02	1.33290E-08	9.99987E-01
4	.00000E+00	1.23985E-01	1.14323E-01	1.95256E-01	2.30782E-01	7.52609E-03	-1.06295E-08	1.00000E+00
5	.00000E+00	1.66616E-01	2.08854E-01	4.89620E-01	3.68888E-01	4.58659E-03	-4.71665E-08	9.99989E-01
6	.00000E+00	1.77901E-01	4.28063E-01	1.34404E+00	5.98630E-01	7.32517E-03	4.11372E-08	1.00001E+00
7	.00000E+00	8.80271E-02	6.63396E-01	1.77528E+00	7.43507E-01	7.92453E-03	1.78610E-08	9.99988E-01
8	.00000E+00	1.35691E-02	7.80152E-01	1.79019E+00	7.79518E-01	1.42670E-02	-1.28764E-07	9.99920E-01
9	.00000E+00	9.84911E-04	7.70054E-01	1.55642E+00	7.46865E-01	2.42569E-02	-4.49942E-08	9.99895E-01
10	.00000E+00	7.31557E-05	7.43610E-01	1.41137E+00	7.06920E-01	3.68380E-02	-6.20540E-08	9.99900E-01
11	.00000E+00	5.75541E-06	7.11896E-01	1.30439E+00	6.51941E-01	6.00026E-02	-7.11370E-08	9.99942E-01
12	.00000E+00	4.04308E-07	5.68715E-01	7.05317E-01	5.04137E-01	6.45927E-02	-1.05156E-08	9.99974E-01
13	.00000E+00	6.42004E-08	5.00084E-01	5.54959E-01	4.40155E-01	5.99438E-02	-1.09993E-08	9.99971E-01
14	.00000E+00	1.27228E-08	4.77108E-01	5.10336E-01	3.95299E-01	8.38137E-02	-1.69050E-09	9.99990E-01
15	.00000E+00	1.43782E-09	2.59479E-01	2.34355E-01	2.51307E-01	8.12826E-03	6.47627E-07	1.00017E+00
16	.00000E+00	4.22193E-10	1.76764E-01	1.08162E-01	1.70859E-01	5.87555E-03	6.75455E-07	1.00017E+00
17	.00000E+00	1.35967E-10	9.46454E-02	3.39304E-02	8.75028E-02	7.12985E-03	4.58511E-07	1.00013E+00
18	.00000E+00	9.73483E-11	8.43415E-02	2.20986E-02	6.18142E-02	2.25224E-02	-3.11249E-06	1.00010E+00
19	.00000E+00	1.37630E-10	1.32584E-01	6.50477E-02	1.22816E-01	9.75470E-03	6.49765E-07	1.00010E+00
20	.00000E+00	2.23800E-10	3.16064E-01	3.71848E-01	2.86925E-01	2.90898E-02	1.84102E-06	1.00015E+00
21	.00000E+00	3.27571E-11	1.53399E-01	7.32849E-02	1.28863E-01	2.45239E-02	-7.10584E-06	1.00013E+00
22	.00000E+00	3.80057E-11	2.84316E-01	1.85310E-01	2.14154E-01	7.01380E-02	2.05832E-06	1.00008E+00
23	.00000E+00	3.63377E-11	6.55671E-01	9.70830E-01	5.21293E-01	1.34290E-01	-3.86636E-07	1.00013E+00
24	.00000E+00	9.85064E-12	6.75880E-01	8.17465E-01	5.45259E-01	1.30555E-01	3.47787E-06	1.00009E+00
25	.00000E+00	2.89533E-12	4.41462E-01	3.29052E-01	3.69770E-01	7.16648E-02	-7.20197E-07	1.00006E+00
26	.00000E+00	2.03022E-12	3.41479E-01	3.29782E-01	2.76524E-01	6.49883E-02	-2.24975E-06	1.00006E+00
27	.00000E+00	4.83813E-13	1.12277E-01	6.68603E-02	9.37302E-02	1.85447E-02	1.04078E-07	1.00002E+00
28	.00000E+00	1.00000E+00	9.77845E+00	1.58148E+01	9.77845E+00	1.00252E+00	-3.99449E-06	1.00001E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.69430E-01	-6.09055E-09	1.77195E-01	.00000E+00	2.35985E-03	2.62977E-03	.00000E+00	3.57072E-01
2	1.24317E+00	-1.05055E-08	1.32751E+00	.00000E+00	1.71854E-03	1.18502E-02	.00000E+00	2.63726E+00
3	1.57079E+00	1.33290E-08	1.67978E+00	.00000E+00	.00000E+00	1.45322E-02	.00000E+00	3.33563E+00
4	9.72908E-01	-1.06295E-08	1.04123E+00	.00000E+00	.00000E+00	6.27267E-03	.00000E+00	2.06791E+00

5	1.46663E+00	-4.71665E-08	1.57523E+00	.00000E+00	.00000E+00	1.82307E-03	.00000E+00	3.12155E+00
6	2.81963E+00	4.11372E-08	3.02978E+00	.00000E+00	.00000E+00	1.58370E-03	.00000E+00	6.00220E+00
7	2.78169E+00	1.78610E-08	2.90473E+00	.00000E+00	.00000E+00	1.55715E-03	.00000E+00	5.86680E+00
8	2.06488E+00	-1.28764E-07	2.08053E+00	.00000E+00	.00000E+00	1.58895E-03	.00000E+00	4.30491E+00
9	1.60495E+00	-4.49942E-08	1.58711E+00	.00000E+00	.00000E+00	2.13181E-03	.00000E+00	3.33067E+00
10	1.46903E+00	-6.20540E-08	1.44611E+00	.00000E+00	.00000E+00	4.54090E-03	.00000E+00	3.04362E+00
11	1.35474E+00	-7.11370E-08	1.30533E+00	.00000E+00	.00000E+00	9.59878E-03	.00000E+00	2.78959E+00
12	8.53259E-01	-1.05156E-08	7.95806E-01	.00000E+00	.00000E+00	1.25419E-02	.00000E+00	1.74125E+00
13	7.19872E-01	-1.09993E-08	6.71440E-01	.00000E+00	.00000E+00	1.33683E-02	.00000E+00	1.46929E+00
14	6.61157E-01	-1.69050E-09	5.87894E-01	.00000E+00	.00000E+00	8.47353E-03	.00000E+00	1.33196E+00
15	3.76753E-01	6.47627E-07	3.70150E-01	.00000E+00	.00000E+00	2.09234E-03	.00000E+00	7.80886E-01
16	2.08885E-01	6.75455E-07	2.04411E-01	.00000E+00	.00000E+00	1.44179E-03	.00000E+00	4.32280E-01
17	8.99783E-02	4.58511E-07	8.44542E-02	.00000E+00	.00000E+00	1.82542E-03	.00000E+00	1.83929E-01
18	6.27563E-02	-3.11249E-06	4.41396E-02	.00000E+00	.00000E+00	1.59461E-03	.00000E+00	1.19580E-01
19	1.35851E-01	6.49765E-07	1.26380E-01	.00000E+00	.00000E+00	2.89268E-03	.00000E+00	2.77104E-01
20	4.52750E-01	1.84102E-06	4.31366E-01	.00000E+00	.00000E+00	1.60106E-02	.00000E+00	9.29685E-01
21	1.31440E-01	-7.10584E-06	1.11389E-01	.00000E+00	.00000E+00	1.45434E-02	.00000E+00	2.61248E-01
22	2.49090E-01	2.05852E-06	1.89539E-01	.00000E+00	.00000E+00	4.15271E-02	.00000E+00	4.82125E-01
23	8.06606E-01	-3.86634E-07	6.93485E-01	.00000E+00	.00000E+00	7.74830E-02	.00000E+00	1.60746E+00
24	6.14815E-01	3.47787E-06	5.06153E-01	.00000E+00	.00000E+00	7.46668E-02	.00000E+00	1.20872E+00
25	2.66193E-01	-7.20197E-07	2.09385E-01	.00000E+00	.00000E+00	4.26925E-02	.00000E+00	5.16208E-01
26	1.82238E-01	-2.24975E-06	1.26664E-01	.00000E+00	.00000E+00	3.92310E-02	.00000E+00	3.40638E-01
27	3.36952E-02	1.04078E-07	1.65059E-02	.00000E+00	.00000E+00	1.10368E-02	.00000E+00	5.76549E-02
28	2.33632E+01	-3.95649E-06	2.33257E+01	.00000E+00	2.37703E-03	4.19530E-01	.00000E+00	4.85970E+01

- elapsed time .02 min.
Odirect access unit 9 requires 516 blocks of length 1456 for cross section weighting.
1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.37800E-03	2.48358E-02	3.15170E-02	1.90785E-02	2.91626E-02	5.57354E-02	3.17414E-02	4.63097E-03
2	3.72979E-03	3.86535E-02	4.87869E-02	2.94684E-02	4.48333E-02	8.44496E-02	4.79530E-02	6.96581E-03
3	3.08067E-03	3.29767E-02	4.30731E-02	2.71742E-02	4.23109E-02	8.03236E-02	4.59382E-02	5.56634E-03
4	1.04615E-03	1.21344E-02	1.65107E-02	1.09244E-02	1.74148E-02	3.33232E-02	1.92749E-02	1.99890E-03
5	1.73421E-03	1.89099E-02	2.47319E-02	1.55961E-02	2.43107E-02	4.64094E-02	2.66114E-02	3.31664E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.70455E-03	5.76194E-03	1.24377E-02	1.45107E-02	1.24227E-02	1.84916E-02	1.85482E-03	1.23684E-03
2	7.06606E-03	8.64380E-03	1.87081E-02	2.19098E-02	1.87486E-02	2.80770E-02	2.75530E-03	1.85708E-03
3	5.67164E-03	8.11162E-03	1.74975E-02	2.02581E-02	1.75291E-02	2.59472E-02	2.57808E-03	1.72469E-03
4	1.88639E-03	3.30102E-03	7.10645E-03	8.13598E-03	6.99506E-03	1.04338E-02	1.12452E-03	7.20699E-04
5	3.29160E-03	4.69733E-03	1.01289E-02	1.17166E-02	1.00455E-02	1.49832E-02	1.54228E-03	1.01328E-03

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.43647E-03	4.20291E-03	2.46130E-03	5.66414E-03	4.95029E-03	1.40983E-02	2.79502E-02	2.58665E-02
2	2.17352E-03	6.66691E-03	3.67127E-03	8.50867E-03	7.58290E-03	2.18818E-02	4.25139E-02	3.95780E-02
3	2.00981E-03	6.12758E-03	3.42052E-03	7.87317E-03	7.03047E-03	2.02184E-02	3.94995E-02	3.67274E-02
4	8.08923E-04	2.41974E-03	1.39868E-03	3.21777E-03	2.82516E-03	8.09754E-03	1.62196E-02	1.50528E-02
5	1.16233E-03	3.46035E-03	1.99532E-03	4.59231E-03	4.03846E-03	1.15545E-02	2.29844E-02	2.12492E-02

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	1.30301E-02	1.18326E-02	3.12027E-03	3.85114E-01
2	2.00402E-02	1.84648E-02	5.10756E-03	5.88778E-01
3	1.84738E-02	1.70567E-02	4.69107E-03	5.42640E-01
4	7.48920E-03	6.80681E-03	1.71927E-03	2.18967E-01
5	1.06570E-02	9.71408E-03	2.54374E-03	3.12931E-01

1 560 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
Ocell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.75274E-01	1.30718E+00	1.65429E+00	1.02585E+00	1.55081E+00	2.98210E+00	2.87601E+00	2.07557E+00
2	1.72052E-01	1.27417E+00	1.61384E+00	1.00197E+00	1.51396E+00	2.91258E+00	2.85513E+00	2.06831E+00
3	1.70873E-01	1.26220E+00	1.59882E+00	9.92998E-01	1.50080E+00	2.88616E+00	2.82009E+00	2.06605E+00
4	1.69425E-01	1.24361E+00	1.57184E+00	9.73903E-01	1.46844E+00	2.82520E+00	2.78357E+00	2.06424E+00
5	1.71550E-01	1.26704E+00	1.60256E+00	9.93499E-01	1.49971E+00	2.88368E+00	2.81862E+00	2.06824E+00

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59203E+00	1.45173E+00	1.31751E+00	8.10131E-01	6.83540E-01	6.06130E-01	3.72052E-01	2.05584E-01
2	1.59953E+00	1.45963E+00	1.33472E+00	8.30575E-01	7.00825E-01	6.32357E-01	3.74655E-01	2.07245E-01
3	1.60160E+00	1.46221E+00	1.34026E+00	8.37065E-01	7.06403E-01	6.40689E-01	3.75518E-01	2.07801E-01
4	1.60483E+00	1.46869E+00	1.35403E+00	8.52526E-01	7.19394E-01	6.60316E-01	3.76986E-01	2.08935E-01
5	1.60017E+00	1.46227E+00	1.34022E+00	8.36559E-01	7.05899E-01	6.39924E-01	3.75166E-01	2.07683E-01
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.58086E-02	4.87777E-02	1.28776E-01	4.36764E-01	1.16285E-01	2.04294E-01	7.20625E-01	5.31425E-01
2	8.77622E-02	5.57722E-02	1.32129E-01	4.44439E-01	1.23399E-01	2.25912E-01	7.59522E-01	5.67817E-01
3	8.84038E-02	5.77576E-02	1.33207E-01	4.46929E-01	1.25994E-01	2.32228E-01	7.71292E-01	5.78429E-01
4	8.99142E-02	6.24807E-02	1.35763E-01	4.52613E-01	1.31107E-01	2.48118E-01	8.03894E-01	6.11151E-01
5	8.83662E-02	5.73543E-02	1.33131E-01	4.46655E-01	1.25513E-01	2.31630E-01	7.72281E-01	5.80714E-01
Ozone	grp. 25	grp. 26	grp. 27					
1	2.22430E-01	1.38861E-01	2.00771E-02					
2	2.41267E-01	1.56652E-01	2.55397E-02					
3	2.46499E-01	1.61278E-01	2.67963E-02					
4	2.63856E-01	1.79213E-01	3.25153E-02					
5	2.48003E-01	1.63655E-01	2.76995E-02					

Oflux disadvantage factors (zone average/cell average-flux)

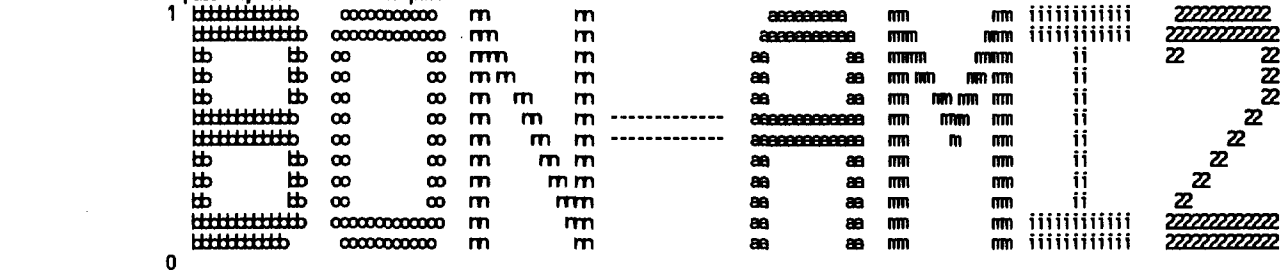
Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.02170E+00	1.03168E+00	1.03228E+00	1.03256E+00	1.03408E+00	1.03413E+00	1.02036E+00	1.00355E+00
2	1.00292E+00	1.00563E+00	1.00704E+00	1.00852E+00	1.00951E+00	1.01002E+00	1.00586E+00	1.00004E+00
3	9.96052E-01	9.96185E-01	9.97667E-01	9.99495E-01	1.00089E+00	1.00085E+00	1.00052E+00	9.98935E-01
4	9.87612E-01	9.81511E-01	9.80830E-01	9.80275E-01	9.79166E-01	9.79029E-01	9.87493E-01	9.98067E-01
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	9.94909E-01	9.92795E-01	9.83053E-01	9.68409E-01	9.68525E-01	9.47190E-01	9.91700E-01	9.89894E-01
2	9.99472E-01	9.98195E-01	9.95897E-01	9.92846E-01	9.92812E-01	9.88176E-01	9.98638E-01	9.97890E-01
3	1.00089E+00	9.99959E-01	1.00003E+00	1.00060E+00	1.00071E+00	1.00119E+00	1.00094E+00	1.00057E+00
4	1.00291E+00	1.00439E+00	1.01030E+00	1.01909E+00	1.01912E+00	1.03187E+00	1.00485E+00	1.00603E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.71057E-01	8.50462E-01	9.67291E-01	9.77856E-01	9.26477E-01	8.81983E-01	9.33112E-01	9.15123E-01
2	9.93165E-01	9.72614E-01	9.92474E-01	9.95040E-01	9.83153E-01	9.75314E-01	9.83478E-01	9.77792E-01
3	1.00043E+00	1.00703E+00	1.00057E+00	1.00061E+00	1.00065E+00	1.00258E+00	9.98720E-01	9.96066E-01
4	1.01752E+00	1.08938E+00	1.01977E+00	1.01334E+00	1.04457E+00	1.07118E+00	1.04093E+00	1.05241E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 25	grp. 26	grp. 27					
1	8.96885E-01	8.48498E-01	7.24817E-01					
2	9.72839E-01	9.57210E-01	9.22029E-01					
3	9.99957E-01	9.85475E-01	9.67391E-01					
4	1.06395E+00	1.09507E+00	1.17386E+00					
5	1.00000E+00	1.00000E+00	1.00000E+00					

Ocell averaged currents

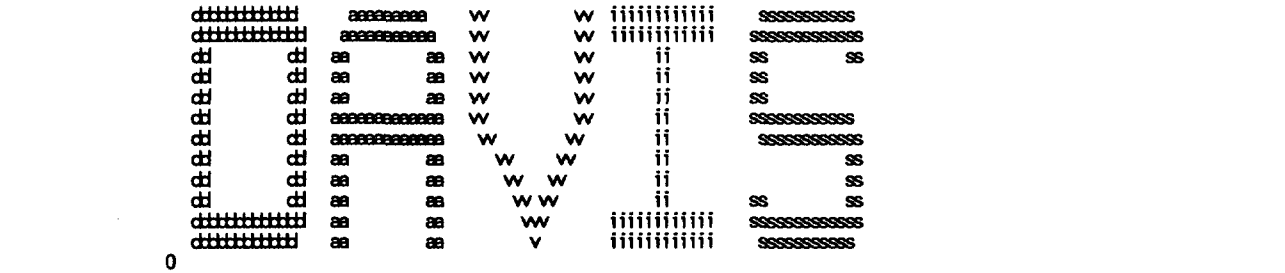
Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.57800E-03	2.48358E-02	3.15170E-02	1.90785E-02	2.91626E-02	5.57354E-02	3.17414E-02	4.63097E-03
2	3.72979E-03	3.86535E-02	4.87869E-02	2.94684E-02	4.48333E-02	8.44496E-02	4.79530E-02	6.96581E-03
3	3.08067E-03	3.29767E-02	4.30731E-02	2.71742E-02	4.23109E-02	8.03234E-02	4.59382E-02	5.56634E-03
4	1.04615E-03	1.21344E-02	1.65107E-02	1.09244E-02	1.74148E-02	3.33252E-02	1.92749E-02	1.99890E-03
5	1.73421E-03	1.89099E-02	2.47319E-02	1.55961E-02	2.43107E-02	4.64094E-02	2.66114E-02	3.31664E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.70455E-03	5.76194E-03	1.24377E-02	1.45107E-02	1.24227E-02	1.84916E-02	1.85482E-03	1.23684E-03
2	7.06606E-03	8.64380E-03	1.87081E-02	2.19098E-02	1.87486E-02	2.80770E-02	2.75530E-03	1.85708E-03
3	5.67164E-03	8.11162E-03	1.74975E-02	2.02581E-02	1.73291E-02	2.59472E-02	2.57808E-03	1.72469E-03
4	1.88639E-03	3.30102E-03	7.10645E-03	8.13598E-03	6.99506E-03	1.04338E-02	1.12452E-03	7.20699E-04
5	3.29160E-03	4.69733E-03	1.01286E-02	1.17166E-02	1.00455E-02	1.49832E-02	1.54228E-03	1.01328E-03
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.43647E-03	4.20291E-03	2.46130E-03	5.66414E-03	4.95029E-03	1.40983E-02	2.79502E-02	2.58665E-02

```
    2 2.17352E-03 6.66691E-03 3.67127E-03 8.50867E-03 7.58290E-03 2.18818E-02 4.25139E-02 3.95780E-02
    3 2.00981E-03 6.12758E-03 3.42052E-03 7.87317E-03 7.03047E-03 2.02184E-02 3.94995E-02 3.67274E-02
    4 8.08923E-04 2.41974E-03 1.39868E-03 3.21777E-03 2.82516E-03 8.09754E-03 1.62196E-02 1.50528E-02
    5 1.16233E-03 3.46035E-03 1.99532E-03 4.59231E-03 4.03846E-03 1.15545E-02 2.29244E-02 2.12492E-02
Ozone  grp. 25      grp. 26      grp. 27
    1 1.30301E-02 1.18326E-02 3.12027E-03
    2 2.00402E-02 1.84648E-02 5.10756E-03
    3 1.84738E-02 1.70567E-02 4.69107E-03
    4 7.48920E-03 6.80681E-03 1.71927E-03
    5 1.06570E-02 9.71408E-03 2.54374E-03
Ozone      volume      vol. fraction

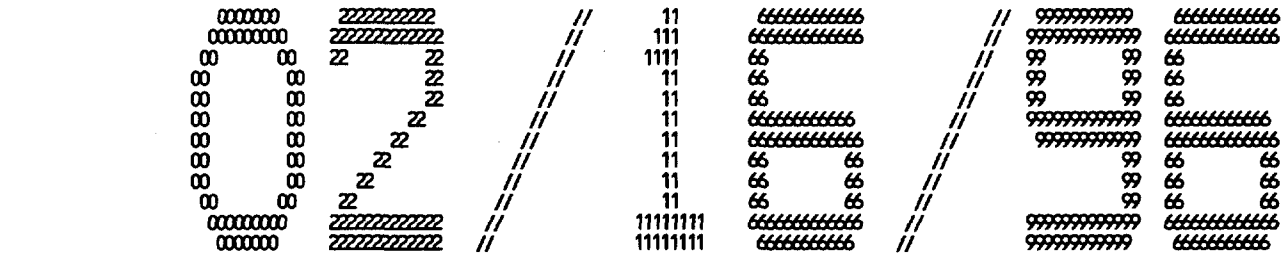
    1    6.88443E-01    3.30753E-01
    2    3.17352E-02    1.52468E-02
    3    2.16724E-01    1.04122E-01
    4    1.14454E+00    5.49878E-01
    5    2.08144E+00    1.00000E+00
 - elapsed time    .03 min.
Orequested parm=halt8,skipcellwt,skipshipdata
  pass= 4, exec halts after pass  8
```



```
0
```

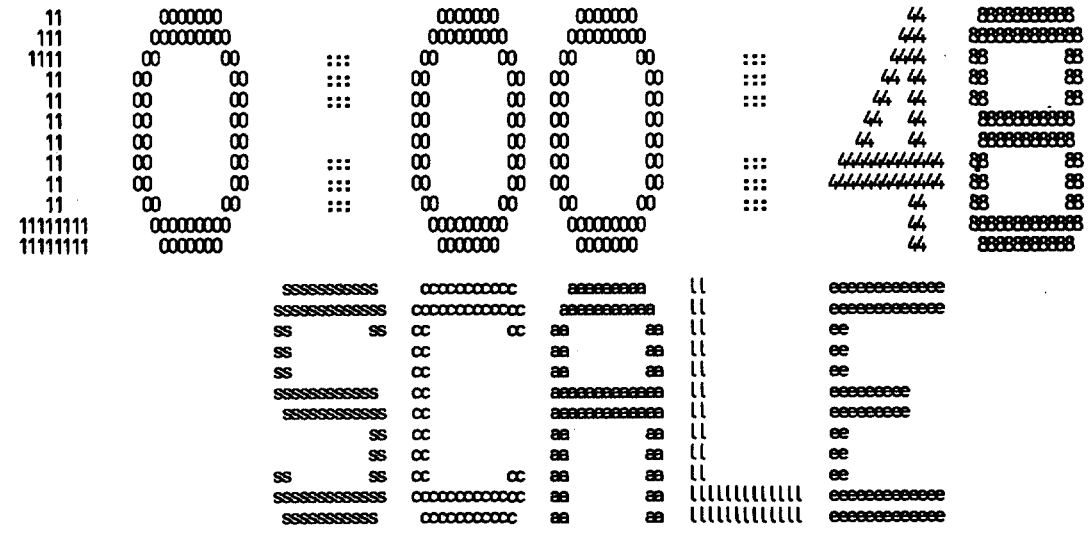


```
0
```



```
0

     11        0000000                  0000000      0000000                    44    88888888888
    111       000000000                000000000    000000000                  444    888888888888
   1111       00      00      :::      00      00   00      00      :::       4444    88        88
     11       00      00      :::      00      00   00      00      :::      44 44    88        88
     11       00      00      :::      00      00   00      00      :::     44  44    88        88
     11       00      00               00      00   00      00              44   44    88888888888
     11       00      00               00      00   00      00             44    44    88888888888
     11       00      00      :::      00      00   00      00      :::   44444444444  88        88
     11       00      00      :::      00      00   00      00      :::   44444444444  88        88
     11       00      00      :::      00      00   00      00      :::          44    88        88
  11111111    000000000                000000000    000000000                  44    888888888888
  11111111     0000000                  0000000      0000000                   44    88888888888
1
0                        sssssssssss    cccccccccc    aaaaaaaa    ll          eeeeeeeeeeee
                        ssssssssssss   cccccccccccc   aaaaaaaaaa   ll          eeeeeeeeeeee
                        ss        ss   cc        cc  aa        aa  ll          ee
                        ss             cc            aa        aa  ll          ee
                        ss             cc            aa        aa  ll          ee
                        ssssssssssss   cc            aaaaaaaaaaaa  ll          eeeeeeeee
                         ssssssssssss  cc            aaaaaaaaaaaa  ll          eeeeeeeee
                                  ss   cc            aa        aa  ll          ee
                                  ss   cc            aa        aa  ll          ee
                        ss        ss   cc        cc  aa        aa  ll          ee
                        ssssssssssss   cccccccccccc  aa        aa  llllllllllll eeeeeeeeeeee
                         ssssssssssss   cccccccccc   aa        aa  llllllllllll eeeeeeeeeeee
```



```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****             program:  c0c008                                      *****
*****                                                                   *****
*****        creation date:  04/27/95                                   *****
*****                                                                   *****
*****             library:  /neutronics/scale/exe                       *****
*****                                                                   *****
*****                                                                   *****
*****    this is not a   scale  configuration controlled code           *****
*****                                                                   *****
*****             jobname:  davis                                       *****
*****                                                                   *****
*****    date of execution:  02/16/96                                   *****
*****                                                                   *****
*****    time of execution:  10:00:48                                   *****
*****                                                                   *****
*****                                                                   *****
```

```
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************

1
0       -1q array has       1 entries.
0        0q array has       4 entries.
0        1q array has       6 entries.
0        2q array has       2 entries.
1logical assignments
0master library   12
 working library  17
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere                2
0izm--number of zones or material regions                       4
0ms--mixing table length                                       70
0ibl--shielded cross section edit option (0/1--no/yes)          0
0ibr--bondarenko factor edit option (0/1--no/yes)               0
0issopt--dancoff factor option                                  0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has      70 entries.
0        4q array has      70 entries.
0        5q array has      70 entries.
0        6q array has       4 entries.
0        7q array has       4 entries.
0        8q array has       4 entries.
0        9q array has       4 entries.
0       10q array has      70 entries.
0       11q array has       4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope  number density  new identifier
    1        3     8016    2.09710E-02          201
    2        3     1001    4.19420E-02          202
    3        3     5010    3.81515E-06          203
    4        3     5011    1.54884E-05          204
    5        2    40302    4.25156E-02          205
    6        1    92235    1.62152E-04       200006
    7        1    92234    1.60395E-06       200007
    8        1    92236    1.31718E-05       200008
    9        1    92238    7.24962E-03       200009
   10        1     8016    1.50611E-02       200010
   11        1     8016    1.15315E-02       200011
   12        1    36083    3.23159E-07       200012
   13        1    36085    1.55770E-07       200013
   14        1    38090    3.51229E-06       200014
   15        1    39089    2.61349E-06       200015
   16        1    42095    3.20178E-06       200016
   17        1    40093    2.71690E-06       200017
   18        1    40094    4.22845E-06       200018
   19        1    40095    6.86629E-07       200019
   20        1    41094    1.81576E-12       200020
   21        1    43099    4.11687E-06       200021
   22        1    45103    2.14179E-06       200022
   23        1    45105    6.24106E-09       200023
   24        1    44101    3.66029E-06       200024
   25        1    44106    5.45766E-07       200025
   26        1    46105    1.26197E-06       200026
   27        1    46108    3.07708E-07       200027
```

28	1	47109	2.21053E-07	200028
29	1	51124	5.35940E-11	200029
30	1	54131	1.90924E-06	200030
31	1	54132	3.32758E-06	200031
32	1	54135	2.20090E-09	200032
33	1	54136	6.96021E-06	200033
34	1	55134	1.39898E-07	200034
35	1	55135	2.19558E-06	200035
36	1	55137	4.36275E-06	200036
37	1	56136	2.69601E-08	200037
38	1	57139	4.33528E-06	200038
39	1	59141	3.63399E-06	200039
40	1	59143	1.27348E-07	200040
41	1	58144	1.94158E-06	200041
42	1	60143	3.52685E-06	200042
43	1	60145	2.55992E-06	200043
44	1	61147	1.03903E-06	200044
45	1	61148	2.92578E-09	200045
46	1	60147	4.35262E-08	200046
47	1	62147	2.20883E-07	200047
48	1	62149	2.65272E-08	200048
49	1	62150	8.41498E-07	200049
50	1	62151	1.09812E-07	200050
51	1	62152	4.11655E-07	200051
52	1	64155	3.91515E-10	200052
53	1	63153	2.08635E-07	200053
54	1	63154	3.15201E-08	200054
55	1	63155	2.41894E-08	200055
56	1	40302	4.42681E-03	200056
57	1	1001	2.30630E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	4.50801E-06	200060
61	1	95237	6.54722E-07	200061
62	1	94238	5.86583E-08	200062
63	1	94239	2.73412E-05	200063
64	1	94240	3.82999E-06	200064
65	1	94241	1.67189E-06	200065
66	1	94242	1.12810E-07	200066
67	1	95241	3.19625E-08	200067
68	1	95243	6.10845E-09	200068
69	1	96244	3.46025E-10	200069
70	1	999	3.30753E-21	200070

0geometry and material description

0zone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.32460E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.23052E+01	0
3	3	8.14000E-01	6.07600E+02	3.54852E+00	0
4	1	2.96100E+00	9.75000E+02	2.32883E-01	0

8067 locations of 200000 available are required to make a new master containing the self-shielded values

0no nuclides in your problem have bondarenko factor data**boremi will copy from logical 12 to logical 1

0copy 999 1/v cross sectio from log 12 to log 1 bondarenko trigger 0
0copy 1001 hydrogen from log 12 to log 18 bondarenko trigger 0
0copy 1001 hydrogen from log 18 to log 1 bondarenko trigger 0
0copy 1001 hydrogen from log 18 to log 1 bondarenko trigger 0
0copy 5010 b-10 1273 218ngp from log 12 to log 18 bondarenko trigger 0
0copy 5010 b-10 1273 218ngp from log 18 to log 1 bondarenko trigger 0
0copy 5010 b-10 1273 218ngp from log 18 to log 1 bondarenko trigger 0
0copy 5011 boron-11 from log 12 to log 18 bondarenko trigger 0
0copy 5011 boron-11 from log 18 to log 1 bondarenko trigger 0

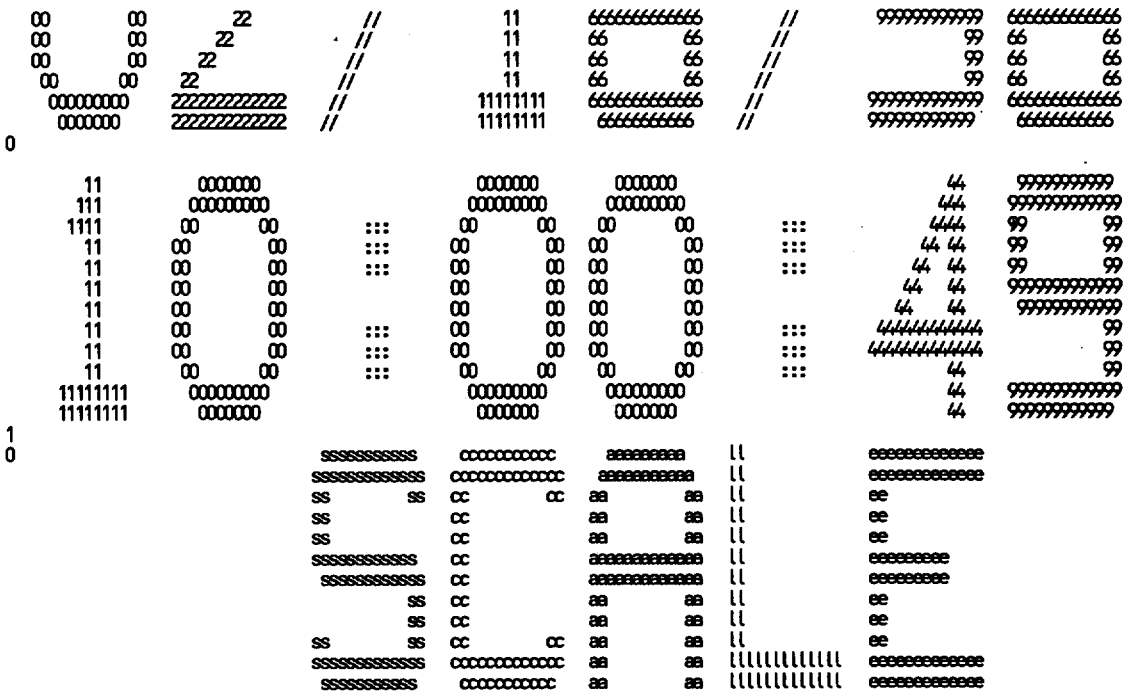
```
0copy    5011  boron-11          from log 18 to log  1   bondarenko trigger 0
0copy    8016  oxygen-16         from log 12 to log 18   bondarenko trigger 0
0copy    8016  oxygen-16         from log 18 to log  1   bondarenko trigger 0
0copy    8016  oxygen-16         from log 18 to log  1   bondarenko trigger 0
0copy    8016  oxygen-16         from log 18 to log  1   bondarenko trigger 0
0copy   36083  kr-83             from log 12 to log  1   bondarenko trigger 0
0copy   36085  kr-85             from log 12 to log  1   bondarenko trigger 0
0copy   38090  sr-90             from log 12 to log  1   bondarenko trigger 0
0copy   39089   y-89             from log 12 to log  1   bondarenko trigger 0
0copy   40093  zr-93             from log 12 to log  1   bondarenko trigger 0
0copy   40094  zr-94             from log 12 to log  1   bondarenko trigger 0
0copy   40095  zr-95             from log 12 to log  1   bondarenko trigger 0
0copy   40302  zircalloy         from log 12 to log 18   bondarenko trigger 0
0copy   40302  zircalloy         from log 18 to log  1   bondarenko trigger 0
0copy   40302  zircalloy         from log 18 to log  1   bondarenko trigger 0
0copy   41094  nb-94             from log 12 to log  1   bondarenko trigger 0
0copy   42095  mo-95             from log 12 to log  1   bondarenko trigger 0
0copy   43099  tc-99             from log 12 to log  1   bondarenko trigger 0
0copy   44101  ru-101            from log 12 to log  1   bondarenko trigger 0
0copy   44106  ru-106            from log 12 to log  1   bondarenko trigger 0
0copy   45103  rh-103            from log 12 to log  1   bondarenko trigger 0
0copy   45105  rh-105            from log 12 to log  1   bondarenko trigger 0
0copy   46105  pd-105            from log 12 to log  1   bondarenko trigger 0
0copy   46108  pd-108            from log 12 to log  1   bondarenko trigger 0
0copy   47109  silver-109        from log 12 to log  1   bondarenko trigger 0
0copy   51124  sb-124            from log 12 to log  1   bondarenko trigger 0
0copy   54131  xe-131            from log 12 to log  1   bondarenko trigger 0
0copy   54132  xe-132            from log 12 to log  1   bondarenko trigger 0
0copy   54135  xenon-135         from log 12 to log  1   bondarenko trigger 0
0copy   54136  xe-136            from log 12 to log  1   bondarenko trigger 0
0copy   55133  cesium-133        from log 12 to log  1   bondarenko trigger 0
0copy   55134  cs-134            from log 12 to log  1   bondarenko trigger 0
0copy   55135  cs-135            from log 12 to log  1   bondarenko trigger 0
0copy   55137  cs-137            from log 12 to log  1   bondarenko trigger 0
0copy   56136  ba-136            from log 12 to log  1   bondarenko trigger 0
0copy   57139  la-139            from log 12 to log  1   bondarenko trigger 0
0copy   58144  ce-144            from log 12 to log  1   bondarenko trigger 0
0copy   59141  pr-141            from log 12 to log  1   bondarenko trigger 0
0copy   59143  pr-143            from log 12 to log  1   bondarenko trigger 0
0copy   60143  nd-143            from log 12 to log  1   bondarenko trigger 0
0copy   60145  nd-145            from log 12 to log  1   bondarenko trigger 0
0copy   60147  nd-147            from log 12 to log  1   bondarenko trigger 0
0copy   61147  pm-147            from log 12 to log  1   bondarenko trigger 0
0copy   61148  pm-148            from log 12 to log  1   bondarenko trigger 0
0copy   62147  sm-147            from log 12 to log  1   bondarenko trigger 0
0copy   62149  sm-149            from log 12 to log  1   bondarenko trigger 0
0copy   62150  sm-150            from log 12 to log  1   bondarenko trigger 0
0copy   62151  sm-151            from log 12 to log  1   bondarenko trigger 0
0copy   62152  sm-152            from log 12 to log  1   bondarenko trigger 0
0copy   63153  eu-153            from log 12 to log  1   bondarenko trigger 0
0copy   63154  eu-154            from log 12 to log  1   bondarenko trigger 0
0copy   63155  eu-155            from log 12 to log  1   bondarenko trigger 0
0copy   64155  gd-155            from log 12 to log  1   bondarenko trigger 0
0copy   92234  u-234 1043 sigo=  from log 12 to log  1   bondarenko trigger 0
0copy   92235  uranium-235       from log 12 to log  1   bondarenko trigger 0
0copy   92236  u-236 1163 sigo=  from log 12 to log  1   bondarenko trigger 0
0copy   92238  uranium-238       from log 12 to log  1   bondarenko trigger 0
0copy   93237  neptunium-237     from log 12 to log  1   bondarenko trigger 0
0copy   94238  pu-238 1050 sigo  from log 12 to log  1   bondarenko trigger 0
0copy   94239  plutonium-239     from log 12 to log  1   bondarenko trigger 0
```

```
0copy   94240  plutonium-240   from log 12 to log  1   bondarenko trigger 0
0copy   94241  plutonium-241   from log 12 to log  1   bondarenko trigger 0
0copy   94242  plutonium-242   from log 12 to log  1   bondarenko trigger 0
0copy   95241  am-241 1056 sigp from log 12 to log  1   bondarenko trigger 0
0copy   95243  am-243 1057 218  from log 12 to log  1   bondarenko trigger 0
0copy   96244  curium-244       from log 12 to log  1   bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
           compiled for nrc     1/27/89
              last updated      9/16/93
                 l.m.petrie   -   ornl
         tape id                          4321        number of nuclides                  70
         number of neutron groups           27        number of gamma groups               0
         first thermal group                15        logical unit                         1
                                    table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id   200070
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89             id      202
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89             id   200057
       b-10 1273 218ngp 042375 p-3 293k                                           id      203
       b-10 1273 218ngp 042375 p-3 293k                                           id   200058
        boron-11       endf/b-iv mat 1160            updated 10/13/89             id      204
        boron-11       endf/b-iv mat 1160            updated 10/13/89             id   200059
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id      201
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id   200010
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id   200011
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89             id   200012
        kr-85            mt=  102                                                 id   200013
        sr-90          mt=102                        updated 10/13/89             id   200014
         y-89          mt=102                        updated 10/13/89             id   200015
        zr-93            mt=  102                                                 id   200017
        zr-94          mt=102                        updated 10/13/89             id   200018
        zr-95          mt=102                        updated 10/13/89             id   200019
        zircalloy      endf/b-iv mat 1284            updated 10/13/89             id      205
        zircalloy      endf/b-iv mat 1284            updated 10/13/89             id   200056
        nb-94          mt=102                        updated 10/13/89             id   200020
        mo-95          mt=102                        updated 10/13/89             id   200016
        tc-99          mt=102                        updated 10/13/89             id   200021
        ru-101         mt=102                        updated 10/13/89             id   200024
        ru-106         mt=102                        updated 10/13/89             id   200025
        rh-103         mt=102                        updated 10/13/89             id   200022
        rh-105           mt=  102                                                 id   200023
        pd-105         mt=102                        updated 10/13/89             id   200026
        pd-108         mt=102                        updated 10/13/89             id   200027
        silver-109     endf/b-iv mat 1139            updated 10/13/89             id   200028
        sb-124         mt=102                        updated 10/13/89             id   200029
        xe-131         mt=102,103,104,105,106        updated 10/13/89             id   200030
        xe-132         mt=102,103,104,105,106        updated 10/13/89             id   200031
        xenon-135      endf/b-iv mat 1294            updated 10/13/89             id   200032
        xe-136           mt=  102, 103, 104, 105, 107                             id   200033
        cesium-133     endf/b-iv mat 1141            updated 10/13/89             id   200060
        cs-134         mt=102                        updated 10/13/89             id   200034
        cs-135           mt=  102                                                 id   200035
        cs-137         mt=102                        updated 10/13/89             id   200036
        ba-136         mt=102                        updated 10/13/89             id   200037
        la-139         mt=102                        updated 10/13/89             id   200038
        ce-144           mt=  102                                                 id   200041
        pr-141         mt=102,103,104,105,106,107    updated 10/13/89             id   200039
        pr-143         mt=102                        updated 10/13/89             id   200040
        nd-143         mt=102                        updated 10/13/89             id   200042
        nd-145         mt=102                        updated 10/13/89             id   200043
```

```
        rh-147        mt=102                          updated 10/13/89              id   200046
        pm-147        mt=102                          updated 10/13/89              id   200044
        pm-148           mt=  102                                                   id   200045
        sm-147        endf/b-v fission product        updated 10/13/89              id   200047
        sm-149        mt=102,103,107                  updated 10/13/89              id   200048
        sm-150        mt=102                          updated 10/13/89              id   200049
        sm-151        mt=102,103,104,105,106,107      updated 10/13/89              id   200050
        sm-152        mt=102,103,104,105,106,107      updated 10/13/89              id   200051
        eu-153        mt=102,103,104,105,106,107      updated 10/13/89              id   200053
        eu-154        mt=102,103,104,105,106,107      updated 10/13/89              id   200054
        eu-155        mt=102,103,104,105,106,107      updated 10/13/89              id   200055
        gd-155        mt=102                          updated 10/13/89              id   200052
       u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                          id   200007
        uranium-235   endf/b-iv mat 1261              updated 10/13/89              id   200006
       u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                          id   200008
        uranium-238   endf/b-iv mat 1262              updated 10/13/89              id   200009
        neptunium-237 endf/b-iv mat 1263              updated 10/13/89              id   200061
       pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                         id   200062
        plutonium-239 endf/b-iv mat 1264              updated 10/13/89              id   200063
        plutonium-240 endf/b-iv mat 1265              updated 10/13/89              id   200064
        plutonium-241 endf/b-iv mat 1266              updated 10/13/89              id   200065
        plutonium-242 endf/b-iv mat 1161              updated 10/13/89              id   200066
       am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                                id   200067
       am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                                 id   200068
        curium-244    endf/b-iv mat 1162              updated 10/13/89              id   200069
0        tape copy used      0 i/o's, and took     .00 seconds
1                m         m  iiiiiiiiiiii    ttttttttttttt     aaaaaaaa    ww          ww  ll
                 mm        m  iiiiiiiiiiii    ttttttttttttt    aaaaaaaaaa   ww          ww  ll
                 mmm       m      ii              tt         aa        aa  ww          ww  ll
                 m m       m      ii              tt         aa        aa  ww          ww  ll
                 m  m      m      ii              tt         aa        aa  ww          ww  ll
                 m   m     m      ii              tt         aaaaaaaaaaaa  ww    w     ww  ll
                 m    m    m      ii              tt         aaaaaaaaaaaa  ww   www    ww  ll
                 m     m   m      ii              tt         aa        aa  ww  ww ww   ww  ll
                 m      m  m      ii              tt         aa        aa  ww ww   ww ww  ll
                 m       mm       ii              tt         aa        aa  wwww     wwww  ll
                 m        m  iiiiiiiiiiii        tt         aa        aa  www       www  llllllllllll
                 m        m  iiiiiiiiiiii        tt         aa        aa  ww         ww  llllllllllll
0

   dddddddddd     aaaaaaaa    w         w  iiiiiiiiiii   sssssssss
   dddddddddd    aaaaaaaaaa   w         w  iiiiiiiiiii  sssssssssss
   dd        dd  aa        aa  w         w      ii      ss       ss
   dd        dd  aa        aa  w         w      ii      ss
   dd        dd  aa        aa  w         w      ii      ss
   dd        dd  aaaaaaaaaaaa  w         w      ii       sssssssss
   dd        dd  aaaaaaaaaaaa   w       w       ii        sssssssss
   dd        dd  aa        aa    w     w        ii              ss
   dd        dd  aa        aa     w   w         ii              ss
   dd        dd  aa        aa      w w          ii      ss      ss
   dddddddddd    aa        aa       ww      iiiiiiiiiii  sssssssssss
   dddddddddd    aa        aa        v      iiiiiiiiiii   sssssssss
0

     000000     2222222222          //       11      666666666       //  99999999    666666666
   00000000    22222222222          //      111     66666666666      //  999999999  6666666666
  00      00  22        22          //     1111     66       66      //  99      99 66
 00        00         22           //       11     66       66     //   99      99 66
 00        00        22            //       11     66       66     //   99      99 66
 00        00      22              //       11     666666666666   //    999999999 666666666
```



program verification information

code system: scale version: 4.2

program: c0c002

creation date: 04/27/95

library: /neutronics/scale/exe

this is not a scale configuration controlled code

jobname: davis

```
                    *****                                                  *****
                    *****   date of execution:  02/16/96                   *****
                    *****                                                  *****
                    *****   time of execution:  10:00:49                   *****
                    *****                                                  *****
                    *****                                                  *****
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************
1
0      -1q array has      1 entries.
0       0q array has      4 entries.
0       1q array has     12 entries.
0select  5 nuclides from the master  library on logical  1
        65 nuclides from the working library on logical  3
         0 nuclides from the working library on logical  0
           to create the new working library on logical  4

         1 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0       2q array has     70 entries.
0       3q array has     15 entries.
0       4q array has      5 entries.
0 general information concerning cross section library
    tape identification number                  4349
    number of nuclides on tape                    65
    number of neutron energy groups               27
    first thermal neutron energy group            15
    number of gamma energy groups                  0
0  direct access unit number  9 requires  72 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                           based on endf-b version 4 data with endf-b version 5 fission products
                              compiled for nrc      1/27/89
                                 last updated       9/16/93
                                    l.m.petrie   -   ornl
-  work tape   4349

 xsdrn weighted tape--parent case entitled--  560 d, sas2h: babcock wilcox 15x15,
  3.00wt%, 20gwd/mtu burn high temp



0 nuclides from xsdrn tape
     1     hydrogen        endf/b-iv mat 1269/thrm1002    updated 10/13/89          202
     2    b-10 1273 218ngp 042375 p-3 293k                                          203
     3     boron-11        endf/b-iv mat 1160             updated 10/13/89          204
     4     oxygen-16       endf/b-iv mat 1276             updated 10/13/89          201
     5     zircalloy       endf/b-iv mat 1284             updated 10/13/89          205
0 nuclides from  work tape
     6    1/v cross sections normalized to 1.0 at 0.0253 ev                          999
     7     hydrogen        endf/b-iv mat 1269/thrm1002    updated 10/13/89         1001
     8    b-10 1273 218ngp 042375 p-3 293k                                         5010
     9     boron-11        endf/b-iv mat 1160             updated 10/13/89         5011
    10     oxygen-16       endf/b-iv mat 1276             updated 10/13/89         8016
    11     oxygen-16       endf/b-iv mat 1276             updated 10/13/89            6
    12     kr-83           mt=102,103,103,105,106,107     updated 10/13/89        36083
    13     kr-85             mt=  102                                             36085
    14     sr-90           mt=102                         updated 10/13/89        38090
```

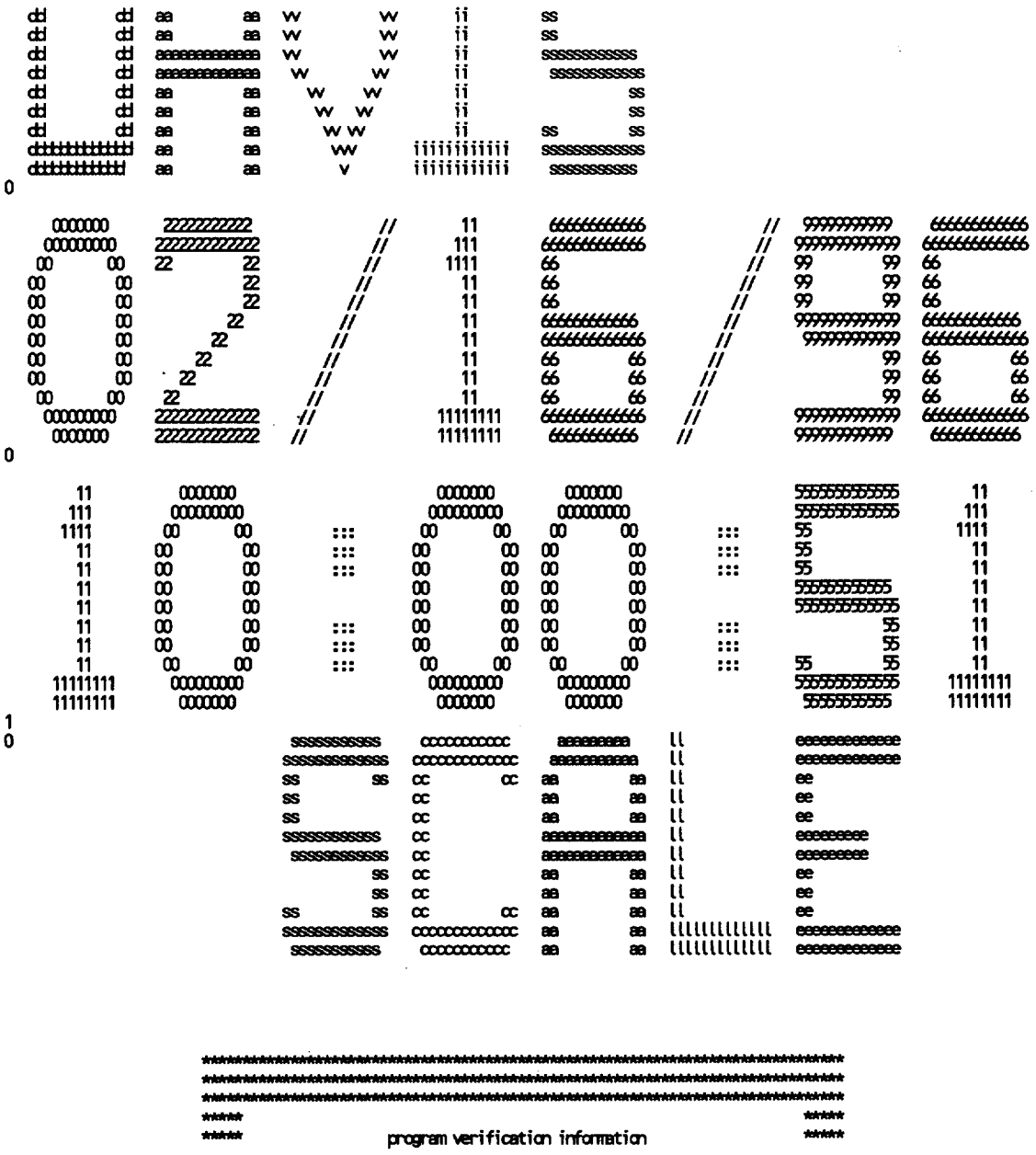
```
 15    y-89          mt=102                          updated 10/13/89          39089
 16    zr-93            mt=  102                                               40093
 17    zr-94         mt=102                          updated 10/13/89          40094
 18    zr-95         mt=102                          updated 10/13/89          40095
 19    zircalloy     endf/b-iv mat 1284              updated 10/13/89          40302
 20    nb-94         mt=102                          updated 10/13/89          41094
 21    mo-95         mt=102                          updated 10/13/89          42095
 22    tc-99         mt=102                          updated 10/13/89          43099
 23    ru-101        mt=102                          updated 10/13/89          44101
 24    ru-106        mt=102                          updated 10/13/89          44106
 25    rh-103        mt=102                          updated 10/13/89          45103
 26    rh-105           mt=  102                                               45105
 27    pd-105        mt=102                          updated 10/13/89          46105
 28    pd-108        mt=102                          updated 10/13/89          46108
 29    silver-109    endf/b-iv mat 1139              updated 10/13/89          47109
 30    sb-124        mt=102                          updated 10/13/89          51124
 31    xe-131        mt=102,103,104,105,106          updated 10/13/89          54131
 32    xe-132        mt=102,103,104,105,106          updated 10/13/89          54132
 33    xenon-135     endf/b-iv mat 1294              updated 10/13/89          54135
 34    xe-136           mt=  102, 103, 104, 105, 107                           54136
 35    cesium-133    endf/b-iv mat 1141              updated 10/13/89          55133
 36    cs-134        mt=102                          updated 10/13/89          55134
 37    cs-135           mt=  102                                               55135
 38    cs-137        mt=102                          updated 10/13/89          55137
 39    ba-136        mt=102                          updated 10/13/89          56136
 40    la-139        mt=102                          updated 10/13/89          57139
 41    ce-144           mt=  102                                               58144
 42    pr-141        mt=102,103,104,105,106,107      updated 10/13/89          59141
 43    pr-143        mt=102                          updated 10/13/89          59143
 44    nd-143        mt=102                          updated 10/13/89          60143
 45    nd-145        mt=102                          updated 10/13/89          60145
 46    nd-147        mt=102                          updated 10/13/89          60147
 47    pm-147        mt=102                          updated 10/13/89          61147
 48    pm-148           mt=  102                                               61148
 49    sm-147        endf/b-v fission product        updated 10/13/89          62147
 50    sm-149        mt=102,103,107                  updated 10/13/89          62149
 51    sm-150        mt=102                          updated 10/13/89          62150
 52    sm-151        mt=102,103,104,105,106,107      updated 10/13/89          62151
 53    sm-152        mt=102,103,104,105,106,107      updated 10/13/89          62152
 54    eu-153        mt=102,103,104,105,106,107      updated 10/13/89          63153
 55    eu-154        mt=102,103,104,105,106,107      updated 10/13/89          63154
 56    eu-155        mt=102,103,104,105,106,107      updated 10/13/89          63155
 57    gd-155        mt=102                          updated 10/13/89          64155
 58   u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      92234
 59    uranium-235   endf/b-iv mat 1261              updated 10/13/89          92235
 60   u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      92236
 61    uranium-238   endf/b-iv mat 1262              updated 10/13/89          92238
 62    neptunium-237 endf/b-iv mat 1263              updated 10/13/89          93237
 63   pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      94238
 64    plutonium-239 endf/b-iv mat 1264              updated 10/13/89          94239
 65    plutonium-240 endf/b-iv mat 1265              updated 10/13/89          94240
 66    plutonium-241 endf/b-iv mat 1266              updated 10/13/89          94241
 67    plutonium-242 endf/b-iv mat 1161              updated 10/13/89          94242
 68   am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                            95241
 69   am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                             95243
 70    curium-244    endf/b-iv mat 1162              updated 10/13/89          96244
0 hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          202    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                          203    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
```

```
0 boron-11       endf/b-iv mat 1160          updated 10/13/89          204    temperature=  607.60
                          thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276          updated 10/13/89          201    temperature=  607.60
0 zircalloy      endf/b-iv mat 1284          updated 10/13/89          205    temperature=  650.00
0resonance data for this nuclide
0mass number (a)          =   90.436          temperature(kelvin)      =   650.000
0potential scatter sigma  =    6.385          lumped nuclear density   = 4.2515602E-02
0spin factor (g)          =    1.079          lump dimension (a-bar)   = 6.7309999E-01
0inner radius             = 6.3246000E-01     dancoff correction (c)   = 1.6805907E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group      res abs        res fiss       res scat
   8     -1.156752E-03   .000000E+00   -7.806033E-01
   9     -4.625978E-02   .000000E+00   -2.073270E+00
  10     -5.962230E-02   .000000E+00   -1.351984E+00
  11     -1.761672E-01   .000000E+00   -7.350731E-01
0excess resonance integrals
0                 resolved
0absorption      2.92402E-01
 fission          .00000E+00
- elapsed time    .00 min.
- elapsed time    .02 min.
1     this xsdrn working tape was created 02/16/96 at 10:00:49
      the title of the parent case is as follows
      xsdrn weighted tape--parent case entitled--  560 d, sas2h: babcock wilcox 15x15,
       3.00wt%, 20gwd/mtu burn high temp

        tape id                          8670        number of nuclides                 70
        number of neutron groups           27        number of gamma groups              0
        first thermal group                15        logical unit                        4
                                 table of contents
       hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          id     202
      b-10 1273 218ngp 042375 p-3 293k                                         id     203
       boron-11       endf/b-iv mat 1160           updated 10/13/89          id     204
       oxygen-16      endf/b-iv mat 1276           updated 10/13/89          id     201
       zircalloy      endf/b-iv mat 1284           updated 10/13/89          id     205
      1/v cross sections normalized to 1.0 at 0.0253 ev                        id     999
       hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          id    1001
      b-10 1273 218ngp 042375 p-3 293k                                         id    5010
       boron-11       endf/b-iv mat 1160           updated 10/13/89          id    5011
       oxygen-16      endf/b-iv mat 1276           updated 10/13/89          id    8016
       oxygen-16      endf/b-iv mat 1276           updated 10/13/89          id       6
       kr-83          mt=102,103,103,105,106,107   updated 10/13/89          id   36083
       kr-85            mt=  102                                               id   36085
       sr-90          mt=102                       updated 10/13/89          id   38090
        y-89          mt=102                       updated 10/13/89          id   39089
       zr-93            mt=  102                                               id   40093
       zr-94          mt=102                       updated 10/13/89          id   40094
       zr-95          mt=102                       updated 10/13/89          id   40095
       zircalloy      endf/b-iv mat 1284           updated 10/13/89          id   40302
       nb-94          mt=102                       updated 10/13/89          id   41094
       mo-95          mt=102                       updated 10/13/89          id   42095
       tc-99          mt=102                       updated 10/13/89          id   43099
       ru-101         mt=102                       updated 10/13/89          id   44101
       ru-106         mt=102                       updated 10/13/89          id   44106
       rh-103         mt=102                       updated 10/13/89          id   45103
       rh-105           mt=  102                                               id   45105
       pd-105         mt=102                       updated 10/13/89          id   46105
       pd-108         mt=102                       updated 10/13/89          id   46108
```

```
      silver-109     endf/b-iv mat 1139          updated 10/13/89          id    47109
      sb-124         mt=102                      updated 10/13/89          id    51124
      xe-131         mt=102,103,104,105,106      updated 10/13/89          id    54131
      xe-132         mt=102,103,104,105,106      updated 10/13/89          id    54132
      xenon-135      endf/b-iv mat 1294          updated 10/13/89          id    54135
      xe-136           mt=  102, 103, 104, 105, 107                        id    54136
      cesium-133     endf/b-iv mat 1141          updated 10/13/89          id    55133
      cs-134         mt=102                      updated 10/13/89          id    55134
      cs-135           mt=  102                                            id    55135
      cs-137         mt=102                      updated 10/13/89          id    55137
      ba-136         mt=102                      updated 10/13/89          id    56136
      la-139         mt=102                      updated 10/13/89          id    57139
      ce-144           mt=  102                                            id    58144
      pr-141         mt=102,103,104,105,106,107  updated 10/13/89          id    59141
      pr-143         mt=102                      updated 10/13/89          id    59143
      nd-143         mt=102                      updated 10/13/89          id    60143
      nd-145         mt=102                      updated 10/13/89          id    60145
      nd-147         mt=102                      updated 10/13/89          id    60147
      pm-147         mt=102                      updated 10/13/89          id    61147
      pm-148           mt=  102                                            id    61148
      sm-147         endf/b-v fission product    updated 10/13/89          id    62147
      sm-149         mt=102,103,107              updated 10/13/89          id    62149
      sm-150         mt=102                      updated 10/13/89          id    62150
      sm-151         mt=102,103,104,105,106,107  updated 10/13/89          id    62151
      sm-152         mt=102,103,104,105,106,107  updated 10/13/89          id    62152
      eu-153         mt=102,103,104,105,106,107  updated 10/13/89          id    63153
      eu-154         mt=102,103,104,105,106,107  updated 10/13/89          id    63154
      eu-155         mt=102,103,104,105,106,107  updated 10/13/89          id    63155
      gd-155         mt=102                      updated 10/13/89          id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92234
      uranium-235    endf/b-iv mat 1261          updated 10/13/89          id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92236
      uranium-238    endf/b-iv mat 1262          updated 10/13/89          id    92238
      neptunium-237  endf/b-iv mat 1263          updated 10/13/89          id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    94238
      plutonium-239  endf/b-iv mat 1264          updated 10/13/89          id    94239
      plutonium-240  endf/b-iv mat 1265          updated 10/13/89          id    94240
      plutonium-241  endf/b-iv mat 1266          updated 10/13/89          id    94241
      plutonium-242  endf/b-iv mat 1161          updated 10/13/89          id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                          id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           id    95243
      curium-244     endf/b-iv mat 1162          updated 10/13/89          id    96244
0        tape copy used     0 i/o's, and took     .00 seconds
1 xx        xx  sssssssssss  ddddddddddd  rrrrrrrrrrrr  rn        rn  pppppppppp  mm        mm
   xx      xx  sssssssssssss  ddddddddddd  rrrrrrrrrrrr  rnn       rn  pppppppppp  mmm      mmm
     xx    xx  ss        ss  dd       dd  rr       rr  rnnn      rn  pp       pp  mmmm    mmmm
      xx  xx   ss            dd       dd  rr       rr  rn rn     rn  pp       pp  mm mm  mm mm
       xx xx   ss            dd       dd  rr       rr  rn  rn    rn  pp       pp  mm  mm mm  mm
        xxx    sssssssssssss  dd       dd  rrrrrrrrrrrr  rn   rn   rn  pppppppppp  mm   mmm  mm
        xxx     sssssssssssss  dd       dd  rrrrrrrrrrrr  rn    rn  rn  pppppppppp  mm    m   mm
       xx xx              ss  dd       dd  rr      rr  rn     rn rn  pp          mm        mm
      xx  xx              ss  dd       dd  rr       rr  rn      rn rn  pp          mm        mm
     xx    xx  ss        ss  dd       dd  rr       rr  rn       rnn  pp          mm        mm
   xx      xx  sssssssssssss  ddddddddddd  rr        rr  rn        rn  pp          mm        mm
  xx        xx  sssssssssss  ddddddddddd  rr        rr  rn        rn  pp          mm        mm
0

  ddddddddddd    aaaaaaaaa   w        w  iiiiiiiiiiii   sssssssssss
  ddddddddddd   aaaaaaaaaaa  w        w  iiiiiiiiiiii   sssssssssssss
  dd       dd  aa        aa  w        w      ii        ss        ss
```


program verification information

```
*****                                                                    *****
*****              code system:    scale  version:    4.2               *****
*****                                                                    *****
*************************************************************************
*************************************************************************
*****                                                                    *****
*****                                                                    *****
*****              program:  c0c001                                      *****
*****                                                                    *****
*****         creation date:  04/27/95                                   *****
*****                                                                    *****
*****              library:  /neutronics/scale/exe                       *****
*****                                                                    *****
*****                                                                    *****
*****    this is not a   scale  configuration controlled code            *****
*****                                                                    *****
*****              jobname:  davis                                       *****
*****                                                                    *****
*****    date of execution:  02/16/96                                    *****
*****                                                                    *****
*****    time of execution:  10:00:51                                    *****
*****                                                                    *****
*****                                                                    *****
*************************************************************************
*************************************************************************
*************************************************************************
1
                    560 d, second part of sas2h pass to make library
0       -1q array has      1 entries.
0        0q array has     11 entries.
0        1q array has     15 entries.
0        2q array has     10 entries.
0        3q array has     12 entries.
0        4q array has      9 entries.
0        5q array has     12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                   560 d, second part of sas2h pass to make library
0general problem description data block
0                              general problem data

 ige  1/2/3 = plane/cylinder/sphere      2      isn  quadrature order                  8
 izm  number of zones                    4      isct order of scattering               3
 im   number of spacial intervals       28      ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1      iim  inner iteration maximum          20
 ibr  right boundary condition           3      iom  outer iteration maximum          25
 mxx  number of mixtures                 3      iclc -1/0/n--flat res/sn/opt           0
 ms   mixing table length               70      ith  0/1 = forward/adjoint             0
 igm  number of energy groups           27      iflu not used(always wgtd)             0
 nng  number of neutron groups          27      iprt -2/-1/0/n=mixture xsec print     -2
 ngg  number of gamma groups             0      idl  0/1/2/3=no/prt nd/pch n/both     14
 iftg number of first thermal group     15      ipbt -1/0/1=none/fine/all bal. prt     0
0                              special options

 ifg  0/1 = none/weighting calculation   1      ipn  0/1/2 diff. coef. param           0
 iqm  volumetric sources (0/n=no/yes)    0      idfm 0/1 = none/density factors 38*    0
 ipm  boundary sources (0/n=no/yes)      0      iaz  0/n = none/n activities by zone   0
 ifn  0/1/2 = input 33*/34*/use last    14      iai  0/1=none/activities by interval   0
 itmx maximum time (minutes)            10      ifct 0/1=no/yes upscatter scaling      0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0      ipvt 0/1/2=no/k/alpha parametric srch  0
 isx  broad group fluxes                 0      isen outer iteration acceleration      0
```

```
 ibln activity data unit                0       nbnd band rebaln parameter          0
 jbkl 0/1/2 buckling geometry           0
0                                 weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1       ihtf total xsect psn in brd gp tables  3
 igmf number of broad groups             3       ndsf psn g-g or file number            4
 itp  0/10/20/30/40 0/c/e/ac/a           0       nusf table length or max order         6
 ipp  -2/-1/0/n=wgted xsect print       -2       msom extra 1-d x-sect positions        0
 iap  -1/n anisn xsect print            -1
0                               floating point parameters

 eps  overall convergence       1.00000E-04      dy   cyl/pla ht for buckling    .00000E+00
 ptc  point convergence         1.00000E-04      dz   plane depth for buckling  2.00000E+02
 xnf  normalization factor      1.00000E+00      vsc  void streaming correction  .00000E+00
 ev   eigenvalue guess           .00000E+00      pv   ipvt=1/2--k/alpha         1.00000E+00
 evm  eigenvalue modifier        .00000E+00      eql  ev change eps for search  1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00      xrpm new param mod for search  7.50000E-01
     this case will require      2611 locations for mixing
     this case has been allocated 200000 locations
1                  560 d, second part of sas2h pass to make library
0      13q array has     70 entries.
0      14q array has     70 entries.
0      15q array has     70 entries.
0                              data block 2 (mixing table, etc.)
0    nuclides        cccc                          mixing table                    extra
       on tape    identification              mixture   component   atom density   xsect id's
     1     202                                     3         201   2.09710E-02
     2     203                                     3         202   4.19420E-02
     3     204                                     3         203   3.81515E-06
     4     201                                     3         204   1.54884E-05
     5     205                                     2         205   4.25156E-02
     6     999                                     1       92235   1.62152E-04
     7    1001                                     1       92234   1.60395E-06
     8    5010                                     1       92236   1.31718E-05
     9    5011                                     1       92238   7.24962E-03
    10    8016                                     1        8016   1.50611E-02
    11       6                                     1           6   1.15315E-02
    12   36083                                     1       36083   3.23159E-07
    13   36085                                     1       36085   1.55770E-07
    14   38090                                     1       38090   3.51229E-06
    15   39089                                     1       39089   2.61349E-06
    16   40093                                     1       42095   3.20178E-06
    17   40094                                     1       40093   2.71690E-06
    18   40095                                     1       40094   4.22845E-06
    19   40302                                     1       40095   6.86629E-07
    20   41094                                     1       41094   1.81576E-12
    21   42095                                     1       43099   4.11687E-06
    22   43099                                     1       45103   2.14179E-06
    23   44101                                     1       45105   6.24106E-09
    24   44106                                     1       44101   3.66029E-06
    25   45103                                     1       44106   5.45766E-07
    26   45105                                     1       46105   1.26197E-06
    27   46105                                     1       46108   3.07708E-07
    28   46108                                     1       47109   2.21053E-07
    29   47109                                     1       51124   5.35940E-11
    30   51124                                     1       54131   1.90924E-06
    31   54131                                     1       54132   3.32758E-06
    32   54132                                     1       54135   2.20090E-09
    33   54135                                     1       54136   6.96021E-06
    34   54136                                     1       55134   1.39393E-07
```

35	55133	1	55135	2.19558E-06
36	55134	1	55137	4.36275E-06
37	55135	1	56136	2.69601E-08
38	55137	1	57139	4.33528E-06
39	56136	1	59141	3.63399E-06
40	57139	1	59143	1.27348E-07
41	58144	1	58144	1.94158E-06
42	59141	1	60143	3.52685E-06
43	59143	1	60145	2.55992E-06
44	60143	1	61147	1.03903E-06
45	60145	1	61148	2.92378E-09
46	60147	1	60147	4.35262E-08
47	61147	1	62147	2.20883E-07
48	61148	1	62149	2.65272E-08
49	62147	1	62150	8.41498E-07
50	62149	1	62151	1.09812E-07
51	62150	1	62152	4.11655E-07
52	62151	1	64155	3.91515E-10
53	62152	1	63153	2.08635E-07
54	63153	1	63154	3.15201E-08
55	63154	1	63155	2.41894E-08
56	63155	1	40802	4.42681E-03
57	64155	1	1001	2.30630E-02
58	92234	1	5010	2.09787E-06
59	92235	1	5011	8.51673E-06
60	92236	1	55133	4.50801E-06
61	92238	1	95237	6.54722E-07
62	95237	1	94238	5.86583E-08
63	94238	1	94239	2.73412E-05
64	94239	1	94240	3.82999E-06
65	94240	1	94241	1.67189E-06
66	94241	1	94242	1.12810E-07
67	94242	1	95241	3.19625E-08
68	95241	1	95243	6.10845E-09
69	95243	1	96244	3.46025E-10
70	96244	1	999	3.30753E-21

- elapsed time .00 min.
0 24259 locations will be used
0 35q array has 29 entries.
0 36q array has 28 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 560 d, second part of sas2h pass to make library

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	1	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	1	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	1	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	1	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	2	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	2	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	2	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	2	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	2	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	2	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01036E+07	2	0	12	1.00000E+00	

13	3.00000E+01	1.27169E+01	5.69595E+06	2	0	13	1.00000E+00
14	1.00000E+01	1.38155E+01	3.20957E+06	2	0	14	1.00000E+00
15	3.04999E+00	1.50030E+01	2.10601E+06	2	0	15	1.00000E+00
16	1.77000E+00	1.55471E+01	1.70522E+06	2	0	16	1.00000E+00
17	1.29999E+00	1.58557E+01	1.52545E+06	2	0	17	1.00000E+00
18	1.12999E+00	1.59959E+01	1.42867E+06	2	0	18	1.00000E+00
19	1.00000E+00	1.61181E+01	1.31002E+06	2	0	19	1.00000E+00
20	8.00000E-01	1.63412E+01	9.05898E+05	2	0	20	1.00000E+00
21	4.00000E-01	1.70344E+01	8.17974E+05	3	0	21	1.00000E+00
22	3.25000E-01	1.72420E+01	6.90070E+05	3	0	22	1.00000E+00
23	2.25000E-01	1.76098E+01	4.86933E+05	3	0	23	1.00000E+00
24	9.99999E-02	1.84207E+01	3.57766E+05	3	0	24	1.00000E+00
25	5.00000E-02	1.91138E+01	2.71895E+05	3	0	25	1.00000E+00
26	3.00000E-02	1.96247E+01	1.87283E+05	3	0	26	1.00000E+00
27	1.00000E-02	2.07233E+01	8.88201E+04	3	0	27	1.00000E+00
28	1.00000E-05	2.76310E+01					

1 560 d, second part of sas2h pass to make library

0

	mixture by zone	order p(l) by zone	activity table matl no.	activity table reaction	quadrature constants weights	quadrature constants directions	quadrature constants refl direc	quadrature constants wt x cos
1	3	3			0	-2.79004E-01	3	0
2	2	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	3	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	1	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28593E-02
7					5.55953E-02	2.31301E-01	6	1.28593E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02
16					0	-9.83032E-01	24	0
17					4.53365E-02	-9.64143E-01	24	-4.37099E-02
18					4.53365E-02	-8.17361E-01	23	-3.70555E-02
19					4.53365E-02	-5.46143E-01	22	-2.47597E-02
20					4.53365E-02	-1.91780E-01	21	-8.69444E-03
21					4.53365E-02	1.91780E-01	20	8.69444E-03
22					4.53365E-02	5.46143E-01	19	2.47597E-02
23					4.53365E-02	8.17361E-01	18	3.70555E-02
24					4.53365E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0argl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61278E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61278E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01

16	-9.83032E-01	-4.49528E-01	8.36885E-01	5.00703E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20262E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20262E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17236E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17236E-01
22	5.46143E-01	-4.49528E-01	-3.20262E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20262E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.97644E-02	1	0	4.90881E-03		0	
2	3.95287E-02	5.92931E-02	1	2.48366E-01	1.47264E-02		0	
3	7.90575E-02	1.18586E-01	1	4.96733E-01	5.89057E-02		0	
4	1.58115E-01	1.97644E-01	1	9.93466E-01	9.81762E-02		0	
5	2.37172E-01	2.76701E-01	1	1.49020E+00	1.37447E-01			
6	3.16230E-01	3.55759E-01	1	1.98698E+00	1.76717E-01			
7	3.95288E-01	4.34816E-01	1	2.48366E+00	2.15988E-01			
8	4.74345E-01	5.13874E-01	1	2.98040E+00	2.55258E-01			
9	5.53403E-01	5.73167E-01	1	3.47713E+00	1.42365E-01			
10	5.92931E-01	6.12698E-01	1	3.72550E+00	1.52173E-01			
11	6.32460E-01	6.42620E-01	2	3.97386E+00	8.20460E-02			
12	6.52780E-01	6.62940E-01	2	4.10154E+00	8.46405E-02			
13	6.73100E-01	6.96583E-01	3	4.22921E+00	2.05562E-01			
14	7.20067E-01	7.43550E-01	3	4.52431E+00	2.19422E-01			
15	7.67033E-01	7.90517E-01	3	4.81941E+00	2.33282E-01			
16	8.14000E-01	8.62795E-01	4	5.11451E+00	5.29061E-01			
17	9.11591E-01	9.60386E-01	4	5.72769E+00	5.88891E-01			
18	1.00918E+00	1.10677E+00	4	6.34088E+00	1.35731E+00			
19	1.20436E+00	1.30195E+00	4	7.56724E+00	1.59667E+00			
20	1.39955E+00	1.49714E+00	4	8.79360E+00	1.83603E+00			
21	1.59473E+00	1.69232E+00	4	1.00200E+01	2.07540E+00			
22	1.78991E+00	1.88750E+00	4	1.12463E+01	2.31476E+00			
23	1.98509E+00	2.08268E+00	4	1.24727E+01	2.55412E+00			
24	2.18027E+00	2.27786E+00	4	1.36991E+01	2.79349E+00			
25	2.37545E+00	2.47305E+00	4	1.49254E+01	3.03285E+00			
26	2.57064E+00	2.66823E+00	4	1.61518E+01	3.27221E+00			
27	2.76582E+00	2.81461E+00	4	1.73781E+01	1.72587E+00			
28	2.86341E+00	2.91220E+00	4	1.79913E+01	1.78571E+00			
29	2.96100E+00			1.86045E+01				

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	197	1.88423E-05	1.07849E+00	-8.68900E-02	1.00000E+00	-2.64515E-02	.00000E+00	.0000
2	255	-3.96240E-06	1.08746E+00	-1.52593E-03	-1.09213E-02	-3.49812E-03	.00000E+00	.0000
3	371	-1.38464E-06	1.08865E+00	-2.11296E-04	-1.36124E-03	-7.65849E-04	.00000E+00	.0167
4	428	-3.55400E-06	1.08881E+00	-4.25534E-05	-3.02777E-04	-1.65471E-04	.00000E+00	.0167
5	463	2.75520E-06	1.08879E+00	-9.24429E-06	-6.60568E-05	-3.53099E-05	.00000E+00	.0167

grp to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	17	1.52991E-06	28	1.00000E+00	1
2	1	17	1.85022E-06	28	1.00000E+00	1
3	1	17	1.70944E-06	28	1.00000E+00	1
4	1	17	1.66246E-06	28	1.00000E+00	1
5	1	17	1.71501E-06	28	1.00000E+00	1
6	1	17	1.15781E-06	28	1.00000E+00	1
7	1	17	7.13494E-07	28	9.99999E-01	2
8	1	15	1.38889E-07	28	1.00000E+00	2
9	1	27	6.91892E-06	28	1.00001E+00	3
10	1	26	1.58965E-06	28	9.99999E-01	3
11	1	26	2.98429E-06	28	9.99997E-01	3

12	12	1	26	1.25872E-06	28	1.00000E+00	3
13	13	1	26	1.74334E-06	28	9.99998E-01	3
14	14	1	25	5.97175E-07	28	9.99999E-01	3
15	15	1	2	3.50675E-05	28	9.99961E-01	2
16	16	1	2	4.30869E-05	28	9.99964E-01	2
17	17	1	2	4.92700E-05	28	9.99866E-01	3
18	18	1	2	5.74201E-05	28	9.99952E-01	3
19	19	1	2	4.93027E-05	28	9.99902E-01	3
20	20	1	2	3.87405E-05	28	9.99925E-01	3
21	21	1	2	5.99319E-05	28	9.99944E-01	3
22	22	1	23	2.70179E-05	28	9.99971E-01	3
23	23	1	1	1.82895E-05	14	1.00001E+00	4
24	24	1	1	2.60803E-05	9	1.00002E+00	4
25	25	1	1	2.91879E-05	8	1.00001E+00	5
26	26	1	1	2.18458E-05	6	1.00002E+00	6
27	27	1	1	2.02591E-05	5	1.00001E+00	8

6 490 -2.85836E-06 1.08887E+00 -1.88610E-06 -1.41942E-05 -7.87108E-06 .00000E+00 .0167
final monitor
lambda 1.08884E+00 production/absorption 1.10310E+00 angular flux on 16
- elapsed time .02 min.
1 560 d, second part of sas2h pass to make library
0 int. zone number radius int. midpoint area volume prod density

1	1	.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1	3.95287E-02	5.92931E-02	2.48366E-01	1.47264E-02	.00000E+00
3	1	7.90575E-02	1.18586E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1	1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1	2.37172E-01	2.76701E-01	1.49020E+00	1.37447E-01	.00000E+00
6	1	3.16230E-01	3.55759E-01	1.98693E+00	1.76717E-01	.00000E+00
7	1	3.95288E-01	4.34816E-01	2.48366E+00	2.15988E-01	.00000E+00
8	1	4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1	5.53403E-01	5.73167E-01	3.47713E+00	1.42365E-01	.00000E+00
10	1	5.92931E-01	6.12696E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2	6.32460E-01	6.42620E-01	3.97386E+00	8.20460E-02	.00000E+00
12	2	6.52780E-01	6.62940E-01	4.10154E+00	8.46405E-02	.00000E+00
13	3	6.73100E-01	6.96583E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3	7.20067E-01	7.43550E-01	4.52431E+00	2.19422E-01	.00000E+00
15	3	7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4	8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.48105E-02
17	4	9.11591E-01	9.60386E-01	5.72769E+00	5.88891E-01	2.70109E-02
18	4	1.00918E+00	1.10677E+00	6.34088E+00	1.35731E+00	6.09905E-02
19	4	1.20436E+00	1.30195E+00	7.56724E+00	1.59667E+00	7.02898E-02
20	4	1.39955E+00	1.49714E+00	8.79360E+00	1.83603E+00	7.96766E-02
21	4	1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	8.91149E-02
22	4	1.78991E+00	1.88750E+00	1.12463E+01	2.31478E+00	9.86087E-02
23	4	1.98509E+00	2.08268E+00	1.24727E+01	2.55412E+00	1.08166E-01
24	4	2.18027E+00	2.27786E+00	1.36991E+01	2.79349E+00	1.17803E-01
25	4	2.37545E+00	2.47305E+00	1.49254E+01	3.03285E+00	1.27535E-01
26	4	2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.37396E-01
27	4	2.76582E+00	2.81461E+00	1.73781E+01	1.72587E+00	7.24436E-02
28	4	2.86341E+00	2.91220E+00	1.79913E+01	1.78571E+00	7.49917E-02
29		2.96100E+00		1.86045E+01		

1 560 d, second part of sas2h pass to make library
0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.26807E-02	9.00449E-02	1.12113E-01	6.88618E-02	1.02615E-01	1.92691E-01	1.93021E-01	1.46944E-01
2	1.26756E-02	8.99940E-02	1.12048E-01	6.88236E-02	1.02562E-01	1.92604E-01	1.92982E-01	1.46938E-01
3	1.26762E-02	9.00069E-02	1.12070E-01	6.88415E-02	1.02597E-01	1.92674E-01	1.93035E-01	1.46950E-01
4	1.26829E-02	9.00869E-02	1.12182E-01	6.89198E-02	1.02726E-01	1.92916E-01	1.93191E-01	1.46978E-01
5	1.26948E-02	9.02276E-02	1.12377E-01	6.90527E-02	1.02943E-01	1.93316E-01	1.93439E-01	1.47022E-01
6	1.27113E-02	9.04213E-02	1.12644E-01	6.92359E-02	1.03240E-01	1.93865E-01	1.93778E-01	1.47079E-01

7	1.27319E-02	9.06691E-02	1.12991E-01	6.94738E-02	1.03628E-01	1.94582E-01	1.94220E-01	1.47148E-01
8	1.27569E-02	9.09786E-02	1.13430E-01	6.97810E-02	1.04134E-01	1.95519E-01	1.94798E-01	1.47231E-01
9	1.27780E-02	9.12509E-02	1.13823E-01	7.00627E-02	1.04602E-01	1.96387E-01	1.95334E-01	1.47300E-01
10	1.27923E-02	9.14643E-02	1.14151E-01	7.03107E-02	1.05023E-01	1.97174E-01	1.95821E-01	1.47349E-01
11	1.28043E-02	9.16412E-02	1.14426E-01	7.05189E-02	1.05377E-01	1.97850E-01	1.96239E-01	1.47395E-01
12	1.28174E-02	9.17728E-02	1.14599E-01	7.06272E-02	1.05546E-01	1.98187E-01	1.96442E-01	1.47437E-01
13	1.28448E-02	9.20127E-02	1.14869E-01	7.07648E-02	1.05736E-01	1.98527E-01	1.96634E-01	1.47505E-01
14	1.28851E-02	9.23947E-02	1.15321E-01	7.10199E-02	1.06111E-01	1.99187E-01	1.97014E-01	1.47597E-01
15	1.29325E-02	9.28863E-02	1.15945E-01	7.14063E-02	1.06708E-01	2.00261E-01	1.97643E-01	1.47698E-01
16	1.30062E-02	9.36736E-02	1.16959E-01	7.20511E-02	1.07723E-01	2.02103E-01	1.98737E-01	1.47868E-01
17	1.30789E-02	9.44577E-02	1.17973E-01	7.26992E-02	1.08755E-01	2.03999E-01	1.99881E-01	1.48064E-01
18	1.31368E-02	9.50988E-02	1.18805E-01	7.32552E-02	1.09622E-01	2.05637E-01	2.00899E-01	1.48268E-01
19	1.31873E-02	9.56692E-02	1.19554E-01	7.37204E-02	1.10415E-01	2.07167E-01	2.01868E-01	1.48480E-01
20	1.32170E-02	9.59994E-02	1.20012E-01	7.40200E-02	1.10910E-01	2.08153E-01	2.02508E-01	1.48635E-01
21	1.32356E-02	9.62184E-02	1.20311E-01	7.42173E-02	1.11241E-01	2.08826E-01	2.02954E-01	1.48751E-01
22	1.32478E-02	9.63616E-02	1.20511E-01	7.43492E-02	1.11464E-01	2.09293E-01	2.03269E-01	1.48838E-01
23	1.32551E-02	9.64539E-02	1.20641E-01	7.44360E-02	1.11612E-01	2.09610E-01	2.03487E-01	1.48901E-01
24	1.32594E-02	9.65090E-02	1.20720E-01	7.44891E-02	1.11704E-01	2.09813E-01	2.03629E-01	1.48942E-01
25	1.32614E-02	9.65344E-02	1.20758E-01	7.45146E-02	1.11749E-01	2.09917E-01	2.03703E-01	1.48964E-01
26	1.32610E-02	9.65315E-02	1.20756E-01	7.45134E-02	1.11749E-01	2.09925E-01	2.03709E-01	1.48964E-01
27	1.32593E-02	9.65114E-02	1.20730E-01	7.44959E-02	1.11720E-01	2.09870E-01	2.03672E-01	1.48951E-01
28	1.32568E-02	9.64818E-02	1.20690E-01	7.44693E-02	1.11675E-01	2.09779E-01	2.03609E-01	1.48930E-01

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.15886E-01	1.07080E-01	1.00822E-01	6.53777E-02	5.58727E-02	5.33752E-02	2.91124E-02	1.61503E-02
2	1.15887E-01	1.07081E-01	1.00826E-01	6.53827E-02	5.58776E-02	5.33821E-02	2.91147E-02	1.61514E-02
3	1.15885E-01	1.07072E-01	1.00805E-01	6.53588E-02	5.58553E-02	5.33496E-02	2.91083E-02	1.61479E-02
4	1.15880E-01	1.07051E-01	1.00756E-01	6.53013E-02	5.58016E-02	5.32715E-02	2.90928E-02	1.61397E-02
5	1.15873E-01	1.07018E-01	1.00680E-01	6.52137E-02	5.57200E-02	5.31525E-02	2.90696E-02	1.61274E-02
6	1.15864E-01	1.06972E-01	1.00577E-01	6.50947E-02	5.56097E-02	5.29913E-02	2.90390E-02	1.61110E-02
7	1.15851E-01	1.06913E-01	1.00441E-01	6.49386E-02	5.54669E-02	5.27804E-02	2.90004E-02	1.60900E-02
8	1.15837E-01	1.06833E-01	1.00261E-01	6.47330E-02	5.52776E-02	5.25032E-02	2.89519E-02	1.60633E-02
9	1.15827E-01	1.06758E-01	1.00092E-01	6.45410E-02	5.51027E-02	5.22450E-02	2.89083E-02	1.60389E-02
10	1.15827E-01	1.06687E-01	9.99359E-02	6.43664E-02	5.49445E-02	5.20105E-02	2.88703E-02	1.60171E-02
11	1.15833E-01	1.06632E-01	9.98123E-02	6.42294E-02	5.48188E-02	5.18254E-02	2.88369E-02	1.59988E-02
12	1.15828E-01	1.06611E-01	9.97660E-02	6.41758E-02	5.47672E-02	5.17511E-02	2.88184E-02	1.59898E-02
13	1.15783E-01	1.06584E-01	9.97029E-02	6.40957E-02	5.46953E-02	5.16408E-02	2.88031E-02	1.59808E-02
14	1.15712E-01	1.06521E-01	9.95590E-02	6.39158E-02	5.45372E-02	5.14046E-02	2.87780E-02	1.59639E-02
15	1.15636E-01	1.06415E-01	9.93234E-02	6.36358E-02	5.42931E-02	5.10335E-02	2.87402E-02	1.59376E-02
16	1.15530E-01	1.06240E-01	9.89529E-02	6.31748E-02	5.38900E-02	5.04191E-02	2.86707E-02	1.58922E-02
17	1.15435E-01	1.06067E-01	9.85427E-02	6.27140E-02	5.34816E-02	4.98016E-02	2.85873E-02	1.58422E-02
18	1.15367E-01	1.05921E-01	9.82090E-02	6.23204E-02	5.31241E-02	4.92724E-02	2.84969E-02	1.57925E-02
19	1.15313E-01	1.05787E-01	9.78976E-02	6.19538E-02	5.27856E-02	4.87783E-02	2.84008E-02	1.57416E-02
20	1.15288E-01	1.05701E-01	9.76963E-02	6.17171E-02	5.25623E-02	4.84580E-02	2.83284E-02	1.57045E-02
21	1.15275E-01	1.05643E-01	9.75564E-02	6.15526E-02	5.24047E-02	4.82346E-02	2.82731E-02	1.56766E-02
22	1.15269E-01	1.05602E-01	9.74567E-02	6.14354E-02	5.22912E-02	4.80751E-02	2.82310E-02	1.56555E-02
23	1.15266E-01	1.05573E-01	9.73869E-02	6.13521E-02	5.22100E-02	4.79615E-02	2.81999E-02	1.56400E-02
24	1.15263E-01	1.05554E-01	9.73377E-02	6.12955E-02	5.21546E-02	4.78842E-02	2.81786E-02	1.56295E-02
25	1.15261E-01	1.05542E-01	9.73090E-02	6.12617E-02	5.21219E-02	4.78384E-02	2.81666E-02	1.56236E-02
26	1.15258E-01	1.05538E-01	9.72997E-02	6.12508E-02	5.21124E-02	4.78244E-02	2.81648E-02	1.56226E-02
27	1.15256E-01	1.05540E-01	9.73052E-02	6.12578E-02	5.21202E-02	4.78346E-02	2.81701E-02	1.56252E-02
28	1.15255E-01	1.05546E-01	9.73208E-02	6.12761E-02	5.21397E-02	4.78609E-02	2.81798E-02	1.56300E-02

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.12314E-03	5.56306E-03	1.09272E-02	3.61687E-02	1.13884E-02	2.36178E-02	7.95371E-02	6.50857E-02
2	7.12377E-03	5.56429E-03	1.09283E-02	3.61712E-02	1.13894E-02	2.36199E-02	7.95321E-02	6.50707E-02
3	7.12109E-03	5.55769E-03	1.09232E-02	3.61577E-02	1.13791E-02	2.35861E-02	7.94143E-02	6.49410E-02
4	7.11461E-03	5.54180E-03	1.09111E-02	3.61261E-02	1.13554E-02	2.35106E-02	7.91554E-02	6.46618E-02
5	7.10477E-03	5.51740E-03	1.08928E-02	3.60786E-02	1.13195E-02	2.33972E-02	7.87713E-02	6.42485E-02
6	7.09146E-03	5.48398E-03	1.08681E-02	3.60151E-02	1.12710E-02	2.32440E-02	7.82597E-02	6.36979E-02
7	7.07410E-03	5.43967E-03	1.08361E-02	3.59331E-02	1.12076E-02	2.30446E-02	7.76078E-02	6.29976E-02
8	7.05134E-03	5.38059E-03	1.07945E-02	3.58273E-02	1.11243E-02	2.27845E-02	7.67841E-02	6.21178E-02

9	7.03017E-03	5.32492E-03	1.07560E-02	3.57302E-02	1.10466E-02	2.25437E-02	7.60435E-02	6.13319E-02
10	7.01090E-03	5.27375E-03	1.07212E-02	3.56432E-02	1.09755E-02	2.23263E-02	7.53998E-02	6.06554E-02
11	6.99551E-03	5.23448E-03	1.06953E-02	3.55735E-02	1.09210E-02	2.21626E-02	7.49314E-02	6.01845E-02
12	6.98921E-03	5.22042E-03	1.06816E-02	3.55442E-02	1.09021E-02	2.21078E-02	7.47870E-02	6.00649E-02
13	6.98044E-03	5.19491E-03	1.06664E-02	3.55059E-02	1.08710E-02	2.20079E-02	7.45084E-02	5.97669E-02
14	6.96177E-03	5.13767E-03	1.06346E-02	3.54271E-02	1.08002E-02	2.17815E-02	7.38895E-02	5.90864E-02
15	6.93221E-03	5.04700E-03	1.05847E-02	3.53052E-02	1.06875E-02	2.14297E-02	7.29852E-02	5.81122E-02
16	6.88347E-03	4.89307E-03	1.05019E-02	3.51042E-02	1.05038E-02	2.08548E-02	7.15960E-02	5.66645E-02
17	6.83435E-03	4.74214E-03	1.04162E-02	3.48948E-02	1.03224E-02	2.02858E-02	7.01838E-02	5.52211E-02
18	6.79141E-03	4.62511E-03	1.03577E-02	3.46988E-02	1.01689E-02	1.98079E-02	6.88343E-02	5.38436E-02
19	6.75059E-03	4.52304E-03	1.02614E-02	3.45044E-02	1.00261E-02	1.93647E-02	6.74769E-02	5.24585E-02
20	6.72335E-03	4.46267E-03	1.02095E-02	3.43687E-02	9.95348E-03	1.90784E-02	6.65092E-02	5.14726E-02
21	6.70406E-03	4.42307E-03	1.01723E-02	3.42690E-02	9.86850E-03	1.88774E-02	6.57838E-02	5.07360E-02
22	6.69010E-03	4.39611E-03	1.01451E-02	3.41948E-02	9.82172E-03	1.87525E-02	6.52342E-02	5.01800E-02
23	6.68008E-03	4.37752E-03	1.01255E-02	3.41405E-02	9.78806E-03	1.86278E-02	6.48220E-02	4.97637E-02
24	6.67328E-03	4.36506E-03	1.01120E-02	3.41029E-02	9.76454E-03	1.85546E-02	6.45241E-02	4.94620E-02
25	6.66957E-03	4.35739E-03	1.01041E-02	3.40806E-02	9.75008E-03	1.85080E-02	6.43276E-02	4.92591E-02
26	6.66843E-03	4.35445E-03	1.01019E-02	3.40734E-02	9.74444E-03	1.84879E-02	6.42316E-02	4.91510E-02
27	6.66967E-03	4.35517E-03	1.01034E-02	3.40789E-02	9.74583E-03	1.84880E-02	6.42222E-02	4.91267E-02
28	6.67172E-03	4.35847E-03	1.01082E-02	3.40921E-02	9.75208E-03	1.85039E-02	6.42730E-02	4.91610E-02

0 int.

	grp. 25	grp. 26	grp. 27
1	2.94143E-02	2.12121E-02	4.02897E-03
2	2.94031E-02	2.11996E-02	4.02594E-03
3	2.93332E-02	2.11382E-02	4.01336E-03
4	2.91864E-02	2.10082E-02	3.98664E-03
5	2.89639E-02	2.08145E-02	3.94622E-03
6	2.86697E-02	2.05538E-02	3.89084E-03
7	2.82957E-02	2.02195E-02	3.81855E-03
8	2.78276E-02	1.97978E-02	3.72474E-03
9	2.74122E-02	1.94217E-02	3.64001E-03
10	2.70597E-02	1.91003E-02	3.56705E-03
11	2.68238E-02	1.88933E-02	3.52295E-03
12	2.67734E-02	1.88620E-02	3.52003E-03
13	2.66057E-02	1.87072E-02	3.47849E-03
14	2.62228E-02	1.83592E-02	3.37816E-03
15	2.56884E-02	1.78182E-02	3.22861E-03
16	2.49135E-02	1.70725E-02	3.00962E-03
17	2.41537E-02	1.63692E-02	2.82145E-03
18	2.34346E-02	1.57391E-02	2.68058E-03
19	2.27163E-02	1.51300E-02	2.55410E-03
20	2.22110E-02	1.47207E-02	2.47773E-03
21	2.18377E-02	1.44292E-02	2.42669E-03
22	2.15592E-02	1.42185E-02	2.39132E-03
23	2.13524E-02	1.40661E-02	2.36638E-03
24	2.12054E-02	1.39581E-02	2.34908E-03
25	2.11028E-02	1.38856E-02	2.33762E-03
26	2.10466E-02	1.38439E-02	2.33103E-03
27	2.10299E-02	1.38291E-02	2.32865E-03
28	2.10409E-02	1.38322E-02	2.32844E-03

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	4.93909E-04	6.53730E-04	5.44336E-05	-7.08129E-04	9.99952E-01
2	.00000E+00	.00000E+00	3.75097E-04	6.11278E-03	8.03413E-03	1.74681E-04	-7.85340E-03	9.99962E-01
3	.00000E+00	.00000E+00	3.81462E-03	5.44565E-03	1.41685E-02	9.24568E-05	-1.04460E-02	9.99978E-01
4	.00000E+00	.00000E+00	5.56442E-03	3.59330E-03	1.23462E-02	4.19336E-05	-6.82359E-03	9.99988E-01
5	.00000E+00	.00000E+00	1.02332E-02	1.15158E-02	2.08631E-02	4.96263E-05	-1.06795E-02	9.99991E-01
6	.00000E+00	.00000E+00	2.14641E-02	3.44867E-02	4.09877E-02	8.42651E-05	-1.98078E-02	9.99999E-01
7	.00000E+00	.00000E+00	4.22069E-02	6.09580E-02	5.41262E-02	6.12078E-05	-1.19799E-02	9.99989E-01
8	.00000E+00	.00000E+00	5.63437E-02	7.83312E-02	5.87342E-02	3.63958E-05	-2.42175E-03	9.99912E-01

9	.00000E+00	.00000E+00	5.77742E-02	7.25955E-02	5.74889E-02	2.92692E-05	2.62572E-04	9.99887E-01
10	.00000E+00	.00000E+00	5.70686E-02	6.91447E-02	5.55680E-02	3.60489E-05	1.47054E-03	9.99896E-01
11	.00000E+00	.00000E+00	5.58517E-02	6.55604E-02	5.23408E-02	5.51286E-05	3.45910E-03	9.99940E-01
12	.00000E+00	.00000E+00	4.53861E-02	3.50795E-02	4.12754E-02	6.04213E-05	4.05131E-03	9.99978E-01
13	.00000E+00	.00000E+00	4.05438E-02	2.85727E-02	3.66426E-02	8.46415E-05	3.81776E-03	9.99969E-01
14	.00000E+00	.00000E+00	3.94615E-02	2.82648E-02	3.37644E-02	1.36406E-04	5.56112E-03	9.99988E-01
15	.00000E+00	.00000E+00	2.17024E-02	1.08877E-02	2.03970E-02	1.12968E-04	1.19245E-03	9.99999E-01
16	.00000E+00	.00000E+00	1.42544E-02	4.59900E-03	1.35491E-02	7.66962E-05	6.28674E-04	9.99999E-01
17	.00000E+00	.00000E+00	7.32923E-03	1.31047E-03	6.81831E-03	3.75137E-05	4.73347E-04	1.00001E+00
18	.00000E+00	.00000E+00	6.50694E-03	9.80409E-04	5.35716E-03	3.06774E-05	1.11910E-03	1.00000E+00
19	.00000E+00	.00000E+00	1.08108E-02	2.97767E-03	9.88262E-03	6.66909E-05	8.61395E-04	1.00001E+00
20	.00000E+00	.00000E+00	2.65444E-02	2.12755E-02	2.40548E-02	2.77477E-04	2.21191E-03	1.00001E+00
21	.00000E+00	.00000E+00	1.28049E-02	4.28748E-03	1.11537E-02	1.07523E-04	1.54372E-03	9.99999E-01
22	.00000E+00	.00000E+00	2.54533E-02	1.32585E-02	2.06331E-02	2.54660E-04	4.56535E-03	1.00001E+00
23	.00000E+00	.00000E+00	6.63183E-02	8.05025E-02	5.28638E-02	1.16862E-03	1.22839E-02	1.00008E+00
24	.00000E+00	.00000E+00	7.10185E-02	7.58686E-02	5.85639E-02	1.38028E-03	1.10728E-02	1.00008E+00
25	.00000E+00	.00000E+00	4.72941E-02	3.21591E-02	4.13727E-02	8.17348E-04	5.10337E-03	1.00001E+00
26	.00000E+00	.00000E+00	3.77734E-02	3.59819E-02	3.31879E-02	8.30984E-04	3.75412E-03	1.00001E+00
27	.00000E+00	.00000E+00	1.28099E-02	7.79891E-03	1.18808E-02	2.96857E-04	6.32156E-04	1.00000E+00
28	.00000E+00	.00000E+00	7.96709E-01	7.91993E-01	7.96709E-01	6.45521E-03	-6.43520E-03	9.99975E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.27992E-02	-7.08129E-04	1.26849E-02	.00000E+00	3.61531E-11	.00000E+00	1.95927E-05	1.60038E-02
2	9.15771E-02	-7.83340E-03	9.00880E-02	.00000E+00	.00000E+00	.00000E+00	8.86016E-05	1.14009E-01
3	1.14330E-01	-1.04460E-02	1.12169E-01	.00000E+00	.00000E+00	.00000E+00	9.20288E-05	1.42101E-01
4	7.04507E-02	-6.82359E-03	6.88958E-02	.00000E+00	.00000E+00	.00000E+00	4.16804E-05	8.73901E-02
5	1.05263E-01	-1.05798E-02	1.02664E-01	.00000E+00	.00000E+00	.00000E+00	4.95334E-05	1.30572E-01
6	1.97624E-01	-1.96078E-02	1.92774E-01	.00000E+00	.00000E+00	.00000E+00	8.33957E-05	2.44798E-01
7	1.96101E-01	-1.19799E-02	1.93064E-01	.00000E+00	.00000E+00	.00000E+00	5.92658E-05	2.44237E-01
8	1.47373E-01	-2.42175E-03	1.46951E-01	.00000E+00	.00000E+00	.00000E+00	3.27167E-05	1.84926E-01
9	1.15830E-01	2.62572E-04	1.15886E-01	.00000E+00	.00000E+00	.00000E+00	2.16688E-05	1.45585E-01
10	1.06646E-01	1.47054E-03	1.07077E-01	.00000E+00	.00000E+00	.00000E+00	1.91537E-05	1.34327E-01
11	9.98456E-02	3.45910E-03	1.00814E-01	.00000E+00	.00000E+00	.00000E+00	1.78986E-05	1.26164E-01
12	6.42663E-02	4.05131E-03	6.53688E-02	.00000E+00	.00000E+00	.00000E+00	1.05072E-05	8.15437E-02
13	5.48639E-02	3.81776E-03	5.58641E-02	.00000E+00	.00000E+00	.00000E+00	8.74591E-06	6.96466E-02
14	5.18761E-02	5.56112E-03	5.33628E-02	.00000E+00	.00000E+00	.00000E+00	8.48780E-06	6.62446E-02
15	2.88493E-02	1.19265E-03	2.91097E-02	.00000E+00	.00000E+00	.00000E+00	4.48547E-06	3.64322E-02
16	1.60049E-02	6.28674E-04	1.61490E-02	.00000E+00	.00000E+00	.00000E+00	2.25061E-06	2.02127E-02
17	6.99993E-03	4.73347E-04	7.12217E-03	.00000E+00	.00000E+00	.00000E+00	9.09197E-07	8.88302E-03
18	5.24432E-03	1.11910E-03	5.56075E-03	.00000E+00	.00000E+00	.00000E+00	6.80682E-07	6.81706E-03
19	1.07014E-02	8.61395E-04	1.09254E-02	.00000E+00	.00000E+00	.00000E+00	1.42360E-06	1.36055E-02
20	3.55946E-02	2.21191E-03	3.61650E-02	.00000E+00	.00000E+00	.00000E+00	5.28925E-06	4.51268E-02
21	1.09348E-02	1.54372E-03	1.13856E-02	.00000E+00	.00000E+00	.00000E+00	1.28912E-06	1.40594E-02
22	2.22018E-02	4.56535E-03	2.36096E-02	.00000E+00	.00000E+00	.00000E+00	2.64054E-06	2.88847E-02
23	7.50345E-02	1.22839E-02	7.95166E-02	.00000E+00	.00000E+00	.00000E+00	8.02763E-06	9.73286E-02
24	6.02731E-02	1.10728E-02	6.50713E-02	.00000E+00	.00000E+00	.00000E+00	4.84009E-06	7.89625E-02
25	2.68618E-02	5.10337E-03	2.94096E-02	.00000E+00	.00000E+00	.00000E+00	1.67882E-06	3.54527E-02
26	1.89195E-02	3.75412E-03	2.12106E-02	.00000E+00	.00000E+00	.00000E+00	8.85084E-07	2.53091E-02
27	3.52607E-03	6.32156E-04	4.02919E-03	.00000E+00	.00000E+00	.00000E+00	1.04289E-07	4.77332E-03
28	1.74998E+00	-6.43513E-03	1.75693E+00	.00000E+00	3.61531E-11	.00000E+00	5.87582E-04	2.20819E+00

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.18399E-04	1.63718E-04	2.45602E-06	-1.60335E-04	1.00001E+00
2	.00000E+00	.00000E+00	2.85980E-05	1.44869E-03	1.08943E-03	1.39523E-05	-1.02481E-03	1.00000E+00
3	.00000E+00	.00000E+00	1.48991E-04	2.76130E-03	8.73095E-04	2.02061E-05	-7.44257E-04	9.99995E-01
4	.00000E+00	.00000E+00	2.85430E-04	2.30098E-03	2.97928E-04	1.30757E-05	-2.55494E-05	9.99997E-01
5	.00000E+00	.00000E+00	6.14061E-04	4.41319E-03	2.79101E-04	1.68510E-05	3.18081E-04	1.00000E+00
6	.00000E+00	.00000E+00	1.01902E-03	1.24017E-02	1.69442E-04	2.70606E-05	8.22512E-04	1.00000E+00
7	.00000E+00	.00000E+00	6.70758E-04	1.25928E-02	6.32978E-05	2.68118E-05	5.80656E-04	9.99999E-01
8	.00000E+00	.00000E+00	1.17251E-04	9.20599E-03	4.43283E-04	2.21074E-05	-3.48166E-04	1.00001E+00
9	.00000E+00	.00000E+00	4.45118E-04	6.35797E-03	5.30007E-05	7.66898E-05	3.15442E-04	9.99980E-01

10	.00000E+00	.00000E+00	5.30655E-05	4.98617E-03	4.94715E-05	5.93184E-05	-5.57248E-05	1.00000E+00
11	.00000E+00	.00000E+00	4.94749E-05	4.45287E-03	5.02886E-05	8.99811E-05	-9.07890E-05	9.99998E-01
12	.00000E+00	.00000E+00	5.02889E-05	2.76055E-03	5.13591E-05	5.67154E-06	-6.74790E-06	1.00000E+00
13	.00000E+00	.00000E+00	5.13592E-05	2.35700E-03	4.80811E-05	6.31551E-06	-3.08566E-06	1.00000E+00
14	.00000E+00	.00000E+00	4.80811E-05	2.23332E-03	4.20872E-05	8.52895E-06	-2.53599E-06	1.00000E+00
15	.00000E+00	.00000E+00	4.46912E-05	1.21745E-03	4.98264E-05	6.30490E-06	-1.14019E-05	9.99969E-01
16	.00000E+00	.00000E+00	5.59083E-05	6.46727E-04	5.60269E-05	3.83305E-06	-3.93204E-06	9.99964E-01
17	.00000E+00	.00000E+00	6.13731E-05	2.46542E-04	6.06868E-05	1.85266E-06	-1.13642E-06	9.99981E-01
18	.00000E+00	.00000E+00	6.38667E-05	1.73619E-04	5.60608E-05	1.44546E-06	6.36990E-06	9.99992E-01
19	.00000E+00	.00000E+00	5.75836E-05	4.09206E-04	6.03747E-05	3.17534E-06	-5.94876E-06	9.99981E-01
20	.00000E+00	.00000E+00	7.38647E-05	1.49866E-03	6.37135E-05	1.28845E-06	-2.67895E-06	9.99976E-01
21	.00000E+00	.00000E+00	8.47763E-05	3.86987E-04	9.24372E-05	4.79701E-06	-1.24370E-05	9.99987E-01
22	.00000E+00	.00000E+00	1.22131E-04	8.57902E-04	1.14654E-04	1.10771E-05	-3.58606E-06	9.99997E-01
23	.00000E+00	.00000E+00	1.75714E-04	3.06399E-03	2.24948E-04	5.00445E-05	-9.92985E-05	1.00000E+00
24	.00000E+00	.00000E+00	2.89152E-04	2.32317E-03	3.18820E-04	5.70256E-05	-8.67415E-05	1.00000E+00
25	.00000E+00	.00000E+00	2.95007E-04	9.36405E-04	2.41018E-04	3.31381E-05	2.08272E-05	1.00000E+00
26	.00000E+00	.00000E+00	1.25413E-04	7.32592E-04	9.68139E-05	3.28876E-05	-4.29805E-06	1.00000E+00
27	.00000E+00	.00000E+00	2.80723E-05	1.54646E-04	7.96795E-08	1.14734E-05	1.65162E-05	1.00000E+00
28	.00000E+00	.00000E+00	5.05904E-03	8.11387E-02	5.05904E-03	6.18946E-04	-6.13004E-04	9.99996E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.28253E-02	-8.68464E-04	1.27992E-02	-7.08129E-04	5.84947E-06	.00000E+00	1.61708E-06	2.13541E-03
2	9.18404E-02	-8.85821E-03	9.15771E-02	-7.83340E-03	.00000E+00	.00000E+00	1.10744E-05	1.52866E-02
3	1.14677E-01	-1.11903E-02	1.14330E-01	-1.04460E-02	.00000E+00	.00000E+00	1.26538E-05	1.90879E-02
4	7.06673E-02	-6.84913E-03	7.04507E-02	-6.82359E-03	.00000E+00	.00000E+00	7.42710E-06	1.17637E-02
5	1.05602E-01	-1.03612E-02	1.05263E-01	-1.06795E-02	.00000E+00	.00000E+00	8.62935E-06	1.75792E-02
6	1.98298E-01	-1.87853E-02	1.97624E-01	-1.96078E-02	.00000E+00	.00000E+00	1.01730E-05	3.30075E-02
7	1.96507E-01	-1.13993E-02	1.96101E-01	-1.19799E-02	.00000E+00	.00000E+00	8.35251E-06	3.27276E-02
8	1.47460E-01	-2.76991E-03	1.47373E-01	-2.42175E-03	.00000E+00	.00000E+00	5.27354E-06	2.45722E-02
9	1.15820E-01	5.78015E-04	1.15830E-01	2.62572E-04	.00000E+00	.00000E+00	4.58260E-06	1.93073E-02
10	1.06606E-01	1.41481E-03	1.06646E-01	1.47054E-03	.00000E+00	.00000E+00	4.90854E-06	1.77723E-02
11	9.97532E-02	3.36831E-03	9.98456E-02	3.45910E-03	.00000E+00	.00000E+00	4.76239E-06	1.66334E-02
12	6.41591E-02	4.04457E-03	6.42663E-02	4.05131E-03	.00000E+00	.00000E+00	3.21374E-06	1.07016E-02
13	5.47507E-02	3.81473E-03	5.48539E-02	3.81776E-03	.00000E+00	.00000E+00	2.73691E-06	9.13320E-03
14	5.17277E-02	5.55858E-03	5.18761E-02	5.56112E-03	.00000E+00	.00000E+00	2.58041E-06	8.63231E-03
15	2.88123E-02	1.18105E-03	2.88493E-02	1.19245E-03	.00000E+00	.00000E+00	1.41575E-06	4.80516E-03
16	1.59870E-02	6.24742E-04	1.60049E-02	6.28674E-04	.00000E+00	.00000E+00	7.85528E-07	2.66602E-03
17	6.98732E-03	4.72211E-04	6.99993E-03	4.73347E-04	.00000E+00	.00000E+00	3.43249E-07	1.16552E-03
18	5.21621E-03	1.12547E-03	5.24432E-03	1.11910E-03	.00000E+00	.00000E+00	2.56527E-07	8.71328E-04
19	1.06781E-02	8.55444E-04	1.07014E-02	8.61395E-04	.00000E+00	.00000E+00	5.24242E-07	1.78144E-03
20	3.55359E-02	2.20925E-03	3.55946E-02	2.21191E-03	.00000E+00	.00000E+00	1.74180E-06	5.92714E-03
21	1.08969E-02	1.53129E-03	1.09348E-02	1.54372E-03	.00000E+00	.00000E+00	5.33599E-07	1.81878E-03
22	2.20924E-02	4.56176E-03	2.22018E-02	4.56535E-03	.00000E+00	.00000E+00	1.08105E-06	3.68957E-03
23	7.47458E-02	1.21846E-02	7.50345E-02	1.22839E-02	.00000E+00	.00000E+00	3.66311E-06	1.24778E-02
24	6.00340E-02	1.09861E-02	6.02731E-02	1.10728E-02	.00000E+00	.00000E+00	2.90827E-06	1.00218E-02
25	2.67609E-02	5.12420E-03	2.68618E-02	5.10337E-03	.00000E+00	.00000E+00	1.28857E-06	4.46690E-03
26	1.88568E-02	3.74982E-03	1.89193E-02	3.75412E-03	.00000E+00	.00000E+00	8.98146E-07	3.14661E-03
27	3.52022E-03	6.48672E-04	3.52607E-03	6.32156E-04	.00000E+00	.00000E+00	1.62411E-07	5.86981E-04
28	1.75082E+00	-7.04818E-03	1.74998E+00	-6.43513E-03	5.84947E-06	.00000E+00	1.08568E-04	2.91765E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.61850E-04	3.46581E-04	2.88585E-05	-3.75421E-04	9.99985E-01
2	.00000E+00	.00000E+00	1.98861E-04	3.26292E-03	4.28651E-03	9.32422E-05	-4.18273E-03	9.99988E-01
3	.00000E+00	.00000E+00	2.08583E-03	2.91114E-03	7.57422E-03	4.94257E-05	-5.58765E-03	9.99991E-01
4	.00000E+00	.00000E+00	2.97362E-03	1.92381E-03	6.61003E-03	2.24508E-05	-3.65880E-03	9.99995E-01
5	.00000E+00	.00000E+00	5.47381E-03	6.17528E-03	1.11877E-02	2.66119E-05	-5.74043E-03	9.99995E-01
6	.00000E+00	.00000E+00	1.14978E-02	1.84879E-02	2.19730E-02	4.51734E-05	-1.05208E-02	9.99999E-01
7	.00000E+00	.00000E+00	2.26210E-02	3.23853E-02	2.87558E-02	3.25188E-05	-6.16695E-03	9.99992E-01
8	.00000E+00	.00000E+00	2.99859E-02	4.11564E-02	3.08599E-02	1.91229E-05	-8.90382E-04	9.99919E-01
9	.00000E+00	.00000E+00	3.04181E-02	3.79799E-02	3.00765E-02	1.53128E-05	3.29698E-04	9.99889E-01
10	.00000E+00	.00000E+00	2.98699E-02	3.60876E-02	2.90018E-02	1.88145E-05	8.72389E-04	9.99900E-01

11	.00000E+00	.00000E+00	2.91688E-02	3.40423E-02	2.71781E-02	2.86256E-05	1.96391E-03	9.99946E-01
12	.00000E+00	.00000E+00	2.35926E-02	1.80874E-02	2.12820E-02	3.11538E-05	2.27999E-03	9.99981E-01
13	.00000E+00	.00000E+00	2.09589E-02	1.47179E-02	1.88747E-02	4.35990E-05	2.04124E-03	9.99974E-01
14	.00000E+00	.00000E+00	2.03525E-02	1.44215E-02	1.72276E-02	6.95982E-05	3.05559E-03	9.99991E-01
15	.00000E+00	.00000E+00	1.11134E-02	5.66013E-03	1.06057E-02	5.87281E-05	4.50913E-04	1.00000E+00
16	.00000E+00	.00000E+00	7.34976E-03	2.39039E-03	7.04231E-03	3.98639E-05	2.67583E-04	1.00000E+00
17	.00000E+00	.00000E+00	3.78542E-03	6.75611E-04	3.51517E-03	1.93402E-05	2.50871E-04	1.00001E+00
18	.00000E+00	.00000E+00	3.36007E-03	4.85033E-04	2.65052E-03	1.51769E-05	6.94574E-04	1.00000E+00
19	.00000E+00	.00000E+00	5.55062E-03	1.53097E-03	5.08117E-03	3.42878E-05	4.35114E-04	1.00001E+00
20	.00000E+00	.00000E+00	1.36278E-02	1.09889E-02	1.24244E-02	1.43318E-04	1.05996E-03	1.00001E+00
21	.00000E+00	.00000E+00	6.55215E-03	2.16447E-03	5.63079E-03	5.42814E-05	8.67080E-04	9.99999E-01
22	.00000E+00	.00000E+00	1.29094E-02	6.56504E-03	1.02166E-02	1.26097E-04	2.56663E-03	1.00001E+00
23	.00000E+00	.00000E+00	3.28926E-02	4.01610E-02	2.63726E-02	5.82997E-04	5.95616E-03	1.00002E+00
24	.00000E+00	.00000E+00	3.49421E-02	3.72868E-02	2.87820E-02	6.78859E-04	5.48083E-03	1.00002E+00
25	.00000E+00	.00000E+00	2.31007E-02	1.56163E-02	2.00904E-02	3.96859E-04	2.61320E-03	1.00001E+00
26	.00000E+00	.00000E+00	1.83681E-02	1.70738E-02	1.57700E-02	3.94860E-04	2.20319E-03	1.00000E+00
27	.00000E+00	.00000E+00	6.19530E-03	3.60994E-03	5.49957E-03	1.37408E-04	5.58514E-04	1.00000E+00
28	.00000E+00	.00000E+00	4.08915E-01	4.06110E-01	4.08915E-01	3.20613E-03	-3.19520E-03	9.99974E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.29591E-02	-1.24388E-03	1.28253E-02	-8.68464E-04	1.91669E-11	.00000E+00	1.08872E-05	8.48457E-03
2	9.31681E-02	-1.30409E-02	9.18404E-02	-8.85821E-03	.00000E+00	.00000E+00	4.72943E-05	6.08564E-02
3	1.16307E-01	-1.67779E-02	1.14677E-01	-1.11903E-02	.00000E+00	.00000E+00	4.91969E-05	7.59644E-02
4	7.16350E-02	-1.05079E-02	7.06673E-02	-6.84913E-03	.00000E+00	.00000E+00	2.23152E-05	4.67876E-02
5	1.07065E-01	-1.61017E-02	1.05602E-01	-1.03612E-02	.00000E+00	.00000E+00	2.64549E-05	6.99114E-02
6	2.00904E-01	-2.93056E-02	1.98298E-01	-1.87853E-02	.00000E+00	.00000E+00	4.47074E-05	1.31235E-01
7	1.98020E-01	-1.75662E-02	1.96507E-01	-1.13993E-02	.00000E+00	.00000E+00	3.14853E-05	1.29756E-01
8	1.47752E-01	-3.66029E-03	1.47460E-01	-2.76991E-03	.00000E+00	.00000E+00	1.71898E-05	9.71628E-02
9	1.15993E-01	9.07712E-04	1.15820E-01	5.78015E-04	.00000E+00	.00000E+00	1.13366E-05	7.61660E-02
10	1.06351E-01	2.28720E-03	1.06606E-01	1.41481E-03	.00000E+00	.00000E+00	9.99663E-06	7.01072E-02
11	9.91815E-02	5.33222E-03	9.97532E-02	3.36831E-03	.00000E+00	.00000E+00	9.29389E-06	6.55109E-02
12	6.34683E-02	6.32456E-03	6.41591E-02	4.04457E-03	.00000E+00	.00000E+00	5.41763E-06	4.20448E-02
13	5.41477E-02	5.85596E-03	5.47507E-02	3.81473E-03	.00000E+00	.00000E+00	4.50503E-06	3.58751E-02
14	5.08119E-02	8.61418E-03	5.17277E-02	5.55858E-03	.00000E+00	.00000E+00	4.33072E-06	3.37999E-02
15	2.87193E-02	1.63196E-03	2.88123E-02	1.18105E-03	.00000E+00	.00000E+00	2.33184E-06	1.82899E-02
16	1.59224E-02	8.92325E-04	1.59870E-02	6.24742E-04	.00000E+00	.00000E+00	1.16979E-06	1.05058E-02
17	6.91462E-03	7.23082E-04	6.98732E-03	4.72211E-04	.00000E+00	.00000E+00	4.68736E-07	4.57964E-03
18	4.99230E-03	1.82004E-03	5.21621E-03	1.12547E-03	.00000E+00	.00000E+00	3.36750E-07	3.37257E-03
19	1.05553E-02	1.29056E-03	1.06781E-02	8.55444E-04	.00000E+00	.00000E+00	7.31945E-07	6.99529E-03
20	3.52344E-02	3.26920E-03	3.55359E-02	2.20923E-03	.00000E+00	.00000E+00	2.73192E-06	2.33082E-02
21	1.06201E-02	2.39857E-03	1.08966E-02	1.53125E-03	.00000E+00	.00000E+00	6.50794E-07	7.09766E-03
22	2.12198E-02	7.12838E-03	2.20924E-02	4.56176E-03	.00000E+00	.00000E+00	1.30748E-06	1.43025E-02
23	7.24599E-02	1.81208E-02	7.47458E-02	1.21846E-02	.00000E+00	.00000E+00	4.00482E-06	4.85552E-02
24	5.75483E-02	1.64669E-02	6.00340E-02	1.09861E-02	.00000E+00	.00000E+00	2.37873E-06	3.88071E-02
25	2.53804E-02	7.73739E-03	2.67609E-02	5.12420E-03	.00000E+00	.00000E+00	8.15224E-07	1.72156E-02
26	1.75147E-02	5.95300E-03	1.88568E-02	3.74982E-03	.00000E+00	.00000E+00	4.20567E-07	1.20262E-02
27	3.13751E-03	1.20719E-03	3.52022E-03	6.48672E-04	.00000E+00	.00000E+00	4.82731E-08	2.20946E-03
28	1.74758E+00	-1.02434E-02	1.75082E+00	-7.04818E-03	1.91669E-11	.00000E+00	3.11309E-04	1.15158E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.28114E-02	.00000E+00	2.11662E-02	2.00885E-02	3.73352E-03	1.24388E-03	9.98901E-01
2	.00000E+00	1.93451E-01	6.95103E-03	2.49902E-01	1.72096E-01	1.52778E-02	1.30409E-02	1.00002E+00
3	.00000E+00	2.15779E-01	7.10660E-02	2.57202E-01	2.53828E-01	1.62432E-02	1.67778E-02	9.99888E-01
4	.00000E+00	1.23886E-01	1.05270E-01	1.76577E-01	2.10887E-01	7.76092E-03	1.05079E-02	1.00000E+00
5	.00000E+00	1.64335E-01	1.91693E-01	4.44291E-01	3.34737E-01	5.19278E-03	1.61016E-02	9.99991E-01
6	.00000E+00	1.77430E-01	3.90580E-01	1.19102E+00	5.30475E-01	8.22250E-03	2.98054E-02	1.00001E+00
7	.00000E+00	8.77290E-02	5.93168E-01	1.56426E+00	6.55129E-01	8.20879E-03	1.75656E-02	9.99991E-01
8	.00000E+00	1.35181E-02	6.89349E-01	1.57544E+00	6.86009E-01	1.32535E-02	3.66022E-03	9.99921E-01
9	.00000E+00	9.81112E-04	6.78112E-01	1.37170E+00	6.58225E-01	2.18491E-02	-9.08390E-04	9.99887E-01
10	.00000E+00	7.28725E-05	6.55269E-01	1.24725E+00	6.24712E-01	3.29826E-02	-2.28817E-03	9.99902E-01
11	.00000E+00	5.73310E-06	6.28783E-01	1.16117E+00	5.80357E-01	5.38009E-02	-5.33400E-03	9.99945E-01

12	.00000E+00	4.02740E-07	5.05519E-01	6.34508E-01	4.53522E-01	5.83351E-02	-6.32414E-03	9.99973E-01
13	.00000E+00	6.39515E-08	4.48175E-01	5.03635E-01	3.99449E-01	5.45948E-02	-5.85654E-03	9.99973E-01
14	.00000E+00	1.26735E-08	4.31066E-01	4.70113E-01	3.62302E-01	7.73835E-02	-8.61438E-03	9.99989E-01
15	.00000E+00	1.43224E-09	2.37505E-01	2.15883E-01	2.31499E-01	7.59882E-03	-1.63653E-03	1.00018E+00
16	.00000E+00	4.20556E-10	1.62281E-01	9.98110E-02	1.57667E-01	5.47975E-03	-8.95428E-04	1.00018E+00
17	.00000E+00	1.35440E-10	8.70766E-02	3.14683E-02	8.11535E-02	6.63470E-03	-7.27074E-04	1.00018E+00
18	.00000E+00	9.69708E-11	7.77200E-02	2.08377E-02	5.82871E-02	2.12485E-02	-1.82174E-03	1.00008E+00
19	.00000E+00	1.37096E-10	1.22542E-01	6.07375E-02	1.14678E-01	9.14271E-03	-1.29525E-03	1.00013E+00
20	.00000E+00	2.22932E-10	2.93208E-01	3.48667E-01	2.69031E-01	2.74015E-02	-3.27833E-03	1.00018E+00
21	.00000E+00	3.26301E-11	1.44984E-01	7.03732E-02	1.25743E-01	2.35772E-02	-2.40192E-03	1.00010E+00
22	.00000E+00	3.78584E-11	2.75593E-01	1.84239E-01	2.12917E-01	6.97813E-02	-7.13160E-03	1.00009E+00
23	.00000E+00	3.61968E-11	6.61892E-01	1.00662E+00	5.40511E-01	1.39414E-01	-1.81174E-02	1.00012E+00
24	.00000E+00	9.85229E-12	7.01257E-01	8.67952E-01	5.78984E-01	1.38722E-01	-1.66675E-02	1.00010E+00
25	.00000E+00	2.88411E-12	4.64370E-01	3.51868E-01	3.95410E-01	7.66698E-02	-7.73850E-03	1.00006E+00
26	.00000E+00	2.02235E-12	3.59944E-01	3.53346E-01	2.96283E-01	6.99957E-02	-5.95318E-03	1.00005E+00
27	.00000E+00	4.81937E-13	1.18737E-01	7.14249E-02	1.00129E-01	1.98126E-02	-1.20721E-03	1.00002E+00
28	.00000E+00	1.00000E+00	9.10206E+00	1.45514E+01	9.10206E+00	9.91916E-01	1.02111E-02	1.00001E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.32552E-02	-6.95225E-09	1.29591E-02	-1.24388E-03	2.22676E-03	2.48146E-03	2.92453E-04	3.36936E-01
2	9.64634E-02	-6.52760E-08	9.31681E-02	-1.30409E-02	1.59615E-05	1.10063E-02	1.58569E-03	2.44945E+00
3	1.20666E-01	-9.26605E-08	1.16307E-01	-1.67779E-02	.00000E+00	1.33450E-02	1.82658E-03	3.06311E+00
4	7.44527E-02	-7.14484E-08	7.16350E-02	-1.05079E-02	.00000E+00	5.73192E-03	8.85625E-04	1.88964E+00
5	1.11647E-01	-9.81703E-08	1.07065E-01	-1.61017E-02	.00000E+00	1.65429E-03	1.05172E-03	2.83257E+00
6	2.09722E-01	-1.33088E-07	2.00904E-01	-2.93056E-02	.00000E+00	1.40339E-03	1.73132E-03	5.31884E+00
7	2.03569E-01	-5.84223E-07	1.98020E-01	-1.75662E-02	.00000E+00	1.37206E-03	1.22622E-03	5.16943E+00
8	1.48917E-01	-7.29270E-08	1.47752E-01	-3.66029E-03	.00000E+00	1.39834E-03	6.97876E-04	3.78851E+00
9	1.15253E-01	4.32258E-06	1.15593E-01	9.07712E-04	.00000E+00	1.87880E-03	4.71088E-04	2.93538E+00
10	1.05550E-01	-9.69711E-07	1.06351E-01	2.28720E-03	.00000E+00	4.01284E-03	4.28496E-04	2.68968E+00
11	9.73316E-02	-1.77639E-06	9.91815E-02	5.33222E-03	.00000E+00	8.54482E-03	3.86770E-04	2.48529E+00
12	6.12884E-02	4.14981E-07	6.34683E-02	6.32456E-03	.00000E+00	1.12827E-02	2.27619E-04	1.56643E+00
13	5.21527E-02	-5.72705E-07	5.41477E-02	5.85596E-03	.00000E+00	1.21320E-02	1.95190E-04	1.33341E+00
14	4.78785E-02	-1.98471E-07	5.08119E-02	8.61418E-03	.00000E+00	7.80568E-03	1.75561E-04	1.22699E+00
15	2.81867E-02	-4.57024E-06	2.87193E-02	1.63196E-03	.00000E+00	1.92742E-03	1.11247E-04	7.19336E-01
16	1.56334E-02	-3.10803E-06	1.59224E-02	8.92325E-04	.00000E+00	1.33047E-03	5.78601E-05	3.98904E-01
17	6.67426E-03	-3.99226E-06	6.91462E-03	7.23082E-04	.00000E+00	1.69296E-03	2.22116E-05	1.70583E-01
18	4.36092E-03	-1.69847E-06	4.99230E-03	1.82004E-03	.00000E+00	1.50362E-03	1.12376E-05	1.12568E-01
19	1.01122E-02	-4.68952E-06	1.05553E-02	1.29056E-03	.00000E+00	2.70100E-03	3.43877E-05	2.58742E-01
20	3.41080E-02	-9.13532E-06	3.52344E-02	3.26920E-03	.00000E+00	1.50121E-02	1.25958E-04	8.71708E-01
21	9.75682E-03	-3.55369E-06	1.06201E-02	2.39837E-03	.00000E+00	1.39646E-02	2.76321E-05	2.50869E-01
22	1.85156E-02	-3.21685E-06	2.12198E-02	7.12838E-03	.00000E+00	4.12870E-02	4.88033E-05	4.79538E-01
23	6.43097E-02	3.40332E-06	7.26599E-02	1.81208E-02	.00000E+00	8.03394E-02	1.72789E-04	1.66672E+00
24	4.91885E-02	-5.81248E-07	5.75483E-02	1.64669E-02	.00000E+00	7.92781E-02	1.03698E-04	1.28337E+00
25	2.10510E-02	-1.10419E-06	2.53804E-02	7.73739E-03	.00000E+00	4.56524E-02	3.54042E-05	5.51996E-01
26	1.38363E-02	-1.79258E-07	1.75147E-02	5.95300E-03	.00000E+00	4.20842E-02	1.74251E-05	3.64978E-01
27	2.32861E-03	-1.97389E-08	3.13751E-03	1.20719E-03	.00000E+00	1.17908E-02	1.78722E-06	6.15910E-02
28	1.73620E+00	-3.23576E-05	1.74758E+00	-1.02434E-02	2.24272E-03	4.22563E-01	1.19306E-02	4.42743E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.28114E-02	.00000E+00	2.21404E-02	2.12526E-02	3.81906E-03	-6.95225E-09	9.98900E-01
2	.00000E+00	1.93451E-01	7.55369E-03	2.60726E-01	1.85458E-01	1.55595E-02	-6.52760E-08	1.00002E+00
3	.00000E+00	2.15779E-01	7.70654E-02	2.68320E-01	2.76444E-01	1.64053E-02	-9.26605E-08	9.99987E-01
4	.00000E+00	1.23886E-01	1.14093E-01	1.84395E-01	2.30141E-01	7.83838E-03	-7.14484E-08	9.99999E-01
5	.00000E+00	1.64335E-01	2.08014E-01	4.66396E-01	3.67067E-01	5.28587E-03	-9.81703E-08	9.99991E-01
6	.00000E+00	1.77430E-01	4.24561E-01	1.25640E+00	5.93605E-01	8.37900E-03	-1.33088E-07	1.00001E+00
7	.00000E+00	8.77290E-02	6.58667E-01	1.67020E+00	7.38074E-01	8.32953E-03	-5.84223E-07	9.99991E-01
8	.00000E+00	1.35181E-02	7.75798E-01	1.70414E+00	7.76047E-01	1.33311E-02	-7.29270E-08	9.99919E-01
9	.00000E+00	9.81112E-04	7.66750E-01	1.48864E+00	7.45843E-01	2.19704E-02	4.32258E-06	9.99867E-01
10	.00000E+00	7.28725E-05	7.42281E-01	1.35746E+00	7.09352E-01	3.30968E-02	-9.69711E-07	9.99901E-01
11	.00000E+00	5.73510E-06	7.13853E-01	1.26522E+00	6.59926E-01	5.39747E-02	-1.77639E-06	9.99944E-01
12	.00000E+00	4.02740E-07	5.74548E-01	6.90431E-01	5.16131E-01	5.84324E-02	4.14981E-07	9.99974E-01

13	.00000E+00	6.39515E-08	5.09729E-01	5.49283E-01	4.55014E-01	5.47295E-02	-5.72706E-07	9.99973E-01
14	.00000E+00	1.26735E-08	4.90928E-01	5.15033E-01	4.13336E-01	7.75980E-02	-1.98471E-07	9.99989E-01
15	.00000E+00	1.43224E-09	2.70365E-01	2.33648E-01	2.62549E-01	7.77682E-03	-4.57024E-06	1.00016E+00
16	.00000E+00	4.20556E-10	1.83941E-01	1.07447E-01	1.78314E-01	5.60015E-03	-3.10308E-06	1.00016E+00
17	.00000E+00	1.35440E-10	9.82526E-02	3.37009E-02	9.15477E-02	6.69339E-03	-3.99226E-06	1.00016E+00
18	.00000E+00	9.69708E-11	8.76509E-02	2.24768E-02	6.63507E-02	2.12958E-02	-1.69247E-06	1.00007E+00
19	.00000E+00	1.37096E-10	1.38961E-01	6.56554E-02	1.29702E-01	9.24686E-03	-4.68952E-06	1.00012E+00
20	.00000E+00	2.22952E-10	3.33454E-01	3.82420E-01	3.06574E-01	2.78852E-02	-9.13532E-06	1.00016E+00
21	.00000E+00	3.26301E-11	1.64375E-01	7.72122E-02	1.40620E-01	2.37438E-02	-3.55369E-06	1.00009E+00
22	.00000E+00	3.78584E-11	3.14078E-01	2.04921E-01	2.43881E-01	7.01752E-02	-3.21685E-06	1.00008E+00
23	.00000E+00	3.61968E-11	7.61279E-01	1.13035E+00	6.19973E-01	1.41215E-01	3.40332E-06	1.00011E+00
24	.00000E+00	9.85229E-12	8.07507E-01	9.83431E-01	6.66579E-01	1.40838E-01	-5.81248E-07	1.00009E+00
25	.00000E+00	2.88411E-12	5.35060E-01	4.00580E-01	4.57114E-01	7.79167E-02	-1.10419E-06	1.00006E+00
26	.00000E+00	2.02235E-12	4.16211E-01	4.07085E-01	3.45337E-01	7.08544E-02	-1.79258E-07	1.00005E+00
27	.00000E+00	4.81937E-13	1.37770E-01	8.29884E-02	1.17509E-01	2.02583E-02	-1.97389E-08	1.00002E+00
28	.00000E+00	1.00000E+00	1.03127E+01	1.58307E+01	1.03127E+01	1.00220E+00	-3.23389E-05	1.00001E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.32552E-02	-6.93225E-09	1.26849E-02	.00000E+00	2.25261E-03	2.48146E-03	3.24050E-04	3.63558E-01
2	9.64634E-02	-6.52760E-08	9.00880E-02	.00000E+00	1.59615E-05	1.10063E-02	1.73266E-03	2.63960E+00
3	1.20666E-01	-9.26605E-08	1.12169E-01	.00000E+00	.00000E+00	1.33450E-02	1.98046E-03	3.30027E+00
4	7.44527E-02	-7.14484E-08	6.88958E-02	.00000E+00	.00000E+00	5.73192E-03	9.55047E-04	2.03659E+00
5	1.11647E-01	-9.81708E-08	1.02664E-01	.00000E+00	.00000E+00	1.65429E-03	1.11614E-03	3.05043E+00
6	2.09722E-01	-1.33088E-07	1.92774E-01	.00000E+00	.00000E+00	1.40339E-03	1.86959E-03	5.72788E+00
7	2.08569E-01	-5.84229E-07	1.93064E-01	.00000E+00	.00000E+00	1.37206E-03	1.32532E-03	5.57615E+00
8	1.48917E-01	-7.29270E-08	1.46951E-01	.00000E+00	.00000E+00	1.39834E-03	7.53056E-04	4.09517E+00
9	1.15253E-01	4.32258E-06	1.15886E-01	.00000E+00	.00000E+00	1.87880E-03	5.08675E-04	3.17644E+00
10	1.05550E-01	-9.69711E-07	1.07077E-01	.00000E+00	.00000E+00	4.01284E-03	4.62555E-04	2.91188E+00
11	9.73316E-02	-1.77639E-06	1.00814E-01	.00000E+00	.00000E+00	8.54482E-03	4.18725E-04	2.69160E+00
12	6.12884E-02	4.14981E-07	6.53688E-02	.00000E+00	.00000E+00	1.12827E-02	2.46758E-04	1.70072E+00
13	5.21527E-02	-5.72706E-07	5.58641E-02	.00000E+00	.00000E+00	1.21320E-02	2.11178E-04	1.44806E+00
14	4.78785E-02	-1.98471E-07	5.33628E-02	.00000E+00	.00000E+00	7.80568E-03	1.90960E-04	1.33566E+00
15	2.81867E-02	-4.57024E-06	2.91097E-02	.00000E+00	.00000E+00	1.92742E-03	1.19480E-04	7.79512E-01
16	1.56334E-02	-3.10308E-06	1.61490E-02	.00000E+00	.00000E+00	1.33047E-03	6.20660E-05	4.32289E-01
17	6.67426E-03	-3.99226E-06	7.12217E-03	.00000E+00	.00000E+00	1.69296E-03	2.39528E-05	1.85211E-01
18	4.36092E-03	-1.69247E-06	5.56075E-03	.00000E+00	.00000E+00	1.50862E-03	1.25116E-05	1.23629E-01
19	1.01122E-02	-4.68952E-06	1.09254E-02	.00000E+00	.00000E+00	2.70100E-03	3.70675E-05	2.81125E-01
20	3.41030E-02	-9.13532E-06	3.61460E-02	.00000E+00	.00000E+00	1.50121E-02	1.35721E-04	9.46065E-01
21	9.75682E-03	-3.55369E-06	1.13856E-02	.00000E+00	.00000E+00	1.39646E-02	3.01056E-05	2.73844E-01
22	1.85156E-02	-3.21685E-06	2.36096E-02	.00000E+00	.00000E+00	4.12870E-02	5.38324E-05	5.26215E-01
23	6.43097E-02	3.40332E-06	7.95166E-02	.00000E+00	.00000E+00	8.03394E-02	1.88464E-04	1.82508E+00
24	4.91885E-02	-5.81248E-07	6.50713E-02	.00000E+00	.00000E+00	7.92781E-02	1.13825E-04	1.41116E+00
25	2.10510E-02	-1.10419E-06	2.94096E-02	.00000E+00	.00000E+00	4.56524E-02	3.91868E-05	6.09131E-01
26	1.38363E-02	-1.79258E-07	2.12106E-02	.00000E+00	.00000E+00	4.20342E-02	1.96269E-05	4.05460E-01
27	2.32861E-03	-1.97389E-08	4.02919E-03	.00000E+00	.00000E+00	1.17908E-02	2.10219E-06	6.91608E-02
28	1.73620E+00	-3.23576E-05	1.75693E+00	.00000E+00	2.24857E-03	4.22563E-01	1.29331E-02	4.79209E+01

- elapsed time .02 min.

Odirect access unit 9 requires 556 blocks of length 216 for cross section weighting.

1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.13510E-03	5.03136E-03	5.28543E-03	2.50764E-03	3.18244E-03	5.52617E-03	3.71774E-03	1.74328E-03
2	6.91531E-04	4.96888E-03	5.78279E-03	3.44171E-03	4.29908E-03	6.15591E-03	4.33455E-03	2.14811E-03
3	1.16375E-03	5.45359E-03	5.86882E-03	2.91415E-03	3.86310E-03	6.78281E-03	4.37964E-03	1.82367E-03
4	7.99375E-04	4.28258E-03	4.93001E-03	2.38791E-03	2.82864E-03	4.80131E-03	3.32670E-03	1.79788E-03
5	8.22747E-04	4.34888E-03	4.97383E-03	2.41239E-03	2.87840E-03	4.88993E-03	3.37580E-03	1.79794E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.11285E-03	1.01465E-03	1.09481E-03	8.73901E-04	7.91769E-04	1.08299E-03	3.16366E-04	1.61275E-04
2	1.79064E-03	1.95368E-03	2.04364E-03	1.60151E-03	1.42107E-03	1.69218E-03	6.26149E-04	3.43903E-04
3	1.12172E-03	1.05509E-03	1.29677E-03	1.22117E-03	1.11805E-03	1.56292E-03	3.78139E-04	1.98357E-04
4	1.19509E-03	1.09481E-03	1.03054E-03	6.77942E-04	6.01865E-04	6.41390E-04	3.11253E-04	1.61329E-04
5	1.19319E-03	1.09540E-03	1.04597E-03	7.05454E-04	6.27823E-04	6.87639E-04	3.14990E-04	1.63316E-04

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.32159E-05	1.84645E-04	1.64559E-04	4.71573E-04	2.64740E-04	7.68202E-04	2.13828E-03	1.89339E-03
2	1.77245E-04	2.91583E-04	2.93430E-04	8.70172E-04	4.29408E-04	1.19092E-03	3.30816E-03	2.92166E-03
3	1.34967E-04	3.13059E-04	2.39291E-04	6.41944E-04	4.21506E-04	1.24608E-03	3.25212E-03	2.93205E-03
4	7.07468E-05	7.53990E-05	1.17095E-04	3.84825E-04	1.35903E-04	3.40228E-04	1.07862E-03	8.60599E-04
5	7.39512E-05	8.73712E-05	1.23248E-04	3.97865E-04	1.50383E-04	3.86550E-04	1.19240E-03	9.69697E-04

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	8.61494E-04	6.10558E-04	9.30382E-05	4.20715E-02
2	1.34549E-03	9.80382E-04	1.68602E-04	5.52724E-02
3	1.37027E-03	1.02844E-03	1.92210E-04	5.19737E-02
4	3.60308E-04	2.18904E-04	2.71435E-05	3.45382E-02
5	4.13273E-04	2.60728E-04	3.49507E-05	3.54241E-02

1broad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.0000E+07	2.6512E+06	1.9675E+09	7.2026E-01
2	9.0000E+05	1.5116E+05	9.8844E+06	2.7974E-01
3	4.0000E-01	1.2602E-01	3.6640E+05	1.2193E-10
4	1.0000E-05			

1 560 d, second part of sas2h pass to make library

0cell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3
1	3.89825E-01	1.13679E+00	2.26610E-01
2	3.95069E-01	1.13809E+00	2.17225E-01
3	3.98022E-01	1.13838E+00	2.13005E-01
4	4.15189E-01	1.14066E+00	1.82970E-01
5	4.13500E-01	1.14041E+00	1.85886E-01

0flux disadvantage factors (zone average/cell average-flux)

Ozone	grp. 1	grp. 2	grp. 3
1	9.42745E-01	9.96824E-01	1.21908E+00
2	9.55428E-01	9.97966E-01	1.16859E+00
3	9.62569E-01	9.98223E-01	1.14589E+00
4	1.00409E+00	1.00022E+00	9.84313E-01
5	1.00000E+00	1.00000E+00	1.00000E+00

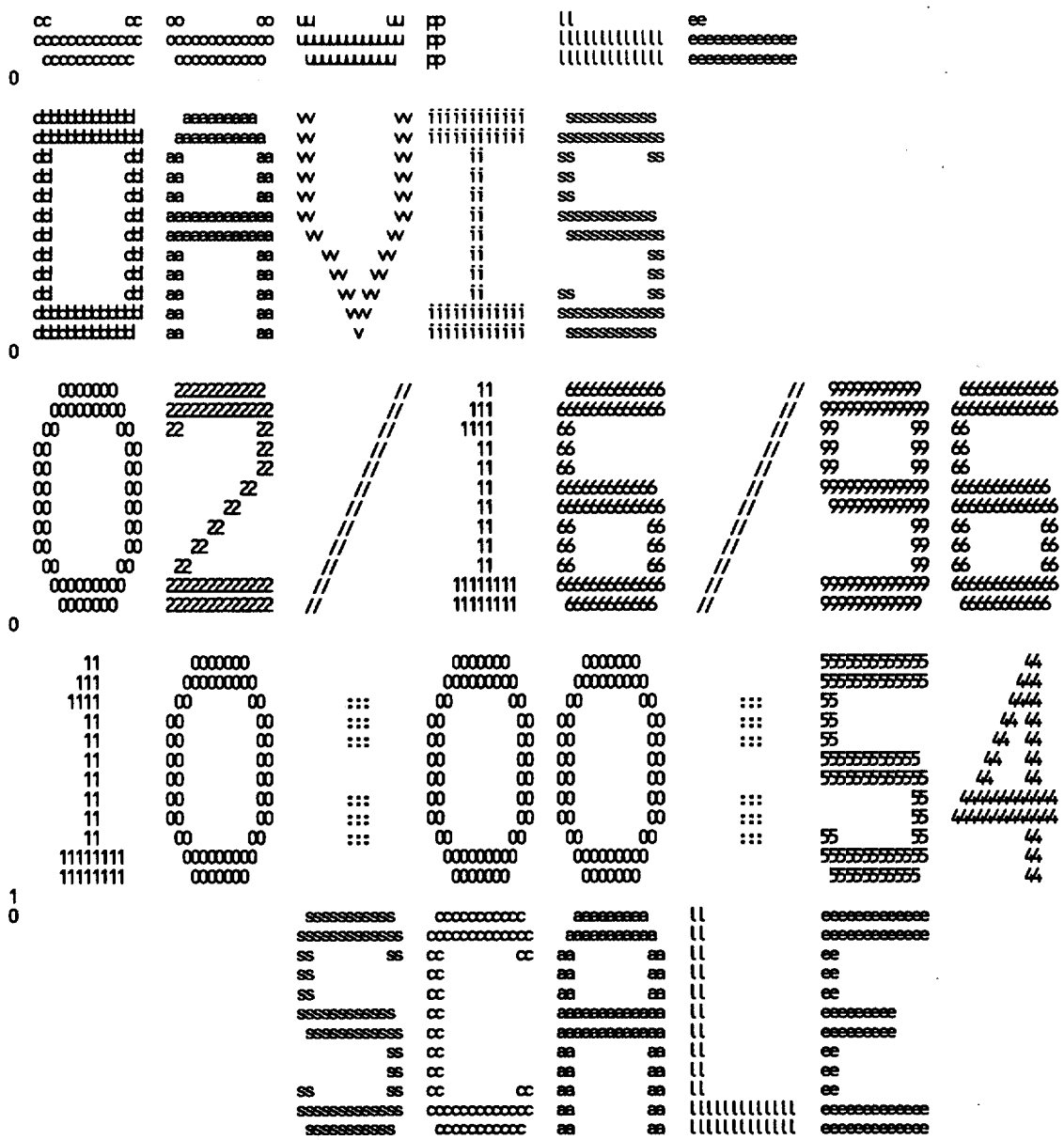
0cell averaged currents

Ozone	grp. 1	grp. 2	grp. 3
1	1.71420E-02	1.82998E-02	6.62971E-03
2	1.91840E-02	2.57438E-02	1.03446E-02
3	1.92634E-02	2.22676E-02	1.04427E-02
4	1.52285E-02	1.62880E-02	3.02171E-03
5	1.54362E-02	1.65799E-02	3.40798E-03

Ozone	volume	vol. fraction
1	1.25665E+00	4.56236E-02
2	1.66687E-01	6.05165E-03
3	6.58265E-01	2.38987E-02
4	2.54624E+01	9.24426E-01
5	2.75440E+01	1.00000E+00

- elapsed time .03 min.

```
1  cccccccccccc    cccccccccccc   uu        uu  pppppppppppp   ll          eeeeeeeeeeeee
   cccccccccccc    cccccccccccc   uu        uu  pppppppppppp   ll          eeeeeeeeeeeee
   cc        cc    cc        cc   uu        uu  pp        pp   ll          ee
   cc              cc        cc   uu        uu  pp        pp   ll          ee
   cc              cc        cc   uu        uu  pp        pp   ll          ee
   cc              cc        cc   uu        uu  pppppppppppp   ll          eeeeeeeee
   cc              cc        cc   uu        uu  pppppppppppp   ll          eeeeeeeee
   cc              cc        cc   uu        uu  pp             ll          ee
   cc              cc        cc   uu        uu  pp             ll          ee
```



```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****             program:  c0c005                                      *****
*****                                                                   *****
*****       creation date:  04/27/95                                    *****
*****                                                                   *****
*****             library:  /neutronics/scale/exe                       *****
*****                                                                   *****
*****                                                                   *****
*****   this is not a   scale  configuration controlled code            *****
*****                                                                   *****
*****             jobname:  davis                                       *****
*****                                                                   *****
*****   date of execution:  02/16/96                                    *****
*****                                                                   *****
*****   time of execution:  10:00:54                                    *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       2q array has      1 entries.
0        * core allocated to array-data (by -1$$ or default) was   200000 words. *
1         * broad 3-group flux weighting factors *
0
0                 therm =    .5102
0                 res   =    .4194
0                 fast  =   3.2255
0 user requested (see jadd) that only the nuclide transitions presently included in
0 origen library be updated.
1cross sections, available from ampx (normalized to thermal flux), barns

                    10010 to  10020  2.81074E-01
                    10010 tot-cap    2.81074E-01
                    50100 to  40100  2.30587E-02
                    50100 to  10010  2.30587E-02
                    50100 to  40090  3.49785E-03
                    50100 to  10020  3.49785E-03
```

50100	to	30070	3.23223E+03
50100	to	20040	3.23240E+03
50100	to	10030	8.63863E-02
50100	tot-cap		3.23234E+03
50110	to	50100	1.00341E-05
50110	to	50120	4.27805E-03
50110	to	40110	1.28045E-06
50110	to	10010	1.28045E-06
50110	to	40090	1.14267E-05
50110	to	10030	1.14267E-05
50110	to	30080	1.49170E-04
50110	to	20040	1.49170E-04
50110	tot-cap		4.44997E-03
80160	to	80170	1.50153E-04
80160	to	70160	8.77965E-05
80160	to	10010	8.77965E-05
80160	to	70150	1.65583E-05
80160	to	10020	1.65583E-05
80160	to	60130	2.46487E-02
80160	to	20040	2.46487E-02
80160	to	80161	3.85045E-03
80160	tot-cap		2.49032E-02
360830	to	360820	1.99539E-02
360830	to	360810	2.10453E-09
360830	to	360840	1.52183E+02
360830	to	350830	8.20360E-04
360830	to	10010	8.20360E-04
360830	to	350820	6.58364E-06
360830	to	10020	6.58364E-06
360830	to	350810	2.30111E-06
360830	to	10030	2.30111E-06
360830	to	340810	3.72415E-08
360830	to	20030	3.72415E-08
360830	to	340800	4.37489E-05
360830	to	20040	4.37489E-05
360830	tot-cap		1.52204E+02
360850	to	360860	1.37560E+00
360850	tot-cap		1.37560E+00
380900	to	380910	6.23767E-01
380900	tot-cap		6.23767E-01
390890	to	390900	9.75890E-01
390890	tot-cap		9.75890E-01
400930	to	400940	1.28827E+01
400930	tot-cap		1.28827E+01
400940	to	400950	1.79301E-01
400940	tot-cap		1.79301E-01
400950	to	400960	2.13947E+00
400950	tot-cap		2.13947E+00
410940	to	410950	3.72018E+01
410940	tot-cap		3.72018E+01
420950	to	420960	3.72416E+01
420950	tot-cap		3.72416E+01
430990	to	430980	6.04825E-03
430990	to	431000	8.67993E+01
430990	tot-cap		8.68054E+01
441010	to	441020	2.71307E+01
441010	tot-cap		2.71307E+01
441060	to	441070	8.32121E-01
441060	tot-cap		8.32121E-01
451080	to	451020	2.19045E-03

451080 to 451040 3.49009E+02
451080 tot-cap 3.49011E+02
451050 to 451060 8.09421E+03
451050 tot-cap 8.09421E+03
461050 to 461060 3.27097E+01
461050 tot-cap 3.27097E+01
461080 to 461090 6.58777E+01
461080 tot-cap 6.58777E+01
471090 to 471080 5.09575E-03
471090 to 471100 3.58892E+02
471090 to 461090 2.89243E-04
471090 to 10010 2.89243E-04
471090 to 451060 2.38972E-04
471090 to 20040 2.38972E-04
471090 to 471091 6.08942E-01
471090 tot-cap 3.58897E+02
511240 to 511250 1.16768E+01
511240 tot-cap 1.16768E+01
541310 to 541300 6.17635E-02
541310 to 541290 1.29149E-05
541310 to 541320 2.51254E+02
541310 to 531310 3.72901E-05
541310 to 10010 3.72901E-05
541310 to 531300 5.17946E-07
541310 to 10020 5.17946E-07
541310 to 531290 5.31105E-07
541310 to 10030 5.31105E-07
541310 to 521280 1.74336E-05
541310 to 20040 1.74336E-05
541310 tot-cap 2.51316E+02
541320 to 541310 9.97762E-03
541320 to 541300 2.11618E-05
541320 to 541330 8.96878E-01
541320 to 531320 7.62170E-06
541320 to 10010 7.62170E-06
541320 to 531310 3.21580E-07
541320 to 10020 3.21580E-07
541320 to 531300 4.33008E-08
541320 to 10030 4.33008E-08
541320 to 521290 9.37729E-07
541320 to 20040 9.37729E-07
541320 tot-cap 9.06886E-01
541350 to 541360 1.45939E+06
541350 tot-cap 1.45939E+06
541360 to 541350 1.70674E-02
541360 to 541340 5.21279E-05
541360 to 541370 1.21829E-01
541360 to 531360 3.15184E-07
541360 to 10010 3.15184E-07
541360 to 531350 1.17333E-07
541360 to 10020 1.17333E-07
541360 to 531340 2.65076E-08
541360 to 10030 2.65076E-08
541360 to 521330 2.64371E-07
541360 to 20040 2.64371E-07
541360 tot-cap 1.38949E-01
551330 to 551320 7.99233E-03
551330 to 551340 9.87234E+01
551330 to 541330 8.68658E-04
551330 to 10010 8.68658E-04

551330	to 531300	1.36559E-05
551330	to 20040	1.36559E-05
551330	tot-cap	9.87323E+01
551340	to 551350	1.26588E+02
551340	tot-cap	1.26588E+02
551350	to 551360	2.06987E+01
551350	tot-cap	2.06987E+01
551370	to 551380	2.22268E-01
551370	tot-cap	2.22268E-01
561360	to 561370	8.71651E-01
561360	tot-cap	8.71651E-01
571390	to 571400	7.82258E+00
571390	tot-cap	7.82258E+00
581440	to 581450	1.20753E+00
581440	tot-cap	1.20753E+00
591410	to 591400	5.72711E-03
591410	to 591390	1.64554E-06
591410	to 571370	2.46396E-06
591410	to 20040	5.08915E-05
591410	to 581400	1.74672E-05
591410	to 10010	4.97664E-05
591410	to 591420	1.16124E+01
591410	to 581410	4.68908E-05
591410	to 10020	1.45916E-05
591410	to 581390	1.53025E-06
591410	to 10030	1.53025E-06
591410	to 571390	1.47785E-08
591410	to 20030	1.47785E-08
591410	to 571380	4.84276E-05
591410	tot-cap	1.16182E+01
591430	to 591440	9.58312E+01
591430	tot-cap	9.58312E+01
601430	to 601420	8.76411E-02
601430	to 601410	8.94352E-06
601430	to 581390	1.94490E-05
601430	to 20040	5.43945E-04
601430	to 591420	3.74375E-06
601430	to 10010	3.85492E-05
601430	to 601440	1.97699E+02
601430	to 591430	3.71388E-05
601430	to 10020	2.33330E-06
601430	to 591410	3.36227E-06
601430	to 10030	3.36227E-06
601430	to 581410	1.61544E-08
601430	to 20030	1.61544E-08
601430	to 581400	5.24498E-04
601430	tot-cap	1.97788E+02
601450	to 601440	1.12467E-01
601450	to 601430	1.14189E-04
601450	to 581410	8.09596E-06
601450	to 20040	2.02831E-04
601450	to 591440	2.14496E-06
601450	to 10010	1.39538E-05
601450	to 601460	7.63322E+01
601450	to 591450	1.30983E-05
601450	to 10020	1.28959E-06
601450	to 591430	2.03274E-06
601450	to 10030	2.03274E-06
601450	to 581430	4.13866E-09
601450	to 20030	4.13866E-09

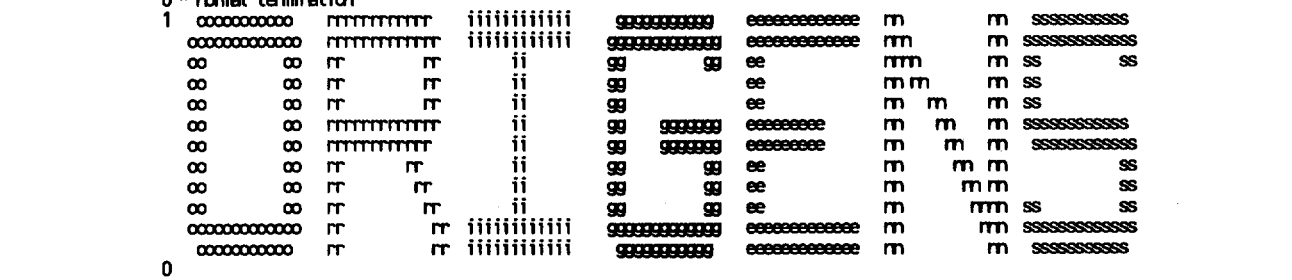
601450 to 581420 1.94735E-04
601450 tot-cap 7.64450E+01
601470 to 601480 1.82057E+02
601470 tot-cap 1.82057E+02
611470 to 611460 3.07682E-02
611470 to 611450 9.60014E-05
611470 to 591430 8.52691E-06
611470 to 20040 7.90907E-05
611470 to 601460 1.17661E-05
611470 to 10010 2.68168E-05
611470 to 611480 5.65792E+02
611470 to 601470 2.39051E-05
611470 to 10020 8.85435E-06
611470 to 601450 3.34307E-06
611470 to 10030 3.34307E-06
611470 to 591450 5.02640E-09
611470 to 20030 5.02640E-09
611470 to 591440 7.05638E-05
611470 tot-cap 5.65823E+02
611480 to 611490 1.19245E+04
611480 tot-cap 1.19245E+04
621470 to 621460 8.02674E-02
621470 to 621450 7.22730E-03
621470 to 601430 6.27083E-05
621470 to 20040 1.20681E-03
621470 to 611460 1.45664E-04
621470 to 10010 2.08286E-04
621470 to 621480 2.24593E+02
621470 to 611470 1.83730E-04
621470 to 10020 1.21108E-04
621470 to 611450 1.30043E-04
621470 to 10030 1.30043E-04
621470 to 601450 5.98351E-06
621470 to 20030 5.98351E-06
621470 to 601440 1.14410E-03
621470 to 621471 1.59214E+00
621470 tot-cap 2.24682E+02
621490 to 621480 4.53697E-02
621490 to 621470 3.60249E-05
621490 to 621500 4.49604E+04
621490 to 611490 4.64906E-04
621490 to 10010 4.64906E-04
621490 to 601460 4.64906E-04
621490 to 20040 4.64906E-04
621490 tot-cap 4.49604E+04
621500 to 621510 1.31000E+02
621500 tot-cap 1.31000E+02
621510 to 621500 1.51533E-01
621510 to 621490 1.35559E-04
621510 to 601470 1.52300E-05
621510 to 20040 1.18789E-04
621510 to 611500 1.85620E-06
621510 to 10010 1.44460E-05
621510 to 621520 4.90133E+03
621510 to 611510 1.33119E-05
621510 to 10020 7.22131E-07
621510 to 611490 1.31243E-06
621510 to 10030 1.31243E-06
621510 to 601490 1.35205E-09
621510 to 20030 1.35205E-09

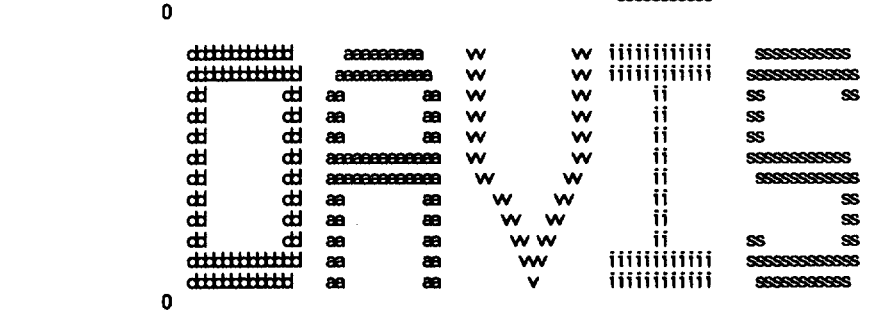
621510 to 601480 1.03553E-04
621510 tot-cap 4.90148E+03
621520 to 621510 1.81528E-02
621520 to 621500 1.22659E-04
621520 to 601480 2.74143E-06
621520 to 20040 1.13869E-05
621520 to 611510 7.86272E-07
621520 to 10010 2.32027E-06
621520 to 621530 7.15683E+02
621520 to 611520 2.06111E-06
621520 to 10020 5.27119E-07
621520 to 611500 1.37091E-07
621520 to 10030 1.37091E-07
621520 to 601500 4.15464E-10
621520 to 20030 4.15464E-10
621520 to 601490 8.64549E-06
621520 tot-cap 7.15702E+02
631530 to 631520 1.76307E-02
631530 to 631510 2.63281E-05
631530 to 611490 4.21162E-05
631530 to 20040 6.08576E-04
631530 to 621520 7.37617E-06
631530 to 10010 6.22333E-05
631530 to 631540 6.01907E+02
631530 to 621530 5.97147E-05
631530 to 10020 4.85759E-06
631530 to 621510 1.08846E-06
631530 to 10030 1.08846E-06
631530 to 611510 2.48821E-08
631530 to 20030 2.48821E-08
631530 to 611500 5.66260E-04
631530 tot-cap 6.01925E+02
631540 to 631530 2.81847E-02
631540 to 631520 1.01245E-05
631540 to 611500 9.84430E-11
631540 to 20040 7.29194E-04
631540 to 621530 2.21619E-06
631540 to 10010 1.18422E-03
631540 to 631550 1.05700E+03
631540 to 621540 1.18422E-03
631540 to 10020 2.21498E-06
631540 to 621520 3.75205E-06
631540 to 10030 3.75205E-06
631540 to 611520 1.59074E-08
631540 to 20030 1.59074E-08
631540 to 611510 7.29194E-04
631540 tot-cap 1.05703E+03
631550 to 631540 2.31407E-02
631550 to 631530 6.47992E-05
631550 to 611510 1.74437E-06
631550 to 20040 8.58506E-06
631550 to 621540 3.53338E-06
631550 to 10010 7.42022E-06
631550 to 631560 2.53912E+03
631550 to 621550 5.70099E-06
631550 to 10020 1.81415E-06
631550 to 621530 6.00547E-07
631550 to 10030 6.00547E-07
631550 to 611530 1.36117E-10
631550 to 20030 1.36117E-10

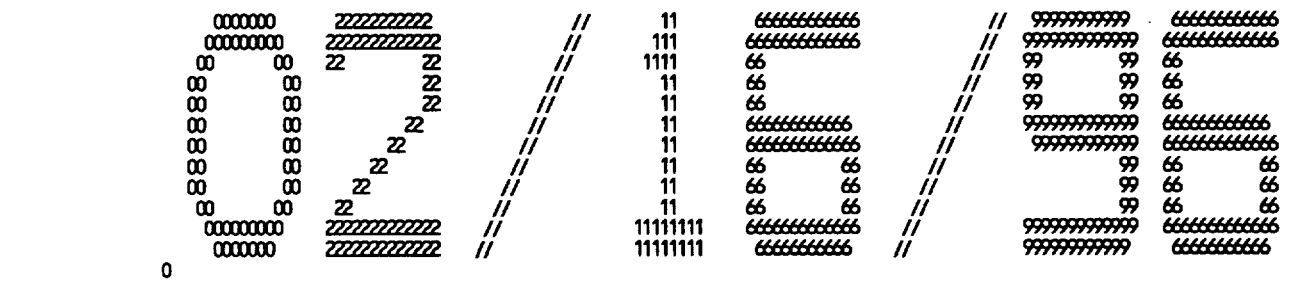
631550	to 611520	6.84069E-06
631550	tot-cap	2.53915E+03
641550	to 641560	1.68507E+04
641550	tot-cap	1.68507E+04
922340	to 922330	6.06255E-03
922340	fission	4.24957E+00
922340	nu-sigf	1.11695E+01
922340	to 922320	8.79035E-05
922340	to 922350	1.80808E+02
922340	to 922341	2.85447E+00
922340	tot-cap	1.84563E+02
922350	to 922340	2.77011E-02
922350	fission	3.58046E+02
922350	nu-sigf	8.67034E+02
922350	to 922330	2.64796E-05
922350	to 922360	8.43002E+01
922350	to 922351	8.11872E-02
922350	tot-cap	4.42574E+02
922360	to 922350	3.08839E-02
922360	fission	1.82111E+00
922360	nu-sigf	4.99822E+00
922360	to 922340	4.11580E-04
922360	to 922370	7.15549E+01
922360	to 922361	3.12284E+00
922360	tot-cap	7.34073E+01
922380	to 922370	6.16837E-02
922380	fission	9.12398E-01
922380	nu-sigf	2.56852E+00
922380	to 922360	3.98626E-04
922380	to 922390	8.18410E+00
922380	tot-cap	9.15858E+00
932370	to 932360	1.40615E-02
932370	fission	4.92771E+00
932370	nu-sigf	1.48387E+01
932370	to 932350	5.37949E-05
932370	to 932380	2.92721E+02
932370	to 932371	7.31933E-01
932370	tot-cap	2.97663E+02
942380	to 942370	2.26019E-03
942380	fission	2.15714E+01
942380	nu-sigf	6.11386E+01
942380	to 942360	1.26492E-05
942380	to 942390	2.62479E+02
942380	to 942381	2.86197E+00
942380	tot-cap	2.84053E+02
942390	to 942380	1.19752E-02
942390	fission	8.43174E+02
942390	nu-sigf	2.42426E+03
942390	to 942370	2.03645E-05
942390	to 942360	2.01876E-08
942390	to 942400	4.73873E+02
942390	tot-cap	1.31706E+03
942400	to 942390	5.62889E-03
942400	fission	5.63826E+00
942400	nu-sigf	1.76464E+01
942400	to 942380	5.49290E-05
942400	to 942410	1.61630E+03
942400	tot-cap	1.62194E+03
942410	to 942400	7.11470E-02
942410	fission	8.93907E+02

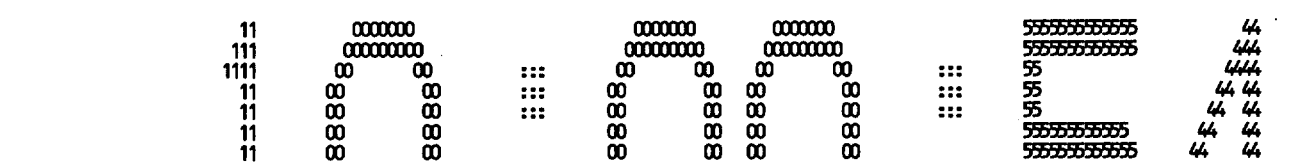
```
                942410 nu-sigf    2.62283E+03
                942410 to 942390  1.17533E-04
                942410 to 942420  2.95295E+02
                942410 tot-cap    1.18727E+03
                942420 to 942410  2.29460E-02
                942420 fission    4.27076E+00
                942420 nu-sigf    1.33775E+01
                942420 to 942400  2.78960E-04
                942420 to 942430  3.21212E+02
                942420 tot-cap    3.25506E+02
                952410 fission    1.21625E+01
                952410 nu-sigf    3.92645E+01
                952410 to 952420  1.01112E+03
                952410 tot-cap    1.02328E+03
                952430 fission    3.29622E+00
                952430 nu-sigf    1.10803E+01
                952430 to 952440  4.07930E+02
                952430 tot-cap    4.11227E+02
                962440 to 962430  5.51456E-03
                962440 fission    1.47615E+01
                962440 nu-sigf    4.96557E+01
                962440 to 962420  5.49934E-05
                962440 to 962450  1.36322E+02
                962440 to 962441  3.65043E+00
                962440 tot-cap    1.51089E+02
Othe reaction   50100 to  30070 was not used, because  50100 is not in library., (in subr pool)
                                        in the search of library number 3
Othe reaction   50100 to  40090 was not used, because  50100 is not in library., (in subr pool)
                                        in the search of library number 3
Othe reaction   50110 to  40090 was not used, because  50110 is not in library., (in subr pool)
                                        in the search of library number 3
Othe reaction   50100 to  40100 was not used, because  50100 is not in library., (in subr pool)
                                        in the search of library number 3
Othe reaction   80160 to  80161 was not used, because  80161 is not in library., (in subr pool)
Othe reaction  621470 to 621471 was not used, because 621471 is not in library., (in subr pool)
Othe fission product transitions for  922340 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction  922340 to 922341 was not used, because  922341 is not in library., (in subr pool)
Othe reaction  922350 to 922351 was not used, because  922351 is not in library., (in subr pool)
Othe fission product transitions for  922360 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction  922360 to 922361 was not used, because  922361 is not in library., (in subr pool)
Othe fission product transitions for  952370 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction  952370 to 952371 was not used, because  952371 is not in library., (in subr pool)
Othe fission product transitions for  942380 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction  942380 to 942381 was not used, because  942381 is not in library., (in subr pool)
Othe fission product transitions for  942400 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe fission product transitions for  942420 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe fission product transitions for  952410 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
```

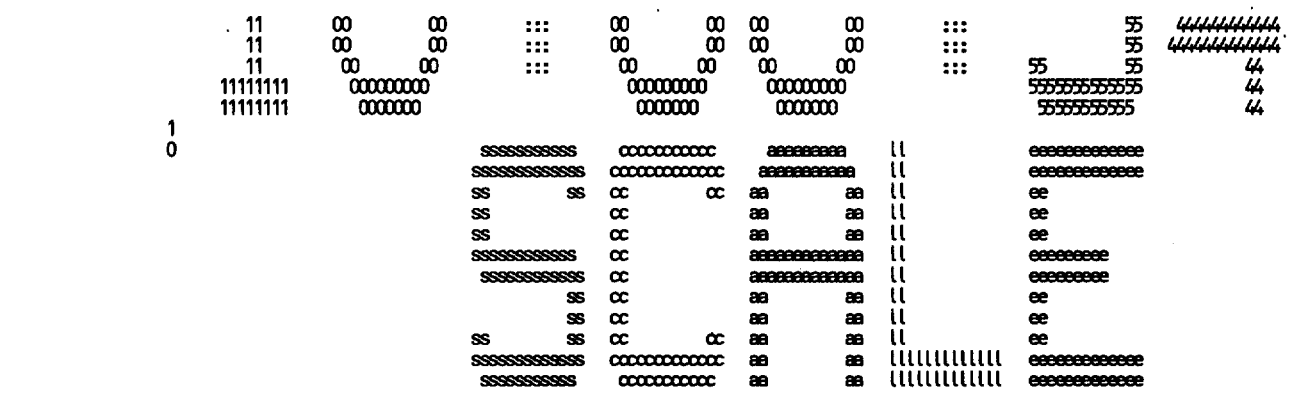
```
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952430 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  962440 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  962440 to 962441 was not used, because  962441 is not in library., (in subr pool)
1
0                          case completed.  date,   2/16/1996
0 * normal termination *
```












```
*****************************************************************
*****************************************************************
*****************************************************************
*****                                                       *****
*****                program verification information       *****
*****                                                       *****
*****              code system:  scale  version:  4.2       *****
*****                                                       *****
*****************************************************************
*****************************************************************
*****                                                       *****
*****                                                       *****
*****           program:  c0c004                            *****
*****                                                       *****
*****      creation date:  04/27/95                         *****
*****                                                       *****
*****           library:  /nautronics/scale/exe             *****
*****                                                       *****
*****                                                       *****
*****  this is not a  scale  configuration controlled code  *****
*****                                                       *****
*****           jobname:  davis                             *****
*****                                                       *****
*****  date of execution:  02/16/96                         *****
*****                                                       *****
*****  time of execution:  10:00:54                         *****
*****                                                       *****
*****                                                       *****
*****************************************************************
*****************************************************************
*****************************************************************
```

```
 -1q array has     1 entries.
  0q array has     1 entries.
  0q array has     1 entries.
  0q array has     1 entries.
  0q array has     1 entries.
```

```
0       dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0          short-lived split test fraction, qm =    9.1188E-04
0          half-norm of matrix used, awn =    7.0000E+00
0          4-place-accuracy-retention ratio, ratio4 =    6.4516E-13
0       1q array has     20 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       4q array has      1 entries.
0      54q array has     12 entries.
1library information...

         cross-section data taken from position number  1 of library on unit 15.

         pass  4
         pass  1
         pass  0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
           pass 0 applies start-up fuel densiities
           pass n applies mid time densities of nth library interval
         first library updated was...
         pass  1
         pass  0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
           pass 0 applies start-up fuel densiities
           pass n applies mid time densities of nth library interval
         first library updated was...
         ************************************************************************
         *                                                                      *
         *          prelim lwr origen-s binary working library--id = 1143       *
         *        made from modified card-image origen-s libraries of scale 4.2 *
         *      data from the light element, actinide, and fission product libraries *
         *        decay data, including gamma and total energy, are from endf/b-vi *
         *                                                                      *
         *      neutron flux spectrum factors and cross sections were produced from *
         *     the "presas2" case updating all nuclides on the scale "burnup" library *
         *                                                                      *
         *                  fission product yields are from endf/b-v            *
         *                                                                      *
         *             photon libraries use an 18-energy-group structure        *
         *            the photon data are from the master photon data base,     *
         *             produced to include bremsstrahlung from ua2 matrix       *
         *                                                                      *
         *        see information above this box (if present) for later updates *
         *                                                                      *
         ************************************************************************
         *                                                                      *
0        ************************************************************************
0                .other identification and sizes of library.
0                 data set name:  ft15f001
0               2/16/1996    date library was produced
0                   1697    total number of nuclides in library
                     689    number of light-element nuclides
                     129    number of actinide nuclides
                     879    number of fission product nuclides
0                   7935    number of nonzero off-diagonal matrix elements
0        ************************************************************************
1
```

sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 1
power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.61E+13n/cm**2-sec

0 nuclide concentrations, gram atoms
basis = converted to atoms/(barn-cm)

	charge	520.0 d	560.0 d	600.0 d	640.0 d	640.1 d	680.1 d	720.1 d
he 4	4.44E-09	5.87E-09	7.66E-09	9.90E-09	1.27E-08	1.27E-08	1.60E-08	2.00E-08
u230	2.18E-21	2.67E-21	3.19E-21	3.75E-21	4.39E-21	4.38E-21	5.10E-21	5.89E-21
u231	4.75E-20	5.79E-20	6.77E-20	7.86E-20	9.08E-20	9.04E-20	1.04E-19	1.19E-19
u232	6.36E-13	7.56E-13	8.91E-13	1.04E-12	1.21E-12	1.21E-12	1.40E-12	1.61E-12
u233	2.43E-11	2.60E-11	2.76E-11	2.92E-11	3.07E-11	3.07E-11	3.21E-11	3.34E-11
u234	4.95E-06	4.90E-06	4.85E-06	4.80E-06	4.75E-06	4.75E-06	4.70E-06	4.66E-06
u235	5.15E-04	5.02E-04	4.90E-04	4.78E-04	4.67E-04	4.67E-04	4.56E-04	4.44E-04
u236	3.55E-05	3.77E-05	3.99E-05	4.20E-05	4.40E-05	4.40E-05	4.60E-05	4.79E-05
u237	5.10E-08	5.41E-08	5.62E-08	5.83E-08	6.03E-08	6.02E-08	6.23E-08	6.43E-08
u238	2.19E-02	2.19E-02	2.19E-02	2.19E-02	2.19E-02	2.19E-02	2.19E-02	2.19E-02
u239	2.52E-09	5.85E-09	5.84E-09	5.85E-09	5.85E-09	1.97E-09	5.85E-09	5.86E-09
u240	.00E+00	7.72E-35	1.71E-34	3.56E-34	7.05E-34	7.05E-34	1.34E-33	2.43E-33
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	1.80E-14	2.17E-14	2.57E-14	2.99E-14	3.45E-14	3.45E-14	3.94E-14	4.46E-14
np236m	2.94E-14	3.49E-14	3.87E-14	4.27E-14	4.67E-14	4.59E-14	5.09E-14	5.52E-14
np236	1.54E-12	1.88E-12	2.27E-12	2.69E-12	3.15E-12	3.15E-12	3.66E-12	4.21E-12
np237	1.60E-06	1.79E-06	1.98E-06	2.19E-06	2.39E-06	2.39E-06	2.60E-06	2.82E-06
np238	1.94E-09	2.21E-09	2.45E-09	2.70E-09	2.96E-09	2.94E-09	3.23E-09	3.50E-09
np239	8.23E-07	8.44E-07	8.44E-07	8.44E-07	8.44E-07	8.42E-07	8.45E-07	8.46E-07
np240m	.00E+00	6.59E-37	1.46E-36	3.04E-36	6.02E-36	6.02E-36	1.14E-35	2.08E-35
np240	1.04E-11	1.48E-11	1.48E-11	1.49E-11	1.49E-11	9.84E-12	1.49E-11	1.49E-11
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	1.85E-12	2.29E-12	2.74E-12	3.22E-12	3.75E-12	3.75E-12	4.31E-12	4.92E-12
pu237	1.37E-13	1.52E-13	1.67E-13	1.81E-13	1.95E-13	1.95E-13	2.09E-13	2.23E-13
pu238	1.23E-07	1.49E-07	1.78E-07	2.10E-07	2.46E-07	2.46E-07	2.84E-07	3.26E-07
pu239	7.50E-05	7.93E-05	8.32E-05	8.69E-05	9.04E-05	9.04E-05	9.36E-05	9.65E-05
pu240	9.39E-06	1.05E-05	1.17E-05	1.29E-05	1.40E-05	1.40E-05	1.51E-05	1.62E-05
pu241	3.61E-06	4.22E-06	4.90E-06	5.62E-06	6.40E-06	6.40E-06	7.22E-06	8.09E-06
pu242	2.08E-07	2.68E-07	3.37E-07	4.17E-07	5.07E-07	5.07E-07	6.09E-07	7.24E-07
pu243	2.52E-11	3.55E-11	4.47E-11	5.53E-11	6.74E-11	6.18E-11	8.10E-11	9.64E-11
pu244	1.64E-24	3.84E-24	8.49E-24	1.77E-23	3.51E-23	3.51E-23	6.65E-23	1.21E-22
pu245	1.14E-30	2.74E-30	6.06E-30	1.27E-29	2.51E-29	2.41E-29	4.76E-29	8.69E-29
pu246	.00E+00	9.00E-33	2.10E-32	4.46E-32	8.99E-32	8.98E-32	1.73E-31	3.20E-31
am239	8.99E-19	1.23E-18	1.53E-18	1.88E-18	2.27E-18	2.19E-18	2.71E-18	3.20E-18
am240	3.96E-16	5.29E-16	6.62E-16	8.13E-16	9.83E-16	9.75E-16	1.17E-15	1.38E-15
am241	5.98E-08	7.67E-08	9.59E-08	1.18E-07	1.42E-07	1.42E-07	1.69E-07	1.99E-07
am242m	9.19E-10	1.24E-09	1.62E-09	2.08E-09	2.61E-09	2.61E-09	3.21E-09	3.90E-09
am242	6.65E-11	8.66E-11	1.08E-10	1.33E-10	1.61E-10	1.56E-10	1.92E-10	2.26E-10
am243	9.57E-09	1.36E-08	1.86E-08	2.49E-08	3.26E-08	3.26E-08	4.18E-08	5.28E-08
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	3.12E-12	4.65E-12	6.39E-12	8.55E-12	1.12E-11	1.07E-11	1.44E-11	1.82E-11
am245	1.05E-28	2.48E-28	5.45E-28	1.13E-27	2.21E-27	2.21E-27	4.14E-27	7.47E-27
am246	.00E+00	2.25E-35	5.24E-35	1.11E-34	2.25E-34	2.25E-34	4.33E-34	8.00E-34
cm241	2.56E-19	4.04E-19	6.01E-19	8.61E-19	1.20E-18	1.19E-18	1.62E-18	2.14E-18
cm242	4.63E-09	6.30E-09	8.35E-09	1.08E-08	1.37E-08	1.37E-08	1.70E-08	2.09E-08
cm243	3.84E-11	5.72E-11	8.22E-11	1.14E-10	1.55E-10	1.55E-10	2.05E-10	2.65E-10
cm244	4.58E-10	7.10E-10	1.06E-09	1.54E-09	2.16E-09	2.16E-09	2.97E-09	3.99E-09
cm245	5.42E-12	9.12E-12	1.47E-11	2.27E-11	3.39E-11	3.39E-11	4.94E-11	7.01E-11
cm246	1.18E-13	2.15E-13	3.73E-13	6.23E-13	1.00E-12	1.00E-12	1.56E-12	2.37E-12
cm247	4.36E-16	8.72E-16	1.64E-15	2.94E-15	5.06E-15	5.06E-15	8.40E-15	1.35E-14

1

sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 2
power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.61E+13n/cm**2-sec

0 nuclide concentrations, gram atoms
basis = converted to atoms/(barn-cm)

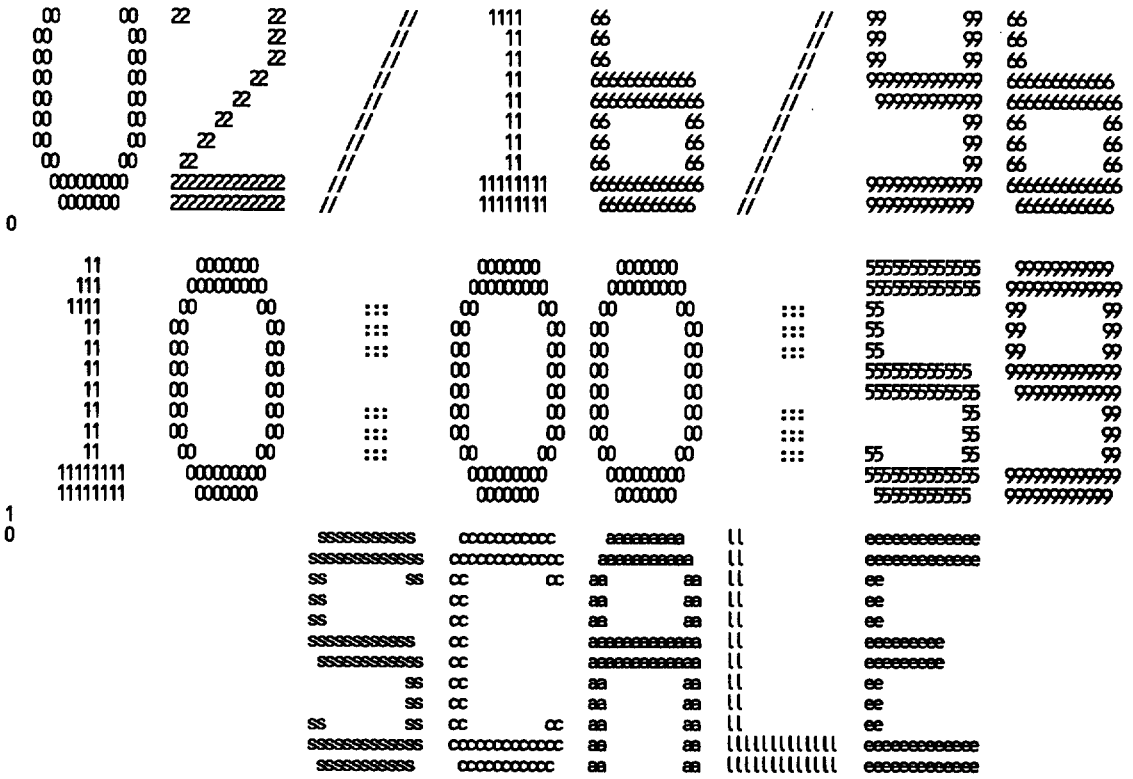
```
            charge  520.0 d  560.0 d  600.0 d  640.0 d  640.1 d  680.1 d  720.1 d
    cm248  7.07E-18 1.55E-17 3.16E-17 6.13E-17 1.13E-16 1.13E-16 2.01E-16 3.44E-16
    cm249  3.31E-23 1.01E-22 2.06E-22 3.99E-22 7.39E-22 4.96E-22 1.31E-21 2.25E-21
    cm250  4.02E-27 9.57E-27 2.13E-26 4.45E-26 8.84E-26 8.84E-26 1.68E-25 3.07E-25
    cm251   .00E+00 2.28E-34 5.06E-34 1.06E-33 2.11E-33 4.61E-34 4.01E-33 7.33E-33
   totals  2.26E-02 2.26E-02 2.26E-02 2.25E-02 2.25E-02 2.25E-02 2.25E-02 2.25E-02
0   flux            1.60E+13 1.60E+13 1.60E+13 1.61E+13  .00E+00 1.61E+13 1.61E+13
0  .results on logical unit no. 71, position  1, for time step  7, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  2, for time step  5, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  3, for time step  4, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0     .terminated logical unit no. 71 with zero flag record.
1  * normal termination of execution *
0                                  table of contents for material tables
0                                    case or subcase printed      page

                                                 1                 1
0ndset          33
          15          4          1         27          6          0          0          0          0          0
           0          0          0          0          0          0         -1       1698        690        130
         880       7935          0          5         99          2         16         96         18         18
          18          0         71
0      56q array has      2 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      57q array has      3 entries.
0       1q array has     20 entries.
0       1q array has     10 entries.
    l90   97376
    l116  60826
    l32   33663 nudata (library) storage size
    l44   33734
    l103  75953
0      58q array has      4 entries.
0      60q array has      7 entries.
0      58q array has      7 entries.
0      66q array has      1 entries.
0      73q array has   1697 entries.
0      74q array has   1697 entries.
0      75q array has   1697 entries.
    l140  66991
    used   101044 in size   200000
0jopt           12
           0          0          0          0          0          0          0          0          0          0
           0          0
0therm           4
  5.102450E-01 4.194440E-01 3.225492E+00 1.000000E-31
0non            5
        7935         20          6         18       1697
0mm             19
           7          7          0          0          1          1          0          0          0          0
          21        100       1697          4          3         74          4          1          0
0tconst         5
  8.640000E+04 4.800385E+02  .000000E+00  .000000E+00 1.000000E-08
```

```
0mzero          4
          0        689        129        879
0pow            3
  .000000E+00  .000000E+00  .000000E+00
0 lirp          9
          6          0         51         26          2        3000       1000       1697         94
 n-gamma, fission and total mev/fission =          6.1975E+00     1.9583E+02     2.0203E+02
 start of interval flux =        1.60283E+13
 n-gamma, fission and total mev/fission =          6.2896E+00     1.9593E+02     2.0222E+02
 start of interval flux =        1.60309E+13
 n-gamma, fission and total mev/fission =          6.3902E+00     1.9602E+02     2.0241E+02
 start of interval flux =        1.60378E+13
 n-gamma, fission and total mev/fission =          6.4906E+00     1.9612E+02     2.0261E+02
 start of interval flux =        1.60502E+13
 start of interval flux =         .00000E+00
 n-gamma, fission and total mev/fission =          6.6029E+00     1.9621E+02     2.0281E+02
 start of interval flux =        1.60661E+13
 n-gamma, fission and total mev/fission =          6.6899E+00     1.9629E+02     2.0298E+02
 start of interval flux =        1.60891E+13
0 case or subcase    1  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       56q array has     20 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has     20 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has     20 entries.
0       56q array has     20 entries.
0requested parm=halt8,skipcellwt,skipshipdata
  pass= 5, exec halts after pass   8
1 bbbbbbbbbbb    ooooooooooo   mn         mn                 aaaaaaaaa    mm         mm iiiiiiiiiiii    22222222222
  bbbbbbbbbbbb  ooooooooooooo  mm         mn                aaaaaaaaaaa   mmm       mmm iiiiiiiiiiii   2222222222222
  bb        bb  oo         oo  mmm        mn               aa         aa  mmmm     mmmm      ii        22        22
  bb        bb  oo         oo  mn mn      mn               aa         aa  mm mm    mm mm      ii                  22
  bb        bb  oo         oo  mn  mn     mn               aa         aa  mm  mm mm  mm      ii                  22
  bbbbbbbbbbb   oo         oo  mn   mn    mn ------------  aaaaaaaaaaaaa  mm   mmm   mm      ii                22
  bbbbbbbbbbb   oo         oo  mn    mn   mn ------------  aaaaaaaaaaaaa  mm    m    mm      ii              22
  bb        bb  oo         oo  mn     mn  mn               aa         aa  mm         mm      ii            22
  bb        bb  oo         oo  mn      mn mn               aa         aa  mm         mm      ii          22
  bb        bb  oo         oo  mn       mmn               aa         aa  mm         mm      ii        22
  bbbbbbbbbbbb  ooooooooooooo  mn        mm               aa         aa  mm         mm iiiiiiiiiiii   2222222222222
  bbbbbbbbbb     ooooooooooo   mn         mn               aa         aa  mm         mm iiiiiiiiiiii   2222222222222
0

  dddddddddd     aaaaaaaaa    w          w iiiiiiiiiiii    sssssssssss
  dddddddddddd   aaaaaaaaaaa  w          w iiiiiiiiiiii   sssssssssssss
  dd        dd  aa         aa  w          w      ii        ss         ss
  dd        dd  aa         aa  w          w      ii        ss
  dd        dd  aa         aa  w          w      ii        ss
  dd        dd  aaaaaaaaaaaaa  w          w      ii        sssssssssssss
  dd        dd  aaaaaaaaaaaaa   w        w      ii         sssssssssssss
  dd        dd  aa         aa    w      w       ii                   ss
  dd        dd  aa         aa     w    w        ii                   ss
  dd        dd  aa         aa      w w         ii        ss         ss
  dddddddddddd  aa         aa       ww     iiiiiiiiiiii   sssssssssssss
  dddddddddddd  aa         aa        v     iiiiiiiiiiii    sssssssssss
0

    0000000     22222222222          //       11       666666666666          //  99999999999   666666666666
   000000000    2222222222222        //       111      6666666666666         //  999999999999  6666666666666
```



program verification information

code system: scale version: 4.2

program: c0c008

creation date: 04/27/95

library: /neutronics/scale/exe

```
                    *****                                                                  *****
                    *****   this is not a   scale  configuration controlled code           *****
                    *****                                                                  *****
                    *****             jobname:  davis                                      *****
                    *****                                                                  *****
                    *****   date of execution:  02/16/96                                   *****
                    *****                                                                  *****
                    *****   time of execution:  10:00:59                                   *****
                    *****                                                                  *****
                    *****                                                                  *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has      6 entries.
0        2q array has      2 entries.
1logical assignments
0master library   12
 working library   0
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere              2
0izm--number of zones or material regions                     4
0ms--mixing table length                                     66
0ibl--shielded cross section edit option (0/1--no/yes)        0
0ibr--bondarenko factor edit option (0/1--no/yes)             0
0issopt--dancoff factor option                                0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has     66 entries.
0        4q array has     66 entries.
0        5q array has     66 entries.
0        6q array has      4 entries.
0        7q array has      4 entries.
0        8q array has      4 entries.
0        9q array has      4 entries.
0       10q array has     66 entries.
0       11q array has      4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope  number density  new identifier
   1       1       92235    4.44493E-04          92235
   2       1       92234    4.65638E-06          92234
   3       1       92236    4.78943E-05          92236
   4       1       92238    2.18734E-02          92238
   5       1        8016    4.55359E-02           8016
   6       3        8016    2.09710E-02              6
   7       1       36083    1.21060E-06          36083
   8       1       36085    5.82772E-07          36085
   9       1       38090    1.32013E-05          38090
  10       1       39089    1.02024E-05          39089
  11       1       42095    1.31680E-05          42095
  12       1       40093    1.03725E-05          40093
  13       1       40094    1.62229E-05          40094
  14       1       40095    2.03583E-06          40095
  15       1       41094    7.53797E-12          41094
  16       1       43099    1.58444E-05          43099
  17       1       45103    8.51543E-06          45103
```

18	1	45105	2.07139E-08	45105
19	1	44101	1.42308E-05	44101
20	1	44106	2.14911E-06	44106
21	1	46105	5.27789E-06	46105
22	1	46108	1.39336E-06	46108
23	1	47109	9.89759E-07	47109
24	1	51124	2.30439E-10	51124
25	1	54131	7.31080E-06	54131
26	1	54132	1.32259E-05	54132
27	1	54135	6.67573E-09	54135
28	1	54136	2.70586E-05	54136
29	1	55134	6.68995E-07	55134
30	1	55135	8.57012E-06	55135
31	1	55137	1.68757E-05	55137
32	1	56136	1.31478E-07	56136
33	1	57139	1.67362E-05	57139
34	1	59141	1.43133E-05	59141
35	1	59143	3.77677E-07	59143
36	1	58144	6.39792E-06	58144
37	1	60143	1.33774E-05	60143
38	1	60145	9.77101E-06	60145
39	1	61147	3.64313E-06	61147
40	1	61148	1.04656E-08	61148
41	1	60147	1.30684E-07	60147
42	1	62147	1.01929E-06	62147
43	1	62149	8.40493E-08	62149
44	1	62150	3.35633E-06	62150
45	1	62151	3.68860E-07	62151
46	1	62152	1.63140E-06	62152
47	1	64155	1.63702E-09	64155
48	1	63153	9.03257E-07	63153
49	1	63154	1.63879E-07	63154
50	1	63155	9.91552E-08	63155
51	2	40302	4.25156E-02	40302
52	3	1001	4.19420E-02	1001
53	3	5010	3.81515E-06	5010
54	3	5011	1.54884E-05	5011
55	1	55133	1.73735E-05	55133
56	1	95237	2.81758E-06	95237
57	1	94238	3.26250E-07	94238
58	1	94239	9.65273E-05	94239
59	1	94240	1.62385E-05	94240
60	1	94241	8.08937E-06	94241
61	1	94242	7.23719E-07	94242
62	1	95241	1.99179E-07	95241
63	1	95243	5.27834E-08	95243
64	1	96244	3.99487E-09	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Ogeometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05844E-01	0
2	4	4.78790E-01	2.93000E+02	5.49010E-01	0
3	2	5.46100E-01	6.50000E+02	.00000E+00	0
4	3	8.13968E-01	6.07600E+02	.00000E+00	0

7711 locations of 200000 available are required to make a new master containing the self-shielded values

Ono nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

Ocopy 999 1/v cross sectio from log 12 to log 18 bondarenko trigger 0

Ocopy 999 1/v cross sectio from log 18 to log 1 bondarenko trigger 0

Ocopy 999 1/v cross sectio from log 18 to log 1 bondarenko trigger 0

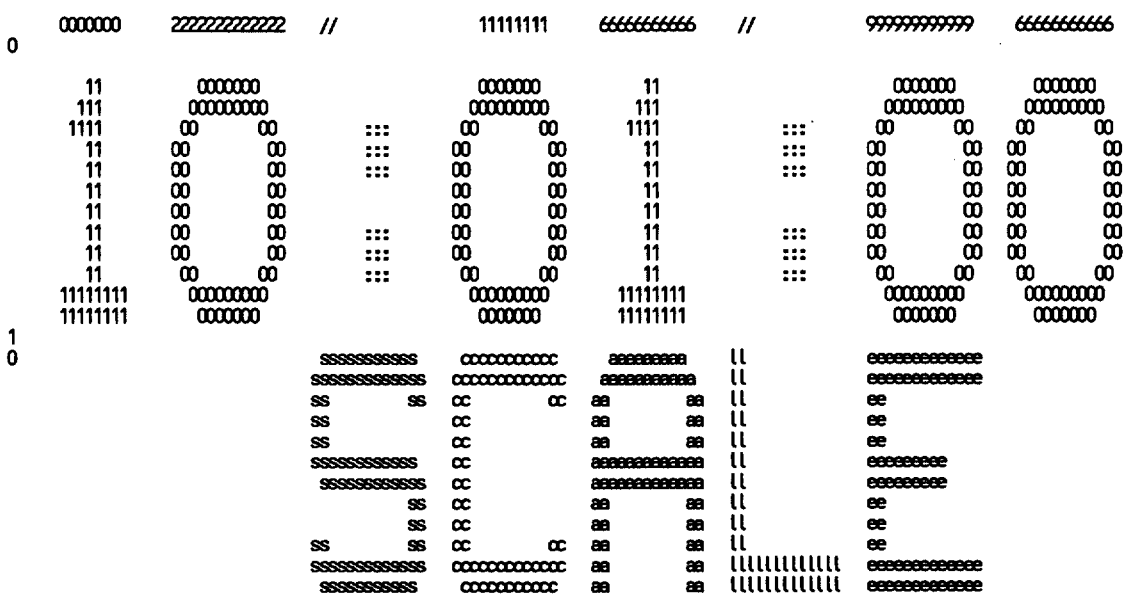
```
0copy    1001  hydrogen          from log 12 to log  1   bondarenko trigger 0
0copy    5010  b-10 1273 218ngp  from log 12 to log  1   bondarenko trigger 0
0copy    5011  boron-11          from log 12 to log  1   bondarenko trigger 0
0copy    8016  oxygen-16         from log 12 to log 18   bondarenko trigger 0
0copy    8016  oxygen-16         from log 18 to log  1   bondarenko trigger 0
0copy    8016  oxygen-16         from log 18 to log  1   bondarenko trigger 0
0copy   36083  kr-83             from log 12 to log  1   bondarenko trigger 0
0copy   36085  kr-85             from log 12 to log  1   bondarenko trigger 0
0copy   38090  sr-90             from log 12 to log  1   bondarenko trigger 0
0copy   39089   y-89             from log 12 to log  1   bondarenko trigger 0
0copy   40093  zr-93             from log 12 to log  1   bondarenko trigger 0
0copy   40094  zr-94             from log 12 to log  1   bondarenko trigger 0
0copy   40095  zr-95             from log 12 to log  1   bondarenko trigger 0
0copy   40302  zircalloy         from log 12 to log  1   bondarenko trigger 0
0copy   41094  nb-94             from log 12 to log  1   bondarenko trigger 0
0copy   42095  mo-95             from log 12 to log  1   bondarenko trigger 0
0copy   43099  tc-99             from log 12 to log  1   bondarenko trigger 0
0copy   44101  ru-101            from log 12 to log  1   bondarenko trigger 0
0copy   44106  ru-106            from log 12 to log  1   bondarenko trigger 0
0copy   45103  rh-103            from log 12 to log  1   bondarenko trigger 0
0copy   45105  rh-105            from log 12 to log  1   bondarenko trigger 0
0copy   46105  pd-105            from log 12 to log  1   bondarenko trigger 0
0copy   46108  pd-108            from log 12 to log  1   bondarenko trigger 0
0copy   47109  silver-109        from log 12 to log  1   bondarenko trigger 0
0copy   51124  sb-124            from log 12 to log  1   bondarenko trigger 0
0copy   54131  xe-131            from log 12 to log  1   bondarenko trigger 0
0copy   54132  xe-132            from log 12 to log  1   bondarenko trigger 0
0copy   54135  xenon-135         from log 12 to log  1   bondarenko trigger 0
0copy   54136  xe-136            from log 12 to log  1   bondarenko trigger 0
0copy   55133  cesium-133        from log 12 to log  1   bondarenko trigger 0
0copy   55134  cs-134            from log 12 to log  1   bondarenko trigger 0
0copy   55135  cs-135            from log 12 to log  1   bondarenko trigger 0
0copy   55137  cs-137            from log 12 to log  1   bondarenko trigger 0
0copy   56136  ba-136            from log 12 to log  1   bondarenko trigger 0
0copy   57139  la-139            from log 12 to log  1   bondarenko trigger 0
0copy   58144  ce-144            from log 12 to log  1   bondarenko trigger 0
0copy   59141  pr-141            from log 12 to log  1   bondarenko trigger 0
0copy   59143  pr-143            from log 12 to log  1   bondarenko trigger 0
0copy   60143  nd-143            from log 12 to log  1   bondarenko trigger 0
0copy   60145  nd-145            from log 12 to log  1   bondarenko trigger 0
0copy   60147  nd-147            from log 12 to log  1   bondarenko trigger 0
0copy   61147  pm-147            from log 12 to log  1   bondarenko trigger 0
0copy   61148  pm-148            from log 12 to log  1   bondarenko trigger 0
0copy   62147  sm-147            from log 12 to log  1   bondarenko trigger 0
0copy   62149  sm-149            from log 12 to log  1   bondarenko trigger 0
0copy   62150  sm-150            from log 12 to log  1   bondarenko trigger 0
0copy   62151  sm-151            from log 12 to log  1   bondarenko trigger 0
0copy   62152  sm-152            from log 12 to log  1   bondarenko trigger 0
0copy   63153  eu-153            from log 12 to log  1   bondarenko trigger 0
0copy   63154  eu-154            from log 12 to log  1   bondarenko trigger 0
0copy   63155  eu-155            from log 12 to log  1   bondarenko trigger 0
0copy   64155  gd-155            from log 12 to log  1   bondarenko trigger 0
0copy   92234  u-234 1043 sigo=  from log 12 to log  1   bondarenko trigger 0
0copy   92235  uranium-235       from log 12 to log  1   bondarenko trigger 0
0copy   92236  u-236 1163 sigo=  from log 12 to log  1   bondarenko trigger 0
0copy   92238  uranium-238       from log 12 to log  1   bondarenko trigger 0
0copy   93237  neptunium-237     from log 12 to log  1   bondarenko trigger 0
0copy   94238  pu-238 1050 sigo  from log 12 to log  1   bondarenko trigger 0
0copy   94239  plutonium-239     from log 12 to log  1   bondarenko trigger 0
0copy   94240  plutonium-240     from log 12 to log  1   bondarenko trigger 0
```

```
0copy    94241  plutonium-241   from log 12 to log  1   bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1   bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1   bondarenko trigger 0
0copy    95243  am-243 1057 218  from log 12 to log  1   bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1   bondarenko trigger 0
1    scale 4.2 - 27 group neutron burnup library
       based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
             last updated      9/16/93
                l.m.petrie  -  ornl
        tape id                          4321        number of nuclides          66
        number of neutron groups           27        number of gamma groups       0
        first thermal group                15        logical unit                 1
                                  table of contents
      1/v cross sections normalized to 1.0 at 0.0253 ev                    id   999
      1/v cross sections normalized to 1.0 at 0.0253 ev                    id    66
       hydrogen       endf/b-iv mat 1269/thrml002   updated 10/13/89      id  1001
      b-10 1273 218grp 042375 p-3 293k                                     id  5010
       boron-11       endf/b-iv mat 1160            updated 10/13/89      id  5011
       oxygen-16      endf/b-iv mat 1276            updated 10/13/89      id  8016
       oxygen-16      endf/b-iv mat 1276            updated 10/13/89      id     6
       kr-83          mt=102,103,103,105,106,107    updated 10/13/89      id 36083
       kr-85            mt=  102                                           id 36085
       sr-90          mt=102                        updated 10/13/89      id 38090
        y-89          mt=102                        updated 10/13/89      id 39089
       zr-93            mt=  102                                           id 40093
       zr-94          mt=102                        updated 10/13/89      id 40094
       zr-95          mt=102                        updated 10/13/89      id 40095
       zircalloy      endf/b-iv mat 1284            updated 10/13/89      id 40302
       nb-94          mt=102                        updated 10/13/89      id 41094
       mo-95          mt=102                        updated 10/13/89      id 42095
       tc-99          mt=102                        updated 10/13/89      id 43099
       ru-101         mt=102                        updated 10/13/89      id 44101
       ru-106         mt=102                        updated 10/13/89      id 44106
       rh-103         mt=102                        updated 10/13/89      id 45103
       rh-105           mt=  102                                           id 45105
       pd-105         mt=102                        updated 10/13/89      id 46105
       pd-108         mt=102                        updated 10/13/89      id 46108
       silver-109     endf/b-iv mat 1139            updated 10/13/89      id 47109
       sb-124         mt=102                        updated 10/13/89      id 51124
       xe-131         mt=102,103,104,105,106        updated 10/13/89      id 54131
       xe-132         mt=102,103,104,105,106        updated 10/13/89      id 54132
       xenon-135      endf/b-iv mat 1294            updated 10/13/89      id 54135
       xe-136           mt=  102, 103, 104, 105, 107                       id 54136
       cesium-133     endf/b-iv mat 1141            updated 10/13/89      id 55133
       cs-134         mt=102                        updated 10/13/89      id 55134
       cs-135           mt=  102                                           id 55135
       cs-137         mt=102                        updated 10/13/89      id 55137
       ba-136         mt=102                        updated 10/13/89      id 56136
       la-139         mt=102                        updated 10/13/89      id 57139
       ce-144           mt=  102                                           id 58144
       pr-141         mt=102,103,104,105,106,107    updated 10/13/89      id 59141
       pr-143         mt=102                        updated 10/13/89      id 59143
       nd-143         mt=102                        updated 10/13/89      id 60143
       nd-145         mt=102                        updated 10/13/89      id 60145
       nd-147         mt=102                        updated 10/13/89      id 60147
       pm-147         mt=102                        updated 10/13/89      id 61147
       pm-148           mt=  102                                           id 61148
       sm-147         endf/b-v fission product      updated 10/13/89      id 62147
       sm-149         mt=102,103,107                updated 10/13/89      id 62149
```

```
      sm-150        mt=102                        updated 10/13/89              id    62150
      sm-151        mt=102,103,104,105,106,107    updated 10/13/89              id    62151
      sm-152        mt=102,103,104,105,106,107    updated 10/13/89              id    62152
      eu-153        mt=102,103,104,105,106,107    updated 10/13/89              id    63153
      eu-154        mt=102,103,104,105,106,107    updated 10/13/89              id    63154
      eu-155        mt=102,103,104,105,106,107    updated 10/13/89              id    63155
      gd-155        mt=102                        updated 10/13/89              id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                        id    92234
      uranium-235   endf/b-iv mat 1261            updated 10/13/89              id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                        id    92236
      uranium-238   endf/b-iv mat 1262            updated 10/13/89              id    92238
      neptunium-237 endf/b-iv mat 1263            updated 10/13/89              id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    94238
      plutonium-239 endf/b-iv mat 1264            updated 10/13/89              id    94239
      plutonium-240 endf/b-iv mat 1265            updated 10/13/89              id    94240
      plutonium-241 endf/b-iv mat 1266            updated 10/13/89              id    94241
      plutonium-242 endf/b-iv mat 1161            updated 10/13/89              id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                              id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                               id    95243
      curium-244    endf/b-iv mat 1162            updated 10/13/89              id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
1              rn         rn iiiiiiiiiiii   tttttttttttt     aaaaaaaaa    ww         ww ll
               rnn        rn iiiiiiiiiiii   tttttttttttt    aaaaaaaaaaa   ww         ww ll
               rnnn       rn      ii            tt        aa        aa  ww         ww ll
               rn rn      rn      ii            tt        aa        aa  ww         ww ll
               rn  rn     rn      ii            tt        aa        aa  ww         ww ll
               rn   rn    rn      ii            tt        aaaaaaaaaaaaa  ww    w    ww ll
               rn    rn   rn      ii            tt        aaaaaaaaaaaaa  ww   www   ww ll
               rn     rn  rn      ii            tt        aa        aa  ww  ww ww  ww ll
               rn      rn rn      ii            tt        aa        aa  ww ww   ww ww ll
               rn       rnnn      ii            tt        aa        aa  wwww     wwww ll
               rn        rnn iiiiiiiiiiii       tt        aa        aa  www       www llllllllllll
               rn         rn iiiiiiiiiiii       tt        aa        aa  ww         ww llllllllllll
0

   dddddddddddd     aaaaaaaaa    w         w iiiiiiiiiiii    sssssssssss
   dddddddddddd    aaaaaaaaaaa   w         w iiiiiiiiiiii   sssssssssssss
   dd        dd   aa        aa   w         w      ii        ss        ss
   dd        dd   aa        aa   w         w      ii        ss
   dd        dd   aa        aa   w         w      ii        ss
   dd        dd   aaaaaaaaaaaaa  w         w      ii        sssssssssssss
   dd        dd   aaaaaaaaaaaaa   w       w       ii         sssssssssssss
   dd        dd   aa        aa     w    w         ii                  ss
   dd        dd   aa        aa      w  w          ii                  ss
   dd        dd   aa        aa       w w          ii        ss        ss
   dddddddddddd   aa        aa        ww      iiiiiiiiiiii   sssssssssssss
   dddddddddddd   aa        aa         v      iiiiiiiiiiii    sssssssssss
0

     0000000      22222222222          //       11       666666666666          //  99999999999   666666666666
    000000000     22222222222         //       111       666666666666         //  99999999999  666666666666
   00       00   22        22         //      1111       66                  //  99        99  66
  00         00            22        //         11       66                  //  99        99  66
  00         00            22        //         11       66                  //  99        99  66
  00         00          22         //         11       666666666666        //   99999999999  666666666666
  00         00        22          //         11       666666666666       //     99999999999  666666666666
  00         00      22            //         11       66        66      //                99  66        66
  00         00    22              //         11       66        66     //                 99  66        66
   00       00   22                //         11       66        66    //                  99  66        66
    000000000     22222222222     //       11111111   666666666666   //        99999999999  666666666666
```


0
1
0
program verification information
code system: scale version: 4.2
program: c0c002
creation date: 04/27/95
library: /neutronics/scale/exe
this is not a scale configuration controlled code
jobname: davis
date of execution: 02/16/96
time of execution: 10:01:00

```
                    *****                                                                  *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      9 entries.
0        1q array has     12 entries.
0select 65 nuclides from the master  library on logical  1
         0 nuclides from the working library on logical  2
         0 nuclides from the working library on logical  3
           to create the new working library on logical  4

        61 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has     65 entries.
0        3q array has    915 entries.
0        4q array has     65 entries.
0 general information concerning cross section library
    tape identification number                 4321
    number of nuclides on tape                   66
    number of neutron energy groups              27
    first thermal neutron energy group           15
    number of gamma energy groups                 0
0   direct access unit number  9 requires 117 blocks of length  1484 words
- xsdrn tape   4321
                    scale 4.2 - 27 group neutron burnup library
                       based on endf-b version 4 data with endf-b version 5 fission products
                          compiled for nrc      1/27/89
                             last updated      9/16/93
                                l.m.petrie   -   ornl
0 nuclides from xsdrn tape
    1    1/v cross sections normalized to 1.0 at 0.0253 ev                          999
    2     hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89            1001
    3    b-10 1273 218ngp 042375 p-3 293k                                            5010
    4     boron-11       endf/b-iv mat 1160             updated 10/13/89            5011
    5     oxygen-16      endf/b-iv mat 1276             updated 10/13/89            8016
    6     oxygen-16      endf/b-iv mat 1276             updated 10/13/89               6
    7     kr-83          mt=102,103,103,105,106,107     updated 10/13/89           36083
    8     kr-85             mt=  102                                                36085
    9     sr-90          mt=102                         updated 10/13/89           38090
   10      y-89          mt=102                         updated 10/13/89           39089
   11     zr-93             mt=  102                                                40093
   12     zr-94          mt=102                         updated 10/13/89           40094
   13     zr-95          mt=102                         updated 10/13/89           40095
   14     zircalloy      endf/b-iv mat 1284             updated 10/13/89           40302
   15     nb-94          mt=102                         updated 10/13/89           41094
   16     mo-95          mt=102                         updated 10/13/89           42095
   17     tc-99          mt=102                         updated 10/13/89           43099
   18     ru-101         mt=102                         updated 10/13/89           44101
   19     ru-106         mt=102                         updated 10/13/89           44106
   20     rh-103         mt=102                         updated 10/13/89           45103
   21     rh-105            mt=  102                                                45105
   22     pd-105         mt=102                         updated 10/13/89           46105
   23     pd-108         mt=102                         updated 10/13/89           46108
   24     silver-109     endf/b-iv mat 1139             updated 10/13/89           47109
   25     sb-124         mt=102                         updated 10/13/89           51124
   26     xe-131         mt=102,103,104,105,106         updated 10/13/89           54131
   27     xe-132         mt=102,103,104,105,106         updated 10/13/89           54132
```

```
   28    xenon-135      endf/b-iv mat 1294            updated 10/13/89          54135
   29    xe-136           mt=  102, 103, 104, 105, 107                          54136
   30    cesium-133     endf/b-iv mat 1141            updated 10/13/89          55133
   31    cs-134         mt=102                        updated 10/13/89          55134
   32    cs-135           mt=  102                                              55135
   33    cs-137         mt=102                        updated 10/13/89          55137
   34    ba-136         mt=102                        updated 10/13/89          56136
   35    la-139         mt=102                        updated 10/13/89          57139
   36    ce-144           mt=  102                                              58144
   37    pr-141         mt=102,103,104,105,106,107    updated 10/13/89          59141
   38    pr-143         mt=102                        updated 10/13/89          59143
   39    nd-143         mt=102                        updated 10/13/89          60143
   40    nd-145         mt=102                        updated 10/13/89          60145
   41    nd-147         mt=102                        updated 10/13/89          60147
   42    pm-147         mt=102                        updated 10/13/89          61147
   43    pm-148           mt=  102                                              61148
   44    sm-147         endf/b-v fission product      updated 10/13/89          62147
   45    sm-149         mt=102,103,107                updated 10/13/89          62149
   46    sm-150         mt=102                        updated 10/13/89          62150
   47    sm-151         mt=102,103,104,105,106,107    updated 10/13/89          62151
   48    sm-152         mt=102,103,104,105,106,107    updated 10/13/89          62152
   49    eu-153         mt=102,103,104,105,106,107    updated 10/13/89          63153
   50    eu-154         mt=102,103,104,105,106,107    updated 10/13/89          63154
   51    eu-155         mt=102,103,104,105,106,107    updated 10/13/89          63155
   52    gd-155         mt=102                        updated 10/13/89          64155
   53   u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     92234
   54    uranium-235    endf/b-iv mat 1261            updated 10/13/89          92235
   55   u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     92236
   56    uranium-238    endf/b-iv mat 1262            updated 10/13/89          92238
   57    neptunium-237  endf/b-iv mat 1263            updated 10/13/89          93237
   58   pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     94238
   59    plutonium-239  endf/b-iv mat 1264            updated 10/13/89          94239
   60    plutonium-240  endf/b-iv mat 1265            updated 10/13/89          94240
   61    plutonium-241  endf/b-iv mat 1266            updated 10/13/89          94241
   62    plutonium-242  endf/b-iv mat 1161            updated 10/13/89          94242
   63   am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                           95241
   64   am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                            95243
   65    curium-244     endf/b-iv mat 1162            updated 10/13/89          96244
01/v cross sections normalized to 1.0 at 0.0253 ev                    999    temperature=   975.00
0 hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89      1001    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                    5010    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160            updated 10/13/89      5011    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276            updated 10/13/89      8016    temperature=   975.00
0 oxygen-16      endf/b-iv mat 1276            updated 10/13/89         6    temperature=   607.60
0 kr-83          mt=102,103,103,105,106,107    updated 10/13/89     36083    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    82.202          temperature(kelvin)       =   975.000
0potential scatter sigma  =     7.004          lumped nuclear density    = 1.2106000E-06
0spin factor (g)          =  4988.190          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.4105377E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 1.5737203E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
```

```
0group        res abs         res fiss        res scat
  11      -1.760477E-03     .000000E+00   -2.230056E-03
  12       2.166095E-02     .000000E+00    9.896840E-03
  13      -3.971375E-01     .000000E+00   -1.204416E-01
  14       4.782771E-05     .000000E+00   -1.723045E-05
0excess resonance integrals
0                 resolved
0absorption      1.44817E+02
 fission          .00000E+00
- elapsed time    .00 min.
0 kr-85           mt=  102                                          36085    temperature=  975.00
0 sr-90         mt=102                    updated 10/13/89        38090    temperature=  975.00
0  y-89         mt=102                    updated 10/13/89        39089    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =    88.142          temperature(kelvin)      =   975.000
0potential scatter sigma =     3.644          lumped nuclear density   = 1.0202441E-05
0spin factor (g)         =    78.664          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995              sigma(per absorber atom)= 1.6737141E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   237.933              sigma(per absorber atom)= 1.8673432E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9      -2.549601E-06     .000000E+00   -1.696828E-04
  10      -6.170661E-05     .000000E+00   -1.739975E-04
0excess resonance integrals
0                 resolved
0absorption      1.46419E-01
 fission          .00000E+00
- elapsed time    .00 min.
0 zr-93           mt=  102                                          40093    temperature=  975.00
0 zr-94         mt=102                    updated 10/13/89        40094    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =    93.100          temperature(kelvin)      =   975.000
0potential scatter sigma =     3.779          lumped nuclear density   = 1.6222863E-05
0spin factor (g)         =   180.853          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995              sigma(per absorber atom)= 1.0525857E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   237.933              sigma(per absorber atom)= 1.1743585E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   8      -9.432010E-07     .000000E+00   -8.957890E-04
   9      -3.135593E-05     .000000E+00   -2.775020E-03
0excess resonance integrals
0                 resolved
0absorption      3.43817E-02
 fission          .00000E+00
- elapsed time    .00 min.
0 zr-95         mt=102                    updated 10/13/89        40095    temperature=  975.00
0 zircalloy     endf/b-iv mat 1284        updated 10/13/89        40302    temperature=  650.00
0resonance data for this nuclide
0mass number (a)         =    90.436          temperature(kelvin)      =   650.000
0potential scatter sigma =     6.395          lumped nuclear density   = 4.2515602E-02
```

```
0spin factor (g)          =    1.079              lump dimension (a-bar)    = 5.4610002E-01
0inner radius             = 4.7878999E-01         dancoff correction (c)    = 5.0364637E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
   8     -1.780596E-03     .000000E+00    -1.286907E+00
   9     -5.895373E-02     .000000E+00    -2.695297E+00
  10     -6.959935E-02     .000000E+00    -1.601321E+00
  11     -1.883937E-01     .000000E+00    -7.920912E-01
0excess resonance integrals
0                 resolved
0absorption      2.28539E-01
 fission          .00000E+00
- elapsed time    .02 min.
0 rb-94          mt=102                  updated 10/13/89          41094     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    93.101             temperature(kelvin)       =   975.000
0potential scatter sigma  =     3.779             lumped nuclear density    = 7.5379746E-12
0spin factor (g)          = 43808.801             lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995             sigma(per absorber atom)= 2.2653258E+10
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953             sigma(per absorber atom)= 2.5273973E+10
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
  13      1.043223E-02     .000000E+00     9.253080E-04
  14      9.836712E-03     .000000E+00    -4.064845E-04
0excess resonance integrals
0                 resolved
0absorption      9.15001E+01
 fission          .00000E+00
- elapsed time    .02 min.
0 mo-95          mt=102                  updated 10/13/89          42095     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    94.091             temperature(kelvin)       =   975.000
0potential scatter sigma  =     3.806             lumped nuclear density    = 1.3167981E-05
0spin factor (g)          =   607.724             lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995             sigma(per absorber atom)= 1.2967796E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953             sigma(per absorber atom)= 1.4468017E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
  10     -2.827058E-03     .000000E+00    -1.666167E-02
  11     -5.154489E-03     .000000E+00    -8.604292E-03
  12     -3.707084E+00     .000000E+00    -4.265654E+00
  13      1.583315E-04     .000000E+00    -2.254974E-05
0excess resonance integrals
0                 resolved
0absorption      9.86300E+01
 fission          .00000E+00
- elapsed time    .02 min.
0 tc-99          mt=102                  updated 10/13/89          43099     temperature=   975.00
```

```
0resonance data for this nuclide
0mass number (a)          =   98.150          temperature(kelvin)      =   975.000
0potential scatter sigma  =    6.000          lumped nuclear density   = 1.5844425E-05
0spin factor (g)          =  4527.940          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995          sigma(per absorber atom)= 1.0777272E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  237.953          sigma(per absorber atom)= 1.2024076E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      -2.038773E-02     .000000E+00   -9.611921E-03
  12      -5.333800E-03     .000000E+00   -1.853597E-04
  13      -3.317795E-01     .000000E+00   -1.747611E-02
  14      -7.128074E+00     .000000E+00   -2.274936E-01
  15       1.070480E-02     .000000E+00   -5.392398E-04
  16       4.836007E-03     .000000E+00   -2.802095E-04
  17       2.073935E-04     .000000E+00   -1.191064E-05
0excess resonance integrals
0                 resolved
0absorption      3.2546ZE+02
 fission          .00000E+00
- elapsed time    .03 min.
0 ru-101        mt=102                  updated 10/13/89          44101     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   100.039         temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.965         lumped nuclear density   = 1.4230770E-05
0spin factor (g)          =  8765.290         lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995          sigma(per absorber atom)= 1.1999529E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  237.953          sigma(per absorber atom)= 1.3387510E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      -3.624243E-02     .000000E+00   -3.672971E-03
  12      -1.064926E-01     .000000E+00   -2.812458E-02
  13      -3.819152E-01     .000000E+00   -1.028591E-02
  14       2.372863E-04     .000000E+00   -4.161137E-05
0excess resonance integrals
0                 resolved
0absorption      7.95820E+01
 fission          .00000E+00
- elapsed time    .03 min.
0 ru-106        mt=102                  updated 10/13/89          44106     temperature=   975.00
0 rh-103        mt=102                  updated 10/13/89          45103     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   102.021         temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.408         lumped nuclear density   = 8.5154315E-06
0spin factor (g)          =      .500         lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995          sigma(per absorber atom)= 2.0052971E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  237.953          sigma(per absorber atom)= 2.2372861E+04
0moderator-2 will be treated by the nordheim integral method.
```

```
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9       1.253997E-03     .000000E+00     1.942356E-03
  10      -3.509026E-03     .000000E+00    -4.880561E-03
  11      -1.699512E-02     .000000E+00    -1.499881E-02
  12      -2.625307E-04     .000000E+00    -2.159846E-05
  13        .000000E+00     .000000E+00      .000000E+00
  14        .000000E+00     .000000E+00      .000000E+00
  15       2.281068E-01     .000000E+00     3.284026E-03
  16       3.328770E+01     .000000E+00    -6.208614E-02
  17      -1.852185E+02     .000000E+00    -1.574388E-01
  18       8.714719E+01     .000000E+00     2.610259E-01
  19       1.148543E+01     .000000E+00    -1.472395E-03
  20       1.087088E+00     .000000E+00    -2.470565E-03
  21       2.165863E-01     .000000E+00     1.925008E-03
  22       2.583935E-01     .000000E+00     2.928524E-03
  23      -9.879865E-02     .000000E+00     1.798960E-03
0excess resonance integrals
0                  resolved
0absorption       1.14672E+03
 fission           .00000E+00
-  elapsed time    .07 min.
0 rh-105           mt=  102                                          45105     temperature=   975.00
0 pd-105         mt=102                    updated 10/13/89           46105     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   104.004          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.069          lumped nuclear density   = 5.2778869E-06
0spin factor (g)          = 15210.000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 3.2353799E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 3.6096754E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12      -5.613977E-02     .000000E+00    -1.338439E-03
  13      -1.381487E-02     .000000E+00    -6.986314E-04
  14       7.769155E-04     .000000E+00    -8.145498E-05
0excess resonance integrals
0                  resolved
0absorption       6.12433E+01
 fission           .00000E+00
-  elapsed time    .07 min.
0 pd-108         mt=102                    updated 10/13/89           46108     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   106.977          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.146          lumped nuclear density   = 1.3933571E-06
0spin factor (g)          = 21175.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.2255271E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 1.3673061E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
```

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  11     1.170302E-04     .000000E+00   3.532026E-04
  12    -1.263694E+00     .000000E+00  -9.304958E-01
  13     6.849444E-03     .000000E+00   1.844850E-03
  14     8.561260E-02     .000000E+00  -3.207809E-05
  15    -1.840706E-01     .000000E+00   8.083708E-05
  16     2.946590E-04     .000000E+00  -9.255679E-06
0excess resonance integrals
0                resolved
0absorption     2.12560E+02
 fission         .00000E+00
- elapsed time    .07 min.
0 silver-109    endf/b-iv mat 1139          updated 10/13/89          47109    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   107.969          temperature(kelvin)     =   975.000
0potential scatter sigma =    4.988          lumped nuclear density  = 9.8975897E-07
0spin factor (g)        =  1441.870          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995           sigma(per absorber atom)= 1.7252653E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.953           sigma(per absorber atom)= 1.9248583E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10    -9.785545E-05     .000000E+00  -9.223403E-05
  11    -4.345954E-03     .000000E+00  -3.223971E-03
  12    -7.193846E-01     .000000E+00  -3.343606E-02
  13     7.670446E-01     .000000E+00   3.380743E-02
  14    -9.331539E+00     .000000E+00  -8.741142E-01
0excess resonance integrals
0                resolved
0absorption     1.39101E+03
 fission         .00000E+00
- elapsed time    .07 min.
0 sb-124        mt=102                      updated 10/13/89          51124    temperature=  975.00
0 xe-131        mt=102,103,104,105,106      updated 10/13/89          54131    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   129.781          temperature(kelvin)     =   975.000
0potential scatter sigma =    4.301          lumped nuclear density  = 7.3108026E-06
0spin factor (g)        =  246.825           lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995           sigma(per absorber atom)= 2.3357174E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.953           sigma(per absorber atom)= 2.6059324E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9    -2.310630E-06     .000000E+00  -2.154477E-05
  10    -1.586759E-04     .000000E+00  -1.347479E-04
  11    -1.953774E-03     .000000E+00  -1.464922E-03
  12    -3.751650E-02     .000000E+00  -3.496011E-03
  13    -6.002438E+01     .000000E+00  -1.407475E+02
  14     1.073748E-02     .000000E+00   1.503469E-02
0excess resonance integrals
0                resolved
0absorption     7.70438E+02
 fission         .00000E+00
```

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- elapsed time    .08 min.
0 xe-132        mt=102,103,104,105,106        updated 10/13/89              54132    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   130.771          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.301          lumped nuclear density   = 1.3225989E-05
0spin factor (g)          =   675.899          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.2910969E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 1.4404615E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9     -2.032215E-05    .000000E+00   -9.309781E-05
  10     -6.258887E-03    .000000E+00   -7.967591E-02
  11      3.345203E-08    .000000E+00   -9.291078E-07
0excess resonance integrals
0                resolved
0absorption     9.73725E-01
 fission         .00000E+00
- elapsed time    .08 min.
0 xenon-135     endf/b-iv mat 1294            updated 10/13/89              54135    temperature=  975.00
0 xe-136          mt=  102, 103, 104, 105, 107                              54136    temperature=  975.00
0 cesium-133    endf/b-iv mat 1141            updated 10/13/89              55133    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   131.764          temperature(kelvin)      =   975.000
0potential scatter sigma  =     7.100          lumped nuclear density   = 1.7373461E-05
0spin factor (g)          =   374.437          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 9.8287666E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 1.0542641E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9     -4.871677E-05    .000000E+00   -3.152509E-04
  10     -2.382956E-03    .000000E+00   -4.567852E-03
  11     -8.948986E-02    .000000E+00   -1.566151E-01
  12     -1.386060E-01    .000000E+00   -1.929299E-02
  13     -2.304727E-01    .000000E+00   -1.254356E-02
  14     -1.013023E+01    .000000E+00   -4.436112E-01
  15      5.623127E-03    .000000E+00   -4.050744E-04
  16      2.777900E-03    .000000E+00   -2.215233E-04
  17      2.352204E-03    .000000E+00   -1.830751E-04
  18      2.215039E-03    .000000E+00   -1.679543E-04
  19      1.317312E-03    .000000E+00   -9.676453E-05
0excess resonance integrals
0                resolved
0absorption     3.53864E+02
 fission         .00000E+00
- elapsed time    .10 min.
0 cs-134        mt=102                        updated 10/13/89              55134    temperature=  975.00
0 cs-135          mt=  102                                                  55135    temperature=  975.00
0 cs-137        mt=102                        updated 10/13/89              55137    temperature=  975.00
0 ba-136        mt=102                        updated 10/13/89              56136    temperature=  975.00
0resonance data for this nuclide
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```
0mass number (a)          =   134.737          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.835          lumped nuclear density   = 1.3147822E-07
0spin factor (g)          =  1247.690          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.2987680E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953          sigma(per absorber atom)= 1.4490201E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  10      1.193235E-06     .000000E+00    5.099283E-07
  11      4.140539E-07     .000000E+00    7.002787E-07
0excess resonance integrals
0                  resolved
0absorption       1.38473E+00
 fission           .00000E+00
- elapsed time     .10 min.
0 la-139        mt=102                    updated 10/13/89          57139     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   137.713          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.906          lumped nuclear density   = 1.6736218E-05
0spin factor (g)          =   145.855          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.0203004E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953          sigma(per absorber atom)= 1.1383371E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   9     -1.465711E-07     .000000E+00    1.238383E-03
  10     -3.355732E-04     .000000E+00   -1.989544E-02
  11       .000000E+00     .000000E+00     .000000E+00
  12     -5.739985E-02     .000000E+00   -3.466246E-02
0excess resonance integrals
0                  resolved
0absorption       8.08078E+00
 fission           .00000E+00
- elapsed time     .12 min.
0 ce-144          mt=  102                                            58144     temperature=   975.00
0 pr-141        mt=102,103,104,105,106,107    updated 10/13/89          59141     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   139.697          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.953          lumped nuclear density   = 1.4313312E-05
0spin factor (g)          =  1026.500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.1930131E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953          sigma(per absorber atom)= 1.3310307E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  10     -5.609108E-03     .000000E+00   -1.904915E-01
  11     -9.223772E-02     .000000E+00   -1.226486E+00
  12     -2.091378E-03     .000000E+00   -2.041713E-04
```

```
0excess resonance integrals
0                resolved
0absorption     1.21355E+01
 fission         .00000E+00
- elapsed time    .12 min.
0 pr-143        mt=102                  updated 10/13/89          59143    temperature=  975.00
0 nd-143        mt=102                  updated 10/13/89          60143    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   141.682          temperature(kelvin)     =   975.000
0potential scatter sigma =    5.000          lumped nuclear density  = 1.3377376E-05
0spin factor (g)        =  1964.850          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995           sigma(per absorber atom)= 1.2764813E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.933           sigma(per absorber atom)= 1.4241551E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10      -1.332625E-04     .000000E+00   -6.817683E-05
  11      -3.122534E-01     .000000E+00   -3.629994E+00
  12      -2.059421E-01     .000000E+00   -1.013043E-01
0excess resonance integrals
0                resolved
0absorption     5.09093E+01
 fission         .00000E+00
- elapsed time    .12 min.
0 nd-145        mt=102                  updated 10/13/89          60145    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   143.668          temperature(kelvin)     =   975.000
0potential scatter sigma =    5.047          lumped nuclear density  = 9.7710117E-06
0spin factor (g)        =  1007.250          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995           sigma(per absorber atom)= 1.7476152E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.933           sigma(per absorber atom)= 1.9497938E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10      -3.969052E-03     .000000E+00   -6.238655E-02
  11      -6.007329E-02     .000000E+00   -1.817612E-01
  12      -1.459763E+00     .000000E+00   -9.188078E+00
  13       9.598665E-05     .000000E+00    2.042568E-04
  14      -1.322929E+00     .000000E+00   -3.478237E-02
  15       5.901529E-03     .000000E+00   -4.614201E-04
  16       1.326675E-03     .000000E+00   -1.451290E-04
  17       9.642597E-04     .000000E+00   -1.063946E-04
  18       8.539732E-04     .000000E+00   -9.314383E-05
  19       7.634159E-04     .000000E+00   -8.070004E-05
  20       2.839149E-05     .000000E+00   -2.919862E-06
0excess resonance integrals
0                resolved
0absorption     2.06675E+02
 fission         .00000E+00
- elapsed time    .13 min.
0 nd-147        mt=102                  updated 10/13/89          60147    temperature=  975.00
0 pm-147        mt=102                  updated 10/13/89          61147    temperature=  975.00
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0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 3.643130E-06
0spin factor (g)          = 21589.500          lump dimension (a-bar)   = 4.681220lE-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.426926lE-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 4.687169SE+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953          sigma(per absorber atom)= 5.229419SE+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  12     -1.823680E-01     .000000E+00   -5.851357E-02
  13     -4.676967E-02     .000000E+00   -2.688727E-03
  14     -8.253029E+01     .000000E+00   -3.548271E+01
  15      4.128564E-02     .000000E+00    6.978664E-03
  16      1.697942E-02     .000000E+00    1.746660E-03
  17      1.369772E-02     .000000E+00    1.150461E-03
  18      1.253757E-02     .000000E+00    9.649097E-04
  19      6.998888E-04     .000000E+00    5.070170E-05
0excess resonance integrals
0              resolved
0absorption    2.01524E+03
 fission        .00000E+00
-  elapsed time    .13 min.
0 pm-148        mt=  102                                              61148    temperature=  975.00
0 sm-147      endf/b-v fission product      updated 10/13/89           62147    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 1.019287SE-06
0spin factor (g)          =      .000          lump dimension (a-bar)   = 4.681220lE-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.426926lE-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.675284lE+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953          sigma(per absorber atom)= 1.869094SE+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11      2.767026E-01     .000000E+00    1.093160E+00
  12      9.978251E-01     .000000E+00   -1.498843E+00
  13     -3.338374E+00     .000000E+00   -1.778746E+00
  14     -3.342486E-01     .000000E+00   -3.189418E-03
  15      3.115590E-01     .000000E+00   -1.911954E-03
  16      7.287758E-03     .000000E+00   -3.738602E-04
  17      4.281449E-03     .000000E+00   -2.401556E-04
  18      3.510413E-03     .000000E+00   -1.997200E-04
  19      2.910596E-03     .000000E+00   -1.649500E-04
  20      8.434589E-04     .000000E+00   -4.626394E-05
0excess resonance integrals
0              resolved
0absorption    7.22673E+02
 fission        .00000E+00
-  elapsed time    .15 min.
                          thermal scattering matrix number  3 at a temperature of    900.03 was selected.
0 sm-149        mt=102,103,107          updated 10/13/89           62149    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   147.638          temperature(kelvin)      =   975.000
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0potential scatter sigma =    3.260          lumped nuclear density   = 8.4049255E-08
0spin factor (g)         = 10407.900         lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995            sigma(per absorber atom)= 2.0316621E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.933            sigma(per absorber atom)= 2.2667015E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      8.546605E-03     .000000E+00    3.071166E-02
  12     -5.476413E-02     .000000E+00   -1.810656E-01
  13      2.318253E-02     .000000E+00    2.840699E-03
  14      5.777774E-03     .000000E+00   -7.572224E-03
0excess resonance integrals
0                resolved
0absorption     8.04337E+02
 fission         .00000E+00
- elapsed time    .15 min.
0 sm-150       mt=102                  updated 10/13/89          62150    temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =  148.629          temperature(kelvin)      =  975.000
0potential scatter sigma =    5.162          lumped nuclear density   = 3.3563288E-06
0spin factor (g)         = 4376.420          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995            sigma(per absorber atom)= 5.0876930E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.933            sigma(per absorber atom)= 5.6762789E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10     -1.140486E-03     .000000E+00   -1.081808E-02
  11     -2.526795E-02     .000000E+00   -2.863482E-01
  12     -8.222108E-02     .000000E+00   -2.484979E-02
  13     -5.859069E+00     .000000E+00   -4.613210E+00
  14      1.065659E-04     .000000E+00   -6.400712E-05
0excess resonance integrals
0                resolved
0absorption     2.88255E+02
 fission         .00000E+00
- elapsed time    .15 min.
0 sm-151       mt=102,103,104,105,106,107  updated 10/13/89          62151    temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =  149.623          temperature(kelvin)      =  975.000
0potential scatter sigma =    5.185          lumped nuclear density   = 3.6886007E-07
0spin factor (g)         = 75574.703         lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995            sigma(per absorber atom)= 4.6295894E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.933            sigma(per absorber atom)= 5.1649550E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  14     -2.119385E-01     .000000E+00   -2.082594E-02
  15      1.487428E+01     .000000E+00    7.527953E-02
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  16     -2.180708E+01     .000000E+00   -6.195250E-02
  17      1.736728E+02     .000000E+00    8.278137E-01
  18     -3.206240E+02     .000000E+00   -1.785263E+00
  19      6.254583E+01     .000000E+00    3.867906E-01
  20      1.141286E+00     .000000E+00   -1.400558E-04
  21     -7.117704E-02     .000000E+00    1.244100E-02
  22      6.952549E-02     .000000E+00    3.838918E-03
  23     -1.091917E-02     .000000E+00    3.374044E-04
0excess resonance integrals
0                resolved
0absorption      2.05636E+03
 fission          .0000E+00
-  elapsed time    .15 min.
0 sm-152       mt=102,103,104,105,106,107     updated 10/13/89            62152     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   150.615            temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.208            lumped nuclear density   = 1.6314026E-06
0spin factor (g)          =   863.594            lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00         dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.0467048E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 1.1677961E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
   9      2.402817E-06     .000000E+00    1.158716E-04
  10     -1.295784E-03     .000000E+00   -2.024388E-02
  11     -1.885441E-02     .000000E+00   -7.182702E-02
  12     -1.270521E-01     .000000E+00   -4.032254E-01
  13      4.204180E-02     .000000E+00    1.022422E-01
  14     -1.129931E+02     .000000E+00   -2.182685E+02
0excess resonance integrals
0                resolved
0absorption      2.76491E+03
 fission          .0000E+00
-  elapsed time    .17 min.
0 eu-153       mt=102,103,104,105,106,107     updated 10/13/89            63153     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   151.607            temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.731            lumped nuclear density   = 9.0325670E-07
0spin factor (g)          = 12265.900            lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00         dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.8904891E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 2.1091964E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
  12     -2.856052E-01     .000000E+00   -5.575946E-02
  13     -1.361445E-01     .000000E+00   -4.143751E-03
  14     -7.920873E-01     .000000E+00   -1.004343E-06
  15      1.863243E+00     .000000E+00   -3.434145E-02
  16     -3.297554E+00     .000000E+00    8.156992E-03
  17      1.506598E-01     .000000E+00   -3.437532E-03
  18      7.726870E-02     .000000E+00   -2.231252E-03
  19      5.055447E-02     .000000E+00   -1.541113E-03
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  20      -1.253804E-01     .000000E+00   -1.275023E-03
0excess resonance integrals
0                 resolved
0absorption       1.35457E+03
 fission           .00000E+00
-  elapsed time    .17 min.
0 eu-154        mt=102,103,104,105,106,107     updated 10/13/89              63154     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   152.601              temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.731              lumped nuclear density   = 1.6387885E-07
0spin factor (g)          = 19135.801              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 1.0419873E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933              sigma(per absorber atom)= 1.1625330E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12       -3.904129E-01     .000000E+00   -6.094527E-02
  13       -3.135098E-01     .000000E+00   -2.495858E-02
  14        3.300923E-01     .000000E+00    1.465073E-02
  15        1.597103E-01     .000000E+00    2.097988E-02
  16        7.214694E+00     .000000E+00    9.233933E-02
  17       -1.440717E+02     .000000E+00   -1.896719E+00
  18        1.135982E+02     .000000E+00    1.858201E+00
  19       -1.014681E+02     .000000E+00    1.187304E+00
0excess resonance integrals
0                 resolved
0absorption       2.13664E+03
 fission           .00000E+00
-  elapsed time    .18 min.
0 eu-155        mt=102,103,104,105,106,107     updated 10/13/89              63155     temperature=   975.00
0 gd-155        mt=102                         updated 10/13/89              64155     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   153.592              temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.277              lumped nuclear density   = 1.6370191E-09
0spin factor (g)          = 12700.100              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 1.0431136E+08
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933              sigma(per absorber atom)= 1.1637895E+08
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12       -1.439306E+00     .000000E+00   -1.839472E-01
  13        1.541165E+00     .000000E+00    1.985090E-01
  14        2.190007E-01     .000000E+00    9.806014E-03
  15       -3.336652E-01     .000000E+00   -7.197123E-05
  16        1.477358E+00     .000000E+00   -4.148861E-03
  17        1.568658E-01     .000000E+00   -1.479142E-03
  18        9.605140E-02     .000000E+00   -1.078062E-03
  19        6.295324E-02     .000000E+00   -8.026497E-04
  20        1.670480E-02     .000000E+00    1.626478E-04
  21         .000000E+00     .000000E+00     .000000E+00
  22         .000000E+00     .000000E+00     .000000E+00
  23         .000000E+00     .000000E+00     .000000E+00
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  24       .000000E+00     .000000E+00     .000000E+00
  25      -2.127812E+03    .000000E+00    -1.622019E+00
  26      -5.205697E+03    .000000E+00     1.961483E+00
  27      -1.659984E+03    .000000E+00     7.392656E-01
0excess resonance integrals
0                  resolved
0absorption       3.97046E+04
 fission           .00000E+00
-  elapsed time    .18 min.
0u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                    92234     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   232.029          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.021          lumped nuclear density   = 4.656384E-06
0spin factor (g)          =  6948.450          lump dimension (a-bar)   = 4.681220E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 3.667216E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.955          sigma(per absorber atom)= 4.090217E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      -2.226899E-02     .000000E+00    -6.494590E-02
  12      -1.815901E-01     .000000E+00    -7.606152E-02
  13       7.759999E-04     .000000E+00    -6.471858E-04
  14      -1.782032E+01     .000000E+00    -2.918325E+00
0excess resonance integrals
0                  resolved
0absorption       5.82763E+02
 fission           .00000E+00
-  elapsed time    .20 min.
0 uranium-235   endf/b-iv mat 1261          updated 10/13/89            92235     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   233.025          temperature(kelvin)      =   975.000
0potential scatter sigma  =    11.500          lumped nuclear density   = 4.444934E-04
0spin factor (g)          = 15171.100          lump dimension (a-bar)   = 4.681220E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 3.841669E+02
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.049          sigma(per absorber atom)= 4.122754E+02
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -1.865952E+00    -1.162127E+00    -4.369178E-02
  13      -6.545614E+00    -3.259067E+00    -1.416060E-01
  14      -5.261562E+00    -3.231865E+00    -3.592915E-02
0excess resonance integrals
0                  resolved
0absorption       2.12116E+02
 fission           1.26292E+02
-  elapsed time    .22 min.
0u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                    92236     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   234.017          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.995          lumped nuclear density   = 4.789430E-05
0spin factor (g)          =  6328.490          lump dimension (a-bar)   = 4.681220E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.426926E-01
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0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 3.5653447E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.934              sigma(per absorber atom)= 3.9771189E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  11      -2.324609E-01     .000000E+00    -5.852797E-01
  12      -1.251467E+00     .000000E+00    -8.535315E-01
  13      -6.528463E-02     .000000E+00    -3.466214E-03
  14      -4.155770E+01     .000000E+00    -3.635741E+00
0excess resonance integrals
0                 resolved
0absorption      2.8000E+02
 fission          .0000E+00
-  elapsed time     .22 min.
0 uranium-238   endf/b-iv mat 1262          updated 10/13/89          92238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.006          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density   = 2.1873431E-02
0spin factor (g)          =   666.527          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 7.8067169E+00
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   235.041              sigma(per absorber atom)= 3.3613515E-01
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
   9      -3.935817E-02     .000000E+00    -4.043145E-01
  10      -1.025260E+00    -1.747810E-05    -6.478666E+00
  11      -9.706285E+00     .000000E+00    -2.689441E+01
  12      -4.304482E+01     .000000E+00    -4.998457E+01
  13      -5.401085E+01     .000000E+00    -1.769053E+01
  14      -1.044943E+02     .000000E+00    -6.059432E+00
0excess resonance integrals
0                 resolved
0absorption      1.8027OE+01
 fission          5.0401 7E-04
-  elapsed time     .23 min.
0 neptunium-237  endf/b-iv mat 1263          updated 10/13/89          93237     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   235.012          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.500          lumped nuclear density   = 2.8175818E-06
0spin factor (g)          = 10100.800          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 6.0605043E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 6.5006855E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  11      -6.355906E-02    -2.086214E-06    -7.414002E-03
  12       2.491776E-02    -1.071069E-04     7.235728E-03
  13      -2.751440E-02     8.779010E-05    -1.433365E-03
  14      -7.346514E-02    -9.089304E-06    -1.443095E-03
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0excess resonance integrals
0                resolved
0absorption     2.98033E+02
 fission        1.38557E-01
- elapsed time    .27 min.
0pu-238 1050 sigo=5+4 newklacs p-3 295k f-1/e-m(1.+5)                    94238     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  236.167          temperature(kelvin)      =  975.000
0potential scatter sigma  =   10.890          lumped nuclear density   = 3.2625022E-07
0spin factor (g)          = 13130.600         lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 5.2340097E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  238.051             sigma(per absorber atom)= 5.6141619E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      -1.838366E-03   -2.820870E-04   -1.799045E-03
  12      -1.235117E-03   -1.398544E-04   -6.016181E-04
  13       4.025275E-01    7.519357E-02   -1.026164E-02
  14      -3.825064E-01   -6.992719E-02    8.539043E-03
0excess resonance integrals
0                resolved
0absorption     8.25335E+01
 fission        9.08421E+00
- elapsed time    .27 min.
0 plutonium-239  endf/b-iv mat 1264          updated 10/13/89          94239     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  236.999          temperature(kelvin)      =  975.000
0potential scatter sigma  =   10.200          lumped nuclear density   = 9.6527292E-05
0spin factor (g)          = 6435.710          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 1.7690800E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  238.051             sigma(per absorber atom)= 1.8975167E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      -2.017084E-01   -8.120086E-02   -6.177880E-02
  12      -1.791471E+00   -6.726600E-01   -2.357042E-01
  13      -5.869735E+00   -3.453876E+00   -8.969605E-02
  14      -1.871555E+00   -9.958652E-01   -1.665454E-02
0excess resonance integrals
0                resolved
0absorption     3.08014E+02
 fission        1.73024E+02
- elapsed time    .28 min.
0 plutonium-240  endf/b-iv mat 1265          updated 10/13/89          94240     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  237.992          temperature(kelvin)      =  975.000
0potential scatter sigma  =   10.599          lumped nuclear density   = 1.6238499E-05
0spin factor (g)          =  669.244          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 1.0515730E+04
0moderator-1 will be treated by the nordheim integral method.
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0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.127950E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9      -4.579711E-05    -1.264809E-06    -1.838715E-04
  10      -3.865992E-03    -2.392602E-04    -1.766386E-02
  11      -1.257897E-01    -7.158896E-04    -1.646513E-01
  12      -1.718537E+00    -9.389978E-03    -1.649603E+00
  13      -2.116805E-01    -1.297953E-03    -1.542849E-02
  14       .000000E+00      .000000E+00      .000000E+00
  15       1.738746E-02     3.318474E-06     3.429983E-03
  16       2.951208E+00     5.632511E-04     3.697441E-01
  17       4.608201E+02     8.785412E-02     4.117713E+01
  18      -7.401299E+03    -1.412571E+00    -5.844975E+02
  19       6.729597E+02     1.284379E-01     5.275318E+01
  20      -9.357052E+01    -1.785835E-02     1.798074E+00
0excess resonance integrals
0                 resolved
0absorption      4.96040E+03
 fission         1.95989E+00
 - elapsed time    .30 min.
0 plutonium-241  endf/b-iv mat 1266          updated 10/13/89          94241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =   238.978          temperature(kelvin)      =   975.000
0potential scatter sigma =    10.939          lumped nuclear density   = 8.0893651E-06
0spin factor (g)         = 16402.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 2.1109156E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 2.2642338E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12       1.322123E-03     8.439866E-04     6.005169E-04
  13      -5.462229E-01    -4.209879E-01    -1.635962E-02
  14      -5.012358E-01    -3.475752E-01    -8.718508E-04
  15       1.790424E-02     1.604663E-02    -4.657629E-04
0excess resonance integrals
0                 resolved
0absorption      5.08054E+02
 fission         4.25981E+02
 - elapsed time    .32 min.
0 plutonium-242  endf/b-iv mat 1161          updated 10/13/89          94242     temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =   240.145          temperature(kelvin)      =   975.000
0potential scatter sigma =    10.694          lumped nuclear density   = 7.2371876E-07
0spin factor (g)         = 6606.710           lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 2.3594758E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 2.5308472E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11      -1.854130E-03     .000000E+00     -5.150098E-03
```
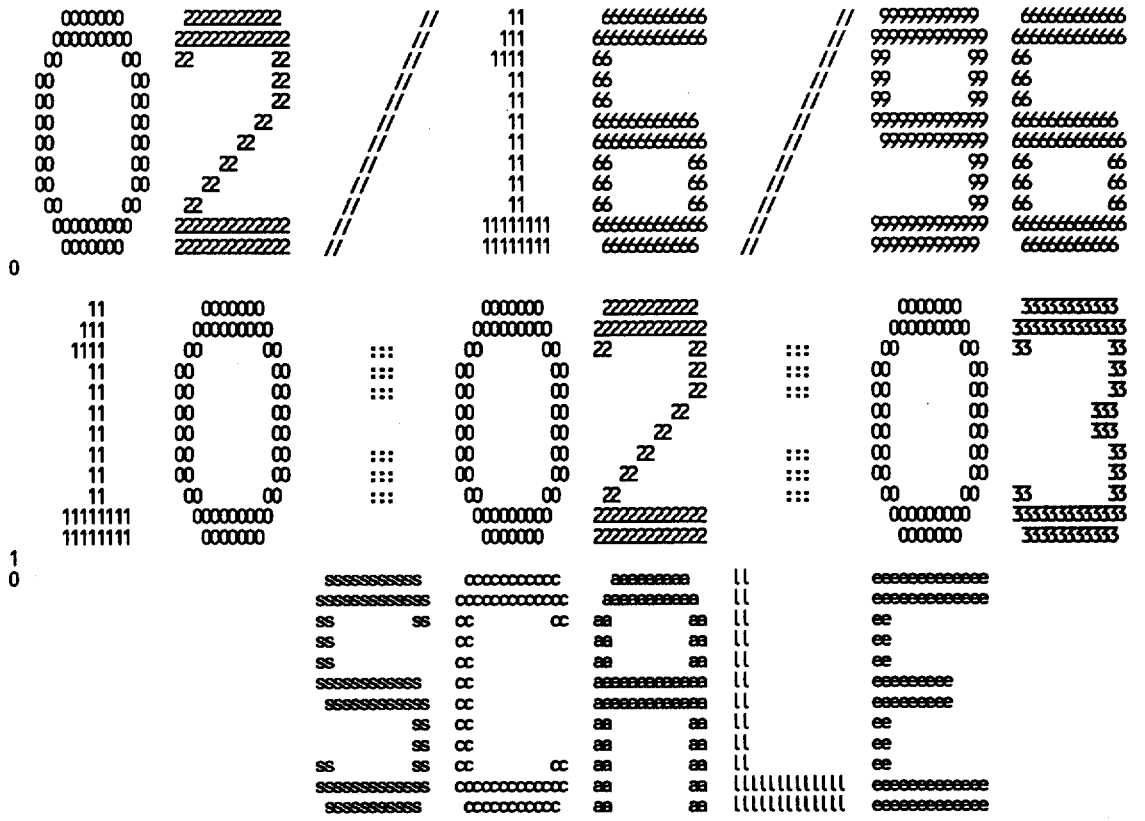

```
  12     -4.052668E-02     .000000E+00   -7.886203E-02
  13     -1.853779E-05     .000000E+00    3.537524E-06
  14      8.138350E-02     .000000E+00    1.525547E-02
  15     -1.424625E+01     .000000E+00   -1.174394E+00
  16      4.031559E-02     .000000E+00   -3.454563E-03
  17      1.550382E-02     .000000E+00   -1.848172E-03
  18      1.112574E-02     .000000E+00   -1.430661E-03
0excess resonance integrals
0                resolved
0absorption      1.10276E+03
 fission          .00000E+00
- elapsed time    .32 min.
0am-241 1056 sigp=5+4 newklacs 218ngp p-3 293k                          95241    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =  238.950          temperature(kelvin)     =  975.000
0potential scatter sigma =    9.511          lumped nuclear density  = 1.9917980E-07
0spin factor (g)         = 82058.203         lump dimension (a-bar)  = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995          sigma(per absorber atom)= 8.5731644E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  238.051          sigma(per absorber atom)= 9.1958431E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  13      4.891248E-01    1.210977E-02    4.768714E-03
  14     -4.461041E-01   -1.120480E-02   -4.801333E-03
0excess resonance integrals
0                resolved
0absorption      1.93451E+02
 fission         1.07595E+00
- elapsed time    .32 min.
0am-243 1057 218 gp wt f-1/e-m 090576 p3 293k                           95243    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =  240.940          temperature(kelvin)     =  975.000
0potential scatter sigma =    9.511          lumped nuclear density  = 5.2783381E-08
0spin factor (g)         = 82052.602         lump dimension (a-bar)  = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995          sigma(per absorber atom)= 3.2351033E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  238.051          sigma(per absorber atom)= 3.4700725E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  13     -7.188834E-03     .000000E+00    4.218795E-04
  14      1.949712E-02     .000000E+00    1.945697E-04
0excess resonance integrals
0                resolved
0absorption      1.60148E+02
 fission          .00000E+00
- elapsed time    .32 min.
0 curium-244     endf/b-iv mat 1162          updated 10/13/89            96244    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =  242.133          temperature(kelvin)     =  975.000
0potential scatter sigma =   10.320          lumped nuclear density  = 3.9948742E-09
0spin factor (g)         = 5251.150          lump dimension (a-bar)  = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
```

```
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 4.2744696E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 4.5849292E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11       2.461100E-04   6.736606E-06   2.889803E-04
  12       6.544668E-04   3.101118E-05   1.239800E-04
  13       2.654965E-03   1.309495E-04   7.104585E-04
  14       6.526409E-02   3.904689E-03   1.058714E-02
0excess resonance integrals
0                 resolved
0absorption      6.13880E+02
 fission         3.54207E+01
- elapsed time    .33 min.
- elapsed time    .33 min.
1     this xsdrn working tape was created 02/16/96 at 10:01:00
      the title of the parent case is as follows
      scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc      1/27/89
         tape id                          4321        number of nuclides                  65
         number of neutron groups           27        number of gamma groups               0
         first thermal group                15        logical unit                         4
                                  table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id      999
        hydrogen       endf/b-iv mat 1269/thnm1002   updated 10/13/89             id     1001
       b-10 1273 218ngp 042375 p-3 293k                                           id     5010
        boron-11       endf/b-iv mat 1160            updated 10/13/89             id     5011
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id     8016
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id        6
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89             id    36083
        kr-85             mt=  102                                                id    36085
        sr-90          mt=102                        updated 10/13/89             id    38090
         y-89          mt=102                        updated 10/13/89             id    39089
        zr-93             mt=  102                                                id    40093
        zr-94          mt=102                        updated 10/13/89             id    40094
        zr-95          mt=102                        updated 10/13/89             id    40095
        zircalloy      endf/b-iv mat 1284            updated 10/13/89             id    40302
        nb-94          mt=102                        updated 10/13/89             id    41094
        mo-95          mt=102                        updated 10/13/89             id    42095
        tc-99          mt=102                        updated 10/13/89             id    43099
        ru-101         mt=102                        updated 10/13/89             id    44101
        ru-106         mt=102                        updated 10/13/89             id    44106
        rh-103         mt=102                        updated 10/13/89             id    45103
        rh-105            mt=  102                                                id    45105
        pd-105         mt=102                        updated 10/13/89             id    46105
        pd-108         mt=102                        updated 10/13/89             id    46108
        silver-109     endf/b-iv mat 1139            updated 10/13/89             id    47109
        sb-124         mt=102                        updated 10/13/89             id    51124
        xe-131         mt=102,103,104,105,106        updated 10/13/89             id    54131
        xe-132         mt=102,103,104,105,106        updated 10/13/89             id    54132
        xenon-135      endf/b-iv mat 1294            updated 10/13/89             id    54135
        xe-136            mt=  102, 103, 104, 105, 107                            id    54136
        cesium-133     endf/b-iv mat 1141            updated 10/13/89             id    55133
        cs-134         mt=102                        updated 10/13/89             id    55134
        cs-135            mt=  102                                                id    55135
        cs-137         mt=102                        updated 10/13/89             id    55137
```

```
        ba-136        mt=102                        updated 10/13/89          id    56136
        la-139        mt=102                        updated 10/13/89          id    57139
        ce-144           mt=  102                                             id    58144
        pr-141        mt=102,103,104,105,106,107    updated 10/13/89          id    59141
        pr-143        mt=102                        updated 10/13/89          id    59143
        nd-143        mt=102                        updated 10/13/89          id    60143
        nd-145        mt=102                        updated 10/13/89          id    60145
        nd-147        mt=102                        updated 10/13/89          id    60147
        pm-147        mt=102                        updated 10/13/89          id    61147
        pm-148           mt=  102                                             id    61148
        sm-147        endf/b-v fission product      updated 10/13/89          id    62147
        sm-149        mt=102,103,107                updated 10/13/89          id    62149
        sm-150        mt=102                        updated 10/13/89          id    62150
        sm-151        mt=102,103,104,105,106,107    updated 10/13/89          id    62151
        sm-152        mt=102,103,104,105,106,107    updated 10/13/89          id    62152
        eu-153        mt=102,103,104,105,106,107    updated 10/13/89          id    63153
        eu-154        mt=102,103,104,105,106,107    updated 10/13/89          id    63154
        eu-155        mt=102,103,104,105,106,107    updated 10/13/89          id    63155
        gd-155        mt=102                        updated 10/13/89          id    64155
       u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92234
        uranium-235   endf/b-iv mat 1261            updated 10/13/89          id    92235
       u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92236
        uranium-238   endf/b-iv mat 1262            updated 10/13/89          id    92238
        neptunium-237 endf/b-iv mat 1263            updated 10/13/89          id    93237
       pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    94238
        plutonium-239 endf/b-iv mat 1264            updated 10/13/89          id    94239
        plutonium-240 endf/b-iv mat 1265            updated 10/13/89          id    94240
        plutonium-241 endf/b-iv mat 1266            updated 10/13/89          id    94241
        plutonium-242 endf/b-iv mat 1161            updated 10/13/89          id    94242
       am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                          id    95241
       am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           id    95243
        curium-244    endf/b-iv mat 1162            updated 10/13/89          id    96244
0        tape copy used      0 i/o's, and took     .00 seconds
1 xx        xx  sssssssssss  dddddddddddd  rrrrrrrrrrrr  rrn        rrn  pppppppppppp  mm        mm
   xx      xx  sssssssssssss  dddddddddddd  rrrrrrrrrrrr  rrrn       rrn  pppppppppppp  mmm      mmm
     xx    xx  ss        ss  dd        dd  rr        rr  rrrrn      rrn  pp        pp  mmmm    mmmm
      xx  xx   ss            dd        dd  rr        rr  rrn rrn     rrn  pp        pp  mm mm   mm mm
       xx xx   ss            dd        dd  rr        rr  rrn  rrn    rrn  pp        pp  mm  mm mm  mm
        xxx    sssssssssss   dd        dd  rrrrrrrrrrrr  rrn   rrn   rrn  pppppppppppp  mm   mmm   mm
        xxx     sssssssssss  dd        dd  rrrrrrrrrrrr  rrn    rrn  rrn  pppppppppppp  mm    m    mm
       xx xx              ss  dd        dd  rr      rr    rrn     rrn rrn  pp           mm         mm
      xx  xx              ss  dd        dd  rr       rr   rrn      rrn rrn  pp           mm         mm
     xx    xx  ss        ss  dd        dd  rr        rr  rrn       rrrrn  pp           mm         mm
   xx      xx  sssssssssssss  dddddddddddd  rr         rr rrn        rrrn  pp           mm         mm
  xx        xx  sssssssssss  dddddddddddd  rr         rr rrn         rrn  pp           mm         mm
0

  dddddddddddd    aaaaaaaaa   w         w  iiiiiiiiiiii   sssssssssss
  dddddddddddd   aaaaaaaaaaa  w         w  iiiiiiiiiiii   sssssssssssss
  dd        dd  aa        aa  w         w      ii        ss        ss
  dd        dd  aa        aa  w         w      ii        ss
  dd        dd  aa        aa  w         w      ii        ss
  dd        dd  aaaaaaaaaaaa  w         w      ii        sssssssssssss
  dd        dd  aaaaaaaaaaaa   w       w       ii         sssssssssssss
  dd        dd  aa        aa    w     w        ii                  ss
  dd        dd  aa        aa     w   w         ii                  ss
  dd        dd  aa        aa      w w          ii        ss        ss
  dddddddddddd  aa        aa       ww      iiiiiiiiiiii   sssssssssssss
  dddddddddddd  aa        aa        v      iiiiiiiiiiii   sssssssssss
0
```



program verification information

code system: scale version: 4.2

program: c0c001

creation date: 04/27/95

```
                    *****                                                                  *****
                    *****          library:  /neutronics/scale/exe                         *****
                    *****                                                                  *****
                    *****                                                                  *****
                    *****   this is not a   scale  configuration controlled code           *****
                    *****                                                                  *****
                    *****          jobname:  davis                                         *****
                    *****                                                                  *****
                    *****   date of execution:  02/16/96                                   *****
                    *****                                                                  *****
                    *****   time of execution:  10:02:03                                   *****
                    *****                                                                  *****
                    *****                                                                  *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
                    720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       -1q array has      1 entries.
0        1q array has     15 entries.
0        2q array has     10 entries.
0        3q array has     12 entries.
0        4q array has      9 entries.
0        5q array has     12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                   720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0general problem description data block
0                              general problem data

 ige  1/2/3 = plane/cylinder/sphere      2       isn  quadrature order                    8
 izm  number of zones                    4       isct order of scattering                 3
 im   number of special intervals       24       ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h     1
 ibl  0/1/2/3 = vacuum/refl/per/white    1       iim  inner iteration maximum            20
 ibr  right boundary condition           3       icm  outer iteration maximum            25
 mxx  number of mixtures                 3       iclc -1/0/n--flat res/sn/opt             0
 ms   mixing table length               65       ith  0/1 = forward/adjoint               0
 igm  number of energy groups           27       iflu not used(always wgtd)               0
 nng  number of neutron groups          27       iprt -2/-1/0/n=mixture xsec print       -2
 ngg  number of gamma groups             0       idl  0/1/2/3=no/prt nd/pch n/both       53
 iftg number of first thermal group     15       ipbt -1/0/1=none/fine/all bal. prt       0
0                              special options

 ifg  0/1 = none/weighting calculation   1       ipn  0/1/2 diff. coef. param             0
 iqm  volumetric sources (0/n=no/yes)    0       idfm 0/1 = none/density factors 38*      1
 ipm  boundary sources (0/n=no/yes)      0       iaz  0/n = none/n activities by zone     0
 ifn  0/1/2 = input 33*/34*/use last    53       iai  0/1=none/activities by interval     0
 itmx maximum time (minutes)            10       ifct 0/1=no/yes upscatter scaling        0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0       ipvt 0/1/2=no/k/alpha parametric srch    0
 isx  broad group fluxes                 0       isen outer iteration acceleration        0
 ibln activity data unit                 0       nbnd band rebaln parameter               0
 jbkl 0/1/2 buckling geometry            0
0                              weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1       ihtf total xsect psn in brd gp tables    3
 igmf number of broad groups            27       ndsf psn g-g or file number              4
 itp  0/10/20/30/40 0/c/e/ac/a           0       nusf table length or max order           4
 ipp  -2/-1/0/n=wgted xsect print       -2       msom extra 1-d x-sect positions          0
 iap  -1/n anisn xsect print            -1
0                              floating point parameters
```

eps	overall convergence	1.00000E-04	dy	cyl/pla ht for buckling	.00000E+00
ptc	point convergence	1.00000E-04	dz	plane depth for buckling	.00000E+00
xnf	normalization factor	1.00000E+00	vsc	void streaming correction	.00000E+00
ev	eigenvalue guess	.00000E+00	pv	ipvt=1/2--k/alpha	1.00000E+00
evm	eigenvalue modifier	.00000E+00	eql	ev change eps for search	1.00000E-03
bf	buckling factor=1.420892	1.42089E+00	xnpm	new param mod for search	7.50000E-01

this case will require 2535 locations for mixing
this case has been allocated 200000 locations

1 720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gd/mtu burn high temp
0 13q array has 65 entries.
0 14q array has 65 entries.
0 15q array has 65 entries.
0 data block 2 (mixing table, etc.)

	nuclides on tape	cccc identification	mixing table mixture	component	atom density	extra xsect id's
1	999		1	92235	4.44493E-04	
2	1001		1	92234	4.66638E-06	
3	5010		1	92236	4.78943E-05	
4	5011		1	92238	2.18734E-02	
5	8016		1	8016	4.55359E-02	
6	6		3	6	2.09710E-02	
7	36083		1	36083	1.21060E-06	
8	36085		1	36085	5.82772E-07	
9	38090		1	38090	1.32013E-05	
10	39089		1	39089	1.02024E-05	
11	40093		1	42095	1.31680E-05	
12	40094		1	40093	1.03725E-05	
13	40095		1	40094	1.62229E-05	
14	40302		1	40095	2.03583E-06	
15	41094		1	41094	7.53797E-12	
16	42095		1	43099	1.58444E-05	
17	43099		1	45103	8.51543E-06	
18	44101		1	45105	2.07139E-08	
19	44106		1	44101	1.42308E-05	
20	45103		1	44106	2.14911E-06	
21	45105		1	46105	5.27789E-06	
22	46105		1	46108	1.39336E-06	
23	46108		1	47109	9.89759E-07	
24	47109		1	51124	2.30439E-10	
25	51124		1	54131	7.31080E-06	
26	54131		1	54132	1.32259E-05	
27	54132		1	54135	6.67573E-09	
28	54135		1	54136	2.70586E-05	
29	54136		1	55134	6.68995E-07	
30	55133		1	55135	8.57012E-06	
31	55134		1	55137	1.68757E-05	
32	55135		1	56136	1.31478E-07	
33	55137		1	57139	1.67362E-05	
34	56136		1	59141	1.43133E-05	
35	57139		1	59143	3.77677E-07	
36	58144		1	58144	6.39792E-06	
37	59141		1	60143	1.33774E-05	
38	59143		1	60145	9.77101E-06	
39	60143		1	61147	3.64313E-06	
40	60145		1	61148	1.04656E-08	
41	60147		1	60147	1.30684E-07	
42	61147		1	62147	1.01929E-06	
43	61148		1	62149	8.40498E-08	
44	62147		1	62150	3.35633E-06	
45	62149		1	62151	3.68860E-07	

46	62150	1	62152	1.63140E-06
47	62151	1	64155	1.63702E-09
48	62152	1	63153	9.05257E-07
49	63153	1	63154	1.63879E-07
50	63154	1	63155	9.91552E-08
51	63155	2	40302	4.25156E-02
52	64155	3	1001	4.19420E-02
53	92234	3	5010	3.81515E-06
54	92235	3	5011	1.54884E-05
55	92236	1	55133	1.73735E-05
56	92238	1	95237	2.81758E-06
57	95237	1	94238	3.26250E-07
58	94238	1	94239	9.65273E-05
59	94239	1	94240	1.62386E-05
60	94240	1	94241	8.08937E-06
61	94241	1	94242	7.23719E-07
62	94242	1	95241	1.99179E-07
63	95241	1	95243	5.27834E-08
64	95243	1	96244	3.99487E-09
65	96244	1	999	1.00000E-20

elapsed time .00 min.
0 21649 locations will be used
0 35q array has 25 entries.
0 36q array has 24 entries.
0 38q array has 24 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	2	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	3	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	4	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	5	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	6	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	7	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	8	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	9	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	10	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	11	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01086E+07	12	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	13	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	14	0	14	1.00000E+00	
15	3.04999E+00	1.50030E+01	2.10601E+06	15	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	16	0	16	1.00000E+00	
17	1.29999E+00	1.58557E+01	1.52545E+06	17	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	18	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	19	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	20	0	20	1.00000E+00	
21	4.00000E-01	1.70344E+01	8.17974E+05	21	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	22	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86953E+05	23	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	24	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	25	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	26	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	27	0	27	1.00000E+00	

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   28  1.00000E-05  2.76310E+01
1                    720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0        mixture    order p(l)      activity table                    quadrature constants
         by zone     by zone     matl no.     reaction      weights    directions   refl direc    wt x cos
    1      1           3                                     0         -2.79004E-01     3            0
    2      1           3                                  5.06143E-02  -1.97286E-01     3      -9.98548E-03
    3      2           3                                  5.06143E-02   1.97286E-01     2       9.98548E-03
    4      3           3                                     0         -6.04419E-01     8            0
    5                                                     5.55953E-02  -5.58410E-01     8      -3.10450E-02
    6                                                     5.55953E-02  -2.31301E-01     7      -1.28593E-02
    7                                                     5.55953E-02   2.31301E-01     6       1.28593E-02
    8                                                     5.55953E-02   5.58410E-01     5       3.10450E-02
    9                                                        0         -8.50774E-01    15            0
   10                                                     5.22844E-02  -8.21784E-01    15      -4.29665E-02
   11                                                     5.22844E-02  -6.01588E-01    14      -3.14537E-02
   12                                                     5.22844E-02  -2.20196E-01    13      -1.15128E-02
   13                                                     5.22844E-02   2.20196E-01    12       1.15128E-02
   14                                                     5.22844E-02   6.01588E-01    11       3.14537E-02
   15                                                     5.22844E-02   8.21784E-01    10       4.29665E-02
   16                                                        0         -9.83032E-01    24            0
   17                                                     4.53355E-02  -9.64143E-01    24      -4.37099E-02
   18                                                     4.53355E-02  -8.17361E-01    23      -3.70555E-02
   19                                                     4.53355E-02  -5.46143E-01    22      -2.47597E-02
   20                                                     4.53355E-02  -1.91780E-01    21      -8.69444E-03
   21                                                     4.53355E-02   1.91780E-01    20       8.69444E-03
   22                                                     4.53355E-02   5.46143E-01    19       2.47597E-02
   23                                                     4.53355E-02   8.17361E-01    18       3.70555E-02
   24                                                     4.53355E-02   9.64143E-01    17       4.37099E-02
0constants for p( 3) scattering
0angl    set  1       set  2       set  3       set  4       set  5
    1 -2.79004E-01  8.83235E-01  6.74143E-02 -6.16919E-01 -1.71701E-02
    2 -1.97286E-01  8.83235E-01   .00000E+00 -4.36228E-01  1.21411E-02
    3  1.97286E-01  8.83235E-01   .00000E+00  4.36228E-01 -1.21411E-02
    4 -6.04419E-01  4.52016E-01  3.16379E-01 -8.04435E-01 -1.74564E-01
    5 -5.58410E-01  4.52016E-01  2.23714E-01 -7.43201E-01 -6.68028E-02
    6 -2.31301E-01  4.52016E-01 -2.23713E-01 -3.07844E-01  1.61276E-01
    7  2.31301E-01  4.52016E-01 -2.23713E-01  3.07844E-01 -1.61276E-01
    8  5.58410E-01  4.52016E-01  2.23713E-01  7.43201E-01  6.68028E-02
    9 -8.50774E-01 -8.57235E-02  6.26843E-01 -1.98456E-01 -4.86835E-01
   10 -8.21784E-01 -8.57235E-02  5.42862E-01 -1.91694E-01 -3.44245E-01
   11 -6.01588E-01 -8.57235E-02   .00000E+00 -1.40330E-01  3.44244E-01
   12 -2.20196E-01 -8.57235E-02 -5.42862E-01 -5.13643E-02  3.44245E-01
   13  2.20196E-01 -8.57235E-02 -5.42862E-01  5.13643E-02 -3.44245E-01
   14  6.01588E-01 -8.57235E-02   .00000E+00  1.40330E-01 -3.44245E-01
   15  8.21784E-01 -8.57235E-02  5.42862E-01  1.91694E-01  3.44245E-01
   16 -9.83032E-01 -4.49528E-01  8.36885E-01  5.00703E-01 -7.51005E-01
   17 -9.64143E-01 -4.49528E-01  7.73181E-01  4.91083E-01 -6.24438E-01
   18 -8.17361E-01 -4.49528E-01  3.20262E-01  4.16320E-01  1.46514E-01
   19 -5.46143E-01 -4.49528E-01 -3.20262E-01  2.78176E-01  7.36575E-01
   20 -1.91780E-01 -4.49528E-01 -7.73181E-01  9.76824E-02  4.17236E-01
   21  1.91780E-01 -4.49528E-01 -7.73181E-01 -9.76824E-02 -4.17236E-01
   22  5.46143E-01 -4.49528E-01 -3.20262E-01 -2.78176E-01 -7.36575E-01
   23  8.17361E-01 -4.49528E-01  3.20262E-01 -4.16320E-01 -1.46514E-01
   24  9.64143E-01 -4.49528E-01  7.73181E-01 -4.91083E-01  6.24438E-01
1  int     radii       mid pts     zone no.      areas       volumes     dens fact    radius mod     spec(int)
    1       0        1.29551E-02      1          0        2.10906E-03  1.00000E+00      0
    2  2.59102E-02  4.33406E-02      1       1.62798E-01  9.49318E-03  1.00000E+00      0
    3  6.07710E-02  8.75100E-02      1       3.81835E-01  2.94045E-02  1.00000E+00      0
    4  1.14249E-01  1.74155E-01      1       7.17848E-01  1.31104E-01  1.00000E+00      0
    5  2.34061E-01  2.93967E-01      1       1.47065E+00  2.21299E-01  1.00000E+00
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6	3.53873E-01	3.80612E-01	1	2.22345E+00	1.27890E-01	1.00000E+00
7	4.07351E-01	4.24781E-01	1	2.55946E+00	9.30429E-02	1.00000E+00
8	4.42212E-01	4.55167E-01	1	2.77850E+00	7.41004E-02	1.00000E+00
9	4.68122E-01	4.68814E-01	2	2.94130E+00	4.07946E-03	0
10	4.69507E-01	4.71481E-01	2	2.95000E+00	1.16988E-02	0
11	4.73456E-01	4.75431E-01	2	2.97481E+00	1.17968E-02	0
12	4.77405E-01	4.78098E-01	2	2.99962E+00	4.16023E-03	0
13	4.78790E-01	4.83159E-01	3	3.00833E+00	2.65268E-02	1.00000E+00
14	4.87528E-01	4.99987E-01	3	3.06329E+00	7.82768E-02	1.00000E+00
15	5.12445E-01	5.24903E-01	3	3.21979E+00	8.21777E-02	1.00000E+00
16	5.37362E-01	5.41731E-01	3	3.37634E+00	2.97427E-02	1.00000E+00
17	5.46100E-01	5.53513E-01	4	3.43125E+00	5.15631E-02	1.00000E+00
18	5.60926E-01	5.70900E-01	4	3.52440E+00	7.15548E-02	1.00000E+00
19	5.80874E-01	5.96175E-01	4	3.64974E+00	1.14628E-01	1.00000E+00
20	6.11475E-01	6.45755E-01	4	3.84201E+00	2.78169E-01	1.00000E+00
21	6.80084E-01	7.14313E-01	4	4.27278E+00	3.07702E-01	1.00000E+00
22	7.48592E-01	7.63895E-01	4	4.70854E+00	1.46875E-01	1.00000E+00
23	7.79193E-01	7.89167E-01	4	4.89582E+00	9.89116E-02	1.00000E+00
24	7.99141E-01	8.06554E-01	4	5.02115E+00	7.51357E-02	1.00000E+00
25	8.13968E-01			5.11431E+00		

- elapsed time .00 min.

outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	129	2.30684E-06	1.05050E+00	-5.54241E-02	1.00000E+00	-1.89484E-02	.00000E+00	.0000
2	201	-3.31959E-06	1.05598E+00	-1.19188E-03	-5.77070E-03	-2.77019E-03	.00000E+00	.0000
3	259	-3.35895E-06	1.05675E+00	-1.88910E-04	-7.85543E-04	-6.33710E-04	.00000E+00	.0000
4	302	1.09928E-05	1.05676E+00	-4.10437E-05	-1.82366E-04	-1.42894E-04	.00000E+00	.0000

grp to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	1	1.60256E-07	24	1.00000E+00	1
2	1	1	1.82710E-07	24	1.00000E+00	1
3	1	1	1.66012E-07	24	1.00000E+00	1
4	1	1	1.57203E-07	24	1.00000E+00	1
5	1	1	1.47925E-07	24	1.00000E+00	1
6	1	1	8.90491E-08	24	1.00000E+00	1
7	1	1	5.57681E-08	24	1.00000E+00	1
8	1	1	1.21885E-08	24	1.00000E+00	1
9	1	2	7.34707E-09	24	1.00000E+00	1
10	1	2	7.04445E-09	24	1.00000E+00	1
11	1	2	7.28211E-09	24	1.00000E+00	1
12	1	24	1.75957E-08	24	1.00000E+00	1
13	1	24	2.20915E-08	24	1.00000E+00	1
14	1	24	2.13140E-08	24	1.00000E+00	1
15	1	20	4.85868E-05	24	9.99838E-01	1
16	1	20	5.97910E-05	24	9.99844E-01	1
17	1	19	7.68363E-05	24	9.99850E-01	1
18	2	24	4.75161E-05	24	1.00008E+00	1
19	1	20	7.57303E-05	24	9.99834E-01	1
20	1	20	5.73101E-05	24	9.99794E-01	1
21	2	24	5.05713E-05	24	1.00002E+00	1
22	1	19	5.68041E-05	24	9.99885E-01	1
23	1	24	1.09517E-05	24	1.00000E+00	1
24	1	24	4.63568E-05	24	1.00008E+00	1
25	1	24	5.66416E-05	24	1.00002E+00	1
26	1	2	2.57303E-05	24	1.00002E+00	2
27	1	24	3.24004E-05	19	1.00001E+00	2
5 331	-1.38528E-05	1.05708E+00	-9.66132E-06	-4.09050E-05	-2.89992E-05	.00000E+00	.0167	

final monitor lambda 1.05694E+00 production/absorption 1.05693E+00 angular flux on 16

- elapsed time .02 min.

1 720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 int. zone number radius int. midpoint area volume prod density

1	1	.00000E+00	1.29551E-02	.00000E+00	2.10906E-03	3.09003E-03
2	1	2.59102E-02	4.33406E-02	1.62798E-01	9.49318E-03	1.39024E-02
3	1	6.07710E-02	8.75100E-02	3.81835E-01	2.94045E-02	4.31432E-02
4	1	1.14249E-01	1.74155E-01	7.17848E-01	1.31104E-01	1.94239E-01
5	1	2.34061E-01	2.93967E-01	1.47065E+00	2.21259E-01	3.35787E-01
6	1	3.53873E-01	3.80612E-01	2.22345E+00	1.27890E-01	1.99196E-01
7	1	4.07351E-01	4.24781E-01	2.55946E+00	9.30429E-02	1.47765E-01
8	1	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02	1.19812E-01
9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07946E-03	.00000E+00
10	2	4.69507E-01	4.71481E-01	2.95000E+00	1.16988E-02	.00000E+00
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	2	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.65268E-02	.00000E+00
14	3	4.87528E-01	4.99987E-01	3.06323E+00	7.82768E-02	.00000E+00
15	3	5.12445E-01	5.24903E-01	3.21979E+00	8.21777E-02	.00000E+00
16	3	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02	.00000E+00
17	4	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02	.00000E+00
18	4	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	4	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01	.00000E+00
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01	.00000E+00
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	4	7.48592E-01	7.63893E-01	4.70354E+00	1.46875E-01	.00000E+00
23	4	7.79193E-01	7.89167E-01	4.89582E+00	9.89116E-02	.00000E+00
24	4	7.99141E-01	8.06554E-01	5.02115E+00	7.51357E-02	.00000E+00
25		8.13968E-01		5.11431E+00		

1 720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 total flux

0 int. grp. 1 grp. 2 grp. 3 grp. 4 grp. 5 grp. 6 grp. 7 grp. 8

1	1.79147E-01	1.33355E+00	1.68345E+00	1.04266E+00	1.57657E+00	3.03138E+00	2.90569E+00	2.08120E+00
2	1.79212E-01	1.33418E+00	1.68429E+00	1.04316E+00	1.57727E+00	3.03269E+00	2.90655E+00	2.08126E+00
3	1.79155E-01	1.33356E+00	1.68351E+00	1.04269E+00	1.57649E+00	3.03108E+00	2.90533E+00	2.08107E+00
4	1.78754E-01	1.32930E+00	1.67807E+00	1.03958E+00	1.57122E+00	3.02061E+00	2.89902E+00	2.08001E+00
5	1.77714E-01	1.31833E+00	1.66424E+00	1.03101E+00	1.55797E+00	2.99465E+00	2.88349E+00	2.07740E+00
6	1.76514E-01	1.30582E+00	1.64865E+00	1.02164E+00	1.54325E+00	2.96621E+00	2.86656E+00	2.07451E+00
7	1.75557E-01	1.29601E+00	1.63662E+00	1.01450E+00	1.53217E+00	2.94522E+00	2.85417E+00	2.07234E+00
8	1.74605E-01	1.28644E+00	1.62507E+00	1.00774E+00	1.52184E+00	2.92605E+00	2.84295E+00	2.07029E+00
9	1.74084E-01	1.28126E+00	1.61887E+00	1.00415E+00	1.51641E+00	2.91606E+00	2.83715E+00	2.06920E+00
10	1.73976E-01	1.28022E+00	1.61763E+00	1.00346E+00	1.51541E+00	2.91427E+00	2.83617E+00	2.06901E+00
11	1.73817E-01	1.27870E+00	1.61584E+00	1.00247E+00	1.51395E+00	2.91174E+00	2.83477E+00	2.06872E+00
12	1.73712E-01	1.27770E+00	1.61466E+00	1.00183E+00	1.51308E+00	2.91011E+00	2.83388E+00	2.06853E+00
13	1.73517E-01	1.27585E+00	1.61244E+00	1.00059E+00	1.51127E+00	2.90667E+00	2.83195E+00	2.06815E+00
14	1.72987E-01	1.27058E+00	1.60592E+00	9.96753E-01	1.50546E+00	2.89541E+00	2.82553E+00	2.06711E+00
15	1.72392E-01	1.26419E+00	1.59752E+00	9.91434E-01	1.49706E+00	2.87877E+00	2.81595E+00	2.06597E+00
16	1.72101E-01	1.26066E+00	1.59250E+00	9.87963E-01	1.49134E+00	2.86723E+00	2.80924E+00	2.06545E+00
17	1.71961E-01	1.25863E+00	1.58988E+00	9.85632E-01	1.48736E+00	2.85927E+00	2.80457E+00	2.06531E+00
18	1.71778E-01	1.25601E+00	1.58539E+00	9.82660E-01	1.48230E+00	2.84930E+00	2.79871E+00	2.06517E+00
19	1.71548E-01	1.25289E+00	1.58078E+00	9.79294E-01	1.47662E+00	2.83816E+00	2.79214E+00	2.06498E+00
20	1.71242E-01	1.24886E+00	1.57488E+00	9.75078E-01	1.46955E+00	2.82431E+00	2.78400E+00	2.06460E+00
21	1.71031E-01	1.24605E+00	1.57074E+00	9.72092E-01	1.46452E+00	2.81449E+00	2.77851E+00	2.06450E+00
22	1.71032E-01	1.24592E+00	1.57044E+00	9.71810E-01	1.46400E+00	2.81348E+00	2.77787E+00	2.06473E+00
23	1.71110E-01	1.24678E+00	1.57157E+00	9.72538E-01	1.46518E+00	2.81577E+00	2.77935E+00	2.06501E+00
24	1.71199E-01	1.24780E+00	1.57293E+00	9.73436E-01	1.46663E+00	2.81862E+00	2.78114E+00	2.06528E+00

0 int. grp. 9 grp. 10 grp. 11 grp. 12 grp. 13 grp. 14 grp. 15 grp. 16

1	1.58778E+00	1.44719E+00	1.30657E+00	7.96177E-01	6.70742E-01	5.84450E-01	3.68940E-01	2.02984E-01
2	1.58771E+00	1.44709E+00	1.30636E+00	7.95945E-01	6.70531E-01	5.84161E-01	3.68908E-01	2.02960E-01
3	1.58769E+00	1.44731E+00	1.30683E+00	7.96495E-01	6.70994E-01	5.84871E-01	3.68987E-01	2.03008E-01
4	1.58892E+00	1.44852E+00	1.30946E+00	7.99580E-01	6.73628E-01	5.88824E-01	3.69420E-01	2.03284E-01
5	1.59150E+00	1.45150E+00	1.31594E+00	8.07199E-01	6.80131E-01	5.98634E-01	3.70464E-01	2.03963E-01

6	1.59437E+00	1.45475E+00	1.32302E+00	8.15587E-01	6.87282E-01	6.09496E-01	3.71589E-01	2.04702E-01
7	1.59854E+00	1.45713E+00	1.32824E+00	8.21806E-01	6.92576E-01	6.17606E-01	3.72598E-01	2.05243E-01
8	1.59860E+00	1.45929E+00	1.33299E+00	8.27516E-01	6.97431E-01	6.25087E-01	3.73120E-01	2.05735E-01
9	1.59970E+00	1.46041E+00	1.33545E+00	8.30482E-01	6.99953E-01	6.28977E-01	3.73490E-01	2.05990E-01
10	1.59989E+00	1.46059E+00	1.33585E+00	8.30959E-01	7.00365E-01	6.29596E-01	3.73552E-01	2.06034E-01
11	1.60018E+00	1.46085E+00	1.33641E+00	8.31640E-01	7.00954E-01	6.30482E-01	3.73642E-01	2.06096E-01
12	1.60036E+00	1.46102E+00	1.33677E+00	8.32081E-01	7.01334E-01	6.31055E-01	3.73699E-01	2.06137E-01
13	1.60074E+00	1.46136E+00	1.33752E+00	8.32980E-01	7.02112E-01	6.32226E-01	3.73818E-01	2.06219E-01
14	1.60178E+00	1.46246E+00	1.33990E+00	8.35793E-01	7.04547E-01	6.35890E-01	3.74199E-01	2.06478E-01
15	1.60289E+00	1.46403E+00	1.34326E+00	8.39673E-01	7.07905E-01	6.40938E-01	3.74739E-01	2.06857E-01
16	1.60342E+00	1.46507E+00	1.34547E+00	8.42177E-01	7.10069E-01	6.44186E-01	3.75098E-01	2.07068E-01
17	1.60371E+00	1.46585E+00	1.34713E+00	8.44017E-01	7.11628E-01	6.46554E-01	3.75290E-01	2.07218E-01
18	1.60414E+00	1.46691E+00	1.34938E+00	8.46533E-01	7.13740E-01	6.49781E-01	3.75504E-01	2.07410E-01
19	1.60468E+00	1.46812E+00	1.35195E+00	8.49429E-01	7.16177E-01	6.53501E-01	3.75756E-01	2.07635E-01
20	1.60544E+00	1.46964E+00	1.35522E+00	8.53118E-01	7.19281E-01	6.58240E-01	3.76064E-01	2.07918E-01
21	1.60600E+00	1.47073E+00	1.35755E+00	8.55748E-01	7.21466E-01	6.61596E-01	3.76217E-01	2.08096E-01
22	1.60606E+00	1.47084E+00	1.35777E+00	8.55980E-01	7.21611E-01	6.61858E-01	3.76127E-01	2.08076E-01
23	1.60591E+00	1.47056E+00	1.35719E+00	8.55296E-01	7.20995E-01	6.60953E-01	3.75978E-01	2.07993E-01
24	1.60572E+00	1.47023E+00	1.35644E+00	8.54453E-01	7.20250E-01	6.59847E-01	3.75828E-01	2.07903E-01

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.22947E-02	3.69456E-02	1.21623E-01	4.23045E-01	1.06334E-01	1.76019E-01	6.67073E-01	4.91611E-01
2	8.22659E-02	3.69358E-02	1.21575E-01	4.22940E-01	1.06268E-01	1.75895E-01	6.66661E-01	4.91274E-01
3	8.23252E-02	3.71640E-02	1.21680E-01	4.23148E-01	1.06467E-01	1.76520E-01	6.67697E-01	4.92220E-01
4	8.26555E-02	3.82301E-02	1.22275E-01	4.24354E-01	1.07545E-01	1.79682E-01	6.73457E-01	4.97389E-01
5	8.34796E-02	4.09748E-02	1.23752E-01	4.27316E-01	1.10240E-01	1.87644E-01	6.87741E-01	5.10237E-01
6	8.43891E-02	4.41961E-02	1.25318E-01	4.30551E-01	1.13253E-01	1.96684E-01	7.03548E-01	5.24521E-01
7	8.50657E-02	4.67821E-02	1.26475E-01	4.32986E-01	1.15530E-01	2.03633E-01	7.15343E-01	5.35257E-01
8	8.56892E-02	4.93228E-02	1.27520E-01	4.35089E-01	1.17651E-01	2.10209E-01	7.26220E-01	5.45180E-01
9	8.60140E-02	5.06765E-02	1.28058E-01	4.36211E-01	1.18758E-01	2.13661E-01	7.31869E-01	5.50358E-01
10	8.60674E-02	5.08489E-02	1.28145E-01	4.36397E-01	1.18927E-01	2.14150E-01	7.32740E-01	5.51135E-01
11	8.61437E-02	5.10954E-02	1.28270E-01	4.36663E-01	1.19168E-01	2.14849E-01	7.33980E-01	5.52240E-01
12	8.61931E-02	5.12556E-02	1.28350E-01	4.36835E-01	1.19324E-01	2.15302E-01	7.34780E-01	5.52952E-01
13	8.62942E-02	5.15806E-02	1.28516E-01	4.37186E-01	1.19642E-01	2.16224E-01	7.36416E-01	5.54406E-01
14	8.66099E-02	5.25832E-02	1.29041E-01	4.38286E-01	1.20636E-01	2.19085E-01	7.41507E-01	5.58891E-01
15	8.70440E-02	5.39557E-02	1.29775E-01	4.39797E-01	1.22000E-01	2.22966E-01	7.48419E-01	5.64887E-01
16	8.73227E-02	5.47874E-02	1.30256E-01	4.40764E-01	1.22872E-01	2.25420E-01	7.52778E-01	5.68598E-01
17	8.75268E-02	5.54283E-02	1.30602E-01	4.41442E-01	1.23544E-01	2.27332E-01	7.56369E-01	5.71998E-01
18	8.78065E-02	5.63208E-02	1.31068E-01	4.42357E-01	1.24491E-01	2.30062E-01	7.61717E-01	5.77345E-01
19	8.81290E-02	5.73463E-02	1.31606E-01	4.43427E-01	1.25587E-01	2.33257E-01	7.68101E-01	5.83805E-01
20	8.85401E-02	5.86489E-02	1.32291E-01	4.44797E-01	1.26993E-01	2.37327E-01	7.76589E-01	5.92525E-01
21	8.88320E-02	5.95812E-02	1.32772E-01	4.45743E-01	1.28008E-01	2.40294E-01	7.82998E-01	5.99328E-01
22	8.88562E-02	5.96760E-02	1.32803E-01	4.45771E-01	1.28115E-01	2.40621E-01	7.83948E-01	6.00620E-01
23	8.87795E-02	5.94501E-02	1.32666E-01	4.45466E-01	1.27871E-01	2.39919E-01	7.82657E-01	5.99540E-01
24	8.86865E-02	5.91669E-02	1.32501E-01	4.45109E-01	1.27564E-01	2.39031E-01	7.80956E-01	5.98002E-01

0 int.	grp. 25	grp. 26	grp. 27
1	2.04150E-01	1.23962E-01	1.62809E-02
2	2.04009E-01	1.23874E-01	1.62612E-02
3	2.04507E-01	1.24353E-01	1.64085E-02
4	2.07134E-01	1.26761E-01	1.70793E-02
5	2.13672E-01	1.32779E-01	1.87817E-02
6	2.20974E-01	1.39573E-01	2.07691E-02
7	2.26487E-01	1.44775E-01	2.23667E-02
8	2.31638E-01	1.49702E-01	2.39516E-02
9	2.34329E-01	1.52290E-01	2.47990E-02
10	2.34719E-01	1.52640E-01	2.48969E-02
11	2.35275E-01	1.53138E-01	2.50362E-02
12	2.35634E-01	1.53459E-01	2.51259E-02
13	2.36363E-01	1.54110E-01	2.53081E-02
14	2.38576E-01	1.56072E-01	2.58465E-02
15	2.41457E-01	1.58587E-01	2.65125E-02

16	2.43181E-01	1.60059E-01	2.68841E-02
17	2.44910E-01	1.61817E-01	2.74610E-02
18	2.47773E-01	1.64887E-01	2.85150E-02
19	2.51269E-01	1.68619E-01	2.97503E-02
20	2.56042E-01	1.73708E-01	3.13762E-02
21	2.59853E-01	1.77863E-01	3.27133E-02
22	2.60684E-01	1.78927E-01	3.31109E-02
23	2.60187E-01	1.78562E-01	3.30648E-02
24	2.59424E-01	1.77890E-01	3.29159E-02

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.27834E-02	.00000E+00	1.27835E-02	1.06397E-02	3.25724E-05	1.12142E-02	9.98836E-01
2	.00000E+00	1.93360E-01	2.35212E-05	1.67578E-01	6.66508E-02	1.36418E-02	1.15429E-01	1.00004E+00
3	.00000E+00	2.15763E-01	2.68562E-02	1.61228E-01	8.13114E-02	1.55438E-02	1.45263E-01	1.00000E+00
4	.00000E+00	1.23897E-01	3.90464E-02	1.05435E-01	6.78865E-02	7.40609E-03	8.76483E-02	1.00001E+00
5	.00000E+00	1.64367E-01	6.80627E-02	2.59700E-01	9.47652E-02	4.41163E-03	1.33256E-01	9.99992E-01
6	.00000E+00	1.77483E-01	1.34857E-01	6.53829E-01	5.43823E-02	6.94352E-03	2.50985E-01	1.00008E+00
7	.00000E+00	8.77626E-02	9.84879E-02	7.44822E-01	3.63351E-02	7.47750E-03	1.42437E-01	1.00001E+00
8	.00000E+00	1.35239E-02	4.25805E-02	6.30765E-01	2.15051E-02	1.38255E-02	2.07712E-02	1.00005E+00
9	.00000E+00	9.81536E-04	2.17281E-02	5.35545E-01	2.06897E-02	2.29246E-02	-2.09042E-02	9.99991E-01
10	.00000E+00	7.29039E-05	2.07116E-02	4.61417E-01	1.97058E-02	3.55838E-02	-2.55057E-02	1.00001E+00
11	.00000E+00	5.73558E-06	1.97067E-02	4.23345E-01	8.15330E-03	5.80208E-02	-5.54615E-02	1.00001E+00
12	.00000E+00	4.02915E-07	8.15335E-03	2.39571E-01	9.37688E-03	6.40370E-02	-6.52571E-02	9.99960E-01
13	.00000E+00	6.39792E-08	9.37689E-03	1.78595E-01	6.15287E-03	5.94453E-02	-5.62217E-02	1.00001E+00
14	.00000E+00	1.26790E-08	6.15287E-03	1.52008E-01	7.38436E-03	8.35490E-02	-8.47806E-02	1.00000E+00
15	.00000E+00	1.43286E-09	7.47109E-03	8.44814E-02	8.86820E-03	6.94069E-03	-8.39745E-03	1.00377E+00
16	.00000E+00	4.20738E-10	9.03061E-03	4.25418E-02	9.55262E-03	5.38954E-03	-5.95372E-03	1.00282E+00
17	.00000E+00	1.35498E-10	7.65731E-03	1.44202E-02	7.36023E-03	7.62079E-03	-7.34180E-03	1.00121E+00
18	.00000E+00	9.70128E-11	7.05739E-03	8.59951E-03	4.25206E-03	2.56773E-02	-2.28560E-02	1.00013E+00
19	.00000E+00	1.37155E-10	6.48623E-03	2.36319E-02	8.66922E-03	1.01044E-02	-1.23063E-02	1.00101E+00
20	.00000E+00	2.23029E-10	9.86478E-03	1.01120E-01	9.56416E-03	2.60108E-02	-2.57754E-02	1.00185E+00
21	.00000E+00	3.26442E-11	8.97754E-03	2.08262E-02	8.09340E-03	2.43936E-02	-2.35258E-02	1.00044E+00
22	.00000E+00	3.78747E-11	1.17446E-02	4.05430E-02	9.13392E-03	7.02846E-02	-6.77078E-02	1.00043E+00
23	.00000E+00	3.62124E-11	1.41527E-02	1.62453E-01	1.78592E-02	1.21836E-01	-1.25645E-01	1.00073E+00
24	.00000E+00	9.85656E-12	2.17814E-02	1.12898E-01	2.18441E-02	1.13778E-01	-1.13917E-01	1.00056E+00
25	.00000E+00	2.88535E-12	1.86887E-02	4.27493E-02	1.41086E-02	6.19250E-02	-5.73764E-02	1.00042E+00
26	.00000E+00	2.02523E-12	9.19215E-03	2.97282E-02	6.33813E-03	5.56420E-02	-5.28068E-02	1.00030E+00
27	.00000E+00	4.82146E-13	1.98517E-03	4.44033E-03	1.08145E-03	1.55400E-02	-1.46389E-02	1.00016E+00
28	.00000E+00	1.00000E+00	6.22642E-01	5.41485E+00	6.22642E-01	9.41190E-01	6.06264E-02	1.00030E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.74113E-01	1.12142E-02	1.79088E-01	.00000E+00	2.27852E-03	2.65102E-03	.00000E+00	1.21957E-01
2	1.28154E+00	1.15429E-01	1.33293E+00	.00000E+00	1.70654E-05	1.18697E-02	.00000E+00	9.03624E-01
3	1.61919E+00	1.45263E-01	1.68264E+00	.00000E+00	.00000E+00	1.45190E-02	.00000E+00	1.14088E+00
4	1.00434E+00	8.76483E-02	1.04218E+00	.00000E+00	.00000E+00	6.25975E-03	.00000E+00	7.06913E-01
5	1.51667E+00	1.33256E-01	1.57586E+00	.00000E+00	.00000E+00	1.80747E-03	.00000E+00	1.06812E+00
6	2.91654E+00	2.50985E-01	3.03003E+00	.00000E+00	.00000E+00	1.54159E-03	.00000E+00	2.05324E+00
7	2.85742E+00	1.42437E-01	2.90495E+00	.00000E+00	.00000E+00	1.49123E-03	.00000E+00	1.98016E+00
8	2.06925E+00	2.07712E-02	2.08110E+00	.00000E+00	.00000E+00	1.50630E-03	.00000E+00	1.42930E+00
9	1.59965E+00	-2.09042E-02	1.58788E+00	.00000E+00	.00000E+00	2.00510E-03	.00000E+00	1.09653E+00
10	1.46036E+00	-2.55057E-02	1.44731E+00	.00000E+00	.00000E+00	4.27114E-03	.00000E+00	1.00023E+00
11	1.33535E+00	-5.54615E-02	1.30683E+00	.00000E+00	.00000E+00	9.09949E-03	.00000E+00	9.08034E-01
12	8.30356E-01	-6.52571E-02	7.96471E-01	.00000E+00	.00000E+00	1.19534E-02	.00000E+00	5.58204E-01
13	6.99845E-01	-5.62217E-02	6.71002E-01	.00000E+00	.00000E+00	1.31836E-02	.00000E+00	4.70354E-01
14	6.28813E-01	-8.47806E-02	5.84819E-01	.00000E+00	.00000E+00	8.23088E-03	.00000E+00	4.15382E-01
15	3.73518E-01	-8.39745E-03	3.69026E-01	.00000E+00	.00000E+00	1.98407E-03	.00000E+00	2.55366E-01
16	2.06002E-01	-5.95372E-03	2.03057E-01	.00000E+00	.00000E+00	1.38096E-03	.00000E+00	1.40633E-01
17	8.60092E-02	-7.34180E-03	8.23378E-02	.00000E+00	.00000E+00	1.66006E-03	.00000E+00	5.77425E-02
18	5.06276E-02	-2.28560E-02	3.69961E-02	.00000E+00	.00000E+00	1.28586E-03	.00000E+00	2.92610E-02
19	1.28051E-01	-1.23063E-02	1.21697E-01	.00000E+00	.00000E+00	2.62594E-03	.00000E+00	8.56450E-02

20	4.36233E-01	-2.57754E-02	4.25240E-01	.00000E+00	.00000E+00	1.55009E-02	.00000E+00	2.95133E-01
21	1.18705E-01	-2.35238E-02	1.06422E-01	.00000E+00	.00000E+00	1.49508E-02	.00000E+00	7.68105E-02
22	2.13547E-01	-6.77078E-02	1.76253E-01	.00000E+00	.00000E+00	4.27190E-02	.00000E+00	1.31991E-01
23	7.31605E-01	-1.25645E-01	6.67572E-01	.00000E+00	.00000E+00	7.53704E-02	.00000E+00	4.78206E-01
24	5.50114E-01	-1.13917E-01	4.92030E-01	.00000E+00	.00000E+00	7.05000E-02	.00000E+00	3.55578E-01
25	2.34210E-01	-5.73766E-02	2.04347E-01	.00000E+00	.00000E+00	4.01535E-02	.00000E+00	1.49320E-01
26	1.52187E-01	-5.28068E-02	1.24118E-01	.00000E+00	.00000E+00	3.68822E-02	.00000E+00	9.35099E-02
27	2.47718E-02	-1.46389E-02	1.62895E-02	.00000E+00	.00000E+00	1.04036E-02	.00000E+00	1.35787E-02
28	2.32790E+01	6.06264E-02	2.32465E+01	.00000E+00	2.29558E-03	4.05807E-01	.00000E+00	1.60157E+01

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.96046E-08	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.96046E-08	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-4.47035E-08	1.00000E+00
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.38419E-07	9.99999E-01
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.96046E-08	1.00000E+00
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-08	9.99998E-01
9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.96046E-08	9.99997E-01
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.79397E-08	1.00000E+00
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-08	9.99999E-01
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-08	9.99999E-01
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	4.47035E-08	9.99999E-01
14	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-3.72529E-08	1.00000E+00
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-6.05360E-09	1.00000E+00
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-9.31323E-10	1.00000E+00
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.58794E-09	1.00000E+00
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.11759E-08	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
22	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
23	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.98023E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.21541E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.11759E-08	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.62050E-07	9.99995E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.73686E-01	1.12142E-02	1.74113E-01	1.12142E-02	.00000E+00	.00000E+00	.00000E+00	5.51864E-03
2	1.27745E+00	1.15429E-01	1.28154E+00	1.15429E-01	.00000E+00	.00000E+00	.00000E+00	4.06040E-02
3	1.61437E+00	1.45263E-01	1.61919E+00	1.45263E-01	.00000E+00	.00000E+00	.00000E+00	5.13074E-02
4	1.00167E+00	8.76483E-02	1.00434E+00	8.76483E-02	.00000E+00	.00000E+00	.00000E+00	3.18294E-02
5	1.51285E+00	1.33256E-01	1.51667E+00	1.33256E-01	.00000E+00	.00000E+00	.00000E+00	4.80696E-02
6	2.90970E+00	2.50985E-01	2.91654E+00	2.50985E-01	.00000E+00	.00000E+00	.00000E+00	9.24452E-02
7	2.83366E+00	1.42437E-01	2.83742E+00	1.42437E-01	.00000E+00	.00000E+00	.00000E+00	8.99845E-02
8	2.06849E+00	2.07712E-02	2.06925E+00	2.07712E-02	.00000E+00	.00000E+00	.00000E+00	6.56659E-02
9	1.60041E+00	-2.09041E-02	1.59965E+00	-2.09042E-02	.00000E+00	.00000E+00	.00000E+00	5.07775E-02
10	1.46106E+00	-2.55057E-02	1.46036E+00	-2.55057E-02	.00000E+00	.00000E+00	.00000E+00	4.63563E-02
11	1.33687E+00	-5.54615E-02	1.33535E+00	-5.54615E-02	.00000E+00	.00000E+00	.00000E+00	4.24025E-02
12	8.32192E-01	-6.52571E-02	8.30356E-01	-6.52571E-02	.00000E+00	.00000E+00	.00000E+00	2.63815E-02
13	7.01430E-01	-5.62217E-02	6.99845E-01	-5.62217E-02	.00000E+00	.00000E+00	.00000E+00	2.22356E-02
14	6.31199E-01	-8.47807E-02	6.28813E-01	-8.47806E-02	.00000E+00	.00000E+00	.00000E+00	1.99944E-02
15	3.75759E-01	-8.39745E-03	3.73518E-01	-8.39745E-03	.00000E+00	.00000E+00	.00000E+00	1.18562E-02
16	2.06170E-01	-5.95373E-03	2.06002E-01	-5.95372E-03	.00000E+00	.00000E+00	.00000E+00	6.53952E-03
17	8.62149E-02	-7.34180E-03	8.60092E-02	-7.34180E-03	.00000E+00	.00000E+00	.00000E+00	2.73258E-03
18	5.12922E-02	-2.28560E-02	5.06278E-02	-2.28560E-02	.00000E+00	.00000E+00	.00000E+00	1.61760E-03
19	1.28386E-01	-1.23063E-02	1.28051E-01	-1.23063E-02	.00000E+00	.00000E+00	.00000E+00	4.06868E-03
20	4.36949E-01	-2.57754E-02	4.36233E-01	-2.57754E-02	.00000E+00	.00000E+00	.00000E+00	1.38534E-02

21	1.19355E-01	-2.35238E-02	1.18705E-01	-2.35238E-02	.00000E+00	.00000E+00	.00000E+00	3.77798E-03
22	2.15431E-01	-6.77078E-02	2.13547E-01	-6.77078E-02	.00000E+00	.00000E+00	.00000E+00	6.80715E-03
23	7.34944E-01	-1.25645E-01	7.31605E-01	-1.25645E-01	.00000E+00	.00000E+00	.00000E+00	2.32732E-02
24	5.53091E-01	-1.13917E-01	5.50114E-01	-1.13917E-01	.00000E+00	.00000E+00	.00000E+00	1.75078E-02
25	2.35709E-01	-5.73766E-02	2.34210E-01	-5.73766E-02	.00000E+00	.00000E+00	.00000E+00	7.45765E-03
26	1.53530E-01	-5.28068E-02	1.52187E-01	-5.28068E-02	.00000E+00	.00000E+00	.00000E+00	4.85195E-03
27	2.51471E-02	-1.46389E-02	2.47718E-02	-1.46389E-02	.00000E+00	.00000E+00	.00000E+00	7.92306E-04
28	2.32750E+01	6.06267E-02	2.32790E+01	6.06264E-02	.00000E+00	.00000E+00	.00000E+00	7.38698E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	3.82808E-03	2.86963E-03	1.47057E-05	-2.78198E-03	1.00002E+00
2	.00000E+00	.00000E+00	5.01174E-04	2.60298E-02	1.86778E-02	5.17123E-05	-1.82283E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.66108E-03	5.02160E-02	1.58777E-02	1.37344E-04	-1.33530E-02	9.99993E-01
4	.00000E+00	.00000E+00	5.14870E-03	4.21368E-02	5.45581E-03	1.03441E-04	-4.10140E-04	9.99996E-01
5	.00000E+00	.00000E+00	1.10940E-02	8.16685E-02	5.16491E-03	1.52147E-04	5.77670E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.85185E-02	2.35052E-01	3.21147E-03	3.20074E-04	1.49868E-02	1.00000E+00
7	.00000E+00	.00000E+00	1.23186E-02	2.35197E-01	1.18222E-03	3.44767E-04	1.07918E-02	9.99999E-01
8	.00000E+00	.00000E+00	2.16269E-03	1.58600E-01	7.63682E-03	2.94951E-04	-5.76968E-03	1.00005E+00
9	.00000E+00	.00000E+00	7.67018E-03	1.05245E-01	8.77329E-04	1.10978E-03	5.68321E-03	9.99994E-01
10	.00000E+00	.00000E+00	8.78509E-04	8.56440E-02	8.49737E-04	8.36365E-04	-8.07460E-04	9.99995E-01
11	.00000E+00	.00000E+00	8.49798E-04	7.71430E-02	8.71214E-04	1.33855E-03	-1.36004E-03	1.00000E+00
12	.00000E+00	.00000E+00	8.71222E-04	4.68372E-02	8.71390E-04	4.17006E-05	-4.19244E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.71392E-04	3.95021E-02	8.05815E-04	5.99755E-05	5.65872E-06	9.99999E-01
14	.00000E+00	.00000E+00	8.05816E-04	3.58004E-02	6.74662E-04	9.53558E-05	3.57777E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.18410E-04	2.05627E-02	8.41566E-04	8.25774E-05	-2.04980E-04	9.99919E-01
16	.00000E+00	.00000E+00	9.39685E-04	1.08649E-02	9.41247E-04	5.11980E-05	-5.23129E-05	9.99936E-01
17	.00000E+00	.00000E+00	1.00274E-03	3.98074E-03	9.79870E-04	2.40486E-05	-1.02259E-06	9.99981E-01
18	.00000E+00	.00000E+00	1.02744E-03	2.30066E-03	7.42873E-04	1.57548E-05	2.68904E-04	9.99996E-01
19	.00000E+00	.00000E+00	7.89713E-04	6.44297E-03	9.50602E-04	4.17416E-05	-2.02259E-04	9.99975E-01
20	.00000E+00	.00000E+00	1.13347E-03	2.40599E-02	1.02287E-03	1.78887E-04	-6.71484E-05	9.99958E-01
21	.00000E+00	.00000E+00	1.26780E-03	5.59527E-03	1.33651E-03	6.16428E-05	-1.30136E-04	9.99991E-01
22	.00000E+00	.00000E+00	1.68609E-03	1.11406E-02	1.48891E-03	1.29808E-04	6.77556E-05	9.99995E-01
23	.00000E+00	.00000E+00	2.20558E-03	3.96499E-02	2.91096E-03	6.00461E-04	-1.30588E-03	1.00000E+00
24	.00000E+00	.00000E+00	3.59052E-03	2.82317E-02	3.87437E-03	6.57647E-04	-9.42275E-04	1.00000E+00
25	.00000E+00	.00000E+00	3.49494E-03	1.09051E-02	2.80682E-03	3.70910E-04	3.16922E-04	1.00000E+00
26	.00000E+00	.00000E+00	1.46077E-03	7.93862E-03	1.04911E-03	3.46649E-04	6.48983E-05	1.00000E+00
27	.00000E+00	.00000E+00	3.04206E-04	1.49458E-03	7.70061E-07	1.09315E-04	1.94094E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.39728E-02	1.39607E+00	8.39729E-02	7.57151E-03	-7.46604E-03	9.99974E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.72044E-01	8.43219E-03	1.73684E-01	1.12142E-02	1.02529E-04	.00000E+00	.00000E+00	3.74292E-02
2	1.25985E+00	9.72008E-02	1.27745E+00	1.15429E-01	.00000E+00	.00000E+00	.00000E+00	2.74684E-01
3	1.59127E+00	1.31910E-01	1.61437E+00	1.45263E-01	.00000E+00	.00000E+00	.00000E+00	3.47125E-01
4	9.87054E-01	8.72381E-02	1.00167E+00	8.76483E-02	.00000E+00	.00000E+00	.00000E+00	2.15423E-01
5	1.48980E+00	1.39033E-01	1.51285E+00	1.33256E-01	.00000E+00	.00000E+00	.00000E+00	3.25314E-01
6	2.86408E+00	2.65972E-01	2.90970E+00	2.50985E-01	.00000E+00	.00000E+00	.00000E+00	6.25598E-01
7	2.80740E+00	1.53229E-01	2.85366E+00	1.42437E-01	.00000E+00	.00000E+00	.00000E+00	6.11259E-01
8	2.06536E+00	1.50015E-02	2.06849E+00	2.07712E-02	.00000E+00	.00000E+00	.00000E+00	4.47877E-01
9	1.60352E+00	-1.52209E-02	1.60041E+00	-2.09041E-02	.00000E+00	.00000E+00	.00000E+00	3.47254E-01
10	1.46535E+00	-2.63132E-02	1.46106E+00	-2.55057E-02	.00000E+00	.00000E+00	.00000E+00	3.17128E-01
11	1.34605E+00	-5.68215E-02	1.33687E+00	-5.54615E-02	.00000E+00	.00000E+00	.00000E+00	2.90767E-01
12	8.42824E-01	-6.52990E-02	8.32192E-01	-6.52571E-02	.00000E+00	.00000E+00	.00000E+00	1.81571E-01
13	7.10628E-01	-5.62160E-02	7.01430E-01	-5.62217E-02	.00000E+00	.00000E+00	.00000E+00	1.53068E-01
14	6.45024E-01	-8.47449E-02	6.31199E-01	-8.47807E-02	.00000E+00	.00000E+00	.00000E+00	1.38377E-01
15	3.75235E-01	-8.60243E-03	3.73759E-01	-8.39745E-03	.00000E+00	.00000E+00	.00000E+00	8.11588E-02
16	2.07151E-01	-6.00604E-03	2.06170E-01	-5.95373E-03	.00000E+00	.00000E+00	.00000E+00	4.47889E-02
17	8.74088E-02	-7.34282E-03	8.62149E-02	-7.34180E-03	.00000E+00	.00000E+00	.00000E+00	1.88189E-02
18	5.50007E-02	-2.25871E-02	5.12922E-02	-2.28540E-02	.00000E+00	.00000E+00	.00000E+00	1.15461E-02
19	1.30398E-01	-1.25086E-02	1.28386E-01	-1.23063E-02	.00000E+00	.00000E+00	.00000E+00	2.80488E-02
20	4.41084E-01	-2.58426E-02	4.36949E-01	-2.57754E-02	.00000E+00	.00000E+00	.00000E+00	9.51558E-02
21	1.23088E-01	-2.36539E-02	1.19355E-01	-2.35238E-02	.00000E+00	.00000E+00	.00000E+00	2.62969E-02

22	2.26061E-01	-6.76401E-02	2.15431E-01	-6.77078E-02	.00000E+00	.00000E+00	.00000E+00	4.79124E-02
23	7.53847E-01	-1.26951E-01	7.34946E-01	-1.25645E-01	.00000E+00	.00000E+00	.00000E+00	1.61471E-01
24	5.69481E-01	-1.14859E-01	5.53091E-01	-1.13917E-01	.00000E+00	.00000E+00	.00000E+00	1.21788E-01
25	2.43582E-01	-5.70596E-02	2.35709E-01	-5.73766E-02	.00000E+00	.00000E+00	.00000E+00	5.20202E-02
26	1.60397E-01	-5.27419E-02	1.53530E-01	-5.28068E-02	.00000E+00	.00000E+00	.00000E+00	3.40977E-02
27	2.69670E-02	-1.44448E-02	2.51471E-02	-1.46389E-02	.00000E+00	.00000E+00	.00000E+00	5.67287E-03
28	2.32499E+01	5.31614E-02	2.32750E+01	6.06267E-02	1.02529E-04	.00000E+00	.00000E+00	5.04165E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	6.04869E-03	8.00593E-03	4.26681E-04	-8.43219E-03	9.99949E-01
2	.00000E+00	.00000E+00	4.59365E-03	7.66324E-02	1.00719E-01	1.07913E-03	-9.72008E-02	9.99962E-01
3	.00000E+00	.00000E+00	4.77980E-02	6.90679E-02	1.79701E-01	5.42865E-06	-1.31910E-01	9.99977E-01
4	.00000E+00	.00000E+00	7.04018E-02	4.58799E-02	1.57639E-01	3.25281E-06	-8.72381E-02	9.99987E-01
5	.00000E+00	.00000E+00	1.30068E-01	1.48536E-01	2.69100E-01	3.77607E-06	-1.39083E-01	9.99991E-01
6	.00000E+00	.00000E+00	2.75159E-01	4.55294E-01	5.41121E-01	1.14771E-05	-2.65972E-01	9.99998E-01
7	.00000E+00	.00000E+00	5.52875E-01	7.95209E-01	7.06087E-01	2.53526E-05	-1.53229E-01	9.99987E-01
8	.00000E+00	.00000E+00	7.35558E-01	1.00101E+00	7.50579E-01	4.70163E-05	-1.50015E-02	9.99911E-01
9	.00000E+00	.00000E+00	7.40850E-01	9.16288E-01	7.25615E-01	9.59307E-05	1.52209E-02	9.99890E-01
10	.00000E+00	.00000E+00	7.22315E-01	8.66882E-01	6.95865E-01	2.11574E-04	2.63131E-02	9.99896E-01
11	.00000E+00	.00000E+00	7.00804E-01	8.06109E-01	6.43566E-01	4.57768E-04	5.68216E-02	9.99940E-01
12	.00000E+00	.00000E+00	5.60220E-01	4.20130E-01	4.94335E-01	5.97796E-04	6.52990E-02	9.99979E-01
13	.00000E+00	.00000E+00	4.90284E-01	3.37784E-01	4.33185E-01	8.97230E-04	5.62160E-02	9.99970E-01
14	.00000E+00	.00000E+00	4.70291E-01	3.21534E-01	3.84096E-01	1.45517E-03	8.47449E-02	9.99989E-01
15	.00000E+00	.00000E+00	2.50802E-01	1.28604E-01	2.40928E-01	1.28139E-03	8.57047E-03	1.00009E+00
16	.00000E+00	.00000E+00	1.66381E-01	5.41407E-02	1.59503E-01	8.76394E-04	5.98415E-03	1.00010E+00
17	.00000E+00	.00000E+00	8.55564E-02	1.49526E-02	7.77979E-02	4.17663E-04	7.33096E-03	1.00011E+00
18	.00000E+00	.00000E+00	7.56921E-02	9.66449E-03	5.28088E-02	2.95696E-04	2.25897E-02	9.99973E-01
19	.00000E+00	.00000E+00	1.25230E-01	3.31428E-02	1.09998E-01	7.26455E-04	1.24912E-02	1.00011E+00
20	.00000E+00	.00000E+00	3.00285E-01	2.40023E-01	2.71379E-01	3.07074E-03	2.57972E-02	1.00013E+00
21	.00000E+00	.00000E+00	1.40132E-01	4.43519E-02	1.15380E-01	1.09894E-03	2.36594E-02	9.99954E-01
22	.00000E+00	.00000E+00	2.64239E-01	1.24809E-01	1.94230E-01	2.37240E-03	6.76174E-02	1.00007E+00
23	.00000E+00	.00000E+00	6.20888E-01	7.35921E-01	4.83259E-01	1.06096E-02	1.26949E-01	1.00008E+00
24	.00000E+00	.00000E+00	6.30606E-01	6.52794E-01	5.08897E-01	1.18346E-02	1.14856E-01	1.00008E+00
25	.00000E+00	.00000E+00	4.06751E-01	2.66556E-01	3.42925E-01	6.76082E-03	5.70686E-02	1.00002E+00
26	.00000E+00	.00000E+00	3.21333E-01	2.83699E-01	2.62034E-01	6.55401E-03	5.27431E-02	1.00001E+00
27	.00000E+00	.00000E+00	1.06970E-01	5.92555E-02	9.02694E-02	2.25470E-03	1.44447E-02	1.00001E+00
28	.00000E+00	.00000E+00	8.99402E+00	8.91332E+00	8.99402E+00	5.34710E-02	-5.33086E-02	9.99982E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.71245E-01	3.02770E-09	1.72044E-01	8.43219E-03	4.42751E-10	.00000E+00	.00000E+00	1.95992E-01
2	1.24852E+00	-2.93830E-08	1.25985E+00	9.72008E-02	.00000E+00	.00000E+00	.00000E+00	1.42926E+00
3	1.57363E+00	3.10709E-09	1.59127E+00	1.31910E-01	.00000E+00	.00000E+00	.00000E+00	1.80228E+00
4	9.73905E-01	1.03098E-08	9.87054E-01	8.72381E-02	.00000E+00	.00000E+00	.00000E+00	1.11581E+00
5	1.46740E+00	-3.42338E-08	1.48980E+00	1.39033E-01	.00000E+00	.00000E+00	.00000E+00	1.68159E+00
6	2.82012E+00	1.26755E-07	2.86408E+00	2.65972E-01	.00000E+00	.00000E+00	.00000E+00	3.23183E+00
7	2.78208E+00	5.12217E-08	2.80740E+00	1.53229E-01	.00000E+00	.00000E+00	.00000E+00	3.18612E+00
8	2.06641E+00	3.82637E-08	2.06536E+00	1.50015E-02	.00000E+00	.00000E+00	.00000E+00	2.36521E+00
9	1.60561E+00	3.62845E-09	1.60352E+00	-1.52209E-02	.00000E+00	.00000E+00	.00000E+00	1.83755E+00
10	1.47005E+00	-6.61256E-08	1.46535E+00	-2.63132E-02	.00000E+00	.00000E+00	.00000E+00	1.68214E+00
11	1.35608E+00	3.56062E-08	1.34605E+00	-5.68215E-02	.00000E+00	.00000E+00	.00000E+00	1.55127E+00
12	8.54012E-01	5.04672E-08	8.42824E-01	-6.52990E-02	.00000E+00	.00000E+00	.00000E+00	9.76609E-01
13	7.19861E-01	2.93091E-09	7.10628E-01	-5.62160E-02	.00000E+00	.00000E+00	.00000E+00	8.23356E-01
14	6.59269E-01	3.15814E-08	6.45024E-01	-8.47449E-02	.00000E+00	.00000E+00	.00000E+00	7.53583E-01
15	3.75799E-01	-3.19654E-05	3.75235E-01	-8.60243E-03	.00000E+00	.00000E+00	.00000E+00	4.30335E-01
16	2.07880E-01	-2.18879E-05	2.07151E-01	-6.00604E-03	.00000E+00	.00000E+00	.00000E+00	2.37950E-01
17	8.86460E-02	-1.18634E-05	8.74088E-02	-7.34282E-03	.00000E+00	.00000E+00	.00000E+00	1.01357E-01
18	5.90139E-02	2.66675E-06	5.50007E-02	-2.25871E-02	.00000E+00	.00000E+00	.00000E+00	6.71999E-02
19	1.32432E-01	-1.74388E-05	1.30398E-01	-1.25086E-02	.00000E+00	.00000E+00	.00000E+00	1.51435E-01
20	4.44997E-01	-4.53686E-05	4.41084E-01	-2.58426E-02	.00000E+00	.00000E+00	.00000E+00	5.09107E-01
21	1.27394E-01	5.54501E-06	1.23088E-01	-2.36539E-02	.00000E+00	.00000E+00	.00000E+00	1.45437E-01
22	2.38680E-01	-2.27256E-05	2.26061E-01	-6.76401E-02	.00000E+00	.00000E+00	.00000E+00	2.71907E-01

23	7.80016E-01	-1.69919E-06	7.53847E-01	-1.26951E-01	.00000E+00	.00000E+00	.00000E+00	8.89738E-01
24	5.97130E-01	-3.49528E-06	5.69481E-01	-1.14859E-01	.00000E+00	.00000E+00	.00000E+00	6.79411E-01
25	2.58989E-01	-1.14040E-06	2.43582E-01	-5.70596E-02	.00000E+00	.00000E+00	.00000E+00	2.93856E-01
26	1.77498E-01	1.18289E-06	1.60397E-01	-5.27419E-02	.00000E+00	.00000E+00	.00000E+00	1.99827E-01
27	3.28238E-02	-1.16969E-07	2.69670E-02	-1.44448E-02	.00000E+00	.00000E+00	.00000E+00	3.62673E-02
28	2.32882E+01	-1.47938E-04	2.32499E+01	5.31614E-02	4.42751E-10	.00000E+00	.00000E+00	2.66444E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.27834E-02	.00000E+00	2.26608E-02	2.15153E-02	3.67863E-03	3.02770E-09	9.98831E-01
2	.00000E+00	1.93360E-01	7.44695E-03	2.70040E-01	1.86048E-01	1.47727E-02	-2.95830E-08	1.00002E+00
3	.00000E+00	2.15763E-01	7.68103E-02	2.80511E-01	2.76890E-01	1.56866E-02	3.10709E-09	9.99986E-01
4	.00000E+00	1.23897E-01	1.14597E-01	1.93451E-01	2.30981E-01	7.51277E-03	1.08098E-08	1.00000E+00
5	.00000E+00	1.64367E-01	2.09224E-01	4.89908E-01	3.69028E-01	4.56755E-03	-3.42338E-08	9.99989E-01
6	.00000E+00	1.77489E-01	4.28515E-01	1.34418E+00	5.98714E-01	7.27507E-03	1.26755E-07	1.00001E+00
7	.00000E+00	8.77626E-02	6.63681E-01	1.77523E+00	7.43604E-01	7.84762E-03	5.12217E-08	9.99989E-01
8	.00000E+00	1.35239E-02	7.80301E-01	1.79038E+00	7.79721E-01	1.41675E-02	3.82657E-08	9.99920E-01
9	.00000E+00	9.81536E-04	7.70248E-01	1.55708E+00	7.47182E-01	2.41308E-02	3.62845E-09	9.99895E-01
10	.00000E+00	7.29039E-05	7.43905E-01	1.41294E+00	7.07420E-01	3.66317E-02	-6.61256E-08	9.99900E-01
11	.00000E+00	5.73558E-06	7.12360E-01	1.30660E+00	6.52591E-01	5.98166E-02	3.56052E-08	9.99942E-01
12	.00000E+00	4.02915E-07	5.69244E-01	7.06538E-01	5.04583E-01	6.46765E-02	5.04672E-08	9.99974E-01
13	.00000E+00	6.39792E-08	5.00532E-01	5.55881E-01	4.40144E-01	6.04025E-02	2.98091E-09	9.99971E-01
14	.00000E+00	1.26790E-08	4.77250E-01	5.09342E-01	3.92155E-01	8.50995E-02	3.15814E-08	9.99989E-01
15	.00000E+00	1.43286E-09	2.58992E-01	2.33648E-01	2.50638E-01	8.30466E-03	-3.19654E-05	1.00031E+00
16	.00000E+00	4.20738E-10	1.76351E-01	1.07547E-01	1.69997E-01	6.31713E-03	-2.18879E-05	1.00033E+00
17	.00000E+00	1.35498E-10	9.42157E-02	3.33535E-02	8.61380E-02	8.06250E-03	-1.18636E-05	1.00029E+00
18	.00000E+00	9.70128E-11	8.37770E-02	2.05647E-02	5.77837E-02	2.59888E-02	2.66675E-06	1.00002E+00
19	.00000E+00	1.37155E-10	1.30506E-01	6.32176E-02	1.19618E-01	1.08726E-02	-1.74388E-05	1.00025E+00
20	.00000E+00	2.23029E-10	3.11284E-01	3.65203E-01	2.81966E-01	2.92599E-02	-4.53686E-05	1.00033E+00
21	.00000E+00	3.26442E-11	1.50377E-01	7.07734E-02	1.24810E-01	2.55542E-02	5.54501E-06	1.00005E+00
22	.00000E+00	3.78747E-11	2.77670E-01	1.76498E-01	2.04853E-01	7.27868E-02	-2.27256E-05	1.00019E+00
23	.00000E+00	3.62124E-11	6.37196E-01	9.38023E-01	5.04029E-01	1.33046E-01	-1.69919E-06	1.00019E+00
24	.00000E+00	9.85666E-12	6.55978E-01	7.93924E-01	5.29616E-01	1.26271E-01	-3.49528E-06	1.00015E+00
25	.00000E+00	2.88535E-12	4.28934E-01	3.20211E-01	3.59841E-01	6.90567E-02	-1.14040E-06	1.00009E+00
26	.00000E+00	2.02323E-12	3.31986E-01	3.21366E-01	2.69421E-01	6.25427E-02	1.18289E-06	1.00006E+00
27	.00000E+00	4.82146E-13	1.09259E-01	6.51904E-02	9.13518E-02	1.79040E-02	-1.16969E-07	1.00003E+00
28	.00000E+00	1.00000E+00	9.70064E+00	1.57242E+01	9.70064E+00	1.00223E+00	-1.48078E-04	1.00003E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.71245E-01	3.02770E-09	1.79086E-01	.00000E+00	2.38106E-03	2.65102E-03	.00000E+00	3.60897E-01
2	1.24852E+00	-2.95830E-08	1.33295E+00	.00000E+00	1.70654E-05	1.18697E-02	.00000E+00	2.64818E+00
3	1.57363E+00	3.10709E-09	1.68264E+00	.00000E+00	.00000E+00	1.45190E-02	.00000E+00	3.34159E+00
4	9.73905E-01	1.08098E-08	1.04218E+00	.00000E+00	.00000E+00	6.25975E-03	.00000E+00	2.06998E+00
5	1.46740E+00	-3.42338E-08	1.57586E+00	.00000E+00	.00000E+00	1.80747E-03	.00000E+00	3.12309E+00
6	2.82012E+00	1.26755E-07	3.03003E+00	.00000E+00	.00000E+00	1.54159E-03	.00000E+00	6.00311E+00
7	2.78208E+00	5.12217E-08	2.90495E+00	.00000E+00	.00000E+00	1.49123E-03	.00000E+00	5.86752E+00
8	2.05541E+00	3.82657E-08	2.08110E+00	.00000E+00	.00000E+00	1.50630E-03	.00000E+00	4.30604E+00
9	1.60561E+00	3.62845E-09	1.58788E+00	.00000E+00	.00000E+00	2.00510E-03	.00000E+00	3.33211E+00
10	1.47005E+00	-6.61256E-08	1.44731E+00	.00000E+00	.00000E+00	4.27114E-03	.00000E+00	3.04586E+00
11	1.35608E+00	3.56062E-08	1.30683E+00	.00000E+00	.00000E+00	9.09949E-03	.00000E+00	2.79248E+00
12	8.54012E-01	5.04672E-08	7.96471E-01	.00000E+00	.00000E+00	1.19534E-02	.00000E+00	1.74276E+00
13	7.19861E-01	2.93091E-09	6.71002E-01	.00000E+00	.00000E+00	1.31836E-02	.00000E+00	1.46901E+00
14	6.59269E-01	3.15814E-08	5.84819E-01	.00000E+00	.00000E+00	8.23038E-03	.00000E+00	1.32734E+00
15	3.75799E-01	-3.19654E-05	3.69026E-01	.00000E+00	.00000E+00	1.98407E-03	.00000E+00	7.78715E-01
16	2.07880E-01	-2.18879E-05	2.03037E-01	.00000E+00	.00000E+00	1.38096E-03	.00000E+00	4.29911E-01
17	8.86460E-02	-1.18536E-05	8.25378E-02	.00000E+00	.00000E+00	1.66006E-03	.00000E+00	1.80651E-01
18	5.90139E-02	2.66675E-06	3.69961E-02	.00000E+00	.00000E+00	1.28586E-03	.00000E+00	1.09625E-01
19	1.32432E-01	-1.74388E-05	1.21697E-01	.00000E+00	.00000E+00	2.62594E-03	.00000E+00	2.69198E-01
20	4.44997E-01	-4.53686E-05	4.25240E-01	.00000E+00	.00000E+00	1.55009E-02	.00000E+00	9.13246E-01
21	1.27394E-01	5.54501E-06	1.06422E-01	.00000E+00	.00000E+00	1.49508E-02	.00000E+00	2.52525E-01
22	2.38580E-01	-2.27256E-05	1.76253E-01	.00000E+00	.00000E+00	4.27190E-02	.00000E+00	4.58618E-01
23	7.80016E-01	-1.69919E-06	6.67572E-01	.00000E+00	.00000E+00	7.53704E-02	.00000E+00	1.55269E+00

24	5.97130E-01	-3.49528E-06	4.92080E-01	.00000E+00	.00000E+00	7.05000E-02	.00000E+00	1.17428E+00
25	2.58585E-01	-1.14040E-06	2.04347E-01	.00000E+00	.00000E+00	4.01535E-02	.00000E+00	5.02654E-01
26	1.77498E-01	1.18289E-06	1.24118E-01	.00000E+00	.00000E+00	3.68822E-02	.00000E+00	3.32287E-01
27	3.28258E-02	-1.16965E-07	1.62875E-02	.00000E+00	.00000E+00	1.04036E-02	.00000E+00	5.63112E-02
28	2.32882E+01	-1.47938E-04	2.32465E+01	.00000E+00	2.39811E-03	4.05807E-01	.00000E+00	4.84405E+01

- elapsed time .02 min.
0direct access unit 9 requires 516 blocks of length 1456 for cross section weighting.
1 transport cross section weighting function

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.40137E-03	2.49138E-02	3.15261E-02	1.90644E-02	2.91232E-02	5.56679E-02	3.16998E-02	4.64092E-03
2	3.76976E-03	3.88027E-02	4.88315E-02	2.94639E-02	4.47955E-02	8.43712E-02	4.78816E-02	6.98245E-03
3	3.06314E-03	3.31057E-02	4.31123E-02	2.71720E-02	4.22810E-02	8.02579E-02	4.58942E-02	5.58177E-03
4	1.05736E-03	1.21810E-02	1.65256E-02	1.09243E-02	1.74049E-02	3.32996E-02	1.92586E-02	2.00503E-03
5	1.75210E-03	1.89768E-02	2.47479E-02	1.59911E-02	2.42886E-02	4.63660E-02	2.65833E-02	3.32516E-03

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.67877E-03	5.71553E-03	1.23953E-02	1.45285E-02	1.25215E-02	1.87644E-02	1.80986E-03	1.33233E-03
2	7.02718E-03	8.57400E-03	1.86440E-02	2.19368E-02	1.88995E-02	2.84999E-02	2.82255E-03	2.00118E-03
3	5.63552E-03	8.04724E-03	1.74385E-02	2.02830E-02	1.74684E-02	2.63376E-02	2.64021E-03	1.85765E-03
4	1.87183E-03	3.27522E-03	7.08272E-03	8.14569E-03	7.05052E-03	1.05898E-02	1.15375E-03	7.76181E-04
5	3.27072E-03	4.66002E-03	1.00944E-02	1.17308E-02	1.01255E-02	1.52068E-02	1.58075E-03	1.09141E-03

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.62874E-03	4.75060E-03	2.77254E-03	5.76883E-03	5.15238E-03	1.46018E-02	2.77568E-02	2.50357E-02
2	2.46775E-03	7.68579E-03	4.13637E-03	8.66524E-03	7.90828E-03	2.27590E-02	4.22387E-02	3.82970E-02
3	2.28112E-03	7.06078E-03	3.85465E-03	8.01808E-03	7.32915E-03	2.10258E-02	3.92398E-02	3.55407E-02
4	9.17635E-04	2.78623E-03	1.57718E-03	3.28855E-03	2.94274E-03	8.42024E-03	1.61109E-02	1.45536E-02
5	1.31844E-03	3.95566E-03	2.24870E-03	4.68331E-03	4.20601E-03	1.19959E-02	2.27694E-02	2.05671E-02

0zone	grp. 25	grp. 26	grp. 27	grp. 28
1	1.25471E-02	1.13865E-02	3.01230E-03	3.85284E-01
2	1.92885E-02	1.77526E-02	4.92127E-03	5.89421E-01
3	1.77815E-02	1.63991E-02	4.51963E-03	5.43224E-01
4	7.21140E-03	6.54629E-03	1.65655E-03	2.18613E-01
5	1.02609E-02	9.34362E-03	2.45286E-03	3.13198E-01

1 720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0cell averaged fluxes

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.77150E-01	1.31256E+00	1.65719E+00	1.02683E+00	1.55150E+00	2.98244E+00	2.87629E+00	2.07613E+00
2	1.73896E-01	1.27944E+00	1.61673E+00	1.00297E+00	1.51471E+00	2.91301E+00	2.83548E+00	2.06887E+00
3	1.72705E-01	1.26744E+00	1.60169E+00	9.93999E-01	1.50105E+00	2.88661E+00	2.82045E+00	2.06658E+00
4	1.71241E-01	1.24877E+00	1.57468E+00	9.74900E-01	1.46923E+00	2.82369E+00	2.78578E+00	2.06477E+00
5	1.73388E-01	1.27228E+00	1.60542E+00	9.94492E-01	1.50044E+00	2.88411E+00	2.81897E+00	2.06878E+00

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59277E+00	1.45288E+00	1.31897E+00	8.10821E-01	6.85214E-01	6.03364E-01	3.70952E-01	2.04277E-01
2	1.60004E+00	1.46072E+00	1.33613E+00	8.31298E-01	7.00658E-01	6.30037E-01	3.73597E-01	2.05065E-01
3	1.60229E+00	1.46328E+00	1.34165E+00	8.37796E-01	7.06280E-01	6.38494E-01	3.74480E-01	2.06663E-01
4	1.60549E+00	1.46971E+00	1.35537E+00	8.53277E-01	7.19577E-01	6.58417E-01	3.75990E-01	2.07900E-01
5	1.60087E+00	1.46334E+00	1.34161E+00	8.37288E-01	7.05767E-01	6.37701E-01	3.74123E-01	2.06545E-01

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.38740E-02	4.25031E-02	1.24404E-01	4.28697E-01	1.11571E-01	1.91724E-01	6.94619E-01	5.16495E-01
2	8.61054E-02	5.09716E-02	1.28207E-01	4.36529E-01	1.19047E-01	2.14498E-01	7.33356E-01	5.51684E-01
3	8.68337E-02	5.32758E-02	1.29422E-01	4.39064E-01	1.21338E-01	2.21076E-01	7.45052E-01	5.61948E-01
4	8.85567E-02	5.87135E-02	1.32311E-01	4.44814E-01	1.27071E-01	2.37569E-01	7.77578E-01	5.93611E-01
5	8.67911E-02	5.26676E-02	1.29332E-01	4.38758E-01	1.21225E-01	2.20357E-01	7.45967E-01	5.64169E-01

0zone	grp. 25	grp. 26	grp. 27
1	2.16895E-01	1.35828E-01	1.97298E-02
2	2.34996E-01	1.52888E-01	2.49661E-02
3	2.40080E-01	1.57333E-01	2.61755E-02
4	2.56746E-01	1.74592E-01	3.16872E-02
5	2.41493E-01	1.59643E-01	2.70539E-02

0flux disadvantage factors (zone average/cell average-flux)

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.02169E+00	1.03166E+00	1.03224E+00	1.03252E+00	1.03408E+00	1.03409E+00	1.02053E+00	1.00855E+00
2	1.00293E+00	1.00564E+00	1.00704E+00	1.00852E+00	1.00951E+00	1.01002E+00	1.00585E+00	1.00004E+00
3	9.96059E-01	9.96195E-01	9.97675E-01	9.99504E-01	1.00040E+00	1.00087E+00	1.00052E+00	9.98936E-01
4	9.87616E-01	9.81520E-01	9.80851E-01	9.80300E-01	9.79194E-01	9.79051E-01	9.87507E-01	9.98062E-01
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	9.94941E-01	9.92855E-01	9.83125E-01	9.68390E-01	9.68044E-01	9.46155E-01	9.91471E-01	9.89019E-01
2	9.99480E-01	9.98210E-01	9.95915E-01	9.92847E-01	9.92761E-01	9.87982E-01	9.98693E-01	9.97676E-01
3	1.00089E+00	9.99959E-01	1.00003E+00	1.00061E+00	1.00073E+00	1.00124E+00	1.00095E+00	1.00057E+00
4	1.00285E+00	1.00436E+00	1.01026E+00	1.01910E+00	1.01928E+00	1.03249E+00	1.00499E+00	1.00656E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.66390E-01	8.07006E-01	9.61893E-01	9.77068E-01	9.20366E-01	8.70141E-01	9.31166E-01	9.15498E-01
2	9.92095E-01	9.67797E-01	9.91300E-01	9.94921E-01	9.82051E-01	9.73501E-01	9.85094E-01	9.77871E-01
3	1.00049E+00	1.01155E+00	1.00059E+00	1.00070E+00	1.00093E+00	1.00335E+00	9.98772E-01	9.96064E-01
4	1.02084E+00	1.11479E+00	1.02303E+00	1.01380E+00	1.04822E+00	1.07821E+00	1.04211E+00	1.05219E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 25	grp. 26	grp. 27					
1	8.98143E-01	8.50826E-01	7.29057E-01					
2	9.73095E-01	9.57688E-01	9.22829E-01					
3	9.93940E-01	9.85530E-01	9.67532E-01					
4	1.05316E+00	1.09364E+00	1.17126E+00					
5	1.00000E+00	1.00000E+00	1.00000E+00					

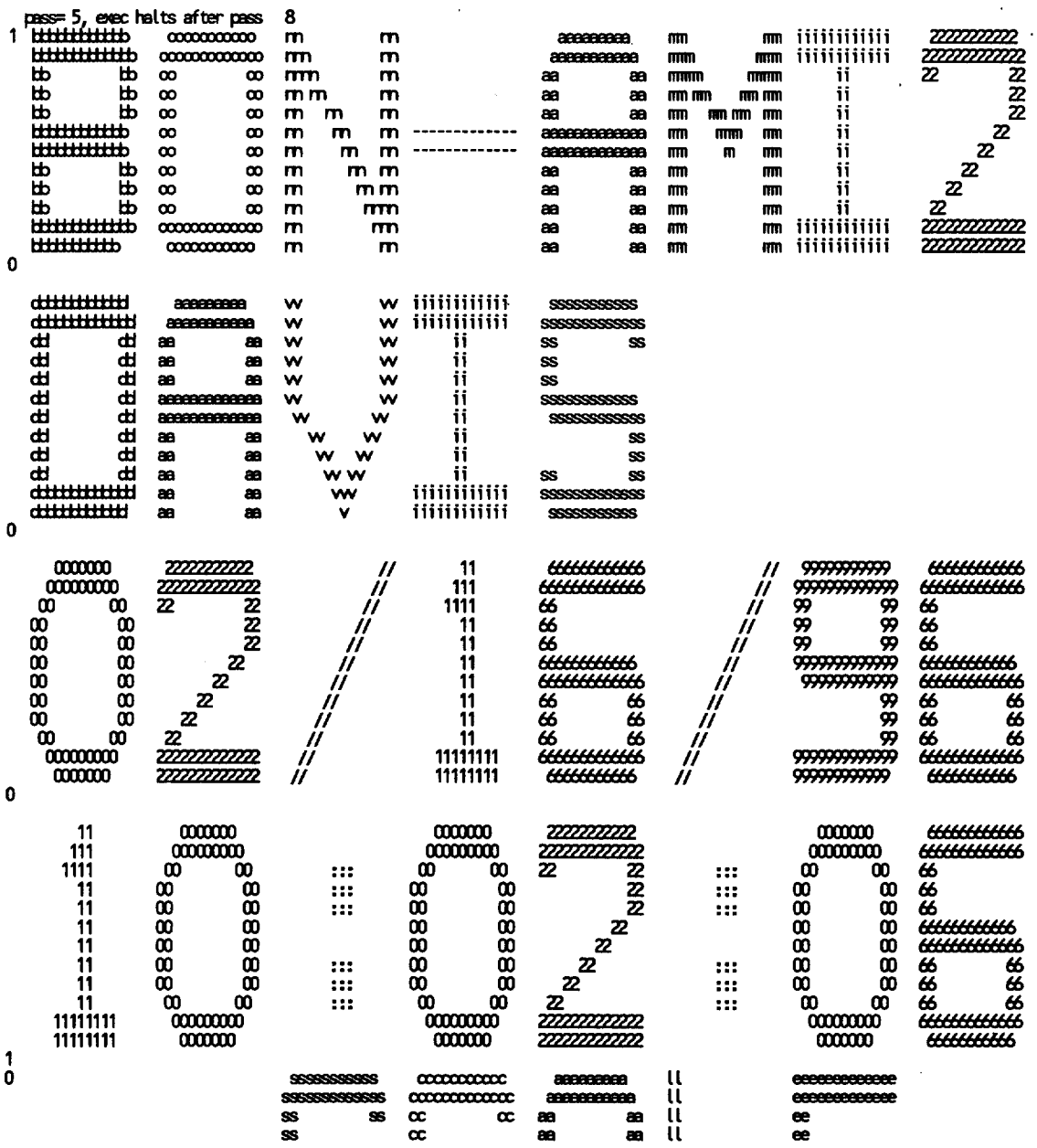
Ocell averaged currents

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.40137E-03	2.49138E-02	3.15261E-02	1.90644E-02	2.91232E-02	5.56679E-02	3.16998E-02	4.64092E-03
2	3.76976E-03	3.88027E-02	4.88315E-02	2.94639E-02	4.47955E-02	8.43712E-02	4.78816E-02	6.98245E-03
3	3.05314E-03	3.31037E-02	4.31123E-02	2.71720E-02	4.22810E-02	8.02579E-02	4.58942E-02	5.58177E-03
4	1.05736E-03	1.21810E-02	1.65256E-02	1.09243E-02	1.74049E-02	3.32996E-02	1.92586E-02	2.00503E-03
5	1.75210E-03	1.89768E-02	2.47479E-02	1.55911E-02	2.42886E-02	4.63660E-02	2.65833E-02	3.32516E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.67877E-03	5.71553E-03	1.23953E-02	1.45285E-02	1.25215E-02	1.87644E-02	1.89986E-03	1.33233E-03
2	7.02718E-03	8.57400E-03	1.86440E-02	2.19368E-02	1.88995E-02	2.84999E-02	2.82255E-03	2.00118E-03
3	5.63552E-03	8.04724E-03	1.74385E-02	2.02830E-02	1.74684E-02	2.63376E-02	2.64021E-03	1.85765E-03
4	1.87183E-03	3.27522E-03	7.08272E-03	8.14569E-03	7.05052E-03	1.05898E-02	1.15375E-03	7.76181E-04
5	3.27072E-03	4.66002E-03	1.00944E-02	1.17308E-02	1.01255E-02	1.52063E-02	1.58075E-03	1.09141E-03
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.62874E-03	4.75050E-03	2.77254E-03	5.76883E-03	5.15238E-03	1.46018E-02	2.77568E-02	2.50837E-02
2	2.46775E-03	7.68579E-03	4.13637E-03	8.66324E-03	7.90828E-03	2.27590E-02	4.22387E-02	3.82970E-02
3	2.28112E-03	7.06078E-03	3.85468E-03	8.01808E-03	7.32915E-03	2.10258E-02	3.92398E-02	3.55407E-02
4	9.17635E-04	2.78623E-03	1.57718E-03	3.28855E-03	2.94274E-03	8.42024E-03	1.61109E-02	1.45536E-02
5	1.31844E-03	3.95666E-03	2.24870E-03	4.68331E-03	4.20601E-03	1.19959E-02	2.27894E-02	2.05671E-02
Ozone	grp. 25	grp. 26	grp. 27					
1	1.25471E-02	1.13855E-02	3.01250E-03					
2	1.92889E-02	1.77526E-02	4.92127E-03					
3	1.77815E-02	1.63991E-02	4.51963E-03					
4	7.21140E-03	6.54629E-03	1.65655E-03					
5	1.02609E-02	9.34362E-03	2.45288E-03					

Ozone	volume	vol. fraction
1	6.88443E-01	3.30753E-01
2	3.17352E-02	1.52468E-02
3	2.16724E-01	1.04122E-01
4	1.14454E+00	5.49878E-01
5	2.08144E+00	1.00000E+00

- elapsed time .03 min.

Orequested panm=halt8,skipcellwt,skipshipdata


pass= 5, exec halts after pass 8
1
0
1
0

```
ss          cc          aa      aa  ll          ee
sssssssssssss  cc          aaaaaaaaaaaa  ll          eeeeeeeee
 sssssssssssss  cc          aaaaaaaaaaaa  ll          eeeeeeeee
         ss  cc          aa      aa  ll          ee
         ss  cc          aa      aa  ll          ee
ss       ss  cc      cc  aa      aa  ll          ee
sssssssssssss  cccccccccccc  aa      aa  llllllllllllll  eeeeeeeeeeeee
 sssssssssss    cccccccccc   aa      aa  llllllllllllll  eeeeeeeeeeeee
```

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                program verification information                   *****
*****                                                                   *****
*****               code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****            program:  c0c008                                       *****
*****                                                                   *****
*****       creation date:  04/27/95                                    *****
*****                                                                   *****
*****            library:  /neutronics/scale/exe                        *****
*****                                                                   *****
*****                                                                   *****
*****    this is not a   scale  configuration controlled code           *****
*****                                                                   *****
*****            jobname:  davis                                        *****
*****                                                                   *****
*****    date of execution:  02/16/96                                   *****
*****                                                                   *****
*****    time of execution:  10:02:06                                   *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
```

```
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has      6 entries.
0        2q array has      2 entries.
1logical assignments
0master library   12
 working library  17
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere              2
0izm--number of zones or material regions                     4
0ms--mixing table length                                     70
0ibl--shielded cross section edit option (0/1--no/yes)        0
0ibr--bondarenko factor edit option (0/1--no/yes)             0
```

```
0issopt--dancoff factor option                                    0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0       3q array has     70 entries.
0       4q array has     70 entries.
0       5q array has     70 entries.
0       6q array has      4 entries.
0       7q array has      4 entries.
0       8q array has      4 entries.
0       9q array has      4 entries.
0      10q array has     70 entries.
0      11q array has      4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope  number density  new identifier
    1        3     8016     2.09710E-02             201
    2        3     1001     4.19420E-02             202
    3        3     5010     3.81515E-06             203
    4        3     5011     1.54884E-05             204
    5        2    40302     4.25156E-02             205
    6        1    92235     1.47017E-04          200006
    7        1    92234     1.54011E-06          200007
    8        1    92236     1.58412E-05          200008
    9        1    92238     7.23470E-03          200009
   10        1     8016     1.50611E-02          200010
   11        1     8016     1.15315E-02          200011
   12        1    36083     4.00409E-07          200012
   13        1    36085     1.92753E-07          200013
   14        1    38090     4.36638E-06          200014
   15        1    39089     3.37449E-06          200015
   16        1    42095     4.35535E-06          200016
   17        1    40093     3.43072E-06          200017
   18        1    40094     5.36576E-06          200018
   19        1    40095     6.73357E-07          200019
   20        1    41094     2.49321E-12          200020
   21        1    43099     5.24059E-06          200021
   22        1    45103     2.81650E-06          200022
   23        1    45105     6.85117E-09          200023
   24        1    44101     4.70687E-06          200024
   25        1    44106     7.10829E-07          200025
   26        1    46105     1.74568E-06          200026
   27        1    46108     4.60857E-07          200027
   28        1    47109     3.27366E-07          200028
   29        1    51124     7.62189E-11          200029
   30        1    54131     2.41807E-06          200030
   31        1    54132     4.37452E-06          200031
   32        1    54135     2.20802E-09          200032
   33        1    54136     8.94972E-06          200033
   34        1    55134     2.21272E-07          200034
   35        1    55135     2.83459E-06          200035
   36        1    55137     5.58169E-06          200036
   37        1    56136     4.34868E-08          200037
   38        1    57139     5.53655E-06          200038
   39        1    59141     4.73417E-06          200039
   40        1    59143     1.24918E-07          200040
   41        1    58144     2.11613E-06          200041
   42        1    60143     4.42460E-06          200042
   43        1    60145     3.23179E-06          200043
   44        1    61147     1.20498E-06          200044
   45        1    61148     3.46153E-09          200045
   46        1    60147     4.32241E-08          200046
```

47	1	62147	3.37132E-07	200047
48	1	62149	2.77995E-08	200048
49	1	62150	1.11012E-06	200049
50	1	62151	1.22001E-07	200050
51	1	62152	5.39591E-07	200051
52	1	64155	5.41449E-10	200052
53	1	63153	2.98755E-07	200053
54	1	63154	5.42034E-08	200054
55	1	63155	3.27959E-08	200055
56	1	40302	4.42681E-03	200056
57	1	1001	2.30630E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	5.74632E-06	200060
61	1	95237	9.31925E-07	200061
62	1	94238	1.07908E-07	200062
63	1	94239	3.19267E-05	200063
64	1	94240	5.37095E-06	200064
65	1	94241	2.67558E-06	200065
66	1	94242	2.39372E-07	200066
67	1	95241	6.58791E-08	200067
68	1	95243	1.74582E-08	200068
69	1	96244	1.32132E-09	200069
70	1	999	3.30753E-21	200070

0geometry and material description

0zone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.32460E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.23032E+01	0
3	3	8.14000E-01	6.07600E+02	3.54852E+00	0
4	1	2.96100E+00	9.75000E+02	2.32883E-01	0

8067 locations of 200000 available are required to make a new master containing the self-shielded values

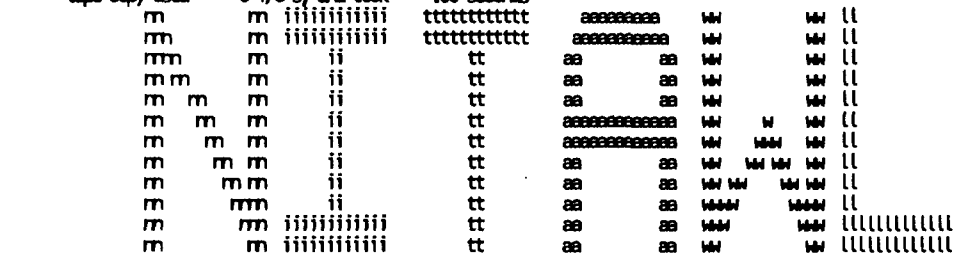
0no nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

0copy 999 1/v cross sectio from log 12 to log 1 bondarenko trigger 0
0copy 1001 hydrogen from log 12 to log 18 bondarenko trigger 0
0copy 1001 hydrogen from log 18 to log 1 bondarenko trigger 0
0copy 1001 hydrogen from log 18 to log 1 bondarenko trigger 0
0copy 5010 b-10 1273 218ngp from log 12 to log 18 bondarenko trigger 0
0copy 5010 b-10 1273 218ngp from log 18 to log 1 bondarenko trigger 0
0copy 5010 b-10 1273 218ngp from log 18 to log 1 bondarenko trigger 0
0copy 5011 boron-11 from log 12 to log 18 bondarenko trigger 0
0copy 5011 boron-11 from log 18 to log 1 bondarenko trigger 0
0copy 5011 boron-11 from log 18 to log 1 bondarenko trigger 0
0copy 8016 oxygen-16 from log 12 to log 18 bondarenko trigger 0
0copy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0
0copy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0
0copy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0
0copy 36083 kr-83 from log 12 to log 1 bondarenko trigger 0
0copy 36085 kr-85 from log 12 to log 1 bondarenko trigger 0
0copy 38090 sr-90 from log 12 to log 1 bondarenko trigger 0
0copy 39089 y-89 from log 12 to log 1 bondarenko trigger 0
0copy 40093 zr-93 from log 12 to log 1 bondarenko trigger 0
0copy 40094 zr-94 from log 12 to log 1 bondarenko trigger 0
0copy 40095 zr-95 from log 12 to log 1 bondarenko trigger 0
0copy 40302 zircalloy from log 12 to log 18 bondarenko trigger 0
0copy 40302 zircalloy from log 18 to log 1 bondarenko trigger 0
0copy 40302 zircalloy from log 18 to log 1 bondarenko trigger 0
0copy 41094 nb-94 from log 12 to log 1 bondarenko trigger 0
0copy 42095 mo-95 from log 12 to log 1 bondarenko trigger 0
0copy 43099 tc-99 from log 12 to log 1 bondarenko trigger 0
0copy 44101 ru-101 from log 12 to log 1 bondarenko trigger 0

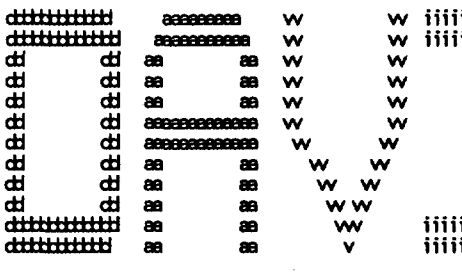
```
0copy    44106  ru-106          from log 12 to log  1    bondarenko trigger 0
0copy    45103  rh-103          from log 12 to log  1    bondarenko trigger 0
0copy    45105  rh-105          from log 12 to log  1    bondarenko trigger 0
0copy    46105  pd-105          from log 12 to log  1    bondarenko trigger 0
0copy    46108  pd-108          from log 12 to log  1    bondarenko trigger 0
0copy    47109  silver-109      from log 12 to log  1    bondarenko trigger 0
0copy    51124  sb-124          from log 12 to log  1    bondarenko trigger 0
0copy    54131  xe-131          from log 12 to log  1    bondarenko trigger 0
0copy    54132  xe-132          from log 12 to log  1    bondarenko trigger 0
0copy    54135  xenon-135       from log 12 to log  1    bondarenko trigger 0
0copy    54136  xe-136          from log 12 to log  1    bondarenko trigger 0
0copy    55133  cesium-133      from log 12 to log  1    bondarenko trigger 0
0copy    55134  cs-134          from log 12 to log  1    bondarenko trigger 0
0copy    55135  cs-135          from log 12 to log  1    bondarenko trigger 0
0copy    55137  cs-137          from log 12 to log  1    bondarenko trigger 0
0copy    56136  ba-136          from log 12 to log  1    bondarenko trigger 0
0copy    57139  la-139          from log 12 to log  1    bondarenko trigger 0
0copy    58144  ce-144          from log 12 to log  1    bondarenko trigger 0
0copy    59141  pr-141          from log 12 to log  1    bondarenko trigger 0
0copy    59143  pr-143          from log 12 to log  1    bondarenko trigger 0
0copy    60143  nd-143          from log 12 to log  1    bondarenko trigger 0
0copy    60145  nd-145          from log 12 to log  1    bondarenko trigger 0
0copy    60147  nd-147          from log 12 to log  1    bondarenko trigger 0
0copy    61147  pm-147          from log 12 to log  1    bondarenko trigger 0
0copy    61148  pm-148          from log 12 to log  1    bondarenko trigger 0
0copy    62147  sm-147          from log 12 to log  1    bondarenko trigger 0
0copy    62149  sm-149          from log 12 to log  1    bondarenko trigger 0
0copy    62150  sm-150          from log 12 to log  1    bondarenko trigger 0
0copy    62151  sm-151          from log 12 to log  1    bondarenko trigger 0
0copy    62152  sm-152          from log 12 to log  1    bondarenko trigger 0
0copy    63153  eu-153          from log 12 to log  1    bondarenko trigger 0
0copy    63154  eu-154          from log 12 to log  1    bondarenko trigger 0
0copy    63155  eu-155          from log 12 to log  1    bondarenko trigger 0
0copy    64155  gd-155          from log 12 to log  1    bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92235  uranium-235     from log 12 to log  1    bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92238  uranium-238     from log 12 to log  1    bondarenko trigger 0
0copy    93237  neptunium-237   from log 12 to log  1    bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1    bondarenko trigger 0
0copy    94239  plutonium-239   from log 12 to log  1    bondarenko trigger 0
0copy    94240  plutonium-240   from log 12 to log  1    bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1    bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1    bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1    bondarenko trigger 0
0copy    95243  am-243 1057 218 from log 12 to log  1    bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1    bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
             last updated     9/16/93
                l.m.petrie   -   ornl
        tape id                          4321        number of nuclides                  70
        number of neutron groups           27        number of gamma groups               0
        first thermal group                15        logical unit                         1
                                    table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id   200070
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89              id      202
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89              id   200057
       b-10 1273 218ngp 042375 p-3 293k                                            id      203
```

```
b-10 1273 218ngp 042375 p-3 293k                                          id   200058
 boron-11      endf/b-iv mat 1160          updated 10/13/89               id      204
 boron-11      endf/b-iv mat 1160          updated 10/13/89               id   200059
 oxygen-16     endf/b-iv mat 1276          updated 10/13/89               id      201
 oxygen-16     endf/b-iv mat 1276          updated 10/13/89               id   200010
 oxygen-16     endf/b-iv mat 1276          updated 10/13/89               id   200011
 kr-83         mt=102,103,103,105,106,107  updated 10/13/89               id   200012
 kr-85           mt=  102                                                 id   200013
 sr-90         mt=102                      updated 10/13/89               id   200014
  y-89         mt=102                      updated 10/13/89               id   200015
 zr-93           mt=  102                                                 id   200017
 zr-94         mt=102                      updated 10/13/89               id   200018
 zr-95         mt=102                      updated 10/13/89               id   200019
 zircalloy     endf/b-iv mat 1284          updated 10/13/89               id      205
 zircalloy     endf/b-iv mat 1284          updated 10/13/89               id   200056
 nb-94         mt=102                      updated 10/13/89               id   200020
 mo-95         mt=102                      updated 10/13/89               id   200016
 tc-99         mt=102                      updated 10/13/89               id   200021
 ru-101        mt=102                      updated 10/13/89               id   200024
 ru-106        mt=102                      updated 10/13/89               id   200025
 rh-103        mt=102                      updated 10/13/89               id   200022
 rh-105          mt=  102                                                 id   200023
 pd-105        mt=102                      updated 10/13/89               id   200026
 pd-108        mt=102                      updated 10/13/89               id   200027
 silver-109    endf/b-iv mat 1139          updated 10/13/89               id   200028
 sb-124        mt=102                      updated 10/13/89               id   200029
 xe-131        mt=102,103,104,105,106      updated 10/13/89               id   200030
 xe-132        mt=102,103,104,105,106      updated 10/13/89               id   200031
 xenon-135     endf/b-iv mat 1294          updated 10/13/89               id   200032
 xe-136          mt=  102, 103, 104, 105, 107                             id   200033
 cesium-133    endf/b-iv mat 1141          updated 10/13/89               id   200060
 cs-134        mt=102                      updated 10/13/89               id   200034
 cs-135          mt=  102                                                 id   200035
 cs-137        mt=102                      updated 10/13/89               id   200036
 ba-136        mt=102                      updated 10/13/89               id   200037
 la-139        mt=102                      updated 10/13/89               id   200038
 ce-144          mt=  102                                                 id   200041
 pr-141        mt=102,103,104,105,106,107  updated 10/13/89               id   200039
 pr-143        mt=102                      updated 10/13/89               id   200040
 nd-143        mt=102                      updated 10/13/89               id   200042
 nd-145        mt=102                      updated 10/13/89               id   200043
 nd-147        mt=102                      updated 10/13/89               id   200046
 pm-147        mt=102                      updated 10/13/89               id   200044
 pm-148          mt=  102                                                 id   200045
 sm-147        endf/b-v fission product    updated 10/13/89               id   200047
 sm-149        mt=102,103,107              updated 10/13/89               id   200048
 sm-150        mt=102                      updated 10/13/89               id   200049
 sm-151        mt=102,103,104,105,106,107  updated 10/13/89               id   200050
 sm-152        mt=102,103,104,105,106,107  updated 10/13/89               id   200051
 eu-153        mt=102,103,104,105,106,107  updated 10/13/89               id   200053
 eu-154        mt=102,103,104,105,106,107  updated 10/13/89               id   200054
 eu-155        mt=102,103,104,105,106,107  updated 10/13/89               id   200055
 gd-155        mt=102                      updated 10/13/89               id   200052
u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id   200007
 uranium-235   endf/b-iv mat 1261          updated 10/13/89               id   200006
u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id   200008
 uranium-238   endf/b-iv mat 1262          updated 10/13/89               id   200009
 neptunium-237 endf/b-iv mat 1263          updated 10/13/89               id   200061
pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      id   200062
 plutonium-239 endf/b-iv mat 1264          updated 10/13/89               id   200063
```

```
      plutonium-240  endf/b-iv mat 1265          updated 10/13/89            id   20064
      plutonium-241  endf/b-iv mat 1266          updated 10/13/89            id   20065
      plutonium-242  endf/b-iv mat 1161          updated 10/13/89            id   20066
     am-241 1056 sigp=5+4 newxlacs 218ngp p-3 295k                           id   20067
     am-243 1057 218 gp wt f-1/e-m 090376 p3 295k                            id   20068
      curium-244     endf/b-iv mat 1162          updated 10/13/89            id   20069
0       tape copy used      0 i/o's, and took     .00 seconds
1
```



```
0
```



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0
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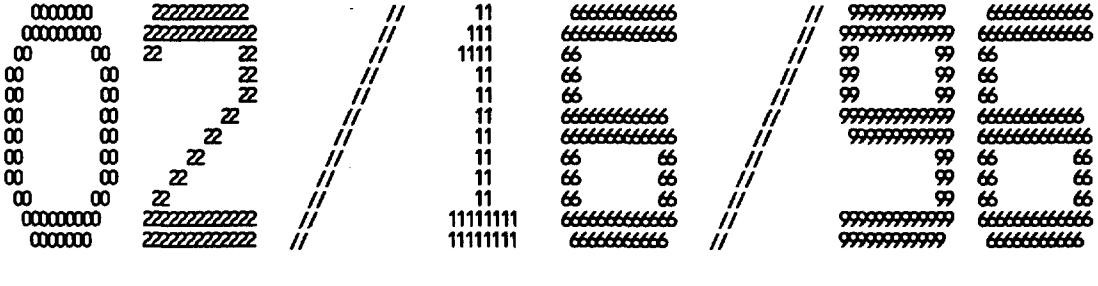
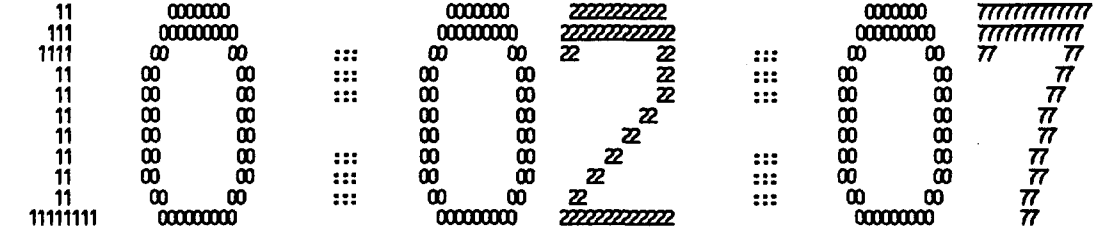


```
0
```



```
     11111111        0000000                    0000000      2222222222222                    0000000          77
1
0                                 sssssssssss     cccccccccc     aaaaaaaaa     ll            eeeeeeeeeeeee
                                 sssssssssssss   cccccccccccc   aaaaaaaaaaa   ll            eeeeeeeeeeeee
                                 ss        ss   cc        cc   aa        aa   ll            ee
                                 ss             cc             aa        aa   ll            ee
                                 ss             cc             aa        aa   ll            ee
                                 sssssssssssss  cc             aaaaaaaaaaaaa  ll            eeeeeeeee
                                  sssssssssssss cc             aaaaaaaaaaaaa  ll            eeeeeeeee
                                           ss   cc             aa        aa   ll            ee
                                           ss   cc             aa        aa   ll            ee
                                 ss        ss   cc        cc   aa        aa   ll            ee
                                 sssssssssssss   cccccccccccc   aa        aa   lllllllllllll   eeeeeeeeeeeee
                                  sssssssssss     cccccccccc    aa        aa   lllllllllllll   eeeeeeeeeeeee


                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
                    *****                                                                *****
                    *****                 program verification information                *****
                    *****                                                                *****
                    *****                code system:    scale  version:    4.2           *****
                    *****                                                                *****
                    ************************************************************************
                    ************************************************************************
                    *****                                                                *****
                    *****                                                                *****
                    *****              program:  c0c002                                  *****
                    *****                                                                *****
                    *****        creation date:  04/27/95                                *****
                    *****                                                                *****
                    *****              library:  /neutronics/scale/exe                   *****
                    *****                                                                *****
                    *****                                                                *****
                    *****    this is not a   scale  configuration controlled code        *****
                    *****                                                                *****
                    *****              jobname:  davis                                   *****
                    *****                                                                *****
                    *****    date of execution:  02/16/96                                *****
                    *****                                                                *****
                    *****    time of execution:  10:02:07                                *****
                    *****                                                                *****
                    *****                                                                *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has     12 entries.
0select  5 nuclides from the master  library on logical  1
        65 nuclides from the working library on logical  3
         0 nuclides from the working library on logical  0
           to create the new working library on logical  4

         1 resonance calculations have been requested
```

```
        0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0       2q array has     70 entries.
0       3q array has     15 entries.
0       4q array has      5 entries.
0 general information concerning cross section library
    tape identification number                4349
    number of nuclides on tape                  65
    number of neutron energy groups             27
    first thermal neutron energy group          15
    number of gamma energy groups                0
0  direct access unit number  9 requires  72 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                          based on endf-b version 4 data with endf-b version 5 fission products
                            compiled for nrc      1/27/89
                              last updated        9/16/93
                                l.m.petrie   -    ornl
- work tape   4349

 xsdrn weighted tape--parent case entitled--  720 d, sas2h: babcock wilcox 15x15,
  3.00wt%, 20gwd/mtu burn high temp



0 nuclides from xsdrn tape
     1     hydrogen        endf/b-iv mat 1269/thrml002    updated 10/13/89          202
     2    b-10 1273 218ngp 042375 p-3 293k                                          203
     3     boron-11        endf/b-iv mat 1160             updated 10/13/89          204
     4     oxygen-16       endf/b-iv mat 1276             updated 10/13/89          201
     5     zircalloy       endf/b-iv mat 1284             updated 10/13/89          205
0 nuclides from work tape
     6    1/v cross sections normalized to 1.0 at 0.0253 ev                          999
     7     hydrogen        endf/b-iv mat 1269/thrml002    updated 10/13/89         1001
     8    b-10 1273 218ngp 042375 p-3 293k                                         5010
     9     boron-11        endf/b-iv mat 1160             updated 10/13/89         5011
    10     oxygen-16       endf/b-iv mat 1276             updated 10/13/89         8016
    11     oxygen-16       endf/b-iv mat 1276             updated 10/13/89            6
    12     kr-83           mt=102,103,103,105,106,107     updated 10/13/89        36083
    13     kr-85             mt=  102                                              36085
    14     sr-90           mt=102                         updated 10/13/89        38090
    15      y-89           mt=102                         updated 10/13/89        39089
    16     zr-93             mt=  102                                              40093
    17     zr-94           mt=102                         updated 10/13/89        40094
    18     zr-95           mt=102                         updated 10/13/89        40095
    19     zircalloy       endf/b-iv mat 1284             updated 10/13/89        40302
    20     nb-94           mt=102                         updated 10/13/89        41094
    21     mo-95           mt=102                         updated 10/13/89        42095
    22     tc-99           mt=102                         updated 10/13/89        43099
    23     ru-101          mt=102                         updated 10/13/89        44101
    24     ru-106          mt=102                         updated 10/13/89        44106
    25     rh-103          mt=102                         updated 10/13/89        45103
    26     rh-105            mt=  102                                              45105
    27     pd-105          mt=102                         updated 10/13/89        46105
    28     pd-108          mt=102                         updated 10/13/89        46108
    29     silver-109      endf/b-iv mat 1139             updated 10/13/89        47109
    30     sb-124          mt=102                         updated 10/13/89        51124
    31     xe-131          mt=102,103,104,105,106         updated 10/13/89        54131
    32     xe-132          mt=102,103,104,105,106         updated 10/13/89        54132
    33     xenon-135       endf/b-iv mat 1294             updated 10/13/89        54135
```

```
   34    xe-136          mt=  102, 103, 104, 105, 107                                54136
   35    cesium-133    endf/b-iv mat 1141          updated 10/13/89                  55133
   36    cs-134        mt=102                      updated 10/13/89                  55134
   37    cs-135          mt=  102                                                    55135
   38    cs-137        mt=102                      updated 10/13/89                  55137
   39    ba-136        mt=102                      updated 10/13/89                  56136
   40    la-139        mt=102                      updated 10/13/89                  57139
   41    ce-144          mt=  102                                                    58144
   42    pr-141        mt=102,103,104,105,106,107  updated 10/13/89                  59141
   43    pr-143        mt=102                      updated 10/13/89                  59143
   44    nd-143        mt=102                      updated 10/13/89                  60143
   45    nd-145        mt=102                      updated 10/13/89                  60145
   46    nd-147        mt=102                      updated 10/13/89                  60147
   47    pm-147        mt=102                      updated 10/13/89                  61147
   48    pm-148          mt=  102                                                    61148
   49    sm-147        endf/b-v fission product    updated 10/13/89                  62147
   50    sm-149        mt=102,103,107              updated 10/13/89                  62149
   51    sm-150        mt=102                      updated 10/13/89                  62150
   52    sm-151        mt=102,103,104,105,106,107  updated 10/13/89                  62151
   53    sm-152        mt=102,103,104,105,106,107  updated 10/13/89                  62152
   54    eu-153        mt=102,103,104,105,106,107  updated 10/13/89                  63153
   55    eu-154        mt=102,103,104,105,106,107  updated 10/13/89                  63154
   56    eu-155        mt=102,103,104,105,106,107  updated 10/13/89                  63155
   57    gd-155        mt=102                      updated 10/13/89                  64155
   58   u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                          92234
   59    uranium-235   endf/b-iv mat 1261          updated 10/13/89                  92235
   60   u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                          92236
   61    uranium-238   endf/b-iv mat 1262          updated 10/13/89                  92238
   62    neptunium-237 endf/b-iv mat 1263          updated 10/13/89                  93237
   63   pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                          94238
   64    plutonium-239 endf/b-iv mat 1264          updated 10/13/89                  94239
   65    plutonium-240 endf/b-iv mat 1265          updated 10/13/89                  94240
   66    plutonium-241 endf/b-iv mat 1266          updated 10/13/89                  94241
   67    plutonium-242 endf/b-iv mat 1161          updated 10/13/89                  94242
   68   am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                                95241
   69   am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                                 95243
   70    curium-244    endf/b-iv mat 1162          updated 10/13/89                  96244
0 hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          202    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                          203    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160            updated 10/13/89          204    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276            updated 10/13/89          201    temperature=   607.60
0 zircalloy      endf/b-iv mat 1284            updated 10/13/89          205    temperature=   650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)       =   650.000
0potential scatter sigma  =     6.385          lumped nuclear density    = 4.2515602E-02
0spin factor (g)          =     1.079          lump dimension (a-bar)    = 6.7309999E-01
0inner radius             = 6.3246000E-01      dancoff correction (c)    = 1.6805907E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   8     -1.156752E-03    .000000E+00   -7.806033E-01
   9     -4.625978E-02    .000000E+00   -2.073270E+00
  10     -5.962230E-02    .000000E+00   -1.351984E+00
  11     -1.761672E-01    .000000E+00   -7.350731E-01
0excess resonance integrals
0                resolved
```

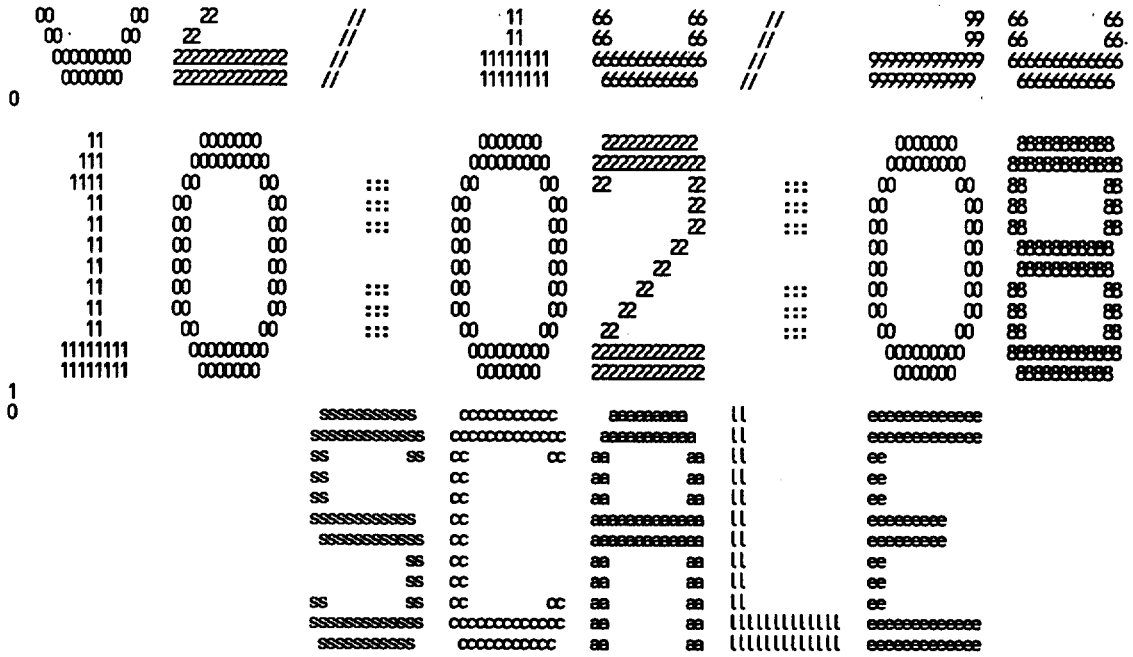
```
0absorption      2.92402E-01
 fission          .00000E+00
-  elapsed time    .00 min.
-  elapsed time    .02 min.
1     this xsdrn working tape was created 02/16/96 at 10:02:07
      the title of the parent case is as follows
      xsdrn weighted tape--parent case entitled--  720 d, sas2h: babcock wilcox 15x15,
       3.00wt%, 20gwd/mtu burn high temp

        tape id                          8670        number of nuclides              70
        number of neutron groups           27        number of gamma groups           0
        first thermal group                15        logical unit                     4
                                  table of contents
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          id    202
       b-10 1273 218ngp 042375 p-3 293k                                        id    203
        boron-11       endf/b-iv mat 1160            updated 10/13/89          id    204
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89          id    201
        zircalloy      endf/b-iv mat 1284            updated 10/13/89          id    205
       1/v cross sections normalized to 1.0 at 0.0253 ev                        id    999
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          id   1001
       b-10 1273 218ngp 042375 p-3 293k                                        id   5010
        boron-11       endf/b-iv mat 1160            updated 10/13/89          id   5011
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89          id   8016
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89          id      6
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89          id  36083
        kr-85            mt=  102                                              id  36085
        sr-90          mt=102                        updated 10/13/89          id  38090
         y-89          mt=102                        updated 10/13/89          id  39089
        zr-93            mt=  102                                              id  40093
        zr-94          mt=102                        updated 10/13/89          id  40094
        zr-95          mt=102                        updated 10/13/89          id  40095
        zircalloy      endf/b-iv mat 1284            updated 10/13/89          id  40802
        rb-94          mt=102                        updated 10/13/89          id  41094
        mo-95          mt=102                        updated 10/13/89          id  42095
        tc-99          mt=102                        updated 10/13/89          id  43099
        ru-101         mt=102                        updated 10/13/89          id  44101
        ru-106         mt=102                        updated 10/13/89          id  44106
        rh-103         mt=102                        updated 10/13/89          id  45103
        rh-105           mt=  102                                              id  45105
        pd-105         mt=102                        updated 10/13/89          id  46105
        pd-108         mt=102                        updated 10/13/89          id  46108
        silver-109     endf/b-iv mat 1139            updated 10/13/89          id  47109
        sb-124         mt=102                        updated 10/13/89          id  51124
        xe-131         mt=102,103,104,105,106        updated 10/13/89          id  54131
        xe-132         mt=102,103,104,105,106        updated 10/13/89          id  54132
        xenon-135      endf/b-iv mat 1294            updated 10/13/89          id  54135
        xe-136           mt=  102, 103, 104, 105, 107                          id  54136
        cesium-133     endf/b-iv mat 1141            updated 10/13/89          id  55133
        cs-134         mt=102                        updated 10/13/89          id  55134
        cs-135           mt=  102                                              id  55135
        cs-137         mt=102                        updated 10/13/89          id  55137
        ba-136         mt=102                        updated 10/13/89          id  56136
        la-139         mt=102                        updated 10/13/89          id  57139
        ce-144           mt=  102                                              id  58144
        pr-141         mt=102,103,104,105,106,107    updated 10/13/89          id  59141
        pr-143         mt=102                        updated 10/13/89          id  59143
        nd-143         mt=102                        updated 10/13/89          id  60143
        nd-145         mt=102                        updated 10/13/89          id  60145
        nd-147         mt=102                        updated 10/13/89          id  60147
        pm-147         mt=102                        updated 10/13/89          id  61147
```

```
      pm-148          mt=  102                                                  id    61148
      sm-147        endf/b-v fission product      updated 10/13/89              id    62147
      sm-149        mt=102,103,107                updated 10/13/89              id    62149
      sm-150        mt=102                        updated 10/13/89              id    62150
      sm-151        mt=102,103,104,105,106,107    updated 10/13/89              id    62151
      sm-152        mt=102,103,104,105,106,107    updated 10/13/89              id    62152
      eu-153        mt=102,103,104,105,106,107    updated 10/13/89              id    63153
      eu-154        mt=102,103,104,105,106,107    updated 10/13/89              id    63154
      eu-155        mt=102,103,104,105,106,107    updated 10/13/89              id    63155
      gd-155        mt=102                        updated 10/13/89              id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                        id    92234
      uranium-235   endf/b-iv mat 1261            updated 10/13/89              id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                        id    92236
      uranium-238   endf/b-iv mat 1262            updated 10/13/89              id    92238
      neptunium-237 endf/b-iv mat 1263            updated 10/13/89              id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    94238
      plutonium-239 endf/b-iv mat 1264            updated 10/13/89              id    94239
      plutonium-240 endf/b-iv mat 1265            updated 10/13/89              id    94240
      plutonium-241 endf/b-iv mat 1266            updated 10/13/89              id    94241
      plutonium-242 endf/b-iv mat 1161            updated 10/13/89              id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                              id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                               id    95243
      curium-244    endf/b-iv mat 1162            updated 10/13/89              id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
1 xx        xx  sssssssssss  dddddddddd  rrrrrrrrrrr  rn       rn  pppppppppp  mm        mm
  xx      xx  sssssssssssss  dddddddddd  rrrrrrrrrrr  rn       rn  pppppppppp  mmm       mmm
    xx    xx  ss        ss  dd       dd  rr       rr  rnn      rn  pp       pp  mmmm     mmmm
     xx  xx   ss            dd       dd  rr       rr  rn rn    rn  pp       pp  mm mm   mm mm
      xx xx   ss            dd       dd  rr       rr  rn  rn   rn  pp       pp  mm  mm mm  mm
       xxx    sssssssssss   dd       dd  rrrrrrrrrrr  rn   rn  rn  pppppppppp  mm   mmm   mm
       xxx     sssssssssss  dd       dd  rrrrrrrrrrr  rn    rn rn  pppppppppp  mm    m    mm
      xx xx              ss  dd       dd  rr      rr   rn     rn rn  pp         mm         mm
     xx  xx              ss  dd       dd  rr       rr  rn      rn rn  pp         mm         mm
    xx    xx  ss        ss  dd       dd  rr        rr rn       rnn  pp         mm         mm
  xx      xx  sssssssssssss  dddddddddd  rr         rr rn        rn  pp         mm         mm
 xx        xx  sssssssssss  dddddddddd  rr         rr rn        rn  pp         mm         mm
0

 dddddddddd    aaaaaaaaa   w        w  iiiiiiiiiiii   sssssssssss
 dddddddddd   aaaaaaaaaa   w        w  iiiiiiiiiiii   sssssssssssss
 dd       dd  aa       aa  w        w      ii        ss       ss
 dd       dd  aa       aa  w        w      ii        ss
 dd       dd  aa       aa  w        w      ii        ss
 dd       dd  aaaaaaaaaaaa  w        w      ii        sssssssssss
 dd       dd  aaaaaaaaaaaa   w      w      ii         sssssssssss
 dd       dd  aa       aa    w    w       ii                  ss
 dd       dd  aa       aa     w  w        ii                  ss
 dd       dd  aa       aa      w w        ii        ss       ss
 dddddddddd   aa       aa       ww    iiiiiiiiiiii   sssssssssssss
 dddddddddd   aa       aa        v    iiiiiiiiiiii   sssssssssss
0

   0000000     22222222222          //      11      666666666666          //  99999999999   666666666666
  000000000    22222222222          //     111      666666666666          //  99999999999   666666666666
 00       00  22        22          //    1111      66                    //  99        99  66
 00       00            22          //      11      66                    //  99        99  66
 00       00            22          //      11      66                    //  99        99  66
 00       00          22           //      11      666666666666          //  99999999999   666666666666
 00       00        22             //      11      666666666666          //   99999999999  666666666666
 00       00      22               //      11      66        66          //           99  66        66
```



****
****
****
****** ******
****** program verification information ******
****** ******
****** code system: scale version: 4.2 ******
****** ******
****
****
****** ******
****** ******
****** program: c0c001 ******
****** ******
****** creation date: 04/27/95 ******
****** ******
****** library: /neutronics/scale/exe ******
****** ******
****** ******
****** this is not a scale configuration controlled code ******
****** ******
****** jobname: davis ******
****** ******
****** date of execution: 02/16/96 ******

```
                    *****                                                    *****
                    *****   time of execution:  10:02:08                     *****
                    *****                                                    *****
                    *****                                                    *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
                    720 d, second part of ses2h pass to make library
0       -1q array has     1 entries.
0        0q array has    11 entries.
0        1q array has    15 entries.
0        2q array has    10 entries.
0        3q array has    12 entries.
0        4q array has     9 entries.
0        5q array has    12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                     720 d, second part of ses2h pass to make library
0general problem description data block
0                              general problem data

 ige  1/2/3 = plane/cylinder/sphere      2       isn  quadrature order                  8
 izm  number of zones                    4       isct order of scattering               3
 im   number of special intervals       28       ievt 0/1/2/3/4/5/6=o/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1       iim  inner iteration maximum       20
 ibr  right boundary condition           3       iom  outer iteration maximum       25
 mxx  number of mixtures                 3       iclc -1/0/n--flat res/sn/qpt           0
 ms   mixing table length               70       ith  0/1 = forward/adjoint          0
 igm  number of energy groups           27       iflu not used(always wgtd)             0
 mg   number of neutron groups          27       iprt -2/-1/0/n=mixture xsec print     -2
 rgg  number of gamma groups             0       idl  0/1/2/3=no/prt nd/pch n/both    14
 iftg number of first thermal group     15       ipbt -1/0/1=none/fine/all bal. prt     0
0                           special options

 ifg  0/1 = none/weighting calculation   1       ipn  0/1/2 diff. coef. param          0
 iqm  volumetric sources (0/n=no/yes)    0       idfm 0/1 = none/density factors 38*   0
 ipm  boundary sources (0/n=no/yes)      0       iaz  0/n = none/n activities by zone  0
 ifn  0/1/2 = input 33*/34*/use last    14       iai  0/1=none/activities by interval  0
 itmx maximum time (minutes)            10       ifct 0/1=no/yes upscatter scaling     0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0       ipvt 0/1/2=no/k/alpha parametric srch 0
 isx  broad group fluxes                 0       isen outer iteration acceleration     0
 ibln activity data unit                 0       rbnd band rebaln parameter            0
 jbkl 0/1/2 buckling geometry            0
0                         weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1       ihtf total xsect psn in brd gp tables  3
 igmf number of broad groups             3       ndsf psn g-g or file number            4
 itp  0/10/20/30/40 0/c/e/ac/a           0       nusf table length or max order         6
 ipp  -2/-1/0/n=wgted xsect print       -2       mscm extra 1-d x-sect positions        0
 iap  -1/n anisn xsect print            -1
0                          floating point parameters

 eps  overall convergence       1.00000E-04      dy   cyl/pla ht for buckling    .00000E+00
 ptc  point convergence         1.00000E-04      dz   plane depth for buckling  2.00000E+02
 xnf  normalization factor      1.00000E+00      vsc  void streaming correction  .00000E+00
 ev   eigenvalue guess           .00000E+00      pv   ipvt=1/2--k/alpha          1.00000E+00
 evm  eigenvalue modifier        .00000E+00      eql  ev change eps for search  1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00      xnpm new param mod for search  7.50000E-01
     this case will require      2611 locations for mixing
     this case has been allocated 200000 locations
```

1 720 d, second part of sas2h pass to make library
0 13q array has 70 entries.
0 14q array has 70 entries.
0 15q array has 70 entries.
0 data block 2 (mixing table, etc.)

0		nuclides on tape	cccc identification	mixing table mixture	mixing table component	atom density	extra xsect id's
	1	202		3	201	2.09710E-02	
	2	203		3	202	4.19420E-02	
	3	204		3	203	3.81515E-06	
	4	201		3	204	1.54884E-05	
	5	205		2	205	4.25156E-02	
	6	999		1	92235	1.47017E-04	
	7	1001		1	92234	1.54011E-06	
	8	5010		1	92236	1.58412E-05	
	9	5011		1	92238	7.23470E-03	
	10	8016		1	8016	1.50611E-02	
	11	6		1	6	1.15315E-02	
	12	36083		1	36083	4.00409E-07	
	13	36085		1	36085	1.92753E-07	
	14	38090		1	38090	4.36638E-06	
	15	39089		1	39089	3.37449E-06	
	16	40093		1	42095	4.35536E-06	
	17	40094		1	40093	3.43072E-06	
	18	40095		1	40094	5.36576E-06	
	19	40302		1	40095	6.73357E-07	
	20	41094		1	41094	2.49821E-12	
	21	42095		1	43099	5.24059E-06	
	22	43099		1	45103	2.81650E-06	
	23	44101		1	45105	6.85117E-09	
	24	44106		1	44101	4.70687E-06	
	25	45103		1	44106	7.10825E-07	
	26	45105		1	46105	1.74568E-06	
	27	46105		1	46108	4.60857E-07	
	28	46108		1	47109	3.27366E-07	
	29	47109		1	51124	7.62188E-11	
	30	51124		1	54131	2.41807E-06	
	31	54131		1	54132	4.37452E-06	
	32	54132		1	54135	2.20802E-09	
	33	54135		1	54136	8.94972E-06	
	34	54136		1	55134	2.21272E-07	
	35	55133		1	55135	2.83459E-06	
	36	55134		1	55137	5.58169E-06	
	37	55135		1	56136	4.34868E-08	
	38	55137		1	57139	5.53555E-06	
	39	56136		1	59141	4.73417E-06	
	40	57139		1	59143	1.24918E-07	
	41	58144		1	58144	2.11613E-06	
	42	59141		1	60143	4.42460E-06	
	43	59143		1	60145	3.23179E-06	
	44	60143		1	61147	1.20498E-06	
	45	60145		1	61148	3.46153E-09	
	46	60147		1	60147	4.32241E-08	
	47	61147		1	62147	3.37132E-07	
	48	61148		1	62149	2.77995E-08	
	49	62147		1	62150	1.11012E-06	
	50	62149		1	62151	1.22001E-07	
	51	62150		1	62152	5.39591E-07	
	52	62151		1	64155	5.41449E-10	
	53	62152		1	63153	2.98756E-07	

54	63153	1	63154	5.42034E-08
55	63154	1	63155	3.27959E-08
56	63155	1	40302	4.42681E-03
57	64155	1	1001	2.30630E-02
58	92234	1	5010	2.09787E-06
59	92235	1	5011	8.51673E-06
60	92236	1	55133	5.74652E-06
61	92238	1	95237	9.31923E-07
62	95237	1	94238	1.07908E-07
63	94238	1	94239	3.19267E-05
64	94239	1	94240	5.37095E-06
65	94240	1	94241	2.67558E-06
66	94241	1	94242	2.39372E-07
67	94242	1	95241	6.58791E-08
68	95241	1	95243	1.74582E-08
69	95243	1	96244	1.32132E-09
70	96244	1	999	3.30753E-21

- elapsed time .00 min.
0 24259 locations will be used
0 35q array has 29 entries.
0 36q array has 28 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 720 d, second part of sas2h pass to make library
neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	1	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	1	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	1	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	1	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	2	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	2	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72615E+08	2	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	2	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	2	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	2	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01086E+07	2	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	2	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	2	0	14	1.00000E+00	
15	3.04999E+00	1.50080E+01	2.10601E+06	2	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	2	0	16	1.00000E+00	
17	1.29999E+00	1.58557E+01	1.52545E+06	2	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	2	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	2	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	2	0	20	1.00000E+00	
21	4.00000E-01	1.70844E+01	8.17974E+05	3	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	3	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86953E+05	3	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	3	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	3	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	3	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	3	0	27	1.00000E+00	
28	1.00000E-05	2.76310E+01						

1 720 d, second part of sas2h pass to make library
0

mixture by zone	order p(l) by zone	activity table matl no.	reaction	quadrature constants weights	directions	refl direc	wt x cos

1	3	3	0	-2.79004E-01	3	0
2	2	3	5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	3	3	5.06143E-02	1.97286E-01	2	9.98548E-03
4	1	3	0	-6.04419E-01	8	0
5			5.55953E-02	-5.58410E-01	8	-3.10450E-02
6			5.55953E-02	-2.31301E-01	7	-1.28593E-02
7			5.55953E-02	2.31301E-01	6	1.28593E-02
8			5.55953E-02	5.58410E-01	5	3.10450E-02
9			0	-8.50774E-01	15	0
10			5.22844E-02	-8.21784E-01	15	-4.29665E-02
11			5.22844E-02	-6.01588E-01	14	-3.14537E-02
12			5.22844E-02	-2.20196E-01	13	-1.15128E-02
13			5.22844E-02	2.20196E-01	12	1.15128E-02
14			5.22844E-02	6.01588E-01	11	3.14537E-02
15			5.22844E-02	8.21784E-01	10	4.29665E-02
16			0	-9.83032E-01	24	0
17			4.53355E-02	-9.64143E-01	24	-4.37099E-02
18			4.53355E-02	-8.17361E-01	23	-3.70655E-02
19			4.53355E-02	-5.46143E-01	22	-2.47597E-02
20			4.53355E-02	-1.91780E-01	21	-8.69444E-03
21			4.53355E-02	1.91780E-01	20	8.69444E-03
22			4.53355E-02	5.46143E-01	19	2.47597E-02
23			4.53355E-02	8.17361E-01	18	3.70655E-02
24			4.53355E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83032E-01	-4.49528E-01	8.36885E-01	5.00708E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.26438E-01
18	-8.17361E-01	-4.49528E-01	3.20262E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20262E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17236E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17236E-01
22	5.46143E-01	-4.49528E-01	-3.20262E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20262E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.26438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.97644E-02	1	0	4.90881E-03		0	
2	3.95287E-02	5.92931E-02	1	2.48566E-01	1.47264E-02		0	
3	7.90575E-02	1.18586E-01	1	4.96733E-01	5.89057E-02		0	
4	1.58115E-01	1.97644E-01	1	9.93466E-01	9.81762E-02		0	
5	2.37172E-01	2.76701E-01	1	1.49020E+00	1.37447E-01			
6	3.16230E-01	3.55759E-01	1	1.98693E+00	1.76717E-01			
7	3.95288E-01	4.34816E-01	1	2.48366E+00	2.15988E-01			
8	4.74345E-01	5.13874E-01	1	2.98040E+00	2.55258E-01			
9	5.53403E-01	5.73167E-01	1	3.47713E+00	1.42365E-01			

10	5.92931E-01	6.12696E-01	1	3.72550E+00	1.52173E-01
11	6.32460E-01	6.42620E-01	2	3.97386E+00	8.20460E-02
12	6.52780E-01	6.62940E-01	2	4.10154E+00	8.46405E-02
13	6.73100E-01	6.96583E-01	3	4.22921E+00	2.05562E-01
14	7.20067E-01	7.43550E-01	3	4.52431E+00	2.19422E-01
15	7.67033E-01	7.90517E-01	3	4.81941E+00	2.33282E-01
16	8.14000E-01	8.62795E-01	4	5.11451E+00	5.29051E-01
17	9.11591E-01	9.60386E-01	4	5.72769E+00	5.88891E-01
18	1.00918E+00	1.10677E+00	4	6.34088E+00	1.35731E+00
19	1.20436E+00	1.30195E+00	4	7.56724E+00	1.59667E+00
20	1.39955E+00	1.49714E+00	4	8.79360E+00	1.83603E+00
21	1.59473E+00	1.69232E+00	4	1.00200E+01	2.07540E+00
22	1.78991E+00	1.88750E+00	4	1.12463E+01	2.31476E+00
23	1.98509E+00	2.08268E+00	4	1.24727E+01	2.55412E+00
24	2.18027E+00	2.27786E+00	4	1.36991E+01	2.79349E+00
25	2.37545E+00	2.47305E+00	4	1.49254E+01	3.03285E+00
26	2.57064E+00	2.66823E+00	4	1.61518E+01	3.27221E+00
27	2.76582E+00	2.81461E+00	4	1.73781E+01	1.72587E+00
28	2.86341E+00	2.91220E+00	4	1.79913E+01	1.78571E+00
29	2.96100E+00			1.86045E+01	

- elapsed time .00 min.

outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	186	2.48569E-05	1.05705E+00	-6.31734E-02	1.00000E+00	-1.95208E-02	.00000E+00	.0000
2	281	-1.32135E-05	1.06387E+00	-1.33080E-03	-7.88857E-03	-2.81310E-03	.00000E+00	.0000
3	354	1.01005E-05	1.06448E+00	-1.99320E-04	-1.06861E-03	-6.40909E-04	.00000E+00	.0167
4	409	-8.38561E-06	1.06490E+00	-4.26851E-05	-2.46785E-04	-1.43411E-04	.00000E+00	.0167
5	444	5.49109E-06	1.06478E+00	-9.70884E-06	-5.56824E-05	-3.16001E-05	.00000E+00	.0167

grp	to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	1	17	1.13149E-06	28	1.00000E+00	1
2	2	1	17	1.35454E-06	28	1.00000E+00	1
3	3	1	17	1.24975E-06	28	1.00000E+00	1
4	4	1	17	1.20728E-06	28	1.00000E+00	1
5	5	1	17	1.22270E-06	28	1.00000E+00	1
6	6	1	17	8.15168E-07	28	1.00000E+00	1
7	7	1	17	5.15490E-07	28	1.00000E+00	2
8	8	1	16	1.01462E-07	28	1.00000E+00	2
9	9	1	27	8.55716E-06	28	9.99998E-01	3
10	10	1	26	3.16370E-06	28	9.99997E-01	3
11	11	1	26	2.76400E-06	28	9.99997E-01	3
12	12	1	25	9.50851E-07	28	9.99999E-01	3
13	13	1	26	2.33163E-06	28	1.00000E+00	3
14	14	1	25	3.07860E-07	28	1.00000E+00	3
15	15	1	2	3.06769E-05	28	9.99966E-01	2
16	16	1	2	3.76252E-05	28	9.99969E-01	2
17	17	1	2	4.32990E-05	28	9.99892E-01	3
18	18	1	2	5.08065E-05	28	9.99962E-01	3
19	19	1	2	4.31020E-05	28	9.99916E-01	3
20	20	1	2	3.33729E-05	28	9.99956E-01	3
21	21	1	2	5.14854E-05	28	9.99954E-01	3
22	22	1	23	2.32014E-05	28	9.99978E-01	3
23	23	1	27	1.81769E-05	28	9.99978E-01	4
24	24	1	1	1.87144E-05	9	1.00001E+00	4
25	25	1	1	2.12591E-05	8	1.00001E+00	5
26	26	1	1	1.56697E-05	6	1.00001E+00	6
27	27	1	1	1.42699E-05	5	1.00001E+00	8

6	471	-4.26156E-06	1.06491E+00	-2.09436E-06	-1.22728E-05	-7.12417E-06	.00000E+00	.0167

final monitor

lambda 1.06486E+00 production/absorption 1.07880E+00 angular flux on 16

- elapsed time .02 min.
1 720 d, second part of sas2h pass to make library
0 int. zone number radius int. midpoint area volume prod density

1	1	.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1	3.95287E-02	5.92931E-02	2.48366E-01	1.47264E-02	.00000E+00
3	1	7.90575E-02	1.18586E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1	1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1	2.37172E-01	2.76701E-01	1.49020E+00	1.37447E-01	.00000E+00
6	1	3.16230E-01	3.55759E-01	1.98693E+00	1.76717E-01	.00000E+00
7	1	3.95288E-01	4.34816E-01	2.48366E+00	2.15988E-01	.00000E+00
8	1	4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1	5.53403E-01	5.73167E-01	3.47713E+00	1.42355E-01	.00000E+00
10	1	5.92931E-01	6.12696E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2	6.32460E-01	6.42620E-01	3.97386E+00	8.20460E-02	.00000E+00
12	2	6.52780E-01	6.62940E-01	4.10154E+00	8.46405E-02	.00000E+00
13	3	6.73100E-01	6.96583E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3	7.20067E-01	7.43550E-01	4.52431E+00	2.19422E-01	.00000E+00
15	3	7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4	8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.42890E-02
17	4	9.11591E-01	9.60386E-01	5.72769E+00	5.88891E-01	2.64366E-02
18	4	1.00918E+00	1.10677E+00	6.34088E+00	1.35731E+00	5.96802E-02
19	4	1.20436E+00	1.30195E+00	7.56724E+00	1.59667E+00	6.87644E-02
20	4	1.39955E+00	1.49714E+00	8.79860E+00	1.83603E+00	7.78853E-02
21	4	1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	8.71568E-02
22	4	1.78991E+00	1.88750E+00	1.12463E+01	2.31476E+00	9.64330E-02
23	4	1.98509E+00	2.08268E+00	1.24727E+01	2.55412E+00	1.05772E-01
24	4	2.18027E+00	2.27786E+00	1.36991E+01	2.79349E+00	1.15189E-01
25	4	2.37545E+00	2.47305E+00	1.49254E+01	3.03285E+00	1.24702E-01
26	4	2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.34341E-01
27	4	2.76582E+00	2.81461E+00	1.73781E+01	1.72587E+00	7.08334E-02
28	4	2.86341E+00	2.91220E+00	1.79913E+01	1.78571E+00	7.33258E-02
29		2.96100E+00		1.86045E+01		

1 720 d, second part of sas2h pass to make library
0 total flux
0 int. grp. 1 grp. 2 grp. 3 grp. 4 grp. 5 grp. 6 grp. 7 grp. 8

1	1.28271E-02	9.04508E-02	1.12334E-01	6.85895E-02	1.02675E-01	1.92730E-01	1.93048E-01	1.46974E-01
2	1.28219E-02	9.03997E-02	1.12271E-01	6.85013E-02	1.02623E-01	1.92643E-01	1.93009E-01	1.46968E-01
3	1.28225E-02	9.04126E-02	1.12293E-01	6.85193E-02	1.02657E-01	1.92713E-01	1.93062E-01	1.46979E-01
4	1.28292E-02	9.04930E-02	1.12405E-01	6.85976E-02	1.02787E-01	1.92956E-01	1.93218E-01	1.47008E-01
5	1.28414E-02	9.06344E-02	1.12601E-01	6.87305E-02	1.03003E-01	1.93355E-01	1.93466E-01	1.47052E-01
6	1.28580E-02	9.08289E-02	1.12869E-01	6.89139E-02	1.03301E-01	1.93903E-01	1.93805E-01	1.47108E-01
7	1.28789E-02	9.10778E-02	1.13215E-01	6.91517E-02	1.03689E-01	1.94620E-01	1.94264E-01	1.47178E-01
8	1.29042E-02	9.13887E-02	1.13654E-01	6.94589E-02	1.04194E-01	1.95556E-01	1.94823E-01	1.47261E-01
9	1.29255E-02	9.16622E-02	1.14048E-01	7.01408E-02	1.04662E-01	1.96424E-01	1.95359E-01	1.47330E-01
10	1.29400E-02	9.18766E-02	1.14377E-01	7.03889E-02	1.05083E-01	1.97210E-01	1.95846E-01	1.47379E-01
11	1.29522E-02	9.20543E-02	1.14652E-01	7.05972E-02	1.05437E-01	1.97886E-01	1.96264E-01	1.47423E-01
12	1.29654E-02	9.21865E-02	1.14825E-01	7.07055E-02	1.05606E-01	1.98223E-01	1.96466E-01	1.47467E-01
13	1.29931E-02	9.24275E-02	1.15095E-01	7.08430E-02	1.05796E-01	1.98563E-01	1.96658E-01	1.47536E-01
14	1.30339E-02	9.28113E-02	1.15548E-01	7.10982E-02	1.06170E-01	1.99222E-01	1.97038E-01	1.47627E-01
15	1.30819E-02	9.33052E-02	1.16173E-01	7.14847E-02	1.06767E-01	2.00295E-01	1.97666E-01	1.47728E-01
16	1.31566E-02	9.40962E-02	1.17188E-01	7.21295E-02	1.07782E-01	2.02136E-01	1.98758E-01	1.47898E-01
17	1.32300E-02	9.48836E-02	1.18204E-01	7.27777E-02	1.08812E-01	2.04029E-01	1.99901E-01	1.48095E-01
18	1.32885E-02	9.55219E-02	1.19036E-01	7.33133E-02	1.09678E-01	2.05666E-01	2.00918E-01	1.48299E-01
19	1.33395E-02	9.60887E-02	1.19784E-01	7.37979E-02	1.10470E-01	2.07194E-01	2.01885E-01	1.48511E-01
20	1.33694E-02	9.64294E-02	1.20342E-01	7.40969E-02	1.10964E-01	2.08177E-01	2.02523E-01	1.48666E-01
21	1.33882E-02	9.66485E-02	1.20641E-01	7.42936E-02	1.11293E-01	2.08849E-01	2.02969E-01	1.48782E-01
22	1.34002E-02	9.67916E-02	1.20739E-01	7.44250E-02	1.11516E-01	2.09314E-01	2.03283E-01	1.48869E-01
23	1.34077E-02	9.68836E-02	1.20869E-01	7.45114E-02	1.11663E-01	2.09631E-01	2.03501E-01	1.48931E-01
24	1.34121E-02	9.69386E-02	1.20948E-01	7.45642E-02	1.11755E-01	2.09833E-01	2.03642E-01	1.48973E-01
25	1.34140E-02	9.69637E-02	1.20986E-01	7.45895E-02	1.11799E-01	2.09937E-01	2.03716E-01	1.48994E-01

26	1.34136E-02	9.69606E-02	1.20984E-01	7.45883E-02	1.11799E-01	2.09944E-01	2.03722E-01	1.48995E-01
27	1.34118E-02	9.69405E-02	1.20957E-01	7.45708E-02	1.11771E-01	2.09889E-01	2.03685E-01	1.48981E-01
28	1.34094E-02	9.69109E-02	1.20918E-01	7.45443E-02	1.11726E-01	2.09799E-01	2.03622E-01	1.48961E-01
0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.15922E-01	1.07135E-01	1.00898E-01	6.54265E-02	5.58852E-02	5.32915E-02	2.90548E-02	1.60960E-02
2	1.15922E-01	1.07136E-01	1.00902E-01	6.54314E-02	5.58901E-02	5.32986E-02	2.90571E-02	1.60970E-02
3	1.15920E-01	1.07127E-01	1.00881E-01	6.54075E-02	5.58676E-02	5.32656E-02	2.90506E-02	1.60935E-02
4	1.15916E-01	1.07106E-01	1.00832E-01	6.53500E-02	5.58136E-02	5.31864E-02	2.90348E-02	1.60848E-02
5	1.15909E-01	1.07073E-01	1.00756E-01	6.52624E-02	5.57315E-02	5.30659E-02	2.90112E-02	1.60719E-02
6	1.15900E-01	1.07028E-01	1.00654E-01	6.51433E-02	5.56205E-02	5.29024E-02	2.89801E-02	1.60547E-02
7	1.15887E-01	1.06969E-01	1.00518E-01	6.49871E-02	5.54758E-02	5.26886E-02	2.89409E-02	1.60328E-02
8	1.15874E-01	1.06890E-01	1.00339E-01	6.47814E-02	5.52861E-02	5.24076E-02	2.88915E-02	1.60047E-02
9	1.15864E-01	1.06815E-01	1.00171E-01	6.45893E-02	5.51101E-02	5.21457E-02	2.88471E-02	1.59790E-02
10	1.15864E-01	1.06745E-01	1.00015E-01	6.44146E-02	5.49508E-02	5.19080E-02	2.88086E-02	1.59561E-02
11	1.15870E-01	1.06690E-01	9.98917E-02	6.42774E-02	5.48243E-02	5.17202E-02	2.87745E-02	1.59369E-02
12	1.15865E-01	1.06670E-01	9.98457E-02	6.42238E-02	5.47724E-02	5.16450E-02	2.87557E-02	1.59275E-02
13	1.15820E-01	1.06643E-01	9.97825E-02	6.41417E-02	5.46979E-02	5.15331E-02	2.87400E-02	1.59180E-02
14	1.15750E-01	1.06580E-01	9.96395E-02	6.39636E-02	5.45407E-02	5.12933E-02	2.87143E-02	1.58999E-02
15	1.15674E-01	1.06475E-01	9.94047E-02	6.36834E-02	5.42947E-02	5.09168E-02	2.86757E-02	1.58717E-02
16	1.15569E-01	1.06302E-01	9.90157E-02	6.32219E-02	5.38884E-02	5.02928E-02	2.86047E-02	1.58252E-02
17	1.15474E-01	1.06131E-01	9.86268E-02	6.27609E-02	5.34769E-02	4.96657E-02	2.85196E-02	1.57702E-02
18	1.15407E-01	1.05986E-01	9.82943E-02	6.23667E-02	5.31167E-02	4.91287E-02	2.84276E-02	1.57179E-02
19	1.15354E-01	1.05852E-01	9.79841E-02	6.19998E-02	5.27759E-02	4.86276E-02	2.83299E-02	1.56646E-02
20	1.15329E-01	1.05768E-01	9.77885E-02	6.17629E-02	5.25511E-02	4.83029E-02	2.82563E-02	1.56260E-02
21	1.15317E-01	1.05710E-01	9.76441E-02	6.15983E-02	5.23925E-02	4.80766E-02	2.82001E-02	1.55970E-02
22	1.15311E-01	1.05669E-01	9.75449E-02	6.14811E-02	5.22783E-02	4.79150E-02	2.81573E-02	1.55752E-02
23	1.15307E-01	1.05641E-01	9.74743E-02	6.13978E-02	5.21966E-02	4.78001E-02	2.81257E-02	1.55592E-02
24	1.15305E-01	1.05621E-01	9.74263E-02	6.13411E-02	5.21408E-02	4.77218E-02	2.81040E-02	1.55482E-02
25	1.15303E-01	1.05610E-01	9.73977E-02	6.13073E-02	5.21079E-02	4.76753E-02	2.80919E-02	1.55421E-02
26	1.15301E-01	1.05606E-01	9.73885E-02	6.12964E-02	5.20983E-02	4.76612E-02	2.80900E-02	1.55411E-02
27	1.15298E-01	1.05607E-01	9.73939E-02	6.13052E-02	5.21062E-02	4.76713E-02	2.80954E-02	1.55437E-02
28	1.15296E-01	1.05613E-01	9.74094E-02	6.13216E-02	5.21257E-02	4.76979E-02	2.81052E-02	1.55486E-02
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.06002E-03	5.39608E-03	1.07464E-02	3.56724E-02	1.11395E-02	2.29340E-02	7.73947E-02	6.34270E-02
2	7.06071E-03	5.39747E-03	1.07476E-02	3.56750E-02	1.11406E-02	2.29357E-02	7.73898E-02	6.34123E-02
3	7.05775E-03	5.38991E-03	1.07420E-02	3.56611E-02	1.11299E-02	2.29014E-02	7.72727E-02	6.32853E-02
4	7.05059E-03	5.37170E-03	1.07285E-02	3.56282E-02	1.11051E-02	2.28234E-02	7.70154E-02	6.30121E-02
5	7.03970E-03	5.34371E-03	1.07082E-02	3.55790E-02	1.10678E-02	2.27061E-02	7.66337E-02	6.26077E-02
6	7.02496E-03	5.30532E-03	1.06807E-02	3.55132E-02	1.10173E-02	2.25477E-02	7.61252E-02	6.20691E-02
7	7.00570E-03	5.25445E-03	1.06450E-02	3.54284E-02	1.09512E-02	2.23414E-02	7.54772E-02	6.13842E-02
8	6.98041E-03	5.18653E-03	1.05986E-02	3.53191E-02	1.08644E-02	2.20721E-02	7.46588E-02	6.05241E-02
9	6.95684E-03	5.12249E-03	1.05556E-02	3.52189E-02	1.07885E-02	2.18227E-02	7.39223E-02	5.97562E-02
10	6.93537E-03	5.06362E-03	1.05167E-02	3.51298E-02	1.07095E-02	2.15972E-02	7.32823E-02	5.90957E-02
11	6.91829E-03	5.01852E-03	1.04856E-02	3.50572E-02	1.06527E-02	2.14275E-02	7.28165E-02	5.86358E-02
12	6.91138E-03	5.00247E-03	1.04727E-02	3.50266E-02	1.06330E-02	2.13708E-02	7.26727E-02	5.85190E-02
13	6.90152E-03	4.97297E-03	1.04556E-02	3.49874E-02	1.06005E-02	2.12669E-02	7.23956E-02	5.82280E-02
14	6.88040E-03	4.90665E-03	1.04199E-02	3.49069E-02	1.05265E-02	2.10516E-02	7.17802E-02	5.75645E-02
15	6.84694E-03	4.80164E-03	1.03639E-02	3.47827E-02	1.04089E-02	2.06655E-02	7.08810E-02	5.66156E-02
16	6.79182E-03	4.62038E-03	1.02709E-02	3.45776E-02	1.02166E-02	2.00643E-02	6.94980E-02	5.52061E-02
17	6.73651E-03	4.44198E-03	1.01744E-02	3.43628E-02	1.00266E-02	1.94691E-02	6.80913E-02	5.37995E-02
18	6.68862E-03	4.30598E-03	1.00868E-02	3.41601E-02	9.86613E-03	1.89720E-02	6.67475E-02	5.24537E-02
19	6.64342E-03	4.18892E-03	1.00017E-02	3.39583E-02	9.71702E-03	1.85125E-02	6.53964E-02	5.10985E-02
20	6.61355E-03	4.12089E-03	9.94418E-03	3.38170E-02	9.62058E-03	1.82179E-02	6.44334E-02	5.01322E-02
21	6.59252E-03	4.07681E-03	9.90301E-03	3.37128E-02	9.55300E-03	1.80116E-02	6.37119E-02	4.94092E-02
22	6.57735E-03	4.04711E-03	9.87305E-03	3.36352E-02	9.50442E-03	1.78634E-02	6.31651E-02	4.88629E-02
23	6.56650E-03	4.02679E-03	9.85146E-03	3.35784E-02	9.46948E-03	1.77565E-02	6.27552E-02	4.84536E-02
24	6.55914E-03	4.01321E-03	9.83668E-03	3.35390E-02	9.44511E-03	1.76818E-02	6.24590E-02	4.81567E-02
25	6.55487E-03	4.00484E-03	9.82793E-03	3.35155E-02	9.43005E-03	1.76343E-02	6.22637E-02	4.79571E-02
26	6.55379E-03	4.00147E-03	9.82539E-03	3.35080E-02	9.42417E-03	1.76130E-02	6.21684E-02	4.78607E-02
27	6.55503E-03	4.00200E-03	9.82702E-03	3.35137E-02	9.42554E-03	1.76135E-02	6.21592E-02	4.78268E-02

28	6.55734E-03	4.00532E-03	9.83219E-03	3.35275E-02	9.43193E-03	1.76294E-02	6.22086E-02	4.78605E-02

0 int.

	grp. 25	grp. 26	grp. 27
1	2.86830E-02	2.06921E-02	3.93060E-03
2	2.86721E-02	2.06800E-02	3.92767E-03
3	2.86039E-02	2.06202E-02	3.91540E-03
4	2.84588E-02	2.04957E-02	3.88959E-03
5	2.82439E-02	2.03052E-02	3.85005E-03
6	2.79572E-02	2.00516E-02	3.79617E-03
7	2.75928E-02	1.97265E-02	3.72568E-03
8	2.71372E-02	1.93167E-02	3.63471E-03
9	2.67329E-02	1.89514E-02	3.55244E-03
10	2.63901E-02	1.86394E-02	3.48169E-03
11	2.61608E-02	1.84385E-02	3.43887E-03
12	2.61117E-02	1.84081E-02	3.43602E-03
13	2.59487E-02	1.82580E-02	3.39571E-03
14	2.55769E-02	1.79012E-02	3.29847E-03
15	2.50587E-02	1.73970E-02	3.15374E-03
16	2.43080E-02	1.66761E-02	2.94211E-03
17	2.35713E-02	1.59956E-02	2.76010E-03
18	2.28718E-02	1.53838E-02	2.62326E-03
19	2.21718E-02	1.47911E-02	2.50009E-03
20	2.16783E-02	1.43917E-02	2.42542E-03
21	2.13130E-02	1.41066E-02	2.37527E-03
22	2.10401E-02	1.39002E-02	2.34061E-03
23	2.08373E-02	1.37505E-02	2.31606E-03
24	2.06909E-02	1.36443E-02	2.29900E-03
25	2.05921E-02	1.35731E-02	2.28769E-03
26	2.05368E-02	1.35320E-02	2.28118E-03
27	2.05205E-02	1.35175E-02	2.27873E-03
28	2.05312E-02	1.35206E-02	2.27862E-03

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	4.99611E-04	6.61276E-04	5.50619E-05	-7.16304E-04	9.99952E-01
2	.00000E+00	.00000E+00	3.79427E-04	6.14034E-03	8.07034E-03	1.75468E-04	-7.86608E-03	9.99963E-01
3	.00000E+00	.00000E+00	3.83251E-03	5.45644E-03	1.41966E-02	9.26400E-05	-1.04564E-02	9.99978E-01
4	.00000E+00	.00000E+00	5.57851E-03	3.59733E-03	1.23601E-02	4.19806E-05	-6.82338E-03	9.99988E-01
5	.00000E+00	.00000E+00	1.02522E-02	1.15225E-02	2.08752E-02	4.96551E-05	-1.06725E-02	9.99991E-01
6	.00000E+00	.00000E+00	2.14886E-02	3.44934E-02	4.09957E-02	8.42815E-05	-1.95913E-02	9.99998E-01
7	.00000E+00	.00000E+00	4.22265E-02	6.09661E-02	5.41334E-02	6.12174E-05	-1.19675E-02	9.99988E-01
8	.00000E+00	.00000E+00	5.63550E-02	7.83471E-02	5.87462E-02	3.64052E-05	-2.42234E-03	9.99912E-01
9	.00000E+00	.00000E+00	5.77869E-02	7.26181E-02	5.75068E-02	2.92783E-05	2.56207E-04	9.99859E-01
10	.00000E+00	.00000E+00	5.70853E-02	6.91811E-02	5.55973E-02	3.60679E-05	1.45795E-03	9.99895E-01
11	.00000E+00	.00000E+00	5.58787E-02	6.56109E-02	5.25812E-02	5.51711E-05	3.44575E-03	9.99939E-01
12	.00000E+00	.00000E+00	4.54186E-02	3.51057E-02	4.13062E-02	6.04664E-05	4.05294E-03	9.99978E-01
13	.00000E+00	.00000E+00	4.05737E-02	2.85776E-02	3.66489E-02	8.46561E-05	3.84136E-03	9.99969E-01
14	.00000E+00	.00000E+00	3.94761E-02	2.82151E-02	3.37050E-02	1.36166E-04	5.68539E-03	9.99988E-01
15	.00000E+00	.00000E+00	2.16795E-02	1.08652E-02	2.08550E-02	1.12735E-04	1.21179E-03	9.99999E-01
16	.00000E+00	.00000E+00	1.42523E-02	4.58254E-03	1.35006E-02	7.64217E-05	6.55321E-04	9.99998E-01
17	.00000E+00	.00000E+00	7.30981E-03	1.29767E-03	6.75171E-03	3.71473E-05	5.20908E-04	1.00001E+00
18	.00000E+00	.00000E+00	6.48216E-03	9.46521E-04	5.17198E-03	2.96170E-05	1.28057E-03	9.99999E-01
19	.00000E+00	.00000E+00	1.07274E-02	2.92480E-03	9.70714E-03	6.55067E-05	9.54747E-04	1.00001E+00
20	.00000E+00	.00000E+00	2.62842E-02	2.09761E-02	2.37163E-02	2.73573E-04	2.29415E-03	1.00001E+00
21	.00000E+00	.00000E+00	1.26120E-02	4.18891E-03	1.08973E-02	1.05051E-04	1.60970E-03	9.99997E-01
22	.00000E+00	.00000E+00	2.49792E-02	1.28515E-02	1.99998E-02	2.46844E-04	4.73257E-03	1.00001E+00
23	.00000E+00	.00000E+00	6.47805E-02	7.82889E-02	5.14102E-02	1.13648E-03	1.22324E-02	1.00002E+00
24	.00000E+00	.00000E+00	6.92269E-02	7.39258E-02	5.70640E-02	1.34498E-03	1.08166E-02	1.00002E+00
25	.00000E+00	.00000E+00	4.61044E-02	3.13608E-02	4.03457E-02	7.97058E-04	4.96113E-03	1.00001E+00
26	.00000E+00	.00000E+00	3.68318E-02	3.50569E-02	3.23797E-02	8.10747E-04	3.64108E-03	1.00001E+00
27	.00000E+00	.00000E+00	1.24954E-02	7.60995E-03	1.15950E-02	2.89664E-04	6.12786E-04	1.00000E+00

28	.00000E+00	.00000E+00	7.90077E-01	7.85207E-01	7.90076E-01	6.32429E-03	-6.30270E-03	9.99973E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.29470E-02	-7.16304E-04	1.28313E-02	.00000E+00	3.65704E-11	.00000E+00	1.98189E-05	1.61886E-02
2	9.19899E-02	-7.86608E-03	9.04940E-02	.00000E+00	.00000E+00	.00000E+00	8.90010E-05	1.14523E-01
3	1.14556E-01	-1.04564E-02	1.12592E-01	.00000E+00	.00000E+00	.00000E+00	9.22112E-05	1.42382E-01
4	7.05289E-02	-6.82338E-03	6.89736E-02	.00000E+00	.00000E+00	.00000E+00	4.17271E-05	8.74880E-02
5	1.05325E-01	-1.06725E-02	1.02724E-01	.00000E+00	.00000E+00	.00000E+00	4.95622E-05	1.30448E-01
6	1.97660E-01	-1.99913E-02	1.92813E-01	.00000E+00	.00000E+00	.00000E+00	8.34119E-05	2.44845E-01
7	1.96125E-01	-1.19675E-02	1.95091E-01	.00000E+00	.00000E+00	.00000E+00	5.92737E-05	2.44269E-01
8	1.47403E-01	-2.42234E-03	1.46981E-01	.00000E+00	.00000E+00	.00000E+00	3.27233E-05	1.84963E-01
9	1.15867E-01	2.56207E-04	1.15921E-01	.00000E+00	.00000E+00	.00000E+00	2.16756E-05	1.45631E-01
10	1.06705E-01	1.45798E-03	1.07132E-01	.00000E+00	.00000E+00	.00000E+00	1.91638E-05	1.34398E-01
11	9.99250E-02	3.44575E-03	1.00890E-01	.00000E+00	.00000E+00	.00000E+00	1.79124E-05	1.26261E-01
12	6.43144E-02	4.05294E-03	6.54175E-02	.00000E+00	.00000E+00	.00000E+00	1.05151E-05	8.16046E-02
13	5.48598E-02	3.84136E-03	5.58766E-02	.00000E+00	.00000E+00	.00000E+00	8.74741E-06	6.96586E-02
14	5.17717E-02	5.63539E-03	5.32790E-02	.00000E+00	.00000E+00	.00000E+00	8.47287E-06	6.61280E-02
15	2.87870E-02	1.21179E-03	2.90520E-02	.00000E+00	.00000E+00	.00000E+00	4.47623E-06	3.63571E-02
16	1.59433E-02	6.55321E-04	1.60945E-02	.00000E+00	.00000E+00	.00000E+00	2.24256E-06	2.01404E-02
17	6.92311E-03	5.20908E-04	7.05892E-03	.00000E+00	.00000E+00	.00000E+00	9.00316E-07	8.79626E-03
18	5.02976E-03	1.28057E-03	5.39344E-03	.00000E+00	.00000E+00	.00000E+00	6.57154E-07	6.58142E-03
19	1.04946E-02	9.54747E-04	1.07443E-02	.00000E+00	.00000E+00	.00000E+00	1.39832E-06	1.33639E-02
20	3.50789E-02	2.29415E-03	3.56683E-02	.00000E+00	.00000E+00	.00000E+00	5.21483E-06	4.44918E-02
21	1.06670E-02	1.60970E-03	1.11366E-02	.00000E+00	.00000E+00	.00000E+00	1.25948E-06	1.37361E-02
22	2.14681E-02	4.75237E-03	2.29257E-02	.00000E+00	.00000E+00	.00000E+00	2.55950E-06	2.79982E-02
23	7.29195E-02	1.22524E-02	7.73747E-02	.00000E+00	.00000E+00	.00000E+00	7.80690E-06	9.46523E-02
24	5.87227E-02	1.08166E-02	6.34132E-02	.00000E+00	.00000E+00	.00000E+00	4.71613E-06	7.69401E-02
25	2.61979E-02	4.96113E-03	2.85785E-02	.00000E+00	.00000E+00	.00000E+00	1.63714E-06	3.45726E-02
26	1.84639E-02	3.64108E-03	2.05908E-02	.00000E+00	.00000E+00	.00000E+00	8.63529E-07	2.46928E-02
27	3.44191E-03	6.12786E-04	3.93083E-03	.00000E+00	.00000E+00	.00000E+00	1.01762E-07	4.65766E-03
28	1.74411E+00	-6.30267E-03	1.75098E+00	.00000E+00	3.65704E-11	.00000E+00	5.87850E-04	2.19577E+00

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.20921E-04	1.65608E-04	2.48438E-06	-1.62186E-04	1.00001E+00
2	.00000E+00	.00000E+00	2.89231E-05	1.45512E-03	1.04412E-03	1.40152E-05	-1.02922E-03	1.00000E+00
3	.00000E+00	.00000E+00	1.49920E-04	2.76675E-03	8.74817E-04	2.02460E-05	-7.45096E-04	9.99996E-01
4	.00000E+00	.00000E+00	2.86528E-04	2.30853E-03	2.98258E-04	1.30902E-05	-2.47955E-05	9.99996E-01
5	.00000E+00	.00000E+00	6.16344E-04	4.41569E-03	2.79259E-04	1.68606E-05	3.20103E-04	1.00000E+00
6	.00000E+00	.00000E+00	1.02177E-03	1.24040E-02	1.69473E-04	2.70655E-05	8.25221E-04	1.00000E+00
7	.00000E+00	.00000E+00	6.72146E-04	1.25943E-02	6.33056E-05	2.68151E-05	5.82024E-04	1.00000E+00
8	.00000E+00	.00000E+00	1.17399E-04	9.20787E-03	4.43573E-04	2.21119E-05	-3.48123E-04	1.00001E+00
9	.00000E+00	.00000E+00	4.45214E-04	6.36001E-03	5.30177E-05	7.67145E-05	3.15497E-04	9.99978E-01
10	.00000E+00	.00000E+00	5.30827E-05	4.98891E-03	4.94987E-05	5.95510E-05	-5.57626E-05	9.99997E-01
11	.00000E+00	.00000E+00	4.95020E-05	4.45642E-03	5.05287E-05	9.00528E-05	-9.08754E-05	9.99999E-01
12	.00000E+00	.00000E+00	5.05290E-05	2.76262E-03	5.13976E-05	5.67578E-06	-6.74604E-06	1.00000E+00
13	.00000E+00	.00000E+00	5.13977E-05	2.35729E-03	4.80858E-05	6.31612E-06	-3.00305E-06	1.00000E+00
14	.00000E+00	.00000E+00	4.80858E-05	2.22876E-03	4.20013E-05	8.51155E-06	-2.42610E-06	1.00000E+00
15	.00000E+00	.00000E+00	4.45952E-05	1.21481E-03	4.97182E-05	6.29121E-06	-1.13825E-05	9.99975E-01
16	.00000E+00	.00000E+00	5.57278E-05	6.44216E-04	5.58094E-05	3.81817E-06	-3.87826E-06	9.99970E-01
17	.00000E+00	.00000E+00	6.08346E-05	2.43808E-04	6.00140E-05	1.81234E-06	-9.82953E-07	9.99985E-01
18	.00000E+00	.00000E+00	6.30793E-05	1.66413E-04	5.37339E-05	1.38547E-06	7.96770E-06	9.99994E-01
19	.00000E+00	.00000E+00	5.54506E-05	4.01230E-04	5.91975E-05	3.11345E-06	-6.84586E-06	9.99985E-01
20	.00000E+00	.00000E+00	7.23071E-05	1.47688E-03	6.27873E-05	1.26972E-05	-3.12808E-06	9.99979E-01
21	.00000E+00	.00000E+00	8.29752E-05	3.77457E-04	9.01609E-05	4.67888E-06	-1.18467E-05	9.99989E-01
22	.00000E+00	.00000E+00	1.18953E-04	8.29873E-04	1.10843E-04	1.07088E-05	-2.60305E-06	9.99997E-01
23	.00000E+00	.00000E+00	1.70659E-04	2.97744E-03	2.18594E-04	4.86308E-05	-9.66787E-06	1.00000E+00
24	.00000E+00	.00000E+00	2.81397E-04	2.26338E-03	3.10615E-04	5.55581E-05	-8.48109E-06	1.00000E+00
25	.00000E+00	.00000E+00	2.87529E-04	9.13261E-04	2.35061E-04	3.23191E-05	2.01329E-05	1.00000E+00
26	.00000E+00	.00000E+00	1.22513E-04	7.14961E-04	9.44859E-05	3.20961E-05	-4.27394E-06	1.00000E+00
27	.00000E+00	.00000E+00	2.73967E-04	1.50756E-04	7.77779E-08	1.11996E-05	1.61172E-05	1.00000E+00
28	.00000E+00	.00000E+00	5.05364E-03	8.08963E-02	5.05363E-03	6.13620E-04	-6.07608E-04	9.99999E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.29734E-02	-8.78489E-04	1.29470E-02	-7.16304E-04	5.91701E-06	.00000E+00	1.63570E-06	2.16007E-03
2	9.22544E-02	-8.89530E-03	9.19899E-02	-7.86608E-03	.00000E+00	.00000E+00	1.11244E-05	1.53654E-02
3	1.14903E-01	-1.12015E-02	1.14556E-01	-1.04564E-02	.00000E+00	.00000E+00	1.26787E-05	1.91256E-02
4	7.07456E-02	-6.84818E-03	7.05289E-02	-6.82338E-03	.00000E+00	.00000E+00	7.43533E-06	1.17768E-02
5	1.05662E-01	-1.03524E-02	1.05323E-01	-1.06725E-02	.00000E+00	.00000E+00	8.63424E-06	1.75892E-02
6	1.98334E-01	-1.87661E-02	1.97660E-01	-1.95913E-02	.00000E+00	.00000E+00	1.01748E-05	3.30135E-02
7	1.96531E-01	-1.13854E-02	1.96125E-01	-1.19675E-02	.00000E+00	.00000E+00	8.35354E-06	3.27317E-02
8	1.47491E-01	-2.77046E-03	1.47403E-01	-2.42234E-03	.00000E+00	.00000E+00	5.27461E-06	2.45772E-02
9	1.15858E-01	5.71704E-04	1.15867E-01	2.56207E-04	.00000E+00	.00000E+00	4.58407E-06	1.93135E-02
10	1.06665E-01	1.40216E-03	1.06705E-01	1.45798E-03	.00000E+00	.00000E+00	4.91124E-06	1.77821E-02
11	9.98329E-02	3.35487E-03	9.99250E-02	3.44575E-03	.00000E+00	.00000E+00	4.76619E-06	1.66467E-02
12	6.42072E-02	4.04619E-03	6.43144E-02	4.05294E-03	.00000E+00	.00000E+00	3.21614E-06	1.07096E-02
13	5.47558E-02	3.83835E-03	5.48596E-02	3.84136E-03	.00000E+00	.00000E+00	2.73718E-06	9.13409E-03
14	5.16213E-02	5.63297E-03	5.17717E-02	5.63539E-03	.00000E+00	.00000E+00	2.57515E-06	8.61470E-03
15	2.87494E-02	1.20041E-03	2.87870E-02	1.21179E-03	.00000E+00	.00000E+00	1.41268E-06	4.79472E-03
16	1.59246E-02	6.51443E-04	1.59433E-02	6.55321E-04	.00000E+00	.00000E+00	7.82479E-07	2.65567E-03
17	6.90929E-03	5.19925E-04	6.92311E-03	5.20908E-04	.00000E+00	.00000E+00	3.39443E-07	1.15260E-03
18	4.99765E-03	1.28854E-03	5.02976E-03	1.28057E-03	.00000E+00	.00000E+00	2.45880E-07	8.35162E-04
19	1.04687E-02	9.47901E-04	1.04946E-02	9.54747E-04	.00000E+00	.00000E+00	5.14024E-07	1.74671E-03
20	3.50177E-02	2.29102E-03	3.50789E-02	2.29415E-03	.00000E+00	.00000E+00	1.71648E-06	5.84098E-03
21	1.06276E-02	1.59785E-03	1.06670E-02	1.60970E-03	.00000E+00	.00000E+00	5.20458E-07	1.77399E-03
22	2.13547E-02	4.72977E-03	2.14681E-02	4.73257E-03	.00000E+00	.00000E+00	1.04510E-06	3.56688E-03
23	7.26320E-02	1.21357E-02	7.29195E-02	1.22524E-02	.00000E+00	.00000E+00	3.54020E-06	1.21254E-02
24	5.84889E-02	1.07318E-02	5.87227E-02	1.08166E-02	.00000E+00	.00000E+00	2.85343E-06	9.76391E-03
25	2.60997E-02	4.98127E-03	2.61979E-02	4.96113E-03	.00000E+00	.00000E+00	1.25672E-06	4.35650E-03
26	1.84031E-02	3.63680E-03	1.84639E-02	3.64108E-03	.00000E+00	.00000E+00	8.76531E-07	3.07088E-03
27	3.43621E-03	6.28904E-04	3.44191E-03	6.12786E-04	.00000E+00	.00000E+00	1.58535E-07	5.72973E-04
28	1.74494E+00	-6.91036E-03	1.74411E+00	-6.30267E-03	5.91701E-06	.00000E+00	1.05343E-04	2.90787E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.64875E-04	3.50584E-04	2.91918E-05	-3.79756E-04	9.99986E-01
2	.00000E+00	.00000E+00	2.01158E-04	3.27763E-03	4.30784E-03	9.36627E-05	-4.20018E-03	9.99988E-01
3	.00000E+00	.00000E+00	2.04538E-03	2.91687E-03	7.58913E-03	4.95230E-05	-5.59510E-03	9.99991E-01
4	.00000E+00	.00000E+00	2.98111E-03	1.92593E-03	6.61731E-03	2.24755E-05	-3.65860E-03	9.99994E-01
5	.00000E+00	.00000E+00	5.48386E-03	6.17872E-03	1.11940E-02	2.66267E-05	-5.73663E-03	9.99995E-01
6	.00000E+00	.00000E+00	1.15107E-02	1.84911E-02	2.19768E-02	4.51813E-05	-1.05112E-02	9.99999E-01
7	.00000E+00	.00000E+00	2.26311E-02	3.23892E-02	2.87592E-02	3.25226E-05	-6.16029E-03	9.99991E-01
8	.00000E+00	.00000E+00	2.99914E-02	4.11648E-02	3.08662E-02	1.91268E-05	-8.91165E-04	9.99920E-01
9	.00000E+00	.00000E+00	3.04242E-02	3.79923E-02	3.00864E-02	1.53178E-05	3.25912E-04	9.99892E-01
10	.00000E+00	.00000E+00	2.98990E-02	3.61078E-02	2.90180E-02	1.88250E-05	8.65267E-04	9.99901E-01
11	.00000E+00	.00000E+00	2.91838E-02	3.40699E-02	2.72001E-02	2.86488E-05	1.95682E-03	9.99946E-01
12	.00000E+00	.00000E+00	2.36104E-02	1.81009E-02	2.12979E-02	3.11771E-05	2.28181E-03	9.99981E-01
13	.00000E+00	.00000E+00	2.09746E-02	1.47187E-02	1.88758E-02	4.36015E-05	2.05586E-03	9.99974E-01
14	.00000E+00	.00000E+00	2.08586E-02	1.43900E-02	1.71899E-02	6.94463E-05	3.09950E-03	9.99991E-01
15	.00000E+00	.00000E+00	1.10983E-02	5.64759E-03	1.05802E-02	5.85980E-05	4.59477E-04	1.00000E+00
16	.00000E+00	.00000E+00	7.33652E-03	2.38076E-03	7.01393E-03	3.97032E-05	2.82893E-04	9.99999E-01
17	.00000E+00	.00000E+00	3.77370E-03	6.67649E-04	3.47375E-03	1.91123E-05	2.80816E-04	1.00001E+00
18	.00000E+00	.00000E+00	3.34508E-03	4.62949E-04	2.52966E-03	1.44859E-05	8.00941E-04	1.00000E+00
19	.00000E+00	.00000E+00	5.49801E-03	1.49991E-03	4.97807E-03	3.35955E-05	4.85311E-04	1.00001E+00
20	.00000E+00	.00000E+00	1.34706E-02	1.08274E-02	1.22618E-02	1.41211E-04	1.08756E-03	1.00001E+00
21	.00000E+00	.00000E+00	6.44484E-03	2.10957E-03	5.48746E-03	5.28997E-05	9.04496E-04	9.99999E-01
22	.00000E+00	.00000E+00	1.26543E-02	6.33776E-03	9.86295E-03	1.21731E-04	2.66954E-03	1.00000E+00
23	.00000E+00	.00000E+00	3.20958E-02	3.90129E-02	2.56187E-02	5.66332E-04	5.91010E-03	1.00001E+00
24	.00000E+00	.00000E+00	3.40384E-02	3.63265E-02	2.80408E-02	6.60889E-04	5.33604E-03	1.00001E+00
25	.00000E+00	.00000E+00	2.25139E-02	1.52320E-02	1.95959E-02	3.87132E-04	2.53061E-03	1.00001E+00
26	.00000E+00	.00000E+00	1.79080E-02	1.66668E-02	1.53940E-02	3.85446E-04	2.12847E-03	1.00000E+00
27	.00000E+00	.00000E+00	6.04364E-03	3.52504E-03	5.37008E-03	1.34177E-04	5.39428E-04	1.00000E+00
28	.00000E+00	.00000E+00	4.05516E-01	4.02685E-01	4.05516E-01	3.14064E-03	-3.12908E-03	9.99972E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux

1	1.31088E-02	-1.25825E-03	1.29734E-02	-8.78489E-04	1.95883E-11	.00000E+00	1.05072E-05	8.58257E-03
2	9.35884E-02	-1.30955E-02	9.22544E-02	-8.89530E-03	.00000E+00	.00000E+00	4.75076E-05	6.11308E-02
3	1.16535E-01	-1.67946E-02	1.14903E-01	-1.12015E-02	.00000E+00	.00000E+00	4.92957E-05	7.61139E-02
4	7.17134E-02	-1.05068E-02	7.07456E-02	-6.84818E-03	.00000E+00	.00000E+00	2.23398E-05	4.68392E-02
5	1.07123E-01	-1.60891E-02	1.05662E-01	-1.08524E-02	.00000E+00	.00000E+00	2.64696E-05	6.99504E-02
6	2.00957E-01	-2.92773E-02	1.98334E-01	-1.87661E-02	.00000E+00	.00000E+00	4.47151E-05	1.31256E-01
7	1.98042E-01	-1.75457E-02	1.96531E-01	-1.13854E-02	.00000E+00	.00000E+00	3.14900E-05	1.29772E-01
8	1.47783E-01	-3.66163E-03	1.47491E-01	-2.77046E-03	.00000E+00	.00000E+00	1.71954E-05	9.71827E-02
9	1.15632E-01	8.97616E-04	1.15858E-01	5.71704E-04	.00000E+00	.00000E+00	1.13402E-05	7.61909E-02
10	1.06412E-01	2.26743E-03	1.06665E-01	1.40216E-03	.00000E+00	.00000E+00	1.00022E-05	7.01464E-02
11	9.92633E-02	5.31169E-03	9.98329E-02	3.35487E-03	.00000E+00	.00000E+00	9.30142E-06	6.55640E-02
12	6.35157E-02	6.32801E-03	6.42072E-02	4.04619E-03	.00000E+00	.00000E+00	5.42168E-06	4.20763E-02
13	5.41482E-02	5.89421E-03	5.47558E-02	3.83835E-03	.00000E+00	.00000E+00	4.50529E-06	3.58772E-02
14	5.06918E-02	8.73247E-03	5.16213E-02	5.63297E-03	.00000E+00	.00000E+00	4.32126E-06	3.37261E-02
15	2.86542E-02	1.65988E-03	2.87494E-02	1.20041E-03	.00000E+00	.00000E+00	2.32668E-06	1.88979E-02
16	1.58653E-02	9.34335E-04	1.59246E-02	6.51443E-04	.00000E+00	.00000E+00	1.16507E-06	1.04635E-02
17	6.82698E-03	8.00742E-04	6.90929E-03	5.19925E-04	.00000E+00	.00000E+00	4.68212E-07	4.52567E-03
18	4.73826E-03	2.08948E-03	4.99765E-03	1.28854E-03	.00000E+00	.00000E+00	3.21418E-07	3.21901E-03
19	1.03308E-02	1.43421E-03	1.04687E-02	9.47901E-04	.00000E+00	.00000E+00	7.17093E-07	6.85335E-03
20	3.47106E-02	3.37858E-03	3.50177E-02	2.29102E-03	.00000E+00	.00000E+00	2.69178E-06	2.29656E-02
21	1.03385E-02	2.50235E-03	1.06276E-02	1.59785E-03	.00000E+00	.00000E+00	6.34228E-07	6.91659E-03
22	2.04470E-02	7.39952E-03	2.13547E-02	4.72977E-03	.00000E+00	.00000E+00	1.26222E-06	1.38073E-02
23	7.03589E-02	1.80458E-02	7.26320E-02	1.21357E-02	.00000E+00	.00000E+00	3.89034E-06	4.71672E-02
24	5.60669E-02	1.60678E-02	5.84889E-02	1.07318E-02	.00000E+00	.00000E+00	2.31747E-06	3.78077E-02
25	2.47603E-02	7.51188E-03	2.60997E-02	4.98127E-03	.00000E+00	.00000E+00	7.95161E-07	1.67919E-02
26	1.71035E-02	5.76528E-03	1.84031E-02	3.63680E-03	.00000E+00	.00000E+00	4.10540E-07	1.17395E-02
27	3.05564E-03	1.16833E-03	3.43621E-03	6.28904E-04	.00000E+00	.00000E+00	4.71577E-08	2.15750E-03
28	1.74175E+00	-1.00393E-02	1.74494E+00	-6.91036E-03	1.95883E-11	.00000E+00	3.11451E-04	1.14772E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.30698E-02	.00000E+00	2.13994E-02	2.03181E-02	3.78974E-03	1.25824E-03	9.98904E-01
2	.00000E+00	1.94222E-01	7.03259E-03	2.50889E-01	1.72854E-01	1.53178E-02	1.30954E-02	1.00002E+00
3	.00000E+00	2.15915E-01	7.14098E-02	2.57622E-01	2.54297E-01	1.62366E-02	1.67945E-02	9.99988E-01
4	.00000E+00	1.23790E-01	1.05540E-01	1.76779E-01	2.11074E-01	7.74974E-03	1.05067E-02	1.00000E+00
5	.00000E+00	1.64063E-01	1.92065E-01	4.44539E-01	3.34856E-01	5.17673E-03	1.60890E-02	9.99990E-01
6	.00000E+00	1.76975E-01	3.91014E-01	1.19109E+00	5.30525E-01	8.17797E-03	2.92771E-02	1.00001E+00
7	.00000E+00	8.74405E-02	5.98420E-01	1.56413E+00	6.55180E-01	8.14086E-03	1.75452E-02	9.99991E-01
8	.00000E+00	1.34688E-02	6.89451E-01	1.57552E+00	6.86148E-01	1.31654E-02	3.66160E-03	9.99921E-01
9	.00000E+00	9.77432E-04	6.78245E-01	1.37218E+00	6.58457E-01	2.17362E-02	-9.02944E-04	9.99901E-01
10	.00000E+00	7.25977E-05	6.55483E-01	1.24851E+00	6.25092E-01	3.27972E-02	-2.26952E-03	9.99904E-01
11	.00000E+00	5.71148E-06	6.29133E-01	1.16298E+00	5.80859E-01	5.36285E-02	-5.31337E-03	9.99945E-01
12	.00000E+00	4.01221E-07	5.05927E-01	6.35521E-01	4.53865E-01	5.84032E-02	-6.32841E-03	9.99975E-01
13	.00000E+00	6.37102E-08	4.48520E-01	5.04448E-01	3.99419E-01	5.50084E-02	-5.89350E-03	9.99969E-01
14	.00000E+00	1.26257E-08	4.31160E-01	4.69287E-01	3.61316E-01	7.85815E-02	-8.73236E-03	9.99989E-01
15	.00000E+00	1.42684E-09	2.37079E-01	2.15271E-01	2.30984E-01	7.76238E-03	-1.66382E-03	1.00024E+00
16	.00000E+00	4.18970E-10	1.61924E-01	9.92824E-02	1.56953E-01	5.88910E-03	-9.37013E-04	1.00024E+00
17	.00000E+00	1.34925E-10	8.67084E-02	3.09696E-02	7.99813E-02	7.50788E-03	-8.08885E-04	1.00021E+00
18	.00000E+00	9.66050E-11	7.72340E-02	1.94689E-02	5.47047E-02	2.46136E-02	-2.09075E-03	1.00008E+00
19	.00000E+00	1.36579E-10	1.20703E-01	5.91474E-02	1.11916E-01	1.02057E-02	-1.43813E-03	1.00016E+00
20	.00000E+00	2.22091E-10	2.89027E-01	3.42904E-01	2.64750E-01	2.75970E-02	-3.38612E-03	1.00025E+00
21	.00000E+00	3.25070E-11	1.42243E-01	6.81095E-02	1.20112E-01	2.46187E-02	-2.50520E-03	1.00012E+00
22	.00000E+00	3.77155E-11	2.69524E-01	1.75990E-01	2.04269E-01	7.26250E-02	-7.40179E-03	1.00011E+00
23	.00000E+00	3.60602E-11	6.44472E-01	9.75073E-01	5.23958E-01	1.38468E-01	-1.80546E-02	1.00018E+00
24	.00000E+00	9.81512E-12	6.82119E-01	8.44898E-01	5.63620E-01	1.34479E-01	-1.60683E-02	1.00013E+00
25	.00000E+00	2.87322E-12	4.52194E-01	3.43159E-01	3.85629E-01	7.40404E-02	-7.51283E-03	1.00008E+00
26	.00000E+00	2.01472E-12	3.50698E-01	3.45044E-01	2.89272E-01	6.71679E-02	-5.76540E-03	1.00007E+00
27	.00000E+00	4.80119E-13	1.15788E-01	6.97818E-02	9.77859E-02	1.91668E-02	-1.16834E-03	1.00008E+00
28	.00000E+00	1.00000E+00	9.02810E+00	1.44640E+01	9.02810E+00	9.92031E-01	9.99158E-03	1.00002E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*df**2	total flux
1	1.34078E-02	-5.92210E-09	1.31088E-02	-1.25825E-03	2.24856E-03	2.50851E-03	2.95798E-04	3.40816E-01

2	9.68924E-02	-6.22403E-08	9.35884E-02	-1.30955E-02	1.58552E-05	1.10279E-02	1.59276E-03	2.46038E+00
3	1.20693E-01	-6.99422E-08	1.16535E-01	-1.67944E-02	.00000E+00	1.33342E-02	1.82999E-03	3.06895E+00
4	7.45277E-02	-6.03651E-08	7.17134E-02	-1.05068E-02	.00000E+00	5.72025E-03	8.84473E-04	1.89158E+00
5	1.11698E-01	-7.40120E-08	1.07129E-01	-1.60891E-02	.00000E+00	1.64010E-03	1.03213E-03	2.85390E+00
6	2.09742E-01	-1.39576E-07	2.00957E-01	-2.92773E-02	.00000E+00	1.36601E-03	1.73147E-03	5.31941E+00
7	2.03582E-01	-4.84922E-07	1.98042E-01	-1.75457E-02	.00000E+00	1.31390E-03	1.22643E-03	5.16980E+00
8	1.48948E-01	-3.07247E-08	1.47783E-01	-3.66163E-03	.00000E+00	1.32553E-03	6.98152E-04	3.78928E+00
9	1.15297E-01	-5.32790E-06	1.15632E-01	8.97616E-04	.00000E+00	1.76700E-03	4.71301E-04	2.95644E+00
10	1.05618E-01	-2.08661E-06	1.06412E-01	2.26743E-03	.00000E+00	3.77407E-03	4.28686E-04	2.69138E+00
11	9.74201E-02	-1.68307E-06	9.92653E-02	5.31169E-03	.00000E+00	8.09927E-03	3.86960E-04	2.48553E+00
12	6.13341E-02	-4.06185E-07	6.35157E-02	6.32801E-03	.00000E+00	1.07519E-02	2.27642E-04	1.56759E+00
13	5.21385E-02	7.11566E-07	5.41482E-02	5.89421E-03	.00000E+00	1.19638E-02	1.94784E-04	1.33309E+00
14	4.77156E-02	1.09731E-07	5.06918E-02	8.75247E-03	.00000E+00	7.58312E-03	1.74426E-04	1.22295E+00
15	2.81121E-02	-3.94108E-06	2.86542E-02	1.65988E-03	.00000E+00	1.82802E-03	1.10911E-04	7.17467E-01
16	1.55520E-02	-2.67725E-06	1.58553E-02	9.34335E-04	.00000E+00	1.27483E-03	5.74435E-05	3.96873E-01
17	6.55975E-03	-3.14314E-06	6.82698E-03	8.00742E-04	.00000E+00	1.54140E-03	2.16032E-05	1.67739E-01
18	4.00778E-03	-1.27534E-06	4.73826E-03	2.08948E-03	.00000E+00	1.21734E-03	9.67004E-06	1.05785E-01
19	9.83632E-03	-3.91489E-06	1.05308E-02	1.43421E-03	.00000E+00	2.45687E-03	3.31437E-05	2.51866E-01
20	3.35383E-02	-7.54179E-06	3.47106E-02	3.37858E-03	.00000E+00	1.45544E-02	1.23744E-04	8.57487E-01
21	9.43671E-03	-2.85095E-06	1.05385E-02	2.50235E-03	.00000E+00	1.43881E-02	2.64497E-05	2.42825E-01
22	1.76411E-02	-2.47474E-06	2.04470E-02	7.39952E-03	.00000E+00	4.25972E-02	4.57041E-05	4.57311E-01
23	6.22472E-02	-8.76875E-06	7.03589E-02	1.80458E-02	.00000E+00	7.83479E-02	1.66818E-04	1.61401E+00
24	4.78876E-02	-5.42101E-07	5.60669E-02	1.60678E-02	.00000E+00	7.50265E-02	1.01047E-04	1.24968E+00
25	2.05412E-02	-9.54369E-07	2.47603E-02	7.51188E-03	.00000E+00	4.30311E-02	3.46075E-05	5.38677E-01
26	1.35246E-02	-1.20504E-07	1.71085E-02	5.76528E-03	.00000E+00	3.95997E-02	1.70715E-05	3.56770E-01
27	2.27879E-03	-6.61264E-09	3.06564E-03	1.16833E-03	.00000E+00	1.11363E-02	1.75437E-06	6.02772E-02
28	1.73088E+00	-4.78184E-05	1.74175E+00	-1.00398E-02	2.26442E-03	4.09170E-01	1.19250E-02	4.41258E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.30698E-02	.00000E+00	2.23848E-02	2.14956E-02	3.85648E-03	-5.92210E-09	9.98902E-01
2	.00000E+00	1.94222E-01	7.64210E-03	2.61762E-01	1.86278E-01	1.56009E-02	-6.22403E-08	1.00002E+00
3	.00000E+00	2.15915E-01	7.74376E-02	2.68762E-01	2.76957E-01	1.63990E-02	-6.99422E-08	9.99987E-01
4	.00000E+00	1.23790E-01	1.14386E-01	1.84606E-01	2.30349E-01	7.82729E-03	-6.03651E-08	9.99999E-01
5	.00000E+00	1.64063E-01	2.08408E-01	4.66656E-01	3.67205E-01	5.26987E-03	-7.40120E-08	9.99990E-01
6	.00000E+00	1.76975E-01	4.25085E-01	1.25647E+00	5.95667E-01	8.33450E-03	-1.39576E-07	1.00001E+00
7	.00000E+00	8.74405E-02	6.58949E-01	1.67008E+00	7.38136E-01	8.26141E-03	-4.84922E-07	9.99990E-01
8	.00000E+00	1.34688E-02	7.75915E-01	1.70424E+00	7.76204E-01	1.32431E-02	-3.07247E-08	9.99920E-01
9	.00000E+00	9.77432E-04	7.66901E-01	1.48915E+00	7.46103E-01	2.18575E-02	-5.32790E-06	9.99900E-01
10	.00000E+00	7.25977E-05	7.42521E-01	1.35878E+00	7.09756E-01	3.29115E-02	-2.08661E-06	9.99902E-01
11	.00000E+00	5.71148E-06	7.14345E-01	1.26711E+00	6.60490E-01	5.38024E-02	-1.68307E-06	9.99944E-01
12	.00000E+00	4.01221E-07	5.75006E-01	6.91490E-01	5.16521E-01	5.85006E-02	-4.06185E-07	9.99975E-01
13	.00000E+00	6.37102E-08	5.10120E-01	5.50101E-01	4.54992E-01	5.51430E-02	7.11566E-07	9.99969E-01
14	.00000E+00	1.26257E-08	4.91043E-01	5.14121E-01	4.12253E-01	7.87956E-02	1.09731E-07	9.99989E-01
15	.00000E+00	1.42684E-09	2.69902E-01	2.32999E-01	2.61909E-01	7.94000E-03	-3.94108E-06	1.00021E+00
16	.00000E+00	4.18970E-10	1.88549E-01	1.06890E-01	1.77503E-01	6.00905E-03	-2.67725E-06	1.00021E+00
17	.00000E+00	1.34929E-10	9.78477E-02	3.31787E-02	9.02667E-02	7.56990E-03	-3.14314E-06	1.00019E+00
18	.00000E+00	9.66050E-11	8.71243E-02	2.10447E-02	6.24600E-02	2.46591E-02	-1.27534E-06	1.00007E+00
19	.00000E+00	1.36579E-10	1.36984E-01	6.39733E-02	1.26661E-01	1.03079E-02	-3.91489E-06	1.00014E+00
20	.00000E+00	2.22091E-10	3.28854E-01	3.76185E-01	3.00770E-01	2.80245E-02	-7.54179E-06	1.00020E+00
21	.00000E+00	3.25070E-11	1.61383E-01	7.47852E-02	1.36587E-01	2.47814E-02	-2.85095E-06	1.00011E+00
22	.00000E+00	3.77155E-11	3.07276E-01	1.96009E-01	2.34243E-01	7.30043E-02	-2.47474E-06	1.00010E+00
23	.00000E+00	3.60602E-11	7.41519E-01	1.09535E+00	6.01185E-01	1.40220E-01	-8.76875E-06	1.00017E+00
24	.00000E+00	9.81512E-12	7.85665E-01	9.57414E-01	6.49036E-01	1.36540E-01	-5.42101E-07	1.00011E+00
25	.00000E+00	2.87322E-12	5.21100E-01	3.90665E-01	4.45806E-01	7.52569E-02	-9.54369E-07	1.00007E+00
26	.00000E+00	2.01472E-12	4.05560E-01	3.97483E-01	3.37140E-01	6.83962E-02	-1.20504E-07	1.00006E+00
27	.00000E+00	4.80119E-13	1.34354E-01	8.10678E-02	1.14745E-01	1.96018E-02	-6.61264E-09	1.00003E+00
28	.00000E+00	1.00000E+00	1.02287E+01	1.57328E+01	1.02287E+01	1.00211E+00	-4.78217E-05	1.00002E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.34078E-02	-5.92210E-09	1.28313E-02	.00000E+00	2.25448E-03	2.50351E-03	3.27759E-04	3.67747E-01
2	9.68924E-02	-6.22403E-08	9.04940E-02	.00000E+00	1.58552E-05	1.10279E-02	1.74039E-03	2.65139E+00

3	1.20893E-01	-6.99422E-08	1.12392E-01	.00000E+00	.00000E+00	1.33342E-02	1.98418E-03	3.30655E+00
4	7.45277E-02	-6.03651E-08	6.89736E-02	.00000E+00	.00000E+00	5.72025E-03	9.55975E-04	2.03768E+00
5	1.11698E-01	-7.40120E-08	1.02724E-01	.00000E+00	.00000E+00	1.64010E-03	1.11669E-03	3.05188E+00
6	2.09742E-01	-1.39576E-07	1.92813E-01	.00000E+00	.00000E+00	1.36601E-03	1.86978E-03	5.72852E+00
7	2.03582E-01	-4.84922E-07	1.98091E-01	.00000E+00	.00000E+00	1.31390E-03	1.32555E-03	5.57657E+00
8	1.48948E-01	-3.07247E-08	1.46981E-01	.00000E+00	.00000E+00	1.32553E-03	7.53344E-04	4.09601E+00
9	1.15297E-01	-5.32790E-06	1.15921E-01	.00000E+00	.00000E+00	1.76700E-03	5.08901E-04	3.17757E+00
10	1.05618E-01	-2.08661E-06	1.07132E-01	.00000E+00	.00000E+00	3.77407E-03	4.62763E-04	2.91371E+00
11	9.74201E-02	-1.68307E-06	1.00890E-01	.00000E+00	.00000E+00	8.09927E-03	4.18940E-04	2.69400E+00
12	6.13341E-02	-4.06185E-07	6.54175E-02	.00000E+00	.00000E+00	1.07519E-02	2.46795E-04	1.70198E+00
13	5.21385E-02	7.11566E-07	5.58766E-02	.00000E+00	.00000E+00	1.19638E-02	2.10774E-04	1.44778E+00
14	4.77156E-02	1.09731E-07	5.32790E-02	.00000E+00	.00000E+00	7.58512E-03	1.89795E-04	1.33142E+00
15	2.81121E-02	-3.94108E-06	2.90520E-02	.00000E+00	.00000E+00	1.82802E-03	1.19127E-04	7.77517E-01
16	1.55520E-02	-2.67725E-06	1.60945E-02	.00000E+00	.00000E+00	1.27483E-03	6.16336E-05	4.30132E-01
17	6.55979E-03	-3.14314E-06	7.05892E-03	.00000E+00	.00000E+00	1.54140E-03	2.33061E-05	1.82213E-01
18	4.00778E-03	-1.27534E-06	5.30344E-03	.00000E+00	.00000E+00	1.21734E-03	1.08945E-05	1.14419E-01
19	9.83632E-03	-3.91489E-06	1.07443E-02	.00000E+00	.00000E+00	2.45687E-03	3.57731E-05	2.73829E-01
20	3.35383E-02	-7.54179E-06	3.56683E-02	.00000E+00	.00000E+00	1.45544E-02	1.33367E-04	9.30786E-01
21	9.43671E-03	-2.85095E-06	1.11366E-02	.00000E+00	.00000E+00	1.43881E-02	2.88638E-05	2.65252E-01
22	1.76411E-02	-2.47474E-06	2.29257E-02	.00000E+00	.00000E+00	4.25972E-02	5.05709E-05	5.02683E-01
23	6.22472E-02	-8.76875E-06	7.73747E-02	.00000E+00	.00000E+00	7.83473E-02	1.82056E-04	1.76796E+00
24	4.78876E-02	-5.42101E-07	6.34132E-02	.00000E+00	.00000E+00	7.50265E-02	1.10914E-04	1.37419E+00
25	2.05412E-02	-9.54369E-07	2.86785E-02	.00000E+00	.00000E+00	4.30311E-02	3.82965E-05	5.94398E-01
26	1.35246E-02	-1.20504E-07	2.06908E-02	.00000E+00	.00000E+00	3.95997E-02	1.92221E-05	3.96273E-01
27	2.27879E-03	-6.61264E-09	3.98083E-03	.00000E+00	.00000E+00	1.11363E-02	2.06181E-06	6.76653E-02
28	1.73088E+00	-4.78184E-05	1.75098E+00	.00000E+00	2.27033E-03	4.09170E-01	1.29276E-02	4.77601E+01

- elapsed time .02 min.

Odirect access unit 9 requires 556 blocks of length 216 for cross section weighting.

1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.14820E-03	5.05392E-03	5.29528E-03	2.50982E-03	3.18300E-03	5.52513E-03	3.71688E-03	1.74363E-03
2	6.99515E-04	4.99100E-03	5.79303E-03	3.44456E-03	4.29951E-03	6.15307E-03	4.33275E-03	2.14856E-03
3	1.17719E-03	5.47786E-03	5.87891E-03	2.91594E-03	3.85246E-03	6.77952E-03	4.37734E-03	1.82406E-03
4	8.08500E-04	4.30147E-03	4.93882E-03	2.38988E-03	2.82914E-03	4.80078E-03	3.32665E-03	1.79836E-03
5	8.32150E-04	4.36808E-03	4.98272E-03	2.41431E-03	2.87888E-03	4.88930E-03	3.37566E-03	1.79860E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.11316E-03	1.01461E-03	1.09416E-03	8.74330E-04	7.94958E-04	1.04358E-03	3.18348E-04	1.64116E-04
2	1.79112E-03	1.95416E-03	2.04367E-03	1.60250E-03	1.42492E-03	1.70552E-03	6.27280E-04	3.45782E-04
3	1.12184E-03	1.05432E-03	1.29472E-03	1.22182E-03	1.12408E-03	1.58232E-03	3.81882E-04	2.04098E-04
4	1.19562E-03	1.09513E-03	1.08062E-03	6.78003E-04	6.01909E-04	6.42609E-04	3.11281E-04	1.61321E-04
5	1.19570E-03	1.09568E-03	1.04596E-03	7.05651E-04	6.28176E-04	6.89795E-04	3.15203E-04	1.63587E-04

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.96719E-05	2.09565E-04	1.77897E-04	4.81411E-04	2.74797E-04	7.93823E-04	2.12714E-03	1.85066E-03
2	1.83930E-04	3.27752E-04	3.07361E-04	8.75044E-04	4.41183E-04	1.22440E-03	3.27981E-03	2.85287E-03
3	1.47332E-04	3.58529E-04	2.62955E-04	6.59123E-04	4.39156E-04	1.29182E-03	3.25767E-03	2.86246E-03
4	7.14884E-05	7.86031E-05	1.19259E-04	3.84632E-04	1.37265E-04	3.42150E-04	1.06555E-03	8.42903E-04
5	7.52672E-05	9.27709E-05	1.26506E-04	3.98578E-04	1.52594E-04	3.90792E-04	1.17929E-03	9.49309E-04

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	8.38179E-04	5.92747E-04	9.03010E-05	4.21295E-02
2	1.30858E-03	9.51613E-04	1.63610E-04	5.52731E-02
3	1.33117E-03	9.96687E-04	1.86168E-04	5.20512E-02
4	3.52061E-04	2.13748E-04	2.65248E-05	3.45443E-02
5	4.03427E-04	2.54216E-04	3.40795E-05	3.54342E-02

1broad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.0000E+07	2.6557E+06	1.9685E+09	7.2108E-01
2	9.0000E+05	1.5134E+05	9.9805E+06	2.7894E-01
3	4.0000E-01	1.2556E-01	3.6564E+05	1.2147E-10
4	1.0000E-05			

1 720 d, second part of sas2h pass to make library

0cell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3
1	3.90743E-01	1.13594E+00	2.20625E-01
2	3.95995E-01	1.13716E+00	2.11358E-01
3	3.98953E-01	1.13741E+00	2.07193E-01
4	4.16127E-01	1.13936E+00	1.77499E-01
5	4.14437E-01	1.13914E+00	1.80381E-01

0flux disadvantage factors (zone average/cell average-flux)

Ozone	grp. 1	grp. 2	grp. 3
1	9.42829E-01	9.97195E-01	1.22310E+00
2	9.55500E-01	9.98261E-01	1.17173E+00
3	9.62638E-01	9.98479E-01	1.14864E+00
4	1.00408E+00	1.00019E+00	9.84022E-01
5	1.00000E+00	1.00000E+00	1.00000E+00

0cell averaged currents

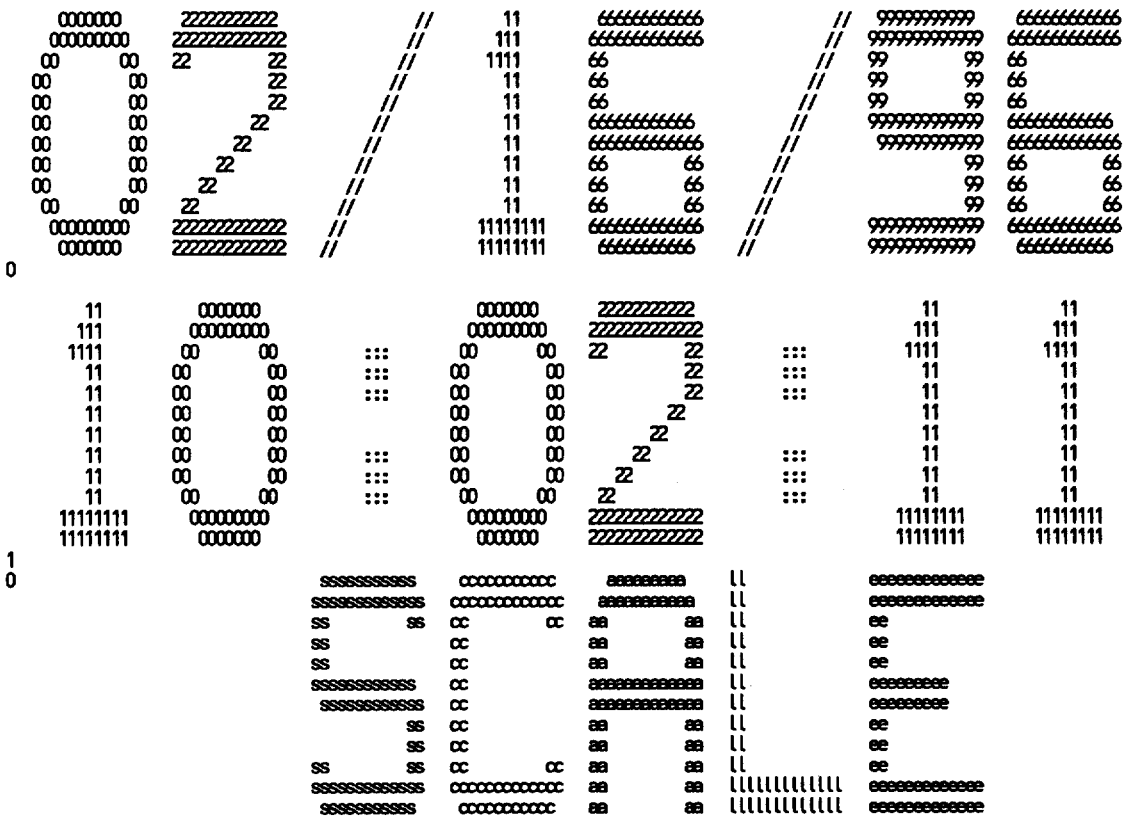
Ozone	grp. 1	grp. 2	grp. 3
1	1.71902E-02	1.83715E-02	6.56765E-03
2	1.92276E-02	2.58234E-02	1.02221E-02
3	1.93123E-02	2.23937E-02	1.03451E-02
4	1.52678E-02	1.62963E-02	2.98020E-03
5	1.54761E-02	1.65943E-02	3.36371E-03

Ozone	volume	vol. fraction
1	1.25665E+00	4.56236E-02
2	1.66687E-01	6.05165E-03
3	6.58265E-01	2.38987E-02
4	2.54624E+01	9.24426E-01
5	2.75440E+01	1.00000E+00

- elapsed time .03 min.

```
1  cccccccccc    cccccccccc   uu        uu  ppppppppppp   ll            eeeeeeeeeeee
   cccccccccccc  cccccccccccc  uu        uu  ppppppppppp   ll            eeeeeeeeeeee
   cc        cc  oo        oo  uu        uu  pp        pp  ll            ee
   cc            oo        oo  uu        uu  pp        pp  ll            ee
   cc            oo        oo  uu        uu  pp        pp  ll            ee
   cc            oo        oo  uu        uu  ppppppppppp   ll            eeeeeeeee
   cc            oo        oo  uu        uu  ppppppppppp   ll            eeeeeeeee
   cc            oo        oo  uu        uu  pp            ll            ee
   cc            oo        oo  uu        uu  pp            ll            ee
   cc        cc  oo        oo  uu        uu  pp            ll            ee
   cccccccccccc  cccccccccccc  uuuuuuuuuuuu  pp            llllllllllll  eeeeeeeeeeee
    cccccccccc    cccccccccc    uuuuuuuuuu   pp            llllllllllll  eeeeeeeeeeee
0

   dddddddddd     aaaaaaaa    vv        vv  iiiiiiiiiiii    sssssssssss
   dddddddddddd   aaaaaaaaaa   vv        vv  iiiiiiiiiiii   sssssssssssss
   dd        dd  aa        aa  vv        vv      ii        ss        ss
   dd        dd  aa        aa  vv        vv      ii        ss
   dd        dd  aa        aa  vv        vv      ii        ss
   dd        dd  aaaaaaaaaaaa  vv        vv      ii        sssssssssssss
   dd        dd  aaaaaaaaaaaa   vv      vv       ii         sssssssssssss
   dd        dd  aa        aa     vv    vv       ii                  ss
   dd        dd  aa        aa      vv  vv        ii                  ss
   dd        dd  aa        aa       vv vv        ii        ss        ss
   dddddddddddd  aa        aa        vvv     iiiiiiiiiiii   sssssssssssss
   dddddddddddd  aa        aa         v      iiiiiiiiiiii    sssssssssss
0
```


program verification information
code system: scale version: 4.2
program: c0c005
creation date: 04/27/95

```
                    *****            library:  /neutronics/scale/exe                    *****
                    *****                                                               *****
                    *****                                                               *****
                    *****   this is not a   scale  configuration controlled code        *****
                    *****                                                               *****
                    *****            jobname:  davis                                    *****
                    *****                                                               *****
                    *****   date of execution:  02/16/96                                *****
                    *****                                                               *****
                    *****   time of execution:  10:02:11                                *****
                    *****                                                               *****
                    *****                                                               *****
                    ***********************************************************************
                    ***********************************************************************
                    ***********************************************************************
1
0      -1q array has     1 entries.
0       0q array has     1 entries.
0       0q array has     1 entries.
0       1q array has     1 entries.
0       1q array has     1 entries.
0       1q array has     1 entries.
0       1q array has     1 entries.
0       1q array has     1 entries.
0       2q array has     1 entries.
0        * core allocated to array-data (by -1$$ or default) was   200000 words. *
1         * broad 3-group flux weighting factors *
0
0                 therm =    .5110
0                 res   =    .4318
0                 fast  =   3.3315
0 user requested (see jadd) that only the nuclide transitions presently included in
0 origen library be updated.
1cross sections, available from ampx (normalized to thermal flux), barns

                    10010 to  10020  2.82969E-01
                    10010 tot-cap    2.82969E-01
                    50100 to  40100  2.38416E-02
                    50100 to  10010  2.38416E-02
                    50100 to  40090  3.63840E-03
                    50100 to  10020  3.63840E-03
                    50100 to  30070  3.25391E+03
                    50100 to  20040  3.25409E+03
                    50100 to  10030  8.94021E-02
                    50100 tot-cap    3.25403E+03
                    50110 to  50100  1.04597E-05
                    50110 to  50120  4.30798E-03
                    50110 to  40110  1.33476E-06
                    50110 to  10010  1.33476E-06
                    50110 to  40090  1.19114E-05
                    50110 to  10030  1.19114E-05
                    50110 to  30080  1.55497E-04
                    50110 to  20040  1.55497E-04
                    50110 tot-cap    4.48718E-03
                    80160 to  80170  1.51170E-04
                    80160 to  70160  9.15206E-05
                    80160 to  10010  9.15206E-05
                    80160 to  70150  1.72607E-05
                    80160 to  10020  1.72607E-05
                    80160 to  60130  2.55664E-02
```

80160	to 20040	2.55664E-02
80160	to 80161	4.01377E-03
80160	tot-cap	2.58263E-02
360830	to 360820	2.07788E-02
360830	to 360810	2.19572E-09
360830	to 360840	1.53668E+02
360830	to 350830	8.52333E-04
360830	to 10010	8.52333E-04
360830	to 350820	6.86267E-06
360830	to 10020	6.86267E-06
360830	to 350810	2.39863E-06
360830	to 10030	2.39863E-06
360830	to 340810	3.88199E-08
360830	to 20030	3.88199E-08
360830	to 340800	4.55954E-05
360830	to 20040	4.55954E-05
360830	tot-cap	1.53690E+02
360850	to 360860	1.39090E+00
360850	tot-cap	1.39090E+00
380900	to 380910	6.28261E-01
380900	tot-cap	6.28261E-01
390890	to 390900	9.85036E-01
390890	tot-cap	9.85036E-01
400930	to 400940	1.32457E+01
400930	tot-cap	1.32457E+01
400940	to 400950	1.83934E-01
400940	tot-cap	1.83934E-01
400950	to 400960	2.19813E+00
400950	tot-cap	2.19813E+00
410940	to 410950	3.81058E+01
410940	tot-cap	3.81058E+01
420950	to 420960	3.78526E+01
420950	tot-cap	3.78526E+01
430990	to 430980	6.30459E-03
430990	to 431000	8.84718E+01
430990	tot-cap	8.84781E+01
441010	to 441020	2.78753E+01
441010	tot-cap	2.78753E+01
441060	to 441070	8.55579E-01
441060	tot-cap	8.55579E-01
451080	to 451020	2.28529E-03
451080	to 451040	3.50381E+02
451080	tot-cap	3.50383E+02
451050	to 451060	8.14800E+03
451050	tot-cap	8.14800E+03
461060	to 461060	3.34766E+01
461060	tot-cap	3.34766E+01
461080	to 461090	6.75899E+01
461080	tot-cap	6.75899E+01
471090	to 471080	5.30964E-03
471090	to 471100	3.66216E+02
471090	to 461090	3.00810E-04
471090	to 10010	3.00810E-04
471090	to 451060	2.48970E-04
471090	to 20040	2.48970E-04
471090	to 471091	6.27952E-01
471090	tot-cap	3.66221E+02
511240	to 511250	1.19520E+01
511240	tot-cap	1.19520E+01
541310	to 541300	6.43812E-02

541310	to 541290	1.34622E-05
541310	to 541320	2.54120E+02
541310	to 531310	3.87292E-05
541310	to 10010	3.87292E-05
541310	to 531300	5.39901E-07
541310	to 10020	5.39901E-07
541310	to 531290	5.53614E-07
541310	to 10030	5.53614E-07
541310	to 521280	1.81271E-05
541310	to 20040	1.81271E-05
541310	tot-cap	2.54184E+02
541320	to 541310	1.04005E-02
541320	to 541300	2.20587E-05
541320	to 541330	9.16433E-01
541320	to 531320	7.93439E-06
541320	to 10010	7.93439E-06
541320	to 531310	3.35209E-07
541320	to 10020	3.35209E-07
541320	to 531300	4.51360E-08
541320	to 10030	4.51360E-08
541320	to 521290	9.77472E-07
541320	to 20040	9.77472E-07
541320	tot-cap	9.26865E-01
541350	to 541360	1.46510E+06
541350	tot-cap	1.46510E+06
541360	to 541350	1.77907E-02
541360	to 541340	5.43372E-05
541360	to 541370	1.22968E-01
541360	to 531360	3.28531E-07
541360	to 10010	3.28531E-07
541360	to 531350	1.22306E-07
541360	to 10020	1.22306E-07
541360	to 531340	2.76311E-08
541360	to 10030	2.76311E-08
541360	to 521330	2.75575E-07
541360	to 20040	2.75575E-07
541360	tot-cap	1.40814E-01
551330	to 551320	8.33107E-03
551330	to 551340	1.00417E+02
551330	to 541330	9.01970E-04
551330	to 10010	9.01970E-04
551330	to 531300	1.42343E-05
551330	to 20040	1.42343E-05
551330	tot-cap	1.00427E+02
551340	to 551350	1.28178E+02
551340	tot-cap	1.28178E+02
551350	to 551360	2.11933E+01
551350	tot-cap	2.11933E+01
551370	to 551380	2.27369E-01
551370	tot-cap	2.27369E-01
561360	to 561370	8.92118E-01
561360	tot-cap	8.92118E-01
571390	to 571400	7.91315E+00
571390	tot-cap	7.91315E+00
581440	to 581450	1.22858E+00
581440	tot-cap	1.22858E+00
591410	to 591400	5.96984E-03
591410	to 591390	1.71528E-06
591410	to 571370	2.56618E-06
591410	to 20040	5.29664E-05

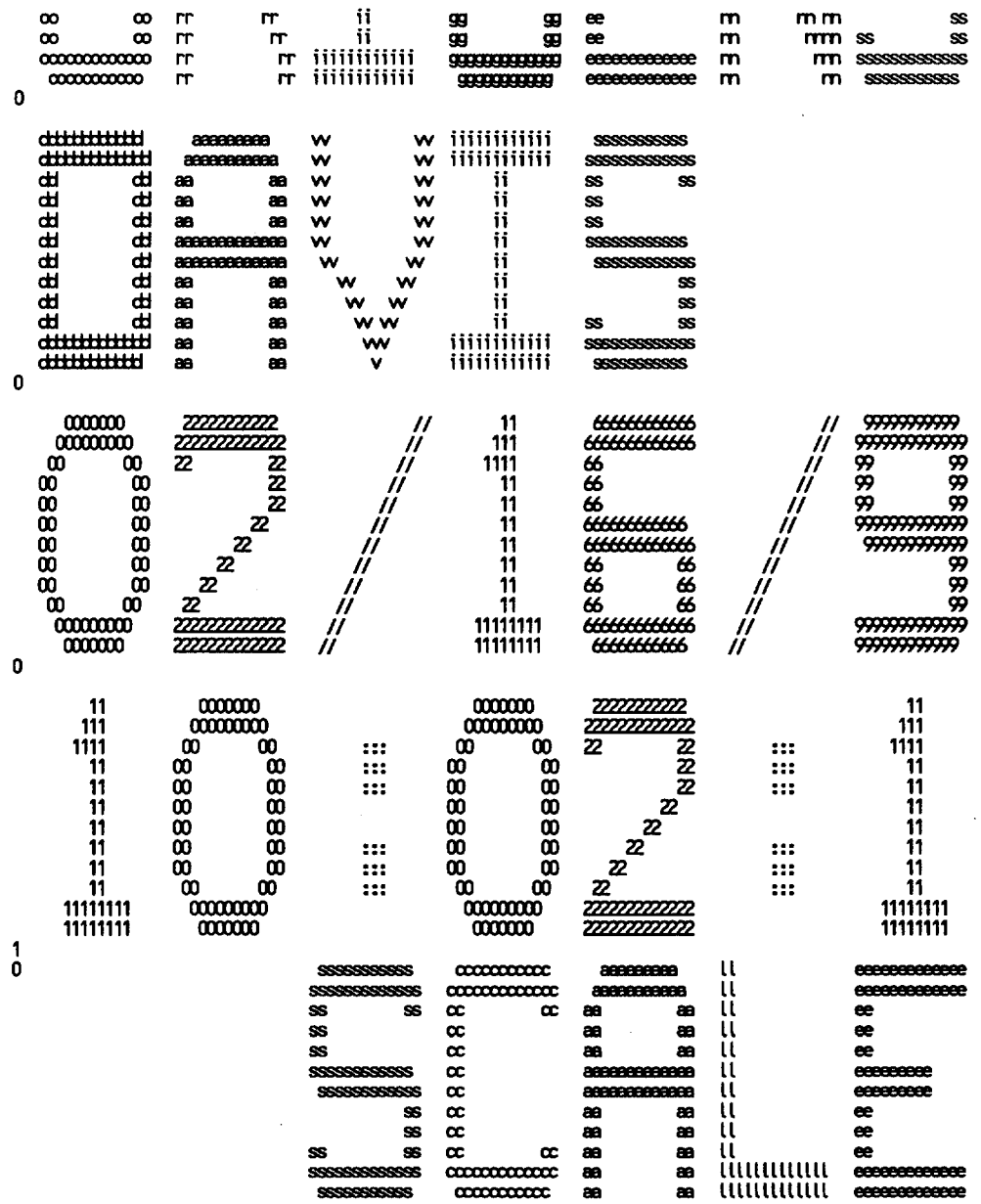
591410	to 581400	1.82016E-05
591410	to 10010	5.17872E-05
591410	to 591420	1.17723E+01
591410	to 581410	4.87956E-05
591410	to 10020	1.52100E-05
591410	to 581390	1.59511E-06
591410	to 10030	1.59511E-06
591410	to 571390	1.54048E-08
591410	to 20030	1.54048E-08
591410	to 571380	5.04013E-05
591410	tot-cap	1.17784E+01
591430	to 591440	9.73273E+01
591430	tot-cap	9.73273E+01
601430	to 601420	9.13324E-02
601430	to 601410	9.32257E-06
601430	to 581390	2.01613E-05
601430	to 20040	5.64097E-04
601430	to 591420	3.90241E-06
601430	to 10010	4.01248E-05
601430	to 601440	1.98700E+02
601430	to 591430	3.86546E-05
601430	to 10020	2.43219E-06
601430	to 591410	3.50478E-06
601430	to 10030	3.50478E-06
601430	to 581410	1.68390E-08
601430	to 20030	1.68390E-08
601430	to 581400	5.43935E-04
601430	tot-cap	1.98792E+02
601450	to 601440	1.17185E-01
601450	to 601430	1.19028E-04
601450	to 581410	8.41492E-06
601450	to 20040	2.10596E-04
601450	to 591440	2.23587E-06
601450	to 10010	1.45358E-05
601450	to 601460	7.77040E+01
601450	to 591450	1.36440E-05
601450	to 10020	1.34403E-06
601450	to 591430	2.11889E-06
601450	to 10030	2.11889E-06
601450	to 581430	4.31407E-09
601450	to 20030	4.31407E-09
601450	to 581420	2.02181E-04
601450	tot-cap	7.78215E+01
601470	to 601480	1.86601E+02
601470	tot-cap	1.86601E+02
611470	to 611460	3.20722E-02
611470	to 611450	1.00070E-04
611470	to 591430	8.87611E-06
611470	to 20040	8.23451E-05
611470	to 601460	1.22598E-05
611470	to 10010	2.79163E-05
611470	to 611480	5.75790E+02
611470	to 601470	2.48862E-05
611470	to 10020	9.22962E-06
611470	to 601450	3.48478E-06
611470	to 10030	3.48478E-06
611470	to 591450	5.23943E-09
611470	to 20030	5.23943E-09
611470	to 591440	7.33690E-05
611470	tot-cap	5.75823E+02

611480 to 611490 1.20170E+04
611480 tot-cap 1.20170E+04
621470 to 621460 8.36673E-02
621470 to 621450 7.53361E-03
621470 to 601430 6.50957E-05
621470 to 20040 1.24788E-03
621470 to 611460 1.51837E-04
621470 to 10010 2.16761E-04
621470 to 621480 2.30084E+02
621470 to 611470 1.91165E-04
621470 to 10020 1.26241E-04
621470 to 611450 1.35554E-04
621470 to 10030 1.35554E-04
621470 to 601450 6.23710E-06
621470 to 20030 6.23710E-06
621470 to 601440 1.18279E-03
621470 to 621471 1.64121E+00
621470 tot-cap 2.30176E+02
621490 to 621480 4.72877E-02
621490 to 621470 3.75517E-05
621490 to 621500 4.50644E+04
621490 to 611490 4.83152E-04
621490 to 10010 4.83152E-04
621490 to 601460 4.83152E-04
621490 to 20040 4.83152E-04
621490 tot-cap 4.50645E+04
621500 to 621510 1.33056E+02
621500 tot-cap 1.33056E+02
621510 to 621500 1.57778E-01
621510 to 621490 1.41304E-04
621510 to 601470 1.58432E-05
621510 to 20040 1.23404E-04
621510 to 611500 1.93487E-06
621510 to 10010 1.50424E-05
621510 to 621520 4.93300E+03
621510 to 611510 1.38603E-05
621510 to 10020 7.52736E-07
621510 to 611490 1.36805E-06
621510 to 10030 1.36805E-06
621510 to 601490 1.40955E-09
621510 to 20030 1.40955E-09
621510 to 601480 1.07561E-04
621510 tot-cap 4.93316E+03
621520 to 621510 1.89222E-02
621520 to 621500 1.27858E-04
621520 to 601480 2.85726E-06
621520 to 20040 1.18670E-05
621520 to 611510 8.19596E-07
621520 to 10010 2.41860E-06
621520 to 621530 7.25060E+02
621520 to 611520 2.14847E-06
621520 to 10020 5.49459E-07
621520 to 611500 1.42901E-07
621520 to 10030 1.42901E-07
621520 to 601500 4.33072E-10
621520 to 20030 4.33072E-10
621520 to 601490 9.00979E-06
621520 tot-cap 7.25079E+02
631530 to 631520 1.83779E-02
631530 to 631510 2.74439E-05

631530 to 611490 4.34003E-05
631530 to 20040 6.29487E-04
631530 to 621520 7.68614E-06
631530 to 10010 6.46952E-05
631530 to 631540 6.13434E+02
631530 to 621530 6.20694E-05
631530 to 10020 5.06233E-06
631530 to 621510 1.13456E-06
631530 to 10030 1.13456E-06
631530 to 611510 2.59866E-08
631530 to 20030 2.59866E-08
631530 to 611500 5.86087E-04
631530 tot-cap 6.13453E+02
631540 to 631530 2.93793E-02
631540 to 631520 1.05536E-05
631540 to 611500 1.02615E-10
631540 to 20040 7.55638E-04
631540 to 621530 2.31005E-06
631540 to 10010 1.23019E-03
631540 to 631550 1.06661E+03
631540 to 621540 1.23019E-03
631540 to 10020 2.30877E-06
631540 to 621520 3.91070E-06
631540 to 10030 3.91070E-06
631540 to 611520 1.65815E-08
631540 to 20030 1.65815E-08
631540 to 611510 7.55638E-04
631540 tot-cap 1.06664E+03
631550 to 631540 2.41215E-02
631550 to 631530 6.75456E-05
631550 to 611510 1.81798E-06
631550 to 20040 8.94714E-06
631550 to 621540 3.68814E-06
631550 to 10010 7.72990E-06
631550 to 631560 2.55123E+03
631550 to 621550 5.93780E-06
631550 to 10020 1.89104E-06
631550 to 621530 6.26000E-07
631550 to 10030 6.26000E-07
631550 to 611530 1.41886E-10
631550 to 20030 1.41886E-10
631550 to 611520 7.12918E-06
631550 tot-cap 2.55125E+03
641550 to 641560 1.69605E+04
641550 tot-cap 1.69605E+04
922340 to 922330 6.31950E-03
922340 fission 4.38696E+00
922340 nu-sigf 1.15326E+01
922340 to 922320 9.16290E-05
922340 to 922350 1.84139E+02
922340 to 922341 2.94188E+00
922340 tot-cap 1.88533E+02
922350 to 922340 2.88436E-02
922350 fission 3.60472E+02
922350 nu-sigf 8.72939E+02
922350 to 922330 2.76018E-05
922350 to 922360 8.53994E+01
922350 to 922351 8.36730E-02
922350 tot-cap 4.45900E+02
922360 to 922350 3.21928E-02

922360	fission	1.88166E+00
922360	nu-sigf	5.16557E+00
922360	to 922340	4.29024E-04
922360	to 922370	7.19089E+01
922360	to 922361	3.21845E+00
922360	tot-cap	7.38226E+01
922380	to 922370	6.42954E-02
922380	fission	9.43300E-01
922380	nu-sigf	2.65616E+00
922380	to 922360	4.15521E-04
922380	to 922390	8.38842E+00
922380	tot-cap	9.39644E+00
932370	to 932360	1.46575E-02
932370	fission	5.08698E+00
932370	nu-sigf	1.53206E+01
932370	to 932350	5.60749E-05
932370	to 932380	2.97598E+02
932370	to 932371	7.54349E-01
932370	tot-cap	3.02695E+02
942380	to 942370	2.35599E-03
942380	fission	2.20643E+01
942380	nu-sigf	6.25559E+01
942380	to 942360	1.31853E-05
942380	to 942390	2.64386E+02
942380	to 942381	2.95315E+00
942380	tot-cap	2.86453E+02
942390	to 942380	1.24739E-02
942390	fission	8.39238E+02
942390	nu-sigf	2.41301E+03
942390	to 942370	2.12276E-05
942390	to 942360	2.10432E-08
942390	to 942400	4.70561E+02
942390	tot-cap	1.30981E+03
942400	to 942390	5.86746E-03
942400	fission	5.78557E+00
942400	nu-sigf	1.81189E+01
942400	to 942380	5.72571E-05
942400	to 942410	1.49448E+03
942400	tot-cap	1.50027E+03
942410	to 942400	7.40039E-02
942410	fission	8.95401E+02
942410	nu-sigf	2.62727E+03
942410	to 942390	1.22514E-04
942410	to 942420	2.93008E+02
942410	tot-cap	1.18848E+03
942420	to 942410	2.39188E-02
942420	fission	4.40995E+00
942420	nu-sigf	1.38159E+01
942420	to 942400	2.90783E-04
942420	to 942430	3.28604E+02
942420	tot-cap	3.33038E+02
952410	fission	1.23494E+01
952410	nu-sigf	3.99002E+01
952410	to 952420	1.01244E+03
952410	tot-cap	1.02479E+03
952430	fission	3.40415E+00
952430	nu-sigf	1.14446E+01
952430	to 952440	4.16052E+02
952430	tot-cap	4.19456E+02
962440	to 962430	5.74828E-03

```
                    962440 fission    1.51799E+01
                    962440 nu-sigf    5.08679E+01
                    962440 to 962420  5.73241E-05
                    962440 to 962450  1.39783E+02
                    962440 to 962441  3.76645E+00
                    962440 tot-cap    1.54968E+02
0the reaction   50100 to  30070 was not used, because   50100 is not in library., (in subr pool)
                                        in the search of library number 3
0the reaction   50100 to  40090 was not used, because   50100 is not in library., (in subr pool)
                                        in the search of library number 3
0the reaction   50110 to  40090 was not used, because   50110 is not in library., (in subr pool)
                                        in the search of library number 3
0the reaction   50100 to  40100 was not used, because   50100 is not in library., (in subr pool)
                                        in the search of library number 3
0the reaction   80160 to  80161 was not used, because   80161 is not in library., (in subr pool)
0the reaction  621470 to 621471 was not used, because  621471 is not in library., (in subr pool)
0the fission product transitions for  922340 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  922340 to 922341 was not used, because  922341 is not in library., (in subr pool)
0the reaction  922350 to 922351 was not used, because  922351 is not in library., (in subr pool)
0the fission product transitions for  922360 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  922360 to 922361 was not used, because  922361 is not in library., (in subr pool)
0the fission product transitions for  932370 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  932370 to 932371 was not used, because  932371 is not in library., (in subr pool)
0the fission product transitions for  942380 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  942380 to 942381 was not used, because  942381 is not in library., (in subr pool)
0the fission product transitions for  942400 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  942420 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952410 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952430 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  962440 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  962440 to 962441 was not used, because  962441 is not in library., (in subr pool)
1
0                          case completed.  date,   2/16/1996
0 * normal termination *
1   ooooooooooo   rrrrrrrrrrrr   iiiiiiiiiiii   gggggggggg   eeeeeeeeeeeee   mn         mn   sssssssssss
   oooooooooooo   rrrrrrrrrrrr   iiiiiiiiiiii   gggggggggggg  eeeeeeeeeeeee   mm         mn   sssssssssssss
   oo        oo   rr        rr       ii       gg        gg   ee            mmm        mn   ss        ss
   oo        oo   rr        rr       ii       gg             ee            mn mn      mn   ss
   oo        oo   rr        rr       ii       gg             ee            mn   mn    mn   ss
   oo        oo   rrrrrrrrrrrr       ii       gg   gggggg    eeeeeeeee     mn    mn   mn   sssssssssssss
   oo        oo   rrrrrrrrrrrr       ii       gg   gggggg    eeeeeeeee     mn     mn  mn   sssssssssssss
   oo        oo   rr       rr        ii       gg        gg   ee            mn      mn mn           ss
```



```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****             program:  c0c004                                      *****
*****                                                                   *****
*****        creation date:  04/27/95                                   *****
*****                                                                   *****
*****             library:  /neutronics/scale/exe                       *****
*****                                                                   *****
*****                                                                   *****
*****    this is not a   scale  configuration controlled code           *****
*****                                                                   *****
*****             jobname:  davis                                       *****
*****                                                                   *****
*****    date of execution:  02/16/96                                   *****
*****                                                                   *****
*****    time of execution:  10:02:12                                   *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      1 entries.
0        0q array has      1 entries.
0        0q array has      1 entries.
0        0q array has      1 entries.
0         dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0             short-lived split test fraction, qxn =    9.1188E-04
0             half-norm of matrix used, axn =    7.0000E+00
0             4-place-accuracy-retention ratio, ratio4 =    6.4516E-13
0        1q array has     20 entries.
0        3q array has      1 entries.
0        3q array has      1 entries.
0        3q array has      1 entries.
0        4q array has      1 entries.
0       54q array has     12 entries.
1library information...

         cross-section data taken from position number  1 of library on unit 15.

         pass   5
         pass   1
         pass   0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
```

```
  pass 0 applies start-up fuel densiities
  pass n applies mid time densities of nth library interval
first library updated was...
pass   1
pass   0
*scale-system control module sas2 library*
used a time-dependent neutron spectrum, for each of the above passes
  pass 0 applies start-up fuel densiities
  pass n applies mid time densities of nth library interval
first library updated was...
*****************************************************************************
*                                                                           *
*          prelim lwr origen-s binary working library--id = 1143            *
*        made from modified card-image origen-s libraries of scale 4.2      *
*      data from the light element, actinide, and fission product libraries *
*       decay data, including gamma and total energy, are from endf/b-vi    *
*                                                                           *
*      neutron flux spectrum factors and cross sections were produced from  *
*     the "presas2" case updating all nuclides on the scale "burnup" library*
*                                                                           *
*                  fission product yields are from endf/b-v                 *
*                                                                           *
*              photon libraries use an 18-energy-group structure            *
*             the photon data are from the master photon data base,         *
*              produced to include bremsstrahlung from uc2 matrix           *
*                                                                           *
*        see information above this box (if present) for later updates      *
*                                                                           *
*****************************************************************************
*                                                                           *
0*****************************************************************************
0            .other identification and sizes of library.
0              data set name:  ft15f001
0            2/16/1996     date library was produced
0                1697      total number of nuclides in library
                  699      number of light-element nuclides
                  129      number of actinide nuclides
                  879      number of fission product nuclides
0                7955      number of nonzero off-diagonal matrix elements
0     *****************************************************************************
1
   sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                    actinides        page   1
     power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.61E+13n/cm**2-sec
0                                    nuclide concentrations, gram atoms
                                     basis = converted to atoms/(barn-cm)
          charge   680.1 d   720.1 d   760.1 d   800.1 d   800.1 d   840.1 d   880.1 d
   he  4 1.27E-08 1.60E-08 2.00E-08 2.48E-08 3.05E-08 3.05E-08 3.70E-08 4.47E-08
    u230 4.38E-21 5.21E-21 6.05E-21 6.98E-21 7.96E-21 7.96E-21 9.06E-21 1.03E-20
    u231 9.04E-20 1.07E-19 1.23E-19 1.40E-19 1.59E-19 1.58E-19 1.79E-19 2.02E-19
    u232 1.21E-12 1.40E-12 1.61E-12 1.84E-12 2.10E-12 2.10E-12 2.38E-12 2.68E-12
    u233 3.07E-11 3.22E-11 3.36E-11 3.49E-11 3.62E-11 3.62E-11 3.75E-11 3.86E-11
    u234 4.75E-06 4.70E-06 4.65E-06 4.61E-06 4.56E-06 4.56E-06 4.51E-06 4.47E-06
    u235 4.67E-04 4.56E-04 4.44E-04 4.34E-04 4.23E-04 4.23E-04 4.13E-04 4.03E-04
    u236 4.40E-05 4.60E-05 4.79E-05 4.98E-05 5.16E-05 5.16E-05 5.34E-05 5.51E-05
    u237 6.02E-08 6.25E-08 6.49E-08 6.68E-08 6.87E-08 6.85E-08 7.06E-08 7.24E-08
    u238 2.19E-02 2.19E-02 2.19E-02 2.19E-02 2.19E-02 2.19E-02 2.18E-02 2.18E-02
    u239 1.97E-09 5.96E-09 5.97E-09 5.97E-09 5.98E-09 1.53E-09 5.99E-09 6.00E-09
    u240  .00E+00 1.34E-33 2.46E-33 4.35E-33 7.46E-33 7.46E-33 1.24E-32 2.02E-32
    u241  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00
   np235 3.45E-14 3.97E-14 4.51E-14 5.09E-14 5.69E-14 5.69E-14 6.33E-14 6.99E-14
```

np236m	4.59E-14	5.28E-14	5.73E-14	6.19E-14	6.66E-14	6.50E-14	7.14E-14	7.63E-14
np236	3.15E-12	3.68E-12	4.25E-12	4.86E-12	5.53E-12	5.53E-12	6.25E-12	7.01E-12
np237	2.39E-06	2.60E-06	2.82E-06	3.04E-06	3.27E-06	3.27E-06	3.50E-06	3.73E-06
np238	2.94E-09	3.26E-09	3.54E-09	3.82E-09	4.11E-09	4.07E-09	4.41E-09	4.71E-09
np239	8.42E-07	8.61E-07	8.62E-07	8.62E-07	8.63E-07	8.60E-07	8.64E-07	8.66E-07
np240m	.00E+00	1.14E-35	2.10E-35	3.71E-35	6.36E-35	6.36E-35	1.06E-34	1.72E-34
np240	9.84E-12	1.55E-11	1.55E-11	1.56E-11	1.56E-11	9.30E-12	1.56E-11	1.57E-11
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	3.75E-12	4.34E-12	4.98E-12	5.66E-12	6.38E-12	6.38E-12	7.15E-12	7.96E-12
pu237	1.95E-13	2.13E-13	2.30E-13	2.46E-13	2.62E-13	2.62E-13	2.79E-13	2.96E-13
pu238	2.46E-07	2.85E-07	3.27E-07	3.73E-07	4.23E-07	4.23E-07	4.77E-07	5.35E-07
pu239	9.04E-05	9.38E-05	9.70E-05	1.00E-04	1.03E-04	1.03E-04	1.05E-04	1.08E-04
pu240	1.40E-05	1.52E-05	1.64E-05	1.76E-05	1.87E-05	1.87E-05	1.99E-05	2.10E-05
pu241	6.40E-06	7.13E-06	7.90E-06	8.72E-06	9.57E-06	9.57E-06	1.05E-05	1.14E-05
pu242	5.07E-07	6.08E-07	7.19E-07	8.41E-07	9.75E-07	9.75E-07	1.12E-06	1.28E-06
pu243	6.18E-11	8.22E-11	9.73E-11	1.14E-10	1.32E-10	1.19E-10	1.53E-10	1.75E-10
pu244	3.51E-23	6.67E-23	1.22E-22	2.16E-22	3.71E-22	3.72E-22	6.19E-22	1.01E-21
pu245	2.41E-29	4.76E-29	8.73E-29	1.55E-28	2.66E-28	2.53E-28	4.44E-28	7.23E-28
pu246	.00E+00	1.66E-31	3.21E-31	5.78E-31	1.00E-30	1.00E-30	1.70E-30	2.79E-30
am239	2.19E-18	2.78E-18	3.27E-18	3.80E-18	4.37E-18	4.18E-18	4.99E-18	5.65E-18
am240	9.75E-16	1.20E-15	1.41E-15	1.64E-15	1.89E-15	1.87E-15	2.16E-15	2.45E-15
am241	1.42E-07	1.69E-07	1.98E-07	2.30E-07	2.64E-07	2.64E-07	3.01E-07	3.41E-07
am242m	2.61E-09	3.21E-09	3.88E-09	4.64E-09	5.47E-09	5.47E-09	6.39E-09	7.39E-09
am242	1.56E-10	1.91E-10	2.24E-10	2.60E-10	2.99E-10	2.90E-10	3.42E-10	3.87E-10
am243	3.26E-08	4.20E-08	5.31E-08	6.60E-08	8.11E-08	8.11E-08	9.84E-08	1.18E-07
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	1.07E-11	1.46E-11	1.85E-11	2.31E-11	2.84E-11	2.69E-11	3.45E-11	4.15E-11
am245	2.21E-27	4.21E-27	7.68E-27	1.35E-26	2.29E-26	2.29E-26	3.78E-26	6.09E-26
am246	.00E+00	4.15E-34	8.03E-34	1.44E-33	2.51E-33	2.51E-33	4.24E-33	6.97E-33
cm241	1.19E-18	1.65E-18	2.20E-18	2.87E-18	3.66E-18	3.66E-18	4.60E-18	5.69E-18
cm242	1.37E-08	1.70E-08	2.08E-08	2.51E-08	2.99E-08	2.99E-08	3.52E-08	4.10E-08
cm243	1.55E-10	2.06E-10	2.67E-10	3.41E-10	4.28E-10	4.28E-10	5.29E-10	6.45E-10
cm244	2.16E-09	2.98E-09	4.03E-09	5.34E-09	6.95E-09	6.95E-09	8.92E-09	1.13E-08
cm245	3.39E-11	4.98E-11	7.11E-11	9.92E-11	1.36E-10	1.36E-10	1.82E-10	2.41E-10
cm246	1.00E-12	1.57E-12	2.38E-12	3.53E-12	5.12E-12	5.12E-12	7.27E-12	1.01E-11
cm247	5.06E-15	8.48E-15	1.37E-14	2.15E-14	3.30E-14	3.30E-14	4.95E-14	7.22E-14

1

sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 2

power= 8.466E-05mw, burnup=2.0518E-02mwd, flux= 1.61E+13n/cm**2-sec

0 nuclide concentrations, gram atoms

basis = converted to atoms/(barn-cm)

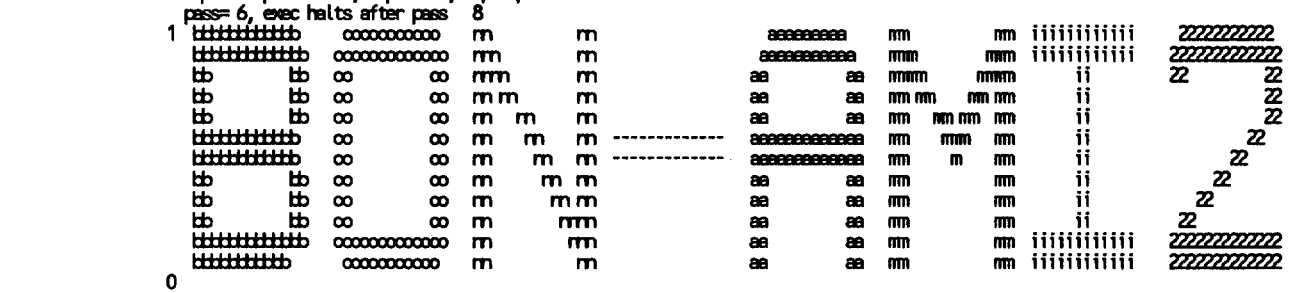
	charge	680.1 d	720.1 d	760.1 d	800.1 d	800.1 d	840.1 d	880.1 d
cm248	1.13E-16	2.09E-16	3.51E-16	5.87E-16	9.52E-16	9.52E-16	1.50E-15	2.32E-15
cm249	4.98E-22	1.36E-21	2.35E-21	3.95E-21	6.39E-21	3.88E-21	1.01E-20	1.56E-20
cm250	8.84E-26	1.70E-25	3.13E-25	5.58E-25	9.60E-25	9.60E-25	1.61E-24	2.62E-24
cm251	.00E+00	4.04E-33	7.46E-33	1.33E-32	2.29E-32	3.42E-33	3.84E-32	6.28E-32
totals	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.24E-02
0 flux		1.60E+13	1.60E+13	1.60E+13	1.61E+13	.00E+00	1.61E+13	1.61E+13

0 .results on logical unit no. 71, position 1, for time step 7, subcase 1. (run position 1, case position 1)
title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 .results on logical unit no. 71, position 2, for time step 5, subcase 1. (run position 1, case position 1)
title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 .results on logical unit no. 71, position 3, for time step 4, subcase 1. (run position 1, case position 1)
title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 .terminated logical unit no. 71 with zero flag record.
1 * normal termination of execution *
0 table of contents for material tables
0 case or subcase printed page

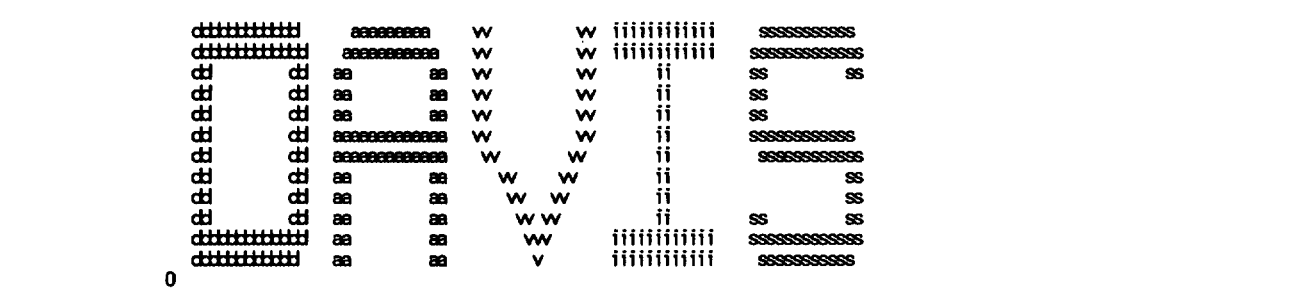
1 1

```
0ndset          33
          15          4          1         27          6          0          0          0          0          0
           0          0          0          0          0          0         -1       1698        650        130
         880       7935          0          5         99          2         16         96         18         18
          18          0         71
0       56q array has       2 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       57q array has       3 entries.
0        1q array has      20 entries.
0        1q array has      10 entries.
     l90   97576
     l116  60826
     l32   33663 nudata (library) storage size
     l44   33734
     l103  75953
0       58q array has       4 entries.
0       60q array has       7 entries.
0       58q array has       7 entries.
0       66q array has       1 entries.
0       73q array has    1697 entries.
0       74q array has    1697 entries.
0       75q array has    1697 entries.
     l140  66991
     used  101044 in size  200000
0jqpt           12
           0          0          0          0          0          0          0          0          0          0
           0          0
0therm          4
 5.109686E-01 4.317639E-01 3.331461E+00 1.000000E-31
0ncn            5
        7935         20          6         18       1697
0mm             19
           7          7          0          0          1          1          0          0          0          0
          21        100       1697          4          3         74          4          1          0
0tconst         5
 8.640000E+04 6.400641E+02 .000000E+00 .000000E+00 1.000000E-08
0mzero          4
           0        689        129        879
0pow            3
  .000000E+00 .000000E+00 .000000E+00
0 lirp          9
           6          0         51         26          2       3000       1000       1697         94
 n-gamma, fission and total mev/fission =          6.6274E+00 1.9620E+02 2.0283E+02
 start of interval flux =        1.59777E+13
 n-gamma, fission and total mev/fission =          6.7144E+00 1.9629E+02 2.0300E+02
 start of interval flux =        1.59963E+13
 n-gamma, fission and total mev/fission =          6.8126E+00 1.9637E+02 2.0319E+02
 start of interval flux =        1.60171E+13
 n-gamma, fission and total mev/fission =          6.9104E+00 1.9646E+02 2.0337E+02
 start of interval flux =        1.60416E+13
 start of interval flux =         .00000E+00
 n-gamma, fission and total mev/fission =          7.0227E+00 1.9654E+02 2.0356E+02
 start of interval flux =        1.60681E+13
 n-gamma, fission and total mev/fission =          7.1041E+00 1.9662E+02 2.0372E+02
 start of interval flux =        1.61008E+13
```

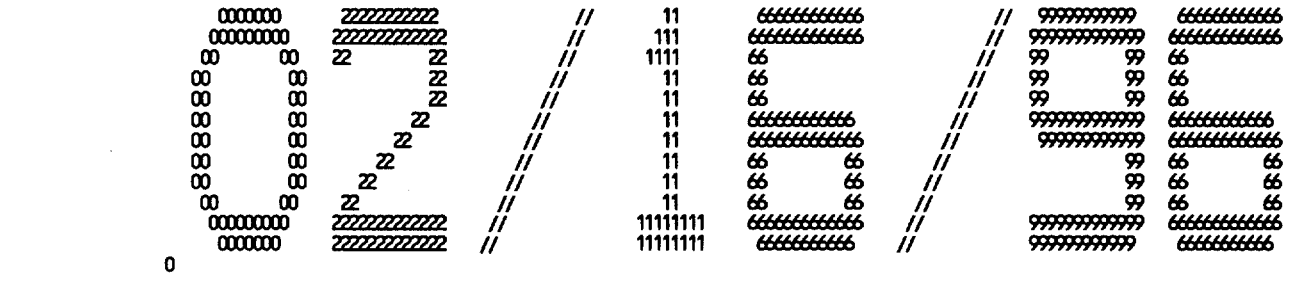
```
0 case or subcase    1  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       56q array has     20 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has     20 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has     20 entries.
0       56q array has     20 entries.
0requested parm=halt8,skipcellwt,skipshipdata
  pass= 6, exec halts after pass  8
```



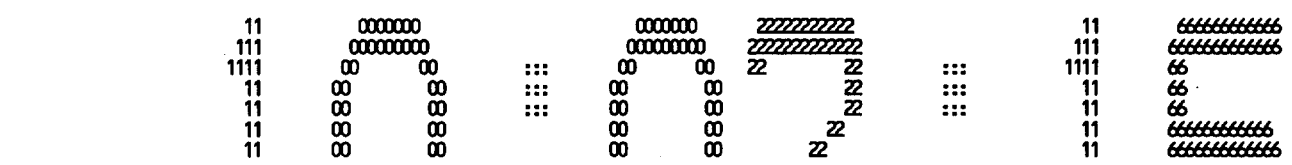
```
0
```



```
0
```

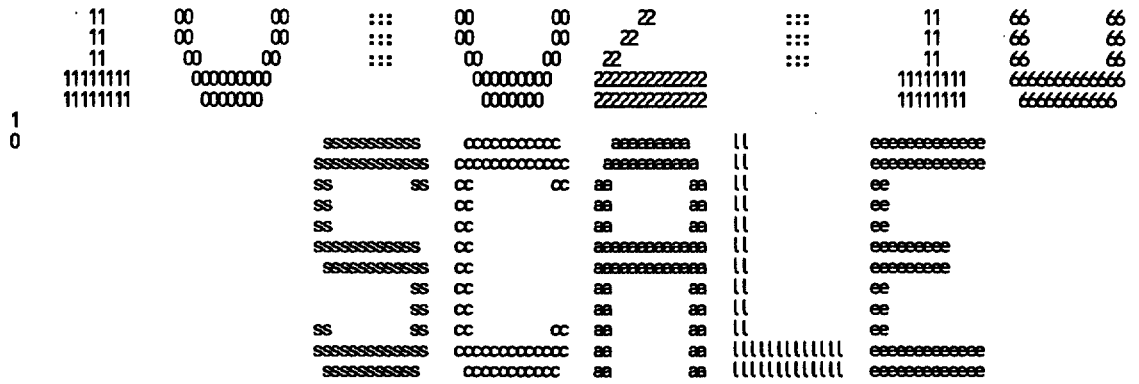


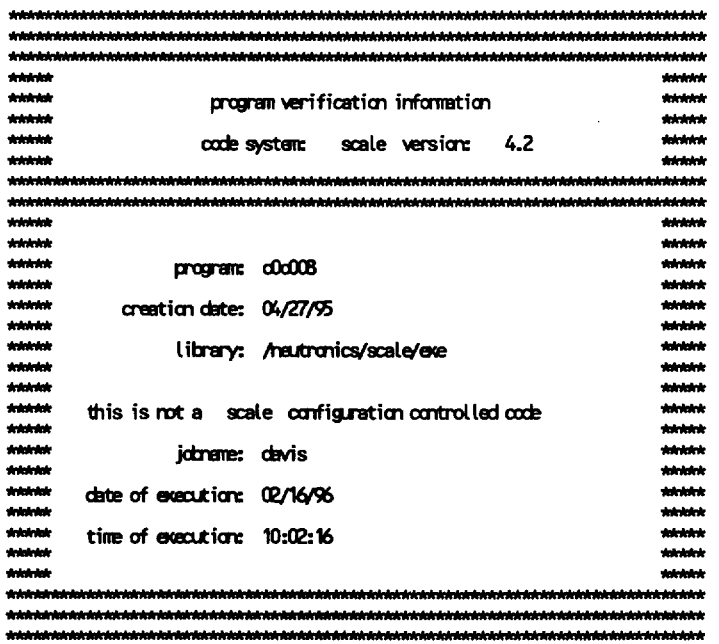
```
0
```



```
      11      00      00      :::     00      00      22          :::         11      66      66
      11      00      00      :::     00      00    22            :::         11      66      66
      11      00      00      :::     00      00   22             :::         11      66      66
   11111111   000000000              000000000   2222222222222              11111111   6666666666666
   11111111     0000000                0000000    2222222222222              11111111    66666666666
1
0                        sssssssssss   cccccccccc    aaaaaaaaa   ll          eeeeeeeeeeeee
                        ssssssssssss  cccccccccccc   aaaaaaaaaa  ll          eeeeeeeeeeeee
                        ss       ss   cc       cc   aa       aa  ll          ee
                        ss            cc            aa       aa  ll          ee
                        ss            cc            aa       aa  ll          ee
                        ssssssssssss  cc            aaaaaaaaaaaa ll          eeeeeeeee
                         ssssssssssss cc            aaaaaaaaaaaa ll          eeeeeeeee
                                  ss  cc            aa       aa  ll          ee
                                  ss  cc            aa       aa  ll          ee
                        ss       ss   cc       cc   aa       aa  ll          ee
                        ssssssssssss  cccccccccccc  aa       aa  llllllllllll eeeeeeeeeeeee
                         ssssssssss   cccccccccc    aa       aa  llllllllllll eeeeeeeeeeeee
```

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****              program:  c0c008                                     *****
*****                                                                   *****
*****         creation date:  04/27/95                                  *****
*****                                                                   *****
*****              library:  /neutronics/scale/exe                      *****
*****                                                                   *****
*****                                                                   *****
*****     this is not a   scale  configuration controlled code          *****
*****                                                                   *****
*****              jobname:  davis                                      *****
*****                                                                   *****
*****     date of execution:  02/16/96                                  *****
*****                                                                   *****
*****     time of execution:  10:02:16                                  *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
0      -1q array has     1 entries.
0       0q array has     4 entries.
0       1q array has     6 entries.
0       2q array has     2 entries.
1logical assignments
```





```
0master library   12
 working library   0
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere                2
0izm--number of zones or material regions                       4
0ms--mixing table length                                       66
0ibl--shielded cross section edit option (0/1--no/yes)          0
0ibr--bondarenko factor edit option (0/1--no/yes)               0
0issopt--dancoff factor option                                  0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0       3q array has     66 entries.
0       4q array has     66 entries.
0       5q array has     66 entries.
0       6q array has      4 entries.
0       7q array has      4 entries.
0       8q array has      4 entries.
0       9q array has      4 entries.
0      10q array has     66 entries.
0      11q array has      4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope  number density  new identifier
    1        1    92235    4.02695E-04           92235
    2        1    92234    4.46803E-06           92234
    3        1    92236    5.51142E-05           92236
    4        1    92238    2.18274E-02           92238
    5        1     8016    4.55359E-02            8016
    6        3     8016    2.09710E-02               6
    7        1    36083    1.42718E-06           36083
    8        1    36085    6.86405E-07           36085
    9        1    38090    1.56265E-05           38090
   10        1    39089    1.23885E-05           39089
   11        1    42095    1.65579E-05           42095
   12        1    40093    1.24626E-05           40093
   13        1    40094    1.95879E-05           40094
   14        1    40095    1.99661E-06           40095
   15        1    41094    9.70965E-12           41094
   16        1    43099    1.91603E-05           43099
   17        1    45103    1.05084E-05           45103
   18        1    45105    2.23564E-08           45105
   19        1    44101    1.73887E-05           44101
   20        1    44106    2.62773E-06           44106
   21        1    46105    6.86049E-06           46105
   22        1    46108    1.92546E-06           46108
   23        1    47109    1.34572E-06           47109
   24        1    51124    3.04849E-10           51124
   25        1    54131    8.77608E-06           54131
   26        1    54132    1.64947E-05           54132
   27        1    54135    6.67715E-09           54135
   28        1    54136    3.30816E-05           54136
   29        1    55134    9.57401E-07           55134
   30        1    55135    1.05022E-05           55135
   31        1    55137    2.05235E-05           55137
   32        1    56136    1.93125E-07           56136
   33        1    57139    2.03240E-05           57139
   34        1    59141    1.75987E-05           59141
   35        1    59143    3.71186E-07           59143
   36        1    58144    6.70562E-06           58144
```

37	1	60143	1.59150E-05	60143
38	1	60145	1.17342E-05	60145
39	1	61147	4.02235E-06	61147
40	1	61148	1.17777E-08	61148
41	1	60147	1.29916E-07	60147
42	1	62147	1.40155E-06	62147
43	1	62149	8.69582E-08	62149
44	1	62150	4.18068E-06	62150
45	1	62151	4.01901E-07	62151
46	1	62152	2.00466E-06	62152
47	1	64155	2.18270E-09	64155
48	1	63153	1.20542E-06	63153
49	1	63154	2.52168E-07	63154
50	1	63155	1.30440E-07	63155
51	2	40802	4.25156E-02	40802
52	3	1001	4.19420E-02	1001
53	3	5010	3.81515E-06	5010
54	3	5011	1.54884E-05	5011
55	1	55133	2.10206E-05	55133
56	1	95237	3.73057E-06	95237
57	1	94238	5.34530E-07	94238
58	1	94239	1.07741E-04	94239
59	1	94240	2.09730E-05	94240
60	1	94241	1.13808E-05	94241
61	1	94242	1.27952E-06	94242
62	1	95241	3.40567E-07	95241
63	1	95243	1.18128E-07	95243
64	1	96244	1.12999E-08	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Ogeometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05844E-01	0
2	4	4.78790E-01	2.93000E+02	5.49010E-01	0
3	2	5.46100E-01	6.50000E+02	.00000E+00	0
4	3	8.13968E-01	6.07600E+02	.00000E+00	0

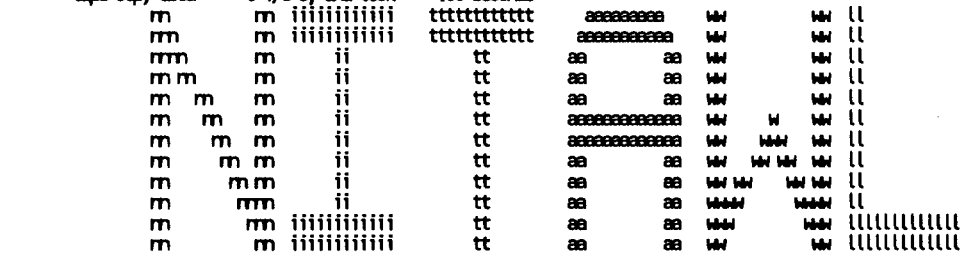
7711 locations of 200000 available are required to make a new master containing the self-shielded values
Ono nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

Ocopy	999	1/v cross sectio	from log	12	to log	18	bondarenko trigger 0
Ocopy	999	1/v cross sectio	from log	18	to log	1	bondarenko trigger 0
Ocopy	999	1/v cross sectio	from log	18	to log	1	bondarenko trigger 0
Ocopy	1001	hydrogen	from log	12	to log	1	bondarenko trigger 0
Ocopy	5010	b-10 1273 218ngp	from log	12	to log	1	bondarenko trigger 0
Ocopy	5011	boron-11	from log	12	to log	1	bondarenko trigger 0
Ocopy	8016	oxygen-16	from log	12	to log	18	bondarenko trigger 0
Ocopy	8016	oxygen-16	from log	18	to log	1	bondarenko trigger 0
Ocopy	8016	oxygen-16	from log	18	to log	1	bondarenko trigger 0
Ocopy	36083	kr-83	from log	12	to log	1	bondarenko trigger 0
Ocopy	36085	kr-85	from log	12	to log	1	bondarenko trigger 0
Ocopy	38090	sr-90	from log	12	to log	1	bondarenko trigger 0
Ocopy	39089	y-89	from log	12	to log	1	bondarenko trigger 0
Ocopy	40093	zr-93	from log	12	to log	1	bondarenko trigger 0
Ocopy	40094	zr-94	from log	12	to log	1	bondarenko trigger 0
Ocopy	40095	zr-95	from log	12	to log	1	bondarenko trigger 0
Ocopy	40802	zircalloy	from log	12	to log	1	bondarenko trigger 0
Ocopy	41094	nb-94	from log	12	to log	1	bondarenko trigger 0
Ocopy	42095	mo-95	from log	12	to log	1	bondarenko trigger 0
Ocopy	43099	tc-99	from log	12	to log	1	bondarenko trigger 0
Ocopy	44101	ru-101	from log	12	to log	1	bondarenko trigger 0
Ocopy	44106	ru-106	from log	12	to log	1	bondarenko trigger 0

```
0copy    45103  rh-103          from log 12 to log  1   bondarenko trigger 0
0copy    45105  rh-105          from log 12 to log  1   bondarenko trigger 0
0copy    46105  pd-105          from log 12 to log  1   bondarenko trigger 0
0copy    46108  pd-108          from log 12 to log  1   bondarenko trigger 0
0copy    47109  silver-109      from log 12 to log  1   bondarenko trigger 0
0copy    51124  sb-124          from log 12 to log  1   bondarenko trigger 0
0copy    54131  xe-131          from log 12 to log  1   bondarenko trigger 0
0copy    54132  xe-132          from log 12 to log  1   bondarenko trigger 0
0copy    54135  xenon-135       from log 12 to log  1   bondarenko trigger 0
0copy    54136  xe-136          from log 12 to log  1   bondarenko trigger 0
0copy    55133  cesium-133      from log 12 to log  1   bondarenko trigger 0
0copy    55134  cs-134          from log 12 to log  1   bondarenko trigger 0
0copy    55135  cs-135          from log 12 to log  1   bondarenko trigger 0
0copy    55137  cs-137          from log 12 to log  1   bondarenko trigger 0
0copy    56136  ba-136          from log 12 to log  1   bondarenko trigger 0
0copy    57139  la-139          from log 12 to log  1   bondarenko trigger 0
0copy    58144  ce-144          from log 12 to log  1   bondarenko trigger 0
0copy    59141  pr-141          from log 12 to log  1   bondarenko trigger 0
0copy    59143  pr-143          from log 12 to log  1   bondarenko trigger 0
0copy    60143  nd-143          from log 12 to log  1   bondarenko trigger 0
0copy    60145  nd-145          from log 12 to log  1   bondarenko trigger 0
0copy    60147  nd-147          from log 12 to log  1   bondarenko trigger 0
0copy    61147  pm-147          from log 12 to log  1   bondarenko trigger 0
0copy    61148  pm-148          from log 12 to log  1   bondarenko trigger 0
0copy    62147  sm-147          from log 12 to log  1   bondarenko trigger 0
0copy    62149  sm-149          from log 12 to log  1   bondarenko trigger 0
0copy    62150  sm-150          from log 12 to log  1   bondarenko trigger 0
0copy    62151  sm-151          from log 12 to log  1   bondarenko trigger 0
0copy    62152  sm-152          from log 12 to log  1   bondarenko trigger 0
0copy    63153  eu-153          from log 12 to log  1   bondarenko trigger 0
0copy    63154  eu-154          from log 12 to log  1   bondarenko trigger 0
0copy    63155  eu-155          from log 12 to log  1   bondarenko trigger 0
0copy    64155  gd-155          from log 12 to log  1   bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1   bondarenko trigger 0
0copy    92235  uranium-235     from log 12 to log  1   bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1   bondarenko trigger 0
0copy    92238  uranium-238     from log 12 to log  1   bondarenko trigger 0
0copy    93237  neptunium-237   from log 12 to log  1   bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1   bondarenko trigger 0
0copy    94239  plutonium-239   from log 12 to log  1   bondarenko trigger 0
0copy    94240  plutonium-240   from log 12 to log  1   bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1   bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1   bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1   bondarenko trigger 0
0copy    95243  am-243 1057 218  from log 12 to log  1   bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1   bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
            last updated      9/16/93
              l.m.petrie   -   ornl
        tape id                          4321        number of nuclides                66
        number of neutron groups           27        number of gamma groups             0
        first thermal group                15        logical unit                       1
                                  table of contents
      1/v cross sections normalized to 1.0 at 0.0253 ev                          id     999
      1/v cross sections normalized to 1.0 at 0.0253 ev                          id      66
       hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89             id    1001
      b-10 1273 218ngp 042375 p-3 293k                                           id    5010
       boron-11       endf/b-iv mat 1160            updated 10/13/89             id    5011
```

oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id 8016
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id 6
kr-83	mt=102,103,105,106,107	updated 10/13/89	id 36083
kr-85	mt= 102		id 36085
sr-90	mt=102	updated 10/13/89	id 38090
y-89	mt=102	updated 10/13/89	id 39089
zr-93	mt= 102		id 40093
zr-94	mt=102	updated 10/13/89	id 40094
zr-95	mt=102	updated 10/13/89	id 40095
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id 40302
nb-94	mt=102	updated 10/13/89	id 41094
mo-95	mt=102	updated 10/13/89	id 42095
tc-99	mt=102	updated 10/13/89	id 43099
ru-101	mt=102	updated 10/13/89	id 44101
ru-106	mt=102	updated 10/13/89	id 44106
rh-103	mt=102	updated 10/13/89	id 45103
rh-105	mt= 102		id 45105
pd-105	mt=102	updated 10/13/89	id 46105
pd-108	mt=102	updated 10/13/89	id 46108
silver-109	endf/b-iv mat 1139	updated 10/13/89	id 47109
sb-124	mt=102	updated 10/13/89	id 51124
xe-131	mt=102,103,104,105,106	updated 10/13/89	id 54131
xe-132	mt=102,103,104,105,106	updated 10/13/89	id 54132
xenon-135	endf/b-iv mat 1294	updated 10/13/89	id 54135
xe-136	mt= 102, 103, 104, 105, 107		id 54136
cesium-133	endf/b-iv mat 1141	updated 10/13/89	id 55133
cs-134	mt=102	updated 10/13/89	id 55134
cs-135	mt= 102		id 55135
cs-137	mt=102	updated 10/13/89	id 55137
ba-136	mt=102	updated 10/13/89	id 56136
la-139	mt=102	updated 10/13/89	id 57139
ce-144	mt= 102		id 58144
pr-141	mt=102,103,104,105,106,107	updated 10/13/89	id 59141
pr-143	mt=102	updated 10/13/89	id 59143
nd-143	mt=102	updated 10/13/89	id 60143
nd-145	mt=102	updated 10/13/89	id 60145
nd-147	mt=102	updated 10/13/89	id 60147
pm-147	mt=102	updated 10/13/89	id 61147
pm-148	mt= 102		id 61148
sm-147	endf/b-v fission product	updated 10/13/89	id 62147
sm-149	mt=102,103,107	updated 10/13/89	id 62149
sm-150	mt=102	updated 10/13/89	id 62150
sm-151	mt=102,103,104,105,106,107	updated 10/13/89	id 62151
sm-152	mt=102,103,104,105,106,107	updated 10/13/89	id 62152
eu-153	mt=102,103,104,105,106,107	updated 10/13/89	id 63153
eu-154	mt=102,103,104,105,106,107	updated 10/13/89	id 63154
eu-155	mt=102,103,104,105,106,107	updated 10/13/89	id 63155
gd-155	mt=102	updated 10/13/89	id 64155
u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)			id 92234
uranium-235	endf/b-iv mat 1261	updated 10/13/89	id 92235
u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)			id 92236
uranium-238	endf/b-iv mat 1262	updated 10/13/89	id 92238
neptunium-237	endf/b-iv mat 1263	updated 10/13/89	id 93237
pu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)			id 94238
plutonium-239	endf/b-iv mat 1264	updated 10/13/89	id 94239
plutonium-240	endf/b-iv mat 1265	updated 10/13/89	id 94240
plutonium-241	endf/b-iv mat 1266	updated 10/13/89	id 94241
plutonium-242	endf/b-iv mat 1161	updated 10/13/89	id 94242
am-241 1056 sigo=5+4 newklacs 218ngp p-3 293k			id 95241
am-243 1057 218 gp wt f-1/e-m 090376 p3 293k			id 95243

curium-244 endf/b-iv mat 1162 updated 10/13/89 id 96244
0 tape copy used 0 i/o's, and took .00 seconds
1



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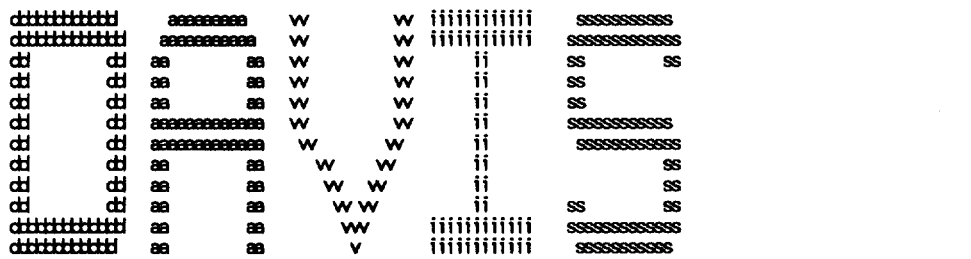

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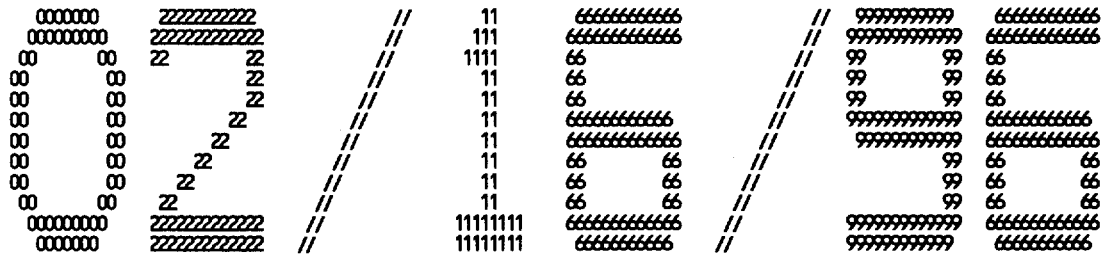

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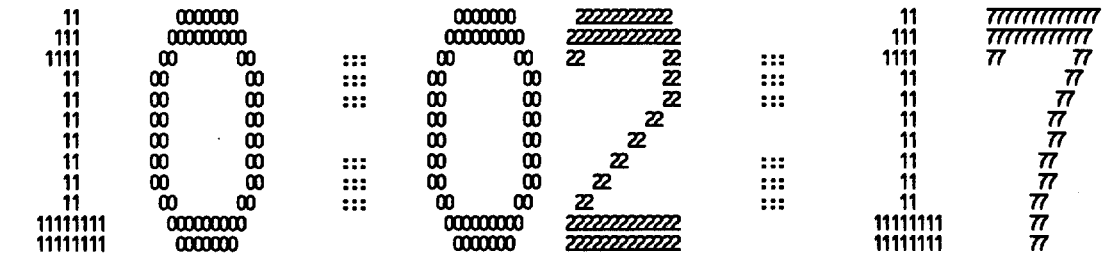

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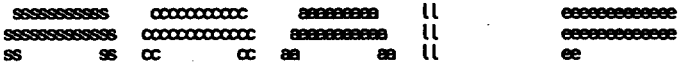
0



```
ss          cc          aa      aa  ll          ee
ss          cc          aa      aa  ll          ee
sssssssssss cc          aaaaaaaaaaa ll          eeeeeeeee
 sssssssssss cc          aaaaaaaaaaa ll          eeeeeeeee
        ss  cc          aa      aa  ll          ee
        ss  cc          aa      aa  ll          ee
ss      ss  cc      cc  aa      aa  ll          ee
sssssssssssss cccccccccccc aa      aa  lllllllllllll eeeeeeeeeeeee
 sssssssssss  cccccccccc aa      aa  lllllllllllll eeeeeeeeeeeee
```

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                program verification information                   *****
*****                                                                   *****
*****               code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****            program:  c0c002                                       *****
*****                                                                   *****
*****       creation date:  04/27/95                                    *****
*****                                                                   *****
*****            library:  /neutronics/scale/exe                        *****
*****                                                                   *****
*****                                                                   *****
*****    this is not a   scale  configuration controlled code           *****
*****                                                                   *****
*****            jobname:  davis                                        *****
*****                                                                   *****
*****    date of execution:  02/16/96                                   *****
*****                                                                   *****
*****    time of execution:  10:02:17                                   *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
```

```
1
0       -1q array has      1 entries.
0        0q array has      9 entries.
0        1q array has     12 entries.
0select 65 nuclides from the master  library on logical  1
         0 nuclides from the working library on logical  2
         0 nuclides from the working library on logical  3
           to create the new working library on logical  4

        61 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has     65 entries.
0        3q array has    915 entries.
0        4q array has     65 entries.
```

```
0 general information concerning cross section library
    tape identification number                4321
    number of nuclides on tape                  66
    number of neutron energy groups             27
    first thermal neutron energy group          15
    number of gamma energy groups                0
0   direct access unit number  9 requires 117 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                          based on endf-b version 4 data with endf-b version 5 fission products
                            compiled for nrc      1/27/89
                              last updated       9/16/93
                                l.m.petrie   -   ornl
0 nuclides from xsdrn tape
     1    1/v cross sections normalized to 1.0 at 0.0253 ev                                  999
     2    hydrogen        endf/b-iv mat 1269/thrm1002    updated 10/13/89                  1001
     3    b-10 1273 218ngp 042375 p-3 293k                                                 5010
     4    boron-11        endf/b-iv mat 1160             updated 10/13/89                  5011
     5    oxygen-16       endf/b-iv mat 1276             updated 10/13/89                  8016
     6    oxygen-16       endf/b-iv mat 1276             updated 10/13/89                     6
     7    kr-83           mt=102,103,103,105,106,107     updated 10/13/89                 36083
     8    kr-85             mt=  102                                                       36085
     9    sr-90           mt=102                         updated 10/13/89                 38090
    10     y-89           mt=102                         updated 10/13/89                 39089
    11    zr-93             mt=  102                                                       40093
    12    zr-94           mt=102                         updated 10/13/89                 40094
    13    zr-95           mt=102                         updated 10/13/89                 40095
    14    zircalloy       endf/b-iv mat 1284             updated 10/13/89                 40302
    15    nb-94           mt=102                         updated 10/13/89                 41094
    16    mo-95           mt=102                         updated 10/13/89                 42095
    17    tc-99           mt=102                         updated 10/13/89                 43099
    18    ru-101          mt=102                         updated 10/13/89                 44101
    19    ru-106          mt=102                         updated 10/13/89                 44106
    20    rh-103          mt=102                         updated 10/13/89                 45103
    21    rh-105            mt=  102                                                       45105
    22    pd-105          mt=102                         updated 10/13/89                 46105
    23    pd-108          mt=102                         updated 10/13/89                 46108
    24    silver-109      endf/b-iv mat 1139             updated 10/13/89                 47109
    25    sb-124          mt=102                         updated 10/13/89                 51124
    26    xe-131          mt=102,103,104,105,106         updated 10/13/89                 54131
    27    xe-132          mt=102,103,104,105,106         updated 10/13/89                 54132
    28    xenon-135       endf/b-iv mat 1294             updated 10/13/89                 54135
    29    xe-136            mt=  102, 103, 104, 105, 107                                   54136
    30    cesium-133      endf/b-iv mat 1141             updated 10/13/89                 55133
    31    cs-134          mt=102                         updated 10/13/89                 55134
    32    cs-135            mt=  102                                                       55135
    33    cs-137          mt=102                         updated 10/13/89                 55137
    34    ba-136          mt=102                         updated 10/13/89                 56136
    35    la-139          mt=102                         updated 10/13/89                 57139
    36    ce-144            mt=  102                                                       58144
    37    pr-141          mt=102,103,104,105,106,107     updated 10/13/89                 59141
    38    pr-143          mt=102                         updated 10/13/89                 59143
    39    nd-143          mt=102                         updated 10/13/89                 60143
    40    nd-145          mt=102                         updated 10/13/89                 60145
    41    nd-147          mt=102                         updated 10/13/89                 60147
    42    pm-147          mt=102                         updated 10/13/89                 61147
    43    pm-148            mt=  102                                                       61148
    44    sm-147          endf/b-v fission product       updated 10/13/89                 62147
    45    sm-149          mt=102,103,107                 updated 10/13/89                 62149
    46    sm-150          mt=102                         updated 10/13/89                 62150
```

```
    47     sm-151          mt=102,103,104,105,106,107     updated 10/13/89              62151
    48     sm-152          mt=102,103,104,105,106,107     updated 10/13/89              62152
    49     eu-153          mt=102,103,104,105,106,107     updated 10/13/89              63153
    50     eu-154          mt=102,103,104,105,106,107     updated 10/13/89              63154
    51     eu-155          mt=102,103,104,105,106,107     updated 10/13/89              63155
    52     gd-155          mt=102                         updated 10/13/89              64155
    53    u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                            92234
    54     uranium-235     endf/b-iv mat 1261             updated 10/13/89              92235
    55    u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                            92236
    56     uranium-238     endf/b-iv mat 1262             updated 10/13/89              92238
    57     neptunium-237   endf/b-iv mat 1263             updated 10/13/89              93237
    58    pu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                           94238
    59     plutonium-239   endf/b-iv mat 1264             updated 10/13/89              94239
    60     plutonium-240   endf/b-iv mat 1265             updated 10/13/89              94240
    61     plutonium-241   endf/b-iv mat 1266             updated 10/13/89              94241
    62     plutonium-242   endf/b-iv mat 1161             updated 10/13/89              94242
    63    am-241 1056 sigo=5+4 newklacs 218grp p-3 293k                                  95241
    64    am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                                   95243
    65     curium-244      endf/b-iv mat 1162             updated 10/13/89              96244
01/v cross sections normalized to 1.0 at 0.0253 ev                          999    temperature=  975.00
0 hydrogen        endf/b-iv mat 1269/thrm1002    updated 10/13/89           1001    temperature=  607.60
                        thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0b-10 1273 218grp 042375 p-3 293k                                          5010    temperature=  607.60
                        thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 boron-11        endf/b-iv mat 1160             updated 10/13/89           5011    temperature=  607.60
                        thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 oxygen-16       endf/b-iv mat 1276             updated 10/13/89           8016    temperature=  975.00
0 oxygen-16       endf/b-iv mat 1276             updated 10/13/89              6    temperature=  607.60
0 kr-83           mt=102,103,103,105,106,107     updated 10/13/89          36083    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   82.202          temperature(kelvin)     =  975.000
0potential scatter sigma  =    7.004          lumped nuclear density  = 1.4271768E-06
0spin factor (g)          = 4988.190          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995            sigma(per absorber atom)= 1.1964859E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.953            sigma(per absorber atom)= 1.3349052E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -2.107455E-03     .000000E+00   -2.665955E-03
  12       2.165458E-02     .000000E+00    9.892334E-03
  13      -4.670784E-01     .000000E+00   -1.406421E-01
  14       4.782960E-05     .000000E+00   -1.722996E-05
0excess resonance integrals
0                 resolved
0absorption      1.44735E+02
 fission          .00000E+00
-  elapsed time    .00 min.
0 kr-85           mt=  102                                 36085    temperature=  975.00
0 sr-90          mt=102                         updated 10/13/89          38090    temperature=  975.00
0  y-89          mt=102                         updated 10/13/89          39089    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   88.142          temperature(kelvin)     =  975.000
0potential scatter sigma  =    3.644          lumped nuclear density  = 1.2388544E-05
0spin factor (g)          =   78.664          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
```

```
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.3783677E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.5378286E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
   9      -3.386356E-06     .000000E+00   -2.525315E-04
  10      -7.546894E-05     .000000E+00   -2.128284E-04
0excess resonance integrals
0                  resolved
0absorption       1.46396E-01
 fission           .00000E+00
- elapsed time     .00 min.
0 zr-93            mt=  102                                          40093     temperature=   975.00
0 zr-94          mt=102                    updated 10/13/89          40094     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    93.100          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.779          lumped nuclear density   = 1.9587926E-05
0spin factor (g)          =   180.853          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 8.7175996E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 9.7261230E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
   8      -1.205871E-06     .000000E+00   -1.136245E-03
   9      -3.808849E-05     .000000E+00   -3.369180E-03
0excess resonance integrals
0                  resolved
0absorption       3.43696E-02
 fission           .00000E+00
- elapsed time     .00 min.
0 zr-95          mt=102                    updated 10/13/89          40095     temperature=   975.00
0 zircalloy      endf/b-iv mat 1284        updated 10/13/89          40302     temperature=   650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)      =   650.000
0potential scatter sigma  =     6.385          lumped nuclear density   = 4.2515602E-02
0spin factor (g)          =     1.079          lump dimension (a-bar)   = 5.4610002E-01
0inner radius             = 4.7878999E-01      dancoff correction (c)   = 5.0364637E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
   8      -1.780596E-03     .000000E+00   -1.286907E+00
   9      -5.893373E-02     .000000E+00   -2.695297E+00
  10      -6.959955E-02     .000000E+00   -1.601321E+00
  11      -1.883937E-01     .000000E+00   -7.920912E-01
0excess resonance integrals
0                  resolved
0absorption       2.28539E-01
 fission           .00000E+00
- elapsed time     .02 min.
0 nb-94          mt=102                    updated 10/13/89          41094     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    93.101          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.779          lumped nuclear density   = 9.7096506E-12
```

```
0spin factor (g)          = 43808.801              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.7586594E+10
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 1.9621155E+10
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  13       1.043254E-02     .000000E+00     9.253223E-04
  14       9.836713E-03     .000000E+00    -4.064832E-04
0excess resonance integrals
0                  resolved
0absorption       9.15001E+01
 fission           .00000E+00
-  elapsed time    .02 min.
0 mo-95          mt=102                    updated 10/13/89              42095     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    94.091              temperature(kelvin)       =   975.000
0potential scatter sigma  =     3.806              lumped nuclear density    = 1.6557906E-05
0spin factor (g)          =   607.724              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.0312880E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 1.1505958E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  10      -3.530957E-03     .000000E+00    -2.099522E-02
  11      -6.524231E-03     .000000E+00    -1.080905E-02
  12      -4.589763E+00     .000000E+00    -5.280679E+00
  13       1.575622E-04     .000000E+00    -2.129488E-05
0excess resonance integrals
0                  resolved
0absorption       9.75400E+01
 fission           .00000E+00
-  elapsed time    .02 min.
0 tc-99          mt=102                    updated 10/13/89              43099     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    98.150              temperature(kelvin)       =   975.000
0potential scatter sigma  =     6.000              lumped nuclear density    = 1.9160281E-05
0spin factor (g)          =  4527.940              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 8.9121709E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 9.9432041E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11      -2.469531E-02     .000000E+00    -1.163742E-02
  12      -6.508102E-03     .000000E+00    -2.280359E-04
  13      -4.011463E-01     .000000E+00    -2.111810E-02
  14      -8.565925E+00     .000000E+00    -2.732188E-01
  15       1.070115E-02     .000000E+00    -5.387696E-04
  16       4.836025E-03     .000000E+00    -2.802101E-04
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  17      2.074640E-04     .000000E+00   -1.192373E-05
0excess resonance integrals
0                resolved
0absorption      3.234E+02
 fission          .0000E+00
-  elapsed time    .03 min.
0 ru-101        mt=102                    updated 10/13/89            44101     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   100.039          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.965          lumped nuclear density   = 1.738869E-05
0spin factor (g)          =  8785.290          lump dimension (a-bar)   = 4.681220E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 9.820158E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 1.095623E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11     -3.647632E-02     .000000E+00   -3.684222E-03
  12     -1.412914E-01     .000000E+00   -3.547577E-02
  13     -4.671092E-01     .000000E+00   -1.257778E-02
  14      2.371029E-04     .000000E+00   -4.152284E-05
0excess resonance integrals
0                resolved
0absorption      7.923E+01
 fission          .0000E+00
-  elapsed time    .03 min.
0 ru-106        mt=102                    updated 10/13/89            44106     temperature=  975.00
0 rh-103        mt=102                    updated 10/13/89            45103     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   102.021          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.408          lumped nuclear density   = 1.050839E-05
0spin factor (g)          =      .500          lump dimension (a-bar)   = 4.681220E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.624984E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 1.812976E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9      1.236941E-03     .000000E+00    1.889577E-03
  10     -4.028342E-03     .000000E+00   -5.558081E-03
  11     -2.106917E-02     .000000E+00   -1.854124E-02
  12     -3.399178E-04     .000000E+00   -2.380681E-05
  13      .000000E+00      .000000E+00    .000000E+00
  14      .000000E+00      .000000E+00    .000000E+00
  15      2.268889E-01     .000000E+00    3.244993E-03
  16      3.156197E+01     .000000E+00   -7.005092E-02
  17     -1.862040E+02     .000000E+00   -1.642171E-01
  18      8.690983E+01     .000000E+00    2.607519E-01
  19      1.145288E+01     .000000E+00   -1.386590E-03
  20      1.084406E+00     .000000E+00   -2.447915E-03
  21      2.165818E-01     .000000E+00    1.925102E-03
  22      2.583936E-01     .000000E+00    2.928526E-03
  23     -9.879320E-02     .000000E+00    1.798871E-03
0excess resonance integrals
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0                 resolved
0absorption      1.14205E+03
 fission          .00000E+00
- elapsed time    .07 min.
0 rh-105          mt= 102                                          45105    temperature=  975.00
0 pd-105        mt=102                    updated 10/13/89          46105    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  104.004          temperature(kelvin)      =  975.000
0potential scatter sigma  =    4.069          lumped nuclear density   = 6.8604922E-06
0spin factor (g)          = 15210.000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995          sigma(per absorber atom)= 2.4890299E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.953          sigma(per absorber atom)= 2.7769813E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  12     -5.988775E-02    .000000E+00   -1.650568E-03
  13     -3.455140E-02    .000000E+00   -1.063048E-03
  14      7.764513E-04    .000000E+00   -8.132564E-05
0excess resonance integrals
0                 resolved
0absorption      6.12143E+01
 fission          .00000E+00
- elapsed time    .07 min.
0 pd-108        mt=102                    updated 10/13/89          46108    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  106.977          temperature(kelvin)      =  975.000
0potential scatter sigma  =    4.146          lumped nuclear density   = 1.9254592E-06
0spin factor (g)          = 21175.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995          sigma(per absorber atom)= 8.8685180E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.953          sigma(per absorber atom)= 9.8945008E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11      1.170138E-04    .000000E+00    3.531506E-04
  12     -1.744531E+00    .000000E+00   -1.284438E+00
  13      6.798671E-03    .000000E+00    1.857198E-03
  14      8.561140E-02    .000000E+00   -3.208624E-05
  15     -1.840957E-01    .000000E+00    8.083612E-05
  16      2.946577E-04    .000000E+00   -9.255595E-06
0excess resonance integrals
0                 resolved
0absorption      2.11967E+02
 fission          .00000E+00
- elapsed time    .07 min.
0 silver-109    endf/b-iv mat 1139        updated 10/13/89          47109    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  107.969          temperature(kelvin)      =  975.000
0potential scatter sigma  =    4.988          lumped nuclear density   = 1.3457249E-06
0spin factor (g)          = 1441.870          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995          sigma(per absorber atom)= 1.2689049E+05
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0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 1.4157022E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  10      -1.472962E-04     .000000E+00   -1.567339E-04
  11      -6.107400E-03     .000000E+00   -4.491020E-03
  12      -7.277893E-01     .000000E+00   -3.450912E-02
  13       7.669353E-01     .000000E+00    3.380737E-02
  14      -1.278952E+01     .000000E+00   -1.192197E+00
0excess resonance integrals
0                 resolved
0absorption      1.38632E+03
 fission          .00000E+00
-  elapsed time    .07 min.
0 sb-124        mt=102                    updated 10/13/89          51124    temperature=   975.00
0 xe-131        mt=102,103,104,105,106    updated 10/13/89          54131    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   129.781          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.301          lumped nuclear density   = 8.7760827E-06
0spin factor (g)          =   246.825          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.9457393E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 2.1708383E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9      -2.848403E-06     .000000E+00   -2.640883E-05
  10      -1.938772E-04     .000000E+00   -1.666874E-04
  11      -2.365111E-03     .000000E+00   -1.765685E-03
  12      -4.517101E-02     .000000E+00   -4.207236E-03
  13      -7.038969E+01     .000000E+00   -1.650056E+02
  14       1.061624E-02     .000000E+00    1.486984E-02
0excess resonance integrals
0                 resolved
0absorption      7.58385E+02
 fission          .00000E+00
-  elapsed time    .08 min.
0 xe-132        mt=102,103,104,105,106    updated 10/13/89          54132    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   130.771          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.301          lumped nuclear density   = 1.6494707E-05
0spin factor (g)          =   675.899          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.0552393E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 1.1550043E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9      -2.544256E-05     .000000E+00   -1.172795E-04
  10      -7.780082E-03     .000000E+00   -9.908657E-02
  11       3.338821E-08     .000000E+00   -9.229524E-07
0excess resonance integrals
```

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0                resolved
0absorption      9.71131E-01
 fission          .00000E+00
-  elapsed time   .08 min.
0 xenon-135      endf/b-iv mat 1294          updated 10/13/89          54135    temperature=  975.00
0 xe-136           mt=  102, 103, 104, 105, 107                       54136    temperature=  975.00
0 cesium-133     endf/b-iv mat 1141          updated 10/13/89          55133    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   131.764          temperature(kelvin)      =   975.000
0potential scatter sigma  =     7.100          lumped nuclear density   = 2.1020622E-05
0spin factor (g)          =   374.437          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995            sigma(per absorber atom)= 8.1234365E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051            sigma(per absorber atom)= 8.7134512E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9     -5.815313E-05     .000000E+00   -3.912479E-04
  10     -2.895950E-03     .000000E+00   -5.542578E-03
  11     -1.080677E-01     .000000E+00   -1.890162E-01
  12     -1.675589E-01     .000000E+00   -2.331297E-02
  13     -2.787342E-01     .000000E+00   -1.516813E-02
  14     -1.213135E+01     .000000E+00   -5.310487E-01
  15      5.621247E-03     .000000E+00   -4.047216E-04
  16      2.777836E-03     .000000E+00   -2.215200E-04
  17      2.352213E-03     .000000E+00   -1.830883E-04
  18      2.215043E-03     .000000E+00   -1.679331E-04
  19      1.317405E-03     .000000E+00   -9.678893E-05
0excess resonance integrals
0                resolved
0absorption      3.51131E+02
 fission          .00000E+00
-  elapsed time   .10 min.
0 cs-134         mt=102                      updated 10/13/89          55134    temperature=  975.00
0 cs-135           mt=  102                                            55135    temperature=  975.00
0 cs-137         mt=102                      updated 10/13/89          55137    temperature=  975.00
0 ba-136         mt=102                      updated 10/13/89          56136    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   134.737          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.835          lumped nuclear density   = 1.9312503E-07
0spin factor (g)          =  1247.690          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995            sigma(per absorber atom)= 8.8419250E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933            sigma(per absorber atom)= 9.8648313E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10      1.097034E-06     .000000E+00    4.642062E-07
  11     -1.204376E-05     .000000E+00   -9.815700E-06
0excess resonance integrals
0                resolved
0absorption      1.38471E+00
 fission          .00000E+00
-  elapsed time   .10 min.
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0 la-139        mt=102                          updated 10/13/89          57139     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  137.713              temperature(kelvin)      =  975.000
0potential scatter sigma  =    4.906              lumped nuclear density   = 2.0324025E-05
0spin factor (g)          =  145.855              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995              sigma(per absorber atom)= 8.4018643E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.933              sigma(per absorber atom)= 9.3738604E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  9      -1.254866E-05    .000000E+00   -2.225172E-04
 10      -3.955710E-04    .000000E+00   -2.243899E-02
 11        .000000E+00    .000000E+00     .000000E+00
 12      -6.961611E-02    .000000E+00   -4.203025E-02
0excess resonance integrals
0                  resolved
0absorption       8.06569E+00
 fission           .00000E+00
- elapsed time    .12 min.
0 ce-144          mt= 102                                                  58144     temperature=  975.00
0 pr-141        mt=102,103,104,105,106,107    updated 10/13/89          59141     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  139.697              temperature(kelvin)      =  975.000
0potential scatter sigma  =    4.953              lumped nuclear density   = 1.7598717E-05
0spin factor (g)          =  1026.500             lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995              sigma(per absorber atom)= 9.7029629E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.933              sigma(per absorber atom)= 1.0825481E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
 10      -6.883339E-03    .000000E+00   -2.337946E-01
 11      -1.126897E-01    .000000E+00   -1.498327E+00
 12      -2.585426E-03    .000000E+00   -2.528515E-04
0excess resonance integrals
0                  resolved
0absorption       1.20978E+01
 fission           .00000E+00
- elapsed time    .12 min.
0 pr-143        mt=102                          updated 10/13/89          59143     temperature=  975.00
0 nd-143        mt=102                          updated 10/13/89          60143     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  141.682              temperature(kelvin)      =  975.000
0potential scatter sigma  =    5.000              lumped nuclear density   = 1.5915050E-05
0spin factor (g)          =  1964.860             lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995              sigma(per absorber atom)= 1.0729448E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.933              sigma(per absorber atom)= 1.1970719E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
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0group        res abs        res fiss        res scat
  10      -1.574946E-04    .000000E+00   -8.823005E-05
  11      -3.695361E-01    .000000E+00   -4.293528E+00
  12      -2.444570E-01    .000000E+00   -1.202315E-01
0excess resonance integrals
0                  resolved
0absorption       5.07642E+01
 fission           .00000E+00
- elapsed time    .12 min.
0 nd-145        mt=102                    updated 10/13/89          60145     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   143.668          temperature(kelvin)       =   975.000
0potential scatter sigma  =     5.047          lumped nuclear density    = 1.1734181E-05
0spin factor (g)          =  1007.250          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.4552332E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 1.6235865E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  10      -4.781522E-03    .000000E+00   -7.507609E-02
  11      -7.203245E-02    .000000E+00   -2.180945E-01
  12      -1.733671E+00    .000000E+00   -1.090933E+01
  13       9.577876E-05    .000000E+00    2.044937E-04
  14      -1.591639E+00    .000000E+00   -4.183234E-02
  15       5.898307E-03    .000000E+00   -4.609054E-04
  16       1.326662E-03    .000000E+00   -1.451343E-04
  17       9.642444E-04    .000000E+00   -1.063907E-04
  18       8.539835E-04    .000000E+00   -9.314132E-05
  19       7.634249E-04    .000000E+00   -8.070323E-05
  20       2.839224E-05    .000000E+00   -2.919392E-06
0excess resonance integrals
0                  resolved
0absorption       2.05973E+02
 fission           .00000E+00
- elapsed time    .13 min.
0 nd-147        mt=102                    updated 10/13/89          60147     temperature=   975.00
0 pm-147        mt=102                    updated 10/13/89          61147     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)       =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density    = 4.0223504E-06
0spin factor (g)          = 21589.500          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 4.2452715E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 4.7363992E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  12      -2.019935E-01    .000000E+00   -6.472971E-02
  13      -5.178917E-02    .000000E+00   -2.944189E-03
  14      -9.048184E+01    .000000E+00   -3.888611E+01
  15       4.127173E-02    .000000E+00    6.976340E-03
  16       1.697912E-02    .000000E+00    1.746667E-03
  17       1.369759E-02    .000000E+00    1.150427E-03
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  18      1.253775E-02     .000000E+00    9.649080E-04
  19      6.999401E-04     .000000E+00    5.068677E-05
0excess resonance integrals
0                 resolved
0absorption      2.00495E+03
 fission          .00000E+00
- elapsed time    .13 min.
0 pm-148          mt=  102                                          61148    temperature=  975.00
0 sm-147        endf/b-v fission product      updated 10/13/89       62147    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma =     5.093          lumped nuclear density   = 1.4015466E-06
0spin factor (g)         =      .000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995           sigma(per absorber atom)= 1.2183662E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.933           sigma(per absorber atom)= 1.3595167E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
  11      2.691080E-01     .000000E+00    1.071706E+00
  12      8.990461E-01     .000000E+00   -1.596820E+00
  13     -3.912558E+00     .000000E+00   -2.295034E+00
  14     -4.358768E-01     .000000E+00   -5.141891E-03
  15      3.113323E-01     .000000E+00   -1.904650E-03
  16      7.287706E-03     .000000E+00   -3.738560E-04
  17      4.281466E-03     .000000E+00   -2.401682E-04
  18      3.510456E-03     .000000E+00   -1.997176E-04
  19      2.910619E-03     .000000E+00   -1.649500E-04
  20      8.435568E-04     .000000E+00   -4.628077E-05
0excess resonance integrals
0                 resolved
0absorption      7.21750E+02
 fission          .00000E+00
- elapsed time    .15 min.
                          thermal scattering matrix number  3 at a temperature of    900.03 was selected.
0 sm-149        mt=102,103,107          updated 10/13/89       62149    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   147.638          temperature(kelvin)      =   975.000
0potential scatter sigma =     3.260          lumped nuclear density   = 8.6958181E-08
0spin factor (g)         = 10407.900          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995           sigma(per absorber atom)= 1.9636990E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.933           sigma(per absorber atom)= 2.1908758E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
  11      8.546590E-03     .000000E+00    3.071159E-02
  12     -5.533293E-02     .000000E+00   -1.820874E-01
  13      2.289289E-02     .000000E+00    2.796631E-03
  14      2.746277E-03     .000000E+00   -7.935149E-03
0excess resonance integrals
0                 resolved
0absorption      8.04332E+02
 fission          .00000E+00
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- elapsed time    .15 min.
0 sm-150        mt=102                        updated 10/13/89          62150     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   148.629          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.162          lumped nuclear density   = 4.1806816E-06
0spin factor (g)          =  4376.420          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 4.0844941E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 4.5570219E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  10      -1.398363E-03     .000000E+00   -1.341212E-02
  11      -3.151565E-02     .000000E+00   -3.565074E-01
  12      -1.026808E-01     .000000E+00   -3.103027E-02
  13      -7.244654E+00     .000000E+00   -5.702447E+00
  14       1.065287E-04     .000000E+00   -6.390289E-05
0excess resonance integrals
0                  resolved
0absorption       2.86649E+02
 fission           .00000E+00
- elapsed time    .15 min.
0 sm-151        mt=102,103,104,105,106,107    updated 10/13/89          62151     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   149.623          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.185          lumped nuclear density   = 4.0190145E-07
0spin factor (g)          = 75574.703          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 4.2487953E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 4.7403309E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss        res scat
  14      -2.313706E-01     .000000E+00   -2.198228E-02
  15       1.485611E+01     .000000E+00    7.515553E-02
  16      -2.182088E+01     .000000E+00   -6.201120E-02
  17       1.735828E+02     .000000E+00    8.269866E-01
  18      -3.207103E+02     .000000E+00   -1.784223E+00
  19       6.253944E+01     .000000E+00    3.867666E-01
  20       1.141187E+00     .000000E+00   -1.393821E-04
  21      -7.117673E-02     .000000E+00    1.244103E-02
  22       6.952596E-02     .000000E+00    3.838923E-03
  23      -1.091910E-02     .000000E+00    3.374031E-04
0excess resonance integrals
0                  resolved
0absorption       2.05616E+03
 fission           .00000E+00
- elapsed time    .15 min.
0 sm-152        mt=102,103,104,105,106,107    updated 10/13/89          62152     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   150.615          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.208          lumped nuclear density   = 2.0046550E-06
0spin factor (g)          =   863.594          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
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0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 8.5181586E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 9.5036094E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9       2.402705E-06     .000000E+00     1.158603E-04
  10      -1.613120E-03     .000000E+00    -2.503739E-02
  11      -2.328024E-02     .000000E+00    -8.863147E-02
  12      -1.561992E-01     .000000E+00    -4.954254E-01
  13       4.184015E-02     .000000E+00     1.017387E-01
  14      -1.368911E+02     .000000E+00    -2.642978E+02
0excess resonance integrals
0                 resolved
0absorption      2.73423E+03
 fission          .00000E+00
-  elapsed time    .17 min.
0 eu-153        mt=102,103,104,105,106,107     updated 10/13/89              63153     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   151.607              temperature(kelvin)       =   975.000
0potential scatter sigma  =     9.731              lumped nuclear density    = 1.2054246E-06
0spin factor (g)          = 12265.900              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.4165936E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 1.5804769E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  12      -2.948301E-01     .000000E+00    -5.761086E-02
  13      -1.746831E-01     .000000E+00    -6.441064E-03
  14      -9.135323E-01     .000000E+00    -1.894943E-03
  15       1.268074E+00     .000000E+00    -4.252725E-02
  16      -3.300676E+00     .000000E+00     8.155595E-03
  17       1.505586E-01     .000000E+00    -3.437673E-03
  18       7.726851E-02     .000000E+00    -2.231216E-03
  19       5.055454E-02     .000000E+00    -1.541080E-03
  20      -1.253804E-01     .000000E+00    -1.274997E-03
0excess resonance integrals
0                 resolved
0absorption      1.35389E+03
 fission          .00000E+00
-  elapsed time    .17 min.
0 eu-154        mt=102,103,104,105,106,107     updated 10/13/89              63154     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   152.601              temperature(kelvin)       =   975.000
0potential scatter sigma  =     9.731              lumped nuclear density    = 2.5216809E-07
0spin factor (g)          = 19135.801              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 6.7716613E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 7.5550625E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
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0group       res abs         res fiss        res scat
  12      -3.936354E-01     .000000E+00   -6.141107E-02
  13      -3.243814E-01     .000000E+00   -2.535959E-02
  14       3.137239E-01     .000000E+00    1.434408E-02
  15       1.216527E-01     .000000E+00    2.082218E-02
  16       7.156821E+00     .000000E+00    9.208286E-02
  17      -1.443276E+02     .000000E+00   -1.897852E+00
  18       1.134462E+02     .000000E+00    1.857145E+00
  19      -1.014757E+02     .000000E+00    1.187365E+00
0excess resonance integrals
0                 resolved
0absorption      2.13626E+03
 fission          .00000E+00
-  elapsed time    .18 min.
0 eu-155        mt=102,103,104,105,106,107    updated 10/13/89              63155    temperature=  975.00
0 gd-155        mt=102                        updated 10/13/89              64155    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   153.592          temperature(kelvin)     =   975.000
0potential scatter sigma  =     5.277          lumped nuclear density  = 2.1827047E-09
0spin factor (g)          = 12700.100          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 7.8233072E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 8.7285712E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -1.439525E+00     .000000E+00   -1.839493E-01
  13       1.541064E+00     .000000E+00    1.984967E-01
  14       2.189140E-01     .000000E+00    9.804462E-03
  15      -3.353145E-01     .000000E+00   -1.141159E-04
  16       1.477358E+00     .000000E+00   -4.148867E-03
  17       1.568660E-01     .000000E+00   -1.479133E-03
  18       9.605134E-02     .000000E+00   -1.078060E-03
  19       6.295293E-02     .000000E+00   -8.026360E-04
  20       1.670391E-02     .000000E+00    1.627049E-04
  21        .000000E+00     .000000E+00     .000000E+00
  22        .000000E+00     .000000E+00     .000000E+00
  23        .000000E+00     .000000E+00     .000000E+00
  24        .000000E+00     .000000E+00     .000000E+00
  25      -2.127871E+03     .000000E+00   -1.622070E+00
  26      -5.205742E+03     .000000E+00    1.961503E+00
  27      -1.660003E+03     .000000E+00    7.392749E-01
0excess resonance integrals
0                 resolved
0absorption      3.97032E+04
 fission          .00000E+00
-  elapsed time    .18 min.
0u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                        92234    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   232.029          temperature(kelvin)     =   975.000
0potential scatter sigma  =    10.021          lumped nuclear density  = 4.4680287E-06
0spin factor (g)          =  6948.450          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 3.8218129E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.955          sigma(per absorber atom)= 4.2626461E+04
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0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -2.135940E-02     .000000E+00   -6.230421E-02
  12      -1.742367E-01     .000000E+00   -7.295490E-02
  13       7.760282E-04     .000000E+00   -6.472778E-04
  14      -1.712841E+01     .000000E+00   -2.805241E+00
0excess resonance integrals
0                 resolved
0absorption      5.83639E+02
 fission          .00000E+00
-  elapsed time     .20 min.
0 uranium-235    endf/b-iv mat 1261          updated 10/13/89              92235     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   233.025          temperature(kelvin)      =   975.000
0potential scatter sigma  =    11.500          lumped nuclear density   = 4.026927?E-04
0spin factor (g)          = 15171.100          lump dimension (a-bar)   = 4.681220?E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.426926?E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995            sigma(per absorber atom)= 4.240446?E+02
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.049            sigma(per absorber atom)= 4.550709?E+02
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  12      -1.700852E+00   -1.059361E+00   -3.985436E-02
  13      -6.016437E+00   -2.996959E+00   -1.303385E-01
  14      -4.839319E+00   -2.977209E+00   -3.309245E-02
0excess resonance integrals
0                 resolved
0absorption      2.13451E+02
 fission          1.27057E+02
-  elapsed time     .22 min.
0u-236 1163 sigo=5+4 nsexlacs p-3 293k f-1/e-m(1.+5)                          92236     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   234.017          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.995          lumped nuclear density   = 5.511417?E-05
0spin factor (g)          =  6328.490          lump dimension (a-bar)   = 4.681220?E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.426926?E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995            sigma(per absorber atom)= 3.098290?E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.954            sigma(per absorber atom)= 3.456122?E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -2.655879E-01     .000000E+00   -6.672736E-01
  12      -1.435917E+00     .000000E+00   -9.749925E-01
  13      -6.729345E-02     .000000E+00   -3.511906E-03
  14      -4.638529E+01     .000000E+00   -4.057908E+00
0excess resonance integrals
0                 resolved
0absorption      2.73775E+02
 fission          .00000E+00
-  elapsed time     .22 min.
0 uranium-238    endf/b-iv mat 1262          updated 10/13/89              92238     temperature=   975.00
0resonance data for this nuclide
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0mass number (a)          =   236.006          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density   = 2.1827353E-02
0spin factor (g)          =   656.527          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 7.8231969E+00
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   235.041          sigma(per absorber atom)= 3.3684471E-01
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  9      -3.931561E-02     .000000E+00    -4.039221E-01
 10      -1.024608E+00    -1.744971E-05    -6.475117E+00
 11      -9.704499E+00     .000000E+00    -2.689068E+01
 12      -4.304145E+01     .000000E+00    -4.998128E+01
 13      -5.400749E+01     .000000E+00    -1.768951E+01
 14      -1.044879E+02     .000000E+00    -6.059095E+00
0excess resonance integrals
0                 resolved
0absorption       1.80464E+01
 fission          5.04065E-04
- elapsed time    .23 min.
0 neptunium-237  endf/b-iv mat 1263          updated 10/13/89          93237     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   235.012          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.500          lumped nuclear density   = 3.7305724E-06
0spin factor (g)          = 10100.800          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 4.5773051E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 4.9097598E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
 11      -6.374864E-02    -2.167091E-06    -7.428924E-03
 12       1.776590E-02    -1.164552E-04     6.408805E-03
 13      -5.210491E-02     8.608940E-05    -2.513370E-03
 14      -1.046165E-01    -1.266708E-05    -1.750064E-03
0excess resonance integrals
0                 resolved
0absorption       2.92956E+02
 fission          1.38539E-01
- elapsed time    .27 min.
0pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                          94238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.167          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.890          lumped nuclear density   = 5.3452993E-07
0spin factor (g)          = 13130.600          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 3.1945766E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 3.4266022E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
```

```
  11      -3.282632E-03   -5.090203E-04   -3.151380E-03
  12      -2.240102E-03   -2.553125E-04   -1.062740E-03
  13       3.933082E-01    7.479770E-02   -1.106841E-02
  14      -3.827046E-01   -6.996343E-02    8.539104E-03
0excess resonance integrals
0                 resolved
0absorption      8.25191E+01
 fission         9.08318E+00
-  elapsed time    .27 min.
0 plutonium-239  endf/b-iv mat 1264          updated 10/13/89          94239     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   236.999          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.200          lumped nuclear density   = 1.0774087E-04
0spin factor (g)          =  6435.710          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.5849110E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.7000249E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -2.247174E-01   -9.051856E-02   -6.875905E-02
  12      -1.989344E+00   -7.468539E-01   -2.615587E-01
  13      -6.506670E+00   -3.828007E+00   -9.953720E-02
  14      -2.074125E+00   -1.103918E+00   -1.838425E-02
0excess resonance integrals
0                 resolved
0absorption      3.06743E+02
 fission         1.72348E+02
-  elapsed time    .28 min.
0 plutonium-240  endf/b-iv mat 1265          updated 10/13/89          94240     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   237.992          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density   = 2.0973024E-05
0spin factor (g)          =   669.244          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 8.1418721E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 8.7332256E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
   9      -5.648960E-05   -1.690455E-06   -2.566680E-04
  10      -5.007082E-03   -3.095440E-04   -2.286355E-02
  11      -1.592344E-01   -9.211631E-04   -2.116978E-01
  12      -2.199039E+00   -1.200747E-02   -2.108182E+00
  13      -2.726513E-01   -1.671806E-03   -1.987130E-02
  14       .000000E+00     .000000E+00     .000000E+00
  15       1.732440E-02    3.306438E-06    3.407707E-03
  16       2.825561E+00    5.392708E-04    3.514705E-01
  17       4.313114E+02    8.231768E-02    3.839495E+01
  18      -8.231488E+03   -1.571016E+00   -6.492285E+02
  19       5.877919E+02    1.121827E-01    4.667348E+01
  20      -9.384860E+01   -1.791142E-02    1.798124E+00
0excess resonance integrals
0                 resolved
```

```
0absorption       4.49037E+03
 fission          1.86623E+00
- elapsed time     .30 min.
0 plutonium-241  endf/b-iv mat 1266            updated 10/13/89            94241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   238.978          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.939          lumped nuclear density   = 1.1380800E-05
0spin factor (g)          = 16402.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995           sigma(per absorber atom)= 1.5004189E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 1.6093961E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  12      -3.737381E-03   -3.810023E-03    5.682180E-04
  13      -7.564958E-01   -5.802743E-01   -2.221067E-02
  14      -7.322109E-01   -5.134649E-01   -1.796299E-03
  15       1.786078E-02    1.600555E-02   -4.640525E-04
0excess resonance integrals
0                 resolved
0absorption       5.07453E+02
 fission          4.25525E+02
- elapsed time     .32 min.
0 plutonium-242  endf/b-iv mat 1161            updated 10/13/89            94242     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   240.145          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.694          lumped nuclear density   = 1.2795216E-06
0spin factor (g)          =  6606.710          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995           sigma(per absorber atom)= 1.3345588E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 1.4314892E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -3.405954E-03    .000000E+00   -9.325526E-03
  12      -7.254744E-02    .000000E+00   -1.407043E-01
  13      -1.297766E-04    .000000E+00    2.430201E-06
  14       8.128826E-02    .000000E+00    1.520301E-02
  15      -2.541045E+01    .000000E+00   -2.064759E+00
  16       4.029600E-02    .000000E+00   -3.450822E-03
  17       1.550384E-02    .000000E+00   -1.848195E-03
  18       1.112555E-02    .000000E+00   -1.430695E-03
0excess resonance integrals
0                 resolved
0absorption       1.09547E+03
 fission           .00000E+00
- elapsed time     .32 min.
0am-241 1056 sigp=544 new+klacs 218ngp p-3 293k                                 95241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   238.950          temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.511          lumped nuclear density   = 3.4056694E-07
0spin factor (g)          = 82058.203          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
```

```
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 5.0139828E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 5.3781538E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
  13      4.867330E-01     1.209541E-02    4.627123E-03
  14     -4.587215E-01    -1.130258E-02   -5.073899E-03
0excess resonance integrals
0                 resolved
0absorption      1.95433E+02
 fission         1.07581E+00
- elapsed time    .32 min.
0am-243 1057 218 gp wt f-1/e-m 090376 p3 295k                                95243     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   240.940          temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.511          lumped nuclear density   = 1.1812765E-07
0spin factor (g)          =  8052.602          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.4455521E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.5505443E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
  13     -7.920427E-03     .000000E+00    4.008657E-04
  14      1.597974E-02     .000000E+00    1.415215E-04
0excess resonance integrals
0                 resolved
0absorption      1.60142E+02
 fission          .00000E+00
- elapsed time    .32 min.
0 curium-244     endf/b-iv mat 1162          updated 10/13/89             96244     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   242.133          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.320          lumped nuclear density   = 1.1299280E-08
0spin factor (g)          =  5251.150          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.5111569E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.6209140E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
  11      2.241775E-04     6.144474E-06    2.592307E-04
  12      5.799049E-04     2.804284E-05    9.876156E-05
  13      2.536457E-03     1.259993E-04    7.055791E-04
  14      2.975255E-02     1.780067E-03    5.875189E-04
0excess resonance integrals
0                 resolved
0absorption      6.13835E+02
 fission         3.54181E+01
- elapsed time    .33 min.
- elapsed time    .33 min.
1     this xsdrn working tape was created 02/16/96 at 10:02:17
```

the title of the parent case is as follows
scale 4.2 - 27 group neutron burnup library
based on endf-b version 4 data with endf-b version 5 fission products
compiled for nrc 1/27/89

tape id	4321	number of nuclides	65
number of neutron groups	27	number of gamma groups	0
first thermal group	15	logical unit	4

table of contents

1/v cross sections normalized to 1.0 at 0.0253 ev			id	999
hydrogen	endf/b-iv mat 1269/thrml002	updated 10/13/89	id	1001
b-10 1273 218grp 042375 p-3 293k			id	5010
boron-11	endf/b-iv mat 1160	updated 10/13/89	id	5011
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	8016
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	6
kr-83	mt=102,103,103,105,106,107	updated 10/13/89	id	36083
kr-85	mt= 102		id	36085
sr-90	mt=102	updated 10/13/89	id	38090
y-89	mt=102	updated 10/13/89	id	39089
zr-93	mt= 102		id	40093
zr-94	mt=102	updated 10/13/89	id	40094
zr-95	mt=102	updated 10/13/89	id	40095
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id	40802
nb-94	mt=102	updated 10/13/89	id	41094
mo-95	mt=102	updated 10/13/89	id	42095
tc-99	mt=102	updated 10/13/89	id	43099
ru-101	mt=102	updated 10/13/89	id	44101
ru-106	mt=102	updated 10/13/89	id	44106
rh-103	mt=102	updated 10/13/89	id	45103
rh-105	mt= 102		id	45105
pd-105	mt=102	updated 10/13/89	id	46105
pd-108	mt=102	updated 10/13/89	id	46108
silver-109	endf/b-iv mat 1139	updated 10/13/89	id	47109
sb-124	mt=102	updated 10/13/89	id	51124
xe-131	mt=102,103,104,105,106	updated 10/13/89	id	54131
xe-132	mt=102,103,104,105,106	updated 10/13/89	id	54132
xenon-135	endf/b-iv mat 1294	updated 10/13/89	id	54135
xe-136	mt= 102, 103, 104, 105, 107		id	54136
cesium-133	endf/b-iv mat 1141	updated 10/13/89	id	55133
cs-134	mt=102	updated 10/13/89	id	55134
cs-135	mt= 102		id	55135
cs-137	mt=102	updated 10/13/89	id	55137
ba-136	mt=102	updated 10/13/89	id	56136
la-139	mt=102	updated 10/13/89	id	57139
ce-144	mt= 102		id	58144
pr-141	mt=102,103,104,105,106,107	updated 10/13/89	id	59141
pr-143	mt=102	updated 10/13/89	id	59143
nd-143	mt=102	updated 10/13/89	id	60143
nd-145	mt=102	updated 10/13/89	id	60145
nd-147	mt=102	updated 10/13/89	id	60147
pm-147	mt=102	updated 10/13/89	id	61147
pm-148	mt= 102		id	61148
sm-147	endf/b-v fission product	updated 10/13/89	id	62147
sm-149	mt=102,103,107	updated 10/13/89	id	62149
sm-150	mt=102	updated 10/13/89	id	62150
sm-151	mt=102,103,104,105,106,107	updated 10/13/89	id	62151
sm-152	mt=102,103,104,105,106,107	updated 10/13/89	id	62152
eu-153	mt=102,103,104,105,106,107	updated 10/13/89	id	63153
eu-154	mt=102,103,104,105,106,107	updated 10/13/89	id	63154
eu-155	mt=102,103,104,105,106,107	updated 10/13/89	id	63155
gd-155	mt=102	updated 10/13/89	id	64155

```
      u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                    id   92234
       uranium-235   endf/b-iv mat 1261          updated 10/13/89            id   92235
      u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                    id   92236
       uranium-238   endf/b-iv mat 1262          updated 10/13/89            id   92238
       neptunium-237 endf/b-iv mat 1263          updated 10/13/89            id   93237
      pu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                   id   94238
       plutonium-239 endf/b-iv mat 1264          updated 10/13/89            id   94239
       plutonium-240 endf/b-iv mat 1265          updated 10/13/89            id   94240
       plutonium-241 endf/b-iv mat 1266          updated 10/13/89            id   94241
       plutonium-242 endf/b-iv mat 1161          updated 10/13/89            id   94242
      am-241 1056 sigo=5+4 newklacs 218grp p-3 293k                          id   95241
      am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           id   95243
       curium-244    endf/b-iv mat 1162          updated 10/13/89            id   96244
0       tape copy used      0 i/o's, and took     .00 seconds
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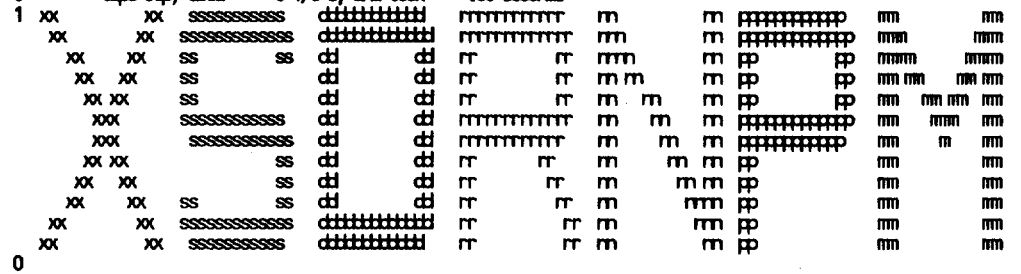
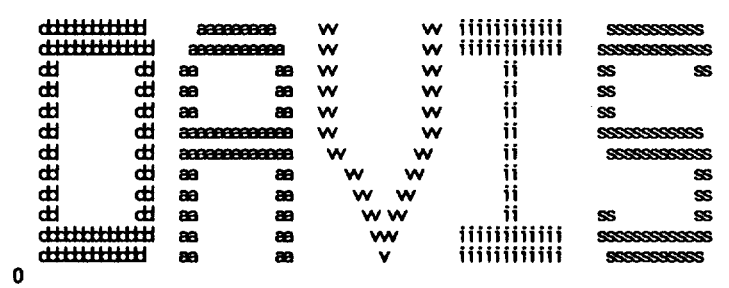
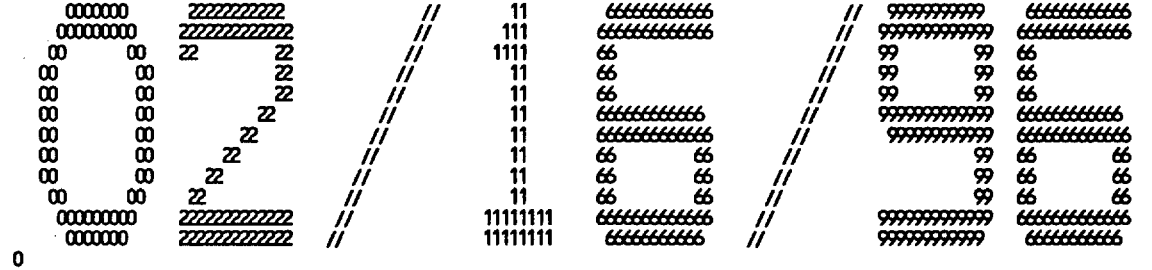
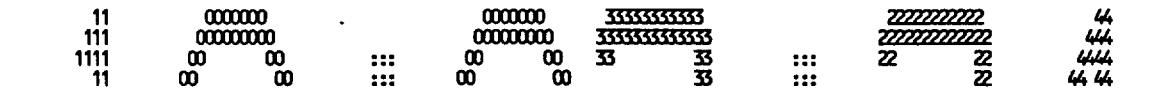
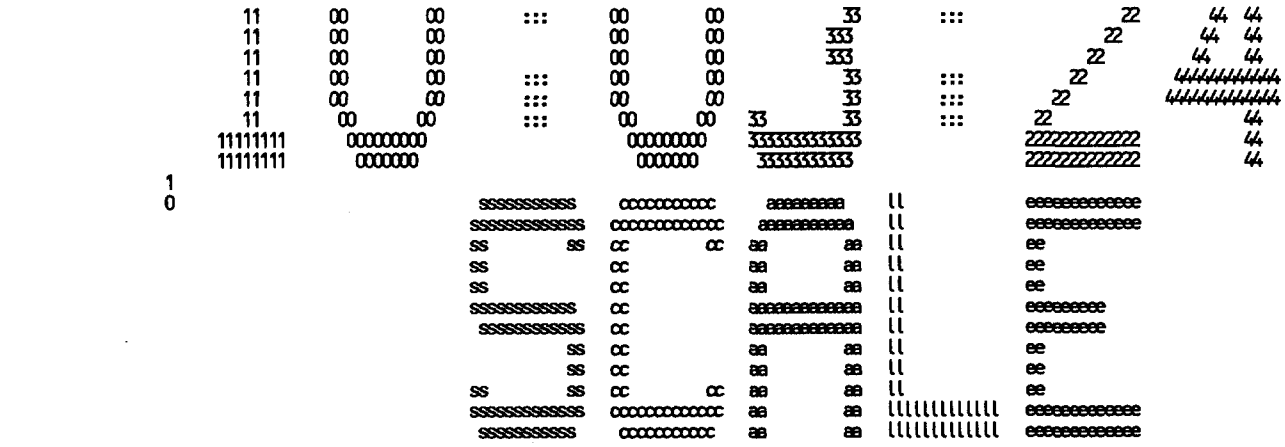










program verification information

code system: scale version: 4.2

program: c0c001

creation date: 04/27/95

library: /neutronics/scale/exe

this is not a scale configuration controlled code

jobname: davis

date of execution: 02/16/96

time of execution: 10:03:24

880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gd/mtu burn high temp

-1q array has 1 entries.

```
0       1q array has      15 entries.
0       2q array has      10 entries.
0       3q array has      12 entries.
0       4q array has       9 entries.
0       5q array has      12 entries.
0direct access unit   9 requires     12 blocks of length  704 for cross section mixing.
1                    880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0general problem description data block
0                                general problem data

 ige  1/2/3 = plane/cylinder/sphere      2        isn  quadrature order                    8
 izm  number of zones                    4        isct order of scattering                 3
 im   number of special intervals       24        ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h     1
 ibl  0/1/2/3 = vacuum/refl/per/white    1        iim  inner iteration maximum          20
 ibr  right boundary condition           3        iom  outer iteration maximum          25
 mxx  number of mixtures                 3        iclc -1/0/n--flat res/sn/cpt             0
 ms   mixing table length               65        ith  0/1 = forward/adjoint             0
 igm  number of energy groups           27        iflu not used(always wgtd)               0
 nng  number of neutron groups          27        iprt -2/-1/0/n=mixture xsec print       -2
 ngg  number of gamma groups             0        idl  0/1/2/3=no/prt nd/pch n/both      53
 iftg number of first thermal group     15        ipbt -1/0/1=none/fine/all bal. prt       0
0                              special options

 ifg  0/1 = none/weighting calculation   1        ipn  0/1/2 diff. coef. param            0
 iqm  volumetric sources (0/n=no/yes)    0        idfm 0/1 = none/density factors 38*      1
 ipm  boundary sources (0/n=no/yes)      0        iaz  0/n = none/n activities by zone     0
 ifn  0/1/2 = input 33*/34*/use last    53        iai  0/1=none/activities by interval     0
 itmx maximum time (minutes)            10        ifct 0/1=no/yes upscatter scaling        0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0        ipvt 0/1/2=no/k/alpha parametric srch    0
 isx  broad group fluxes                 0        isen outer iteration acceleration        0
 ibln activity data unit                 0        nbnd band rebaln parameter               0
 jbkl 0/1/2 buckling geometry            0
0                           weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1        ihtf total xsect psn in brd gp tables    3
 igmf number of broad groups            27        ndsf psn g-g or file number              4
 itp  0/10/20/30/40 0/c/e/ac/a           0        nusf table length or max order           4
 ipp  -2/-1/0/n=wgted xsect print       -2        mxm extra 1-d x-sect positions           0
 iap  -1/n anisn xsect print            -1
0                           floating point parameters

 eps  overall convergence       1.00000E-04       dy   cyl/pla ht for buckling     .00000E+00
 ptc  point convergence         1.00000E-04       dz   plane depth for buckling    .00000E+00
 xnf  normalization factor      1.00000E+00       vsc  void streaming correction   .00000E+00
 ev   eigenvalue guess           .00000E+00       pv   ipvt=1/2--k/alpha          1.00000E+00
 evm  eigenvalue modifier        .00000E+00       eql  ev change eps for search   1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00       xnpm new param mod for search   7.50000E-01
     this case will require      2535 locations for mixing
     this case has been allocated 200000 locations
1                    880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       13q array has     65 entries.
0       14q array has     65 entries.
0       15q array has     65 entries.
0                                data block 2 (mixing table, etc.)
0     nuclides        cccc                          mixing table                          extra
       on tape    identification                 mixture  component    atom density     xsect id's
     1     999                                       1      92235     4.02693E-04
     2    1001                                       1      92234     4.46803E-06
     3    5010                                       1      92236     5.51142E-05
     4    5011                                       1      92238     2.18274E-02
```

5	8016	1	8016	4.55359E-02
6	6	3	6	2.09710E-02
7	36083	1	36083	1.42718E-06
8	36085	1	36085	6.86405E-07
9	38090	1	38090	1.56265E-05
10	39089	1	39089	1.23885E-05
11	40093	1	42095	1.65579E-05
12	40094	1	40093	1.24626E-05
13	40095	1	40094	1.95879E-05
14	40802	1	40095	1.99661E-06
15	41094	1	41094	9.70965E-12
16	42095	1	43099	1.91603E-05
17	43099	1	45103	1.05084E-05
18	44101	1	45105	2.23564E-08
19	44106	1	44101	1.73887E-05
20	45103	1	44106	2.62773E-06
21	45105	1	46105	6.86049E-06
22	46105	1	46108	1.92546E-06
23	46108	1	47109	1.34572E-06
24	47109	1	51124	3.04849E-10
25	51124	1	54131	8.77608E-06
26	54131	1	54132	1.64947E-05
27	54132	1	54135	6.67715E-09
28	54135	1	54136	3.30816E-05
29	54136	1	55134	9.57401E-07
30	55133	1	55135	1.05022E-05
31	55134	1	55137	2.05235E-05
32	55135	1	56136	1.93125E-07
33	55137	1	57139	2.03240E-05
34	56136	1	59141	1.75987E-05
35	57139	1	59143	3.71186E-07
36	58144	1	58144	6.70562E-06
37	59141	1	60143	1.59150E-05
38	59143	1	60145	1.17342E-05
39	60143	1	61147	4.02235E-06
40	60145	1	61148	1.17777E-08
41	60147	1	60147	1.29916E-07
42	61147	1	62147	1.40155E-06
43	61148	1	62149	8.69582E-08
44	62147	1	62150	4.18068E-06
45	62149	1	62151	4.01901E-07
46	62150	1	62152	2.00466E-06
47	62151	1	64155	2.18270E-09
48	62152	1	63153	1.20542E-06
49	63153	1	63154	2.52168E-07
50	63154	1	63155	1.30440E-07
51	63155	2	40802	4.25156E-02
52	64155	3	1001	4.19420E-02
53	92234	3	5010	3.81515E-06
54	92235	3	5011	1.54884E-05
55	92236	1	55133	2.10206E-05
56	92238	1	95237	3.73057E-06
57	95237	1	94238	5.34530E-07
58	94238	1	94239	1.07741E-04
59	94239	1	94240	2.09730E-05
60	94240	1	94241	1.13808E-05
61	94241	1	94242	1.27952E-06
62	94242	1	95241	3.40567E-07
63	95241	1	95243	1.18128E-07
64	95243	1	96244	1.12999E-08

65 96244 1 999 1.00000E-20
- elapsed time .00 min.
0 21649 locations will be used
0 35q array has 25 entries.
0 36q array has 24 entries.
0 38q array has 24 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gd/mtu burn high temp
neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	2	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	3	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	4	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	5	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	6	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	7	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	8	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	9	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	10	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	11	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01036E+07	12	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	13	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	14	0	14	1.00000E+00	
15	3.04999E+00	1.50030E+01	2.10601E+06	15	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	16	0	16	1.00000E+00	
17	1.29999E+00	1.58557E+01	1.52545E+06	17	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	18	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	19	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	20	0	20	1.00000E+00	
21	4.00000E-01	1.70344E+01	8.17974E+05	21	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	22	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86953E+05	23	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	24	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	25	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	26	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	27	0	27	1.00000E+00	
28	1.00000E-05	2.76310E+01						

1 880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gd/mtu burn high temp

0	mixture by zone	order p(l) by zone	activity table matl no.	reaction	quadrature constants weights	directions	refl direc	wt x cos
1	1	3			0	-2.79004E-01	3	0
2	1	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	2	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	3	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28593E-02
7					5.55953E-02	2.31301E-01	6	1.28593E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02

16				0	-9.83032E-01	24	0
17				4.53355E-02	-9.64143E-01	24	-4.37099E-02
18				4.53355E-02	-8.17361E-01	23	-3.70655E-02
19				4.53355E-02	-5.46143E-01	22	-2.47597E-02
20				4.53355E-02	-1.91780E-01	21	-8.69444E-03
21				4.53355E-02	1.91780E-01	20	8.69444E-03
22				4.53355E-02	5.46143E-01	19	2.47597E-02
23				4.53355E-02	8.17361E-01	18	3.70655E-02
24				4.53355E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40830E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40830E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83032E-01	-4.49528E-01	8.36885E-01	5.00708E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20262E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20262E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17236E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17236E-01
22	5.46143E-01	-4.49528E-01	-3.20262E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20262E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.29551E-02	1	0	2.10906E-03	1.00000E+00	0	
2	2.59102E-02	4.33406E-02	1	1.62798E-01	9.49318E-03	1.00000E+00	0	
3	6.07710E-02	8.75100E-02	1	3.81835E-01	2.94045E-02	1.00000E+00	0	
4	1.14249E-01	1.74155E-01	1	7.17848E-01	1.31104E-01	1.00000E+00	0	
5	2.34061E-01	2.93967E-01	1	1.47065E+00	2.21259E-01	1.00000E+00		
6	3.53873E-01	3.80612E-01	1	2.22345E+00	1.27890E-01	1.00000E+00		
7	4.07351E-01	4.24781E-01	1	2.55946E+00	9.30429E-02	1.00000E+00		
8	4.42212E-01	4.55167E-01	1	2.77850E+00	7.41004E-02	1.00000E+00		
9	4.68122E-01	4.68814E-01	2	2.94130E+00	4.07946E-03	0		
10	4.69507E-01	4.71481E-01	2	2.95000E+00	1.16988E-02	0		
11	4.73456E-01	4.75431E-01	2	2.97481E+00	1.17968E-02	0		
12	4.77405E-01	4.78098E-01	2	2.99962E+00	4.16023E-03	0		
13	4.78790E-01	4.83159E-01	3	3.00833E+00	2.65268E-02	1.00000E+00		
14	4.87528E-01	4.99987E-01	3	3.06523E+00	7.82768E-02	1.00000E+00		
15	5.12445E-01	5.24903E-01	3	3.21979E+00	8.21777E-02	1.00000E+00		
16	5.37362E-01	5.41731E-01	3	3.37634E+00	2.97427E-02	1.00000E+00		
17	5.46100E-01	5.53513E-01	4	3.43125E+00	5.15631E-02	1.00000E+00		
18	5.60926E-01	5.70900E-01	4	3.52440E+00	7.15548E-02	1.00000E+00		
19	5.80874E-01	5.96175E-01	4	3.64974E+00	1.14628E-01	1.00000E+00		
20	6.11475E-01	6.45755E-01	4	3.84201E+00	2.78169E-01	1.00000E+00		
21	6.80034E-01	7.14313E-01	4	4.27278E+00	3.07702E-01	1.00000E+00		
22	7.48592E-01	7.63893E-01	4	4.70354E+00	1.46875E-01	1.00000E+00		
23	7.79193E-01	7.89167E-01	4	4.89582E+00	9.89116E-02	1.00000E+00		
24	7.99141E-01	8.06554E-01	4	5.02115E+00	7.51357E-02	1.00000E+00		

25 8.13968E-01 5.11431E+00

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	124	-4.56957E-06	1.03027E+00	-3.30817E-02	1.00000E+00	-1.13682E-02	.00000E+00	.0000
2	190	1.53565E-05	1.03327E+00	-8.04118E-04	-3.40285E-03	-1.82550E-03	.00000E+00	.0000
3	243	-1.66574E-05	1.03412E+00	-1.36843E-04	-5.07636E-04	-4.35670E-04	.00000E+00	.0000
4	282	1.94148E-05	1.03385E+00	-3.16278E-05	-1.22508E-04	-1.00950E-04	.00000E+00	.0000

grp to grp		inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	1	1	7.38235E-08	24	1.00000E+00	1
2	2	1	1	8.32965E-08	24	1.00000E+00	1
3	3	1	1	7.61077E-08	24	1.00000E+00	1
4	4	1	1	7.19577E-08	24	1.00000E+00	1
5	5	1	1	6.73921E-08	24	1.00000E+00	1
6	6	1	1	4.05286E-08	24	1.00000E+00	1
7	7	1	1	2.43421E-08	24	1.00000E+00	1
8	8	1	1	5.59101E-09	24	1.00000E+00	1
9	9	1	2	5.01341E-09	24	1.00000E+00	1
10	10	1	2	4.61203E-09	24	1.00000E+00	1
11	11	1	24	5.02188E-09	24	1.00000E+00	1
12	12	1	24	1.19703E-08	24	1.00000E+00	1
13	13	1	24	1.49805E-08	24	1.00000E+00	1
14	14	1	24	1.43680E-08	24	1.00000E+00	1
15	15	1	19	2.97082E-05	24	9.99879E-01	1
16	16	1	19	3.59892E-05	24	9.99880E-01	1
17	17	1	20	5.24040E-05	24	9.99896E-01	1
18	18	1	20	7.00924E-05	24	9.99904E-01	1
19	19	1	20	5.16881E-05	24	9.99885E-01	1
20	20	1	19	3.66304E-05	24	9.99851E-01	1
21	21	1	19	7.03320E-05	24	9.99868E-01	1
22	22	1	19	3.63593E-05	24	9.99913E-01	1
23	23	1	24	7.99269E-06	24	1.00000E+00	1
24	24	1	24	3.68039E-05	24	1.00002E+00	1
25	25	1	24	3.99912E-05	24	1.00002E+00	1
26	26	1	21	4.11299E-05	24	9.99979E-01	2
27	27	1	24	2.27592E-05	19	1.00001E+00	2

5 309 -1.45963E-05 1.03425E+00 -7.58119E-06 -2.82615E-05 -2.13481E-05 .00000E+00 .0167

final monitor

lambda 1.03409E+00 production/absorption 1.03409E+00 angular flux on 16

- elapsed time .02 min.

1 880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.29551E-02	.00000E+00	2.10906E-03	3.02061E-03
2	1	2.59102E-02	4.33406E-02	1.62798E-01	9.49318E-03	1.35900E-02
3	1	6.07710E-02	8.75100E-02	3.81835E-01	2.94045E-02	4.21756E-02
4	1	1.14249E-01	1.74155E-01	7.17848E-01	1.31104E-01	1.89916E-01
5	1	2.34061E-01	2.93967E-01	1.47065E+00	2.21299E-01	3.28455E-01
6	1	3.53873E-01	3.80612E-01	2.22345E+00	1.27890E-01	1.94941E-01
7	1	4.07351E-01	4.24781E-01	2.55946E+00	9.30429E-02	1.44661E-01
8	1	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02	1.17336E-01
9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07946E-03	.00000E+00
10	2	4.69507E-01	4.71481E-01	2.95000E+00	1.16988E-02	.00000E+00
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	2	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.65268E-02	.00000E+00
14	3	4.87528E-01	4.99987E-01	3.06323E+00	7.82768E-02	.00000E+00
15	3	5.12445E-01	5.24903E-01	3.21979E+00	8.21777E-02	.00000E+00
16	3	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02	.00000E+00
17	4	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02	.00000E+00

18	4	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	4	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01	.00000E+00
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01	.00000E+00
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	4	7.48592E-01	7.63893E-01	4.70854E+00	1.46875E-01	.00000E+00
23	4	7.79193E-01	7.89167E-01	4.89582E+00	9.89116E-02	.00000E+00
24	4	7.99141E-01	8.06554E-01	5.02115E+00	7.51357E-02	.00000E+00
25		8.13968E-01		5.11431E+00		

1 880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.80843E-01	1.33844E+00	1.68610E+00	1.04357E+00	1.57719E+00	3.03165E+00	2.90595E+00	2.08175E+00
2	1.80908E-01	1.33908E+00	1.68694E+00	1.04407E+00	1.57789E+00	3.03296E+00	2.90660E+00	2.08182E+00
3	1.80851E-01	1.33846E+00	1.68617E+00	1.04360E+00	1.57711E+00	3.03135E+00	2.90558E+00	2.08162E+00
4	1.80448E-01	1.33419E+00	1.68073E+00	1.04029E+00	1.57185E+00	3.02090E+00	2.89928E+00	2.08057E+00
5	1.79401E-01	1.32321E+00	1.66691E+00	1.03194E+00	1.55864E+00	2.99499E+00	2.88378E+00	2.07795E+00
6	1.78192E-01	1.31068E+00	1.65133E+00	1.02258E+00	1.54395E+00	2.96660E+00	2.86688E+00	2.07506E+00
7	1.77226E-01	1.30084E+00	1.63930E+00	1.01544E+00	1.53288E+00	2.94563E+00	2.85450E+00	2.07288E+00
8	1.76266E-01	1.29124E+00	1.62774E+00	1.00869E+00	1.52256E+00	2.92648E+00	2.84330E+00	2.07083E+00
9	1.75740E-01	1.28604E+00	1.62153E+00	1.00510E+00	1.51713E+00	2.91650E+00	2.83751E+00	2.06974E+00
10	1.75630E-01	1.28499E+00	1.62029E+00	1.00441E+00	1.51613E+00	2.91471E+00	2.83652E+00	2.06955E+00
11	1.75470E-01	1.28347E+00	1.61850E+00	1.00342E+00	1.51472E+00	2.91218E+00	2.83513E+00	2.06926E+00
12	1.75364E-01	1.28247E+00	1.61732E+00	1.00278E+00	1.51380E+00	2.91055E+00	2.83424E+00	2.06907E+00
13	1.75167E-01	1.28060E+00	1.61510E+00	1.00154E+00	1.51199E+00	2.90712E+00	2.83231E+00	2.06869E+00
14	1.74631E-01	1.27532E+00	1.60857E+00	9.97701E-01	1.50619E+00	2.89586E+00	2.82590E+00	2.06764E+00
15	1.74031E-01	1.26890E+00	1.60016E+00	9.92381E-01	1.49780E+00	2.87924E+00	2.81632E+00	2.06650E+00
16	1.73737E-01	1.26536E+00	1.59513E+00	9.88909E-01	1.49208E+00	2.86770E+00	2.80961E+00	2.06598E+00
17	1.73596E-01	1.26333E+00	1.59201E+00	9.86678E-01	1.48810E+00	2.85975E+00	2.80495E+00	2.06584E+00
18	1.73411E-01	1.26069E+00	1.58801E+00	9.83604E-01	1.48304E+00	2.84978E+00	2.79909E+00	2.06570E+00
19	1.73179E-01	1.25757E+00	1.58339E+00	9.80238E-01	1.47736E+00	2.83864E+00	2.79253E+00	2.06546E+00
20	1.72869E-01	1.25352E+00	1.57750E+00	9.76020E-01	1.47029E+00	2.82480E+00	2.78439E+00	2.06512E+00
21	1.72657E-01	1.25070E+00	1.57335E+00	9.73034E-01	1.46526E+00	2.81499E+00	2.77871E+00	2.06502E+00
22	1.72658E-01	1.25057E+00	1.57305E+00	9.72751E-01	1.46474E+00	2.81398E+00	2.77826E+00	2.06524E+00
23	1.72734E-01	1.25143E+00	1.57418E+00	9.73480E-01	1.46591E+00	2.81627E+00	2.77974E+00	2.06553E+00
24	1.72826E-01	1.25245E+00	1.57554E+00	9.74378E-01	1.46737E+00	2.81912E+00	2.78154E+00	2.06580E+00

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58851E+00	1.44832E+00	1.30795E+00	7.96783E-01	6.70388E-01	5.81640E-01	3.67597E-01	2.01547E-01
2	1.58864E+00	1.44822E+00	1.30775E+00	7.96652E-01	6.70177E-01	5.81351E-01	3.67564E-01	2.01521E-01
3	1.58862E+00	1.44843E+00	1.30821E+00	7.97102E-01	6.70644E-01	5.82072E-01	3.67645E-01	2.01572E-01
4	1.58965E+00	1.44964E+00	1.31083E+00	8.00192E-01	6.73299E-01	5.86083E-01	3.68092E-01	2.01869E-01
5	1.59221E+00	1.45259E+00	1.31729E+00	8.07825E-01	6.79853E-01	5.96038E-01	3.69171E-01	2.02596E-01
6	1.59507E+00	1.45582E+00	1.32436E+00	8.16225E-01	6.87061E-01	6.07065E-01	3.70333E-01	2.03389E-01
7	1.59723E+00	1.45818E+00	1.32956E+00	8.22454E-01	6.92398E-01	6.15301E-01	3.71170E-01	2.03970E-01
8	1.59929E+00	1.46033E+00	1.33430E+00	8.28173E-01	6.97293E-01	6.22900E-01	3.71917E-01	2.04499E-01
9	1.60088E+00	1.46144E+00	1.33675E+00	8.31145E-01	6.99836E-01	6.26852E-01	3.72300E-01	2.04774E-01
10	1.60057E+00	1.46162E+00	1.33714E+00	8.31622E-01	7.00251E-01	6.27480E-01	3.72365E-01	2.04821E-01
11	1.60085E+00	1.46187E+00	1.33771E+00	8.32304E-01	7.00843E-01	6.28377E-01	3.72457E-01	2.04888E-01
12	1.60104E+00	1.46204E+00	1.33807E+00	8.32745E-01	7.01227E-01	6.28959E-01	3.72517E-01	2.04931E-01
13	1.60141E+00	1.46238E+00	1.33882E+00	8.33645E-01	7.02010E-01	6.30146E-01	3.72640E-01	2.05020E-01
14	1.60242E+00	1.46347E+00	1.34119E+00	8.36462E-01	7.04461E-01	6.33860E-01	3.73034E-01	2.05298E-01
15	1.60365E+00	1.46508E+00	1.34453E+00	8.40847E-01	7.07842E-01	6.38976E-01	3.73591E-01	2.05683E-01
16	1.60408E+00	1.46606E+00	1.34674E+00	8.42853E-01	7.10022E-01	6.42269E-01	3.73961E-01	2.05931E-01
17	1.60436E+00	1.46684E+00	1.34839E+00	8.44696E-01	7.11592E-01	6.44669E-01	3.74162E-01	2.06093E-01
18	1.60479E+00	1.46789E+00	1.35054E+00	8.47215E-01	7.13719E-01	6.47940E-01	3.74387E-01	2.06303E-01
19	1.60533E+00	1.46909E+00	1.35320E+00	8.50114E-01	7.16173E-01	6.51711E-01	3.74651E-01	2.06548E-01
20	1.60607E+00	1.47060E+00	1.35646E+00	8.53808E-01	7.19295E-01	6.56514E-01	3.74974E-01	2.06856E-01
21	1.60664E+00	1.47169E+00	1.35879E+00	8.56441E-01	7.21500E-01	6.59916E-01	3.75137E-01	2.07052E-01
22	1.60669E+00	1.47179E+00	1.35901E+00	8.56673E-01	7.21647E-01	6.60181E-01	3.75047E-01	2.07034E-01
23	1.60654E+00	1.47152E+00	1.35842E+00	8.55989E-01	7.21026E-01	6.59263E-01	3.74894E-01	2.06946E-01
24	1.60635E+00	1.47118E+00	1.35770E+00	8.55145E-01	7.20276E-01	6.58142E-01	3.74740E-01	2.06850E-01

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.02422E-02	3.13534E-02	1.17498E-01	4.16060E-01	1.02445E-01	1.65894E-01	6.47045E-01	4.81091E-01
2	8.02111E-02	3.13567E-02	1.17447E-01	4.15954E-01	1.02578E-01	1.65780E-01	6.46640E-01	4.80762E-01
3	8.02756E-02	3.16152E-02	1.17563E-01	4.16166E-01	1.02584E-01	1.66430E-01	6.47674E-01	4.81681E-01
4	8.05466E-02	3.27844E-02	1.18221E-01	4.17393E-01	1.03696E-01	1.69681E-01	6.53408E-01	4.86708E-01
5	8.15678E-02	3.58212E-02	1.19831E-01	4.20408E-01	1.06478E-01	1.77883E-01	6.67628E-01	4.99203E-01
6	8.25864E-02	3.94368E-02	1.21587E-01	4.23699E-01	1.09591E-01	1.87224E-01	6.83373E-01	5.13091E-01
7	8.33457E-02	4.24003E-02	1.22869E-01	4.26114E-01	1.11949E-01	1.94434E-01	6.95126E-01	5.23508E-01
8	8.40464E-02	4.53694E-02	1.24028E-01	4.28313E-01	1.14149E-01	2.01280E-01	7.05968E-01	5.33172E-01
9	8.44114E-02	4.69621E-02	1.24625E-01	4.29452E-01	1.15258E-01	2.04878E-01	7.11600E-01	5.38204E-01
10	8.44710E-02	4.71529E-02	1.24721E-01	4.29641E-01	1.15472E-01	2.05381E-01	7.12466E-01	5.38959E-01
11	8.45562E-02	4.74265E-02	1.24858E-01	4.29911E-01	1.15720E-01	2.06101E-01	7.13700E-01	5.40034E-01
12	8.46113E-02	4.76041E-02	1.24946E-01	4.30085E-01	1.15881E-01	2.06566E-01	7.14496E-01	5.40726E-01
13	8.47239E-02	4.79645E-02	1.25129E-01	4.30442E-01	1.16209E-01	2.07514E-01	7.16124E-01	5.42140E-01
14	8.50759E-02	4.90748E-02	1.25706E-01	4.31559E-01	1.17253E-01	2.10455E-01	7.21188E-01	5.46502E-01
15	8.55597E-02	5.05683E-02	1.26515E-01	4.33095E-01	1.18636E-01	2.14442E-01	7.28061E-01	5.52533E-01
16	8.58700E-02	5.15061E-02	1.27045E-01	4.34075E-01	1.19533E-01	2.16961E-01	7.32395E-01	5.55942E-01
17	8.60982E-02	5.22101E-02	1.27426E-01	4.34760E-01	1.20222E-01	2.18922E-01	7.35961E-01	5.59044E-01
18	8.64112E-02	5.31899E-02	1.27940E-01	4.35682E-01	1.21194E-01	2.21720E-01	7.41271E-01	5.64449E-01
19	8.67721E-02	5.43152E-02	1.28533E-01	4.36760E-01	1.22320E-01	2.24974E-01	7.47610E-01	5.70736E-01
20	8.72320E-02	5.57433E-02	1.29289E-01	4.38141E-01	1.23763E-01	2.29163E-01	7.56034E-01	5.79223E-01
21	8.75593E-02	5.67633E-02	1.29821E-01	4.39089E-01	1.24804E-01	2.32197E-01	7.62391E-01	5.85846E-01
22	8.75877E-02	5.68644E-02	1.29855E-01	4.39110E-01	1.24914E-01	2.32526E-01	7.63327E-01	5.87103E-01
23	8.75029E-02	5.66151E-02	1.29705E-01	4.38797E-01	1.24662E-01	2.31802E-01	7.62041E-01	5.86052E-01
24	8.73986E-02	5.63034E-02	1.29523E-01	4.38431E-01	1.24347E-01	2.30889E-01	7.60348E-01	5.84655E-01

0 int.	grp. 25	grp. 26	grp. 27
1	2.00500E-01	1.22198E-01	1.61350E-02
2	2.00362E-01	1.22111E-01	1.61347E-02
3	2.00842E-01	1.22573E-01	1.62776E-02
4	2.03385E-01	1.24901E-01	1.69274E-02
5	2.09712E-01	1.30717E-01	1.85768E-02
6	2.16775E-01	1.37280E-01	2.05000E-02
7	2.22104E-01	1.42301E-01	2.20433E-02
8	2.27082E-01	1.47052E-01	2.35720E-02
9	2.29682E-01	1.49547E-01	2.43869E-02
10	2.30060E-01	1.49886E-01	2.44858E-02
11	2.30598E-01	1.50367E-01	2.46187E-02
12	2.30945E-01	1.50677E-01	2.47056E-02
13	2.31651E-01	1.51307E-01	2.48821E-02
14	2.33793E-01	1.53205E-01	2.54057E-02
15	2.36582E-01	1.55636E-01	2.60489E-02
16	2.38250E-01	1.57060E-01	2.64089E-02
17	2.39925E-01	1.58762E-01	2.69684E-02
18	2.42699E-01	1.61735E-01	2.79907E-02
19	2.46089E-01	1.65350E-01	2.91890E-02
20	2.50714E-01	1.70280E-01	3.07663E-02
21	2.54409E-01	1.74307E-01	3.20635E-02
22	2.55216E-01	1.75337E-01	3.24492E-02
23	2.54735E-01	1.74984E-01	3.24045E-02
24	2.53998E-01	1.74334E-01	3.22602E-02

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.29947E-02	.00000E+00	1.28935E-02	1.07384E-02	3.26098E-03	1.13208E-02	9.98638E-01
2	.00000E+00	1.93992E-01	2.37599E-03	1.67861E-01	6.68848E-02	1.36623E-02	1.15830E-01	1.00004E+00
3	.00000E+00	2.15874E-01	2.64680E-02	1.61415E-01	8.14253E-02	1.55286E-02	1.45389E-01	1.00000E+00
4	.00000E+00	1.23819E-01	3.91315E-02	1.05553E-01	6.79140E-02	7.39240E-03	8.76414E-02	1.00001E+00
5	.00000E+00	1.64144E-01	6.81671E-02	2.59856E-01	9.47590E-02	4.39442E-03	1.33160E-01	9.99992E-01
6	.00000E+00	1.77110E-01	1.34943E-01	6.53834E-01	5.43736E-02	6.89551E-03	2.50774E-01	1.00003E+00
7	.00000E+00	8.75260E-02	9.85133E-02	7.44613E-01	3.63352E-02	7.40472E-03	1.42298E-01	1.00001E+00

8	.00000E+00	1.34833E-02	4.25831E-02	6.30633E-01	2.15126E-02	1.37527E-02	2.08185E-02	1.00005E+00
9	.00000E+00	9.78514E-04	2.17359E-02	5.35740E-01	2.07052E-02	2.28072E-02	-2.07976E-02	9.99989E-01
10	.00000E+00	7.26783E-05	2.07272E-02	4.62262E-01	1.07205E-02	3.53954E-02	-2.53167E-02	1.00001E+00
11	.00000E+00	5.71782E-06	1.07215E-02	4.24562E-01	8.16514E-03	5.78533E-02	-5.52919E-02	1.00001E+00
12	.00000E+00	4.01667E-07	8.16519E-03	2.40330E-01	9.38691E-03	6.41184E-02	-6.53356E-02	9.99958E-01
13	.00000E+00	6.37810E-08	9.38592E-03	1.79474E-01	6.15265E-03	5.98476E-02	-5.66145E-02	1.00000E+00
14	.00000E+00	1.26397E-08	6.15266E-03	1.52049E-01	7.35414E-03	8.47368E-02	-8.59585E-02	1.00000E+00
15	.00000E+00	1.42843E-09	7.44018E-03	8.41441E-02	8.83603E-03	7.22145E-03	-8.69178E-03	1.00464E+00
16	.00000E+00	4.19435E-10	8.99353E-03	4.22499E-02	9.48904E-03	5.84705E-03	-6.39505E-03	1.00342E+00
17	.00000E+00	1.35078E-10	7.57841E-03	1.41545E-02	7.21129E-03	8.52735E-03	-8.18167E-03	1.00136E+00
18	.00000E+00	9.67122E-11	6.94410E-03	8.02218E-03	3.77596E-03	2.82583E-02	-2.50985E-02	1.00026E+00
19	.00000E+00	1.36730E-10	6.05006E-03	2.29525E-02	8.40648E-03	1.11651E-02	-1.35437E-02	1.00113E+00
20	.00000E+00	2.22538E-10	9.52379E-03	9.99966E-02	9.40806E-03	2.61904E-02	-2.61542E-02	1.00225E+00
21	.00000E+00	3.25431E-11	8.78140E-03	2.01075E-02	7.82429E-03	2.51524E-02	-2.42179E-02	1.00069E+00
22	.00000E+00	3.77574E-11	1.13959E-02	3.84634E-02	8.67412E-03	7.21888E-02	-6.95075E-02	1.00048E+00
23	.00000E+00	3.61002E-11	1.36216E-02	1.57540E-01	1.73339E-02	1.21121E-01	-1.24958E-01	1.00090E+00
24	.00000E+00	9.82602E-12	2.12274E-02	1.10800E-01	2.13618E-02	1.10601E-01	-1.10830E-01	1.00071E+00
25	.00000E+00	2.87641E-12	1.82965E-02	4.18787E-02	1.38470E-02	5.99759E-02	-5.55659E-02	1.00053E+00
26	.00000E+00	2.01696E-12	9.02276E-03	2.92122E-02	6.23720E-03	5.38595E-02	-5.10991E-02	1.00042E+00
27	.00000E+00	4.80652E-13	1.95433E-03	4.38097E-03	1.06852E-03	1.50777E-02	-1.41956E-02	1.00022E+00
28	.00000E+00	1.00000E+00	6.19898E-01	5.40388E+00	6.19898E-01	9.42216E-01	5.94982E-02	1.00037E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.75768E-01	1.13208E-02	1.80781E-01	.00000E+00	2.29600E-03	2.66921E-03	.00000E+00	1.23115E-01
2	1.28632E+00	1.15830E-01	1.33782E+00	.00000E+00	1.69692E-05	1.18841E-02	.00000E+00	9.06972E-01
3	1.62186E+00	1.45389E-01	1.68529E+00	.00000E+00	.00000E+00	1.45034E-02	.00000E+00	1.14272E+00
4	1.00529E+00	8.76414E-02	1.04308E+00	.00000E+00	.00000E+00	6.24659E-03	.00000E+00	7.07554E-01
5	1.51740E+00	1.33160E-01	1.57647E+00	.00000E+00	.00000E+00	1.79278E-03	.00000E+00	1.06858E+00
6	2.91698E+00	2.50774E-01	3.03080E+00	.00000E+00	.00000E+00	1.50139E-03	.00000E+00	2.05348E+00
7	2.83777E+00	1.42298E-01	2.90520E+00	.00000E+00	.00000E+00	1.42872E-03	.00000E+00	1.98037E+00
8	2.06979E+00	2.08185E-02	2.08166E+00	.00000E+00	.00000E+00	1.42930E-03	.00000E+00	1.42968E+00
9	1.60833E+00	-2.07976E-02	1.58861E+00	.00000E+00	.00000E+00	1.88846E-03	.00000E+00	1.09702E+00
10	1.46139E+00	-2.53167E-02	1.44814E+00	.00000E+00	.00000E+00	4.02264E-03	.00000E+00	1.00097E+00
11	1.33664E+00	-5.52919E-02	1.30820E+00	.00000E+00	.00000E+00	8.63481E-03	.00000E+00	9.08961E-01
12	8.31018E-01	-6.53356E-02	7.97077E-01	.00000E+00	.00000E+00	1.13917E-02	.00000E+00	5.58638E-01
13	6.99726E-01	-5.66145E-02	6.70669E-01	.00000E+00	.00000E+00	1.29779E-02	.00000E+00	4.70180E-01
14	6.26686E-01	-8.59585E-02	5.82013E-01	.00000E+00	.00000E+00	8.03307E-03	.00000E+00	4.13646E-01
15	3.72317E-01	-8.69178E-03	3.67673E-01	.00000E+00	.00000E+00	1.88096E-03	.00000E+00	2.54486E-01
16	2.04780E-01	-6.39505E-03	2.01597E-01	.00000E+00	.00000E+00	1.32236E-03	.00000E+00	1.39708E-01
17	8.44019E-02	-8.18167E-03	8.02856E-02	.00000E+00	.00000E+00	1.51080E-03	.00000E+00	5.64597E-02
18	4.69148E-02	-2.50985E-02	3.14057E-02	.00000E+00	.00000E+00	1.05257E-03	.00000E+00	2.58693E-02
19	1.26610E-01	-1.35437E-02	1.17572E-01	.00000E+00	.00000E+00	2.39214E-03	.00000E+00	8.30098E-02
20	4.29454E-01	-2.61542E-02	4.16236E-01	.00000E+00	.00000E+00	1.49907E-02	.00000E+00	2.90893E-01
21	1.15264E-01	-2.42179E-02	1.02549E-01	.00000E+00	.00000E+00	1.52027E-02	.00000E+00	7.42526E-02
22	2.04757E-01	-6.95075E-02	1.66122E-01	.00000E+00	.00000E+00	4.34857E-02	.00000E+00	1.25378E-01
23	7.11347E-01	-1.24958E-01	6.47548E-01	.00000E+00	.00000E+00	7.35685E-02	.00000E+00	4.64343E-01
24	5.37977E-01	-1.10830E-01	4.81509E-01	.00000E+00	.00000E+00	6.69890E-02	.00000E+00	3.47861E-01
25	2.29571E-01	-5.55659E-02	2.00695E-01	.00000E+00	.00000E+00	3.80096E-02	.00000E+00	1.46520E-01
26	1.49451E-01	-5.10991E-02	1.22354E-01	.00000E+00	.00000E+00	3.48944E-02	.00000E+00	9.20172E-02
27	2.43629E-02	-1.41956E-02	1.61634E-02	.00000E+00	.00000E+00	9.86634E-03	.00000E+00	1.34155E-02
28	2.32221E+01	5.94982E-02	2.31873E+01	.00000E+00	2.31297E-03	3.95568E-01	.00000E+00	1.59756E+01

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.98023E-08	1.00000E+00
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-07	9.99999E-01
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.60770E-08	9.99999E-01

9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.98023E-08	9.99999E-01
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.63685E-08	1.00000E+00
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
14	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.79397E-09	1.00000E+00
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	4.65661E-09	9.99999E-01
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-4.65661E-09	1.00000E+00
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.58794E-09	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
22	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.23517E-08	1.00000E+00
23	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.23517E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-3.72529E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-9.31323E-10	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.35745E-08	9.99998E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.75337E-01	1.13208E-02	1.75768E-01	1.13208E-02	.00000E+00	.00000E+00	.00000E+00	5.57112E-03
2	1.28222E+00	1.15830E-01	1.28632E+00	1.15830E-01	.00000E+00	.00000E+00	.00000E+00	4.07554E-02
3	1.61703E+00	1.45389E-01	1.62186E+00	1.45389E-01	.00000E+00	.00000E+00	.00000E+00	5.13918E-02
4	1.00262E+00	8.76414E-02	1.00529E+00	8.76414E-02	.00000E+00	.00000E+00	.00000E+00	3.18595E-02
5	1.51357E+00	1.33160E-01	1.51740E+00	1.33160E-01	.00000E+00	.00000E+00	.00000E+00	4.80925E-02
6	2.91015E+00	2.50774E-01	2.91698E+00	2.50774E-01	.00000E+00	.00000E+00	.00000E+00	9.24592E-02
7	2.83401E+00	1.42298E-01	2.83777E+00	1.42298E-01	.00000E+00	.00000E+00	.00000E+00	8.99958E-02
8	2.06903E+00	2.08186E-02	2.06979E+00	2.08186E-02	.00000E+00	.00000E+00	.00000E+00	6.56730E-02
9	1.60108E+00	-2.07975E-02	1.60053E+00	-2.07976E-02	.00000E+00	.00000E+00	.00000E+00	5.07985E-02
10	1.46208E+00	-2.53168E-02	1.46139E+00	-2.53167E-02	.00000E+00	.00000E+00	.00000E+00	4.63888E-02
11	1.33816E+00	-5.52919E-02	1.33664E+00	-5.52919E-02	.00000E+00	.00000E+00	.00000E+00	4.24435E-02
12	8.32656E-01	-6.53356E-02	8.31018E-01	-6.53356E-02	.00000E+00	.00000E+00	.00000E+00	2.64025E-02
13	7.01323E-01	-5.66145E-02	6.99728E-01	-5.66145E-02	.00000E+00	.00000E+00	.00000E+00	2.22520E-02
14	6.29104E-01	-8.59385E-02	6.26686E-01	-8.59385E-02	.00000E+00	.00000E+00	.00000E+00	1.99274E-02
15	3.72566E-01	-8.69178E-03	3.72317E-01	-8.69178E-03	.00000E+00	.00000E+00	.00000E+00	1.18185E-02
16	2.04960E-01	-6.39505E-03	2.04780E-01	-6.39505E-03	.00000E+00	.00000E+00	.00000E+00	6.50109E-03
17	8.46313E-02	-8.18167E-03	8.44019E-02	-8.18167E-03	.00000E+00	.00000E+00	.00000E+00	2.68205E-03
18	4.76518E-02	-2.50985E-02	4.69148E-02	-2.50985E-02	.00000E+00	.00000E+00	.00000E+00	1.50073E-03
19	1.24979E-01	-1.35437E-02	1.24610E-01	-1.35437E-02	.00000E+00	.00000E+00	.00000E+00	3.96020E-03
20	4.30180E-01	-2.61542E-02	4.29454E-01	-2.61542E-02	.00000E+00	.00000E+00	.00000E+00	1.36390E-02
21	1.15953E-01	-2.42179E-02	1.15264E-01	-2.42179E-02	.00000E+00	.00000E+00	.00000E+00	3.66846E-03
22	2.06694E-01	-6.95074E-02	2.04757E-01	-6.95075E-02	.00000E+00	.00000E+00	.00000E+00	6.52919E-03
23	7.14671E-01	-1.24958E-01	7.11347E-01	-1.24958E-01	.00000E+00	.00000E+00	.00000E+00	2.26298E-02
24	5.40872E-01	-1.10830E-01	5.37977E-01	-1.10830E-01	.00000E+00	.00000E+00	.00000E+00	1.71209E-02
25	2.31021E-01	-5.55669E-02	2.29571E-01	-5.55669E-02	.00000E+00	.00000E+00	.00000E+00	7.30950E-03
26	1.50749E-01	-5.10991E-02	1.49451E-01	-5.10991E-02	.00000E+00	.00000E+00	.00000E+00	4.76425E-03
27	2.47264E-02	-1.41956E-02	2.43629E-02	-1.41956E-02	.00000E+00	.00000E+00	.00000E+00	7.79127E-04
28	2.32182E+01	5.94983E-02	2.32221E+01	5.94982E-02	.00000E+00	.00000E+00	.00000E+00	7.36894E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	3.86447E-03	2.89691E-03	1.48455E-05	-2.80842E-03	1.00001E+00
2	.00000E+00	.00000E+00	5.05995E-04	2.61268E-02	1.87473E-02	5.19052E-05	-1.82985E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.67471E-03	5.02989E-02	1.59040E-02	1.37571E-04	-1.33658E-02	9.99995E-01
4	.00000E+00	.00000E+00	5.16500E-03	4.21770E-02	5.46101E-03	1.03540E-04	-3.99187E-04	9.99996E-01
5	.00000E+00	.00000E+00	1.11266E-02	8.17082E-02	5.16743E-03	1.52221E-04	5.80660E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.85596E-02	2.35090E-01	3.21198E-03	3.20125E-04	1.50276E-02	1.00000E+00
7	.00000E+00	.00000E+00	1.23395E-02	2.35228E-01	1.18258E-03	3.44813E-04	1.08123E-02	1.00000E+00
8	.00000E+00	.00000E+00	2.16496E-03	1.58640E-01	7.63879E-03	2.95027E-04	-5.76940E-03	1.00002E+00
9	.00000E+00	.00000E+00	7.67222E-03	1.05288E-01	8.77692E-04	1.11024E-03	5.68445E-03	9.99993E-01

10	.00000E+00	.00000E+00	8.78875E-04	8.57028E-02	8.50321E-04	8.36940E-04	-8.08248E-04	9.99995E-01
11	.00000E+00	.00000E+00	8.50382E-04	7.72166E-02	8.72047E-04	1.33983E-03	-1.36139E-03	9.99997E-01
12	.00000E+00	.00000E+00	8.72053E-04	4.68747E-02	8.72088E-04	4.17339E-05	-4.18350E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.72090E-04	3.94980E-02	8.05731E-04	5.99695E-05	6.38142E-06	1.00000E+00
14	.00000E+00	.00000E+00	8.05732E-04	3.56885E-02	6.72555E-04	9.50579E-05	3.81470E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.16055E-04	2.04992E-02	8.38967E-04	8.23225E-05	-2.04809E-04	9.99956E-01
16	.00000E+00	.00000E+00	9.35383E-04	1.08036E-02	9.35934E-04	5.09090E-05	-5.12246E-05	9.99968E-01
17	.00000E+00	.00000E+00	9.90854E-04	3.91159E-03	9.62848E-04	2.36308E-05	4.47780E-06	9.99989E-01
18	.00000E+00	.00000E+00	1.00839E-03	2.15224E-03	6.94950E-04	1.47384E-05	2.98787E-04	9.99997E-01
19	.00000E+00	.00000E+00	7.46270E-04	6.27890E-03	9.26395E-04	4.06786E-05	-2.20582E-04	9.99985E-01
20	.00000E+00	.00000E+00	1.10380E-03	2.36919E-02	1.00723E-03	1.76151E-04	-7.88793E-05	9.99974E-01
21	.00000E+00	.00000E+00	1.23914E-03	5.43926E-03	1.29924E-03	5.99240E-05	-1.19807E-04	9.99991E-01
22	.00000E+00	.00000E+00	1.63948E-03	1.07085E-02	1.43115E-03	1.24773E-04	8.37594E-05	9.99997E-01
23	.00000E+00	.00000E+00	2.13844E-03	3.85675E-02	2.83150E-03	5.84069E-04	-1.27713E-03	1.00000E+00
24	.00000E+00	.00000E+00	3.50208E-03	2.76051E-02	3.78838E-03	6.43050E-04	-9.29751E-04	1.00000E+00
25	.00000E+00	.00000E+00	3.42011E-03	1.06857E-02	2.75035E-03	3.63448E-04	3.06137E-04	1.00000E+00
26	.00000E+00	.00000E+00	1.43137E-03	7.79184E-03	1.02971E-03	3.40239E-04	6.12065E-05	1.00000E+00
27	.00000E+00	.00000E+00	2.98582E-04	1.46871E-03	7.56732E-07	1.07423E-04	1.90380E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.36576E-02	1.39301E+00	8.36576E-02	7.51517E-03	-7.40968E-03	9.99986E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.73679E-01	8.51234E-03	1.75337E-01	1.13208E-02	1.08504E-04	.00000E+00	.00000E+00	3.77851E-02
2	1.26455E+00	9.75369E-02	1.28222E+00	1.15830E-01	.00000E+00	.00000E+00	.00000E+00	2.75709E-01
3	1.59390E+00	1.32023E-01	1.61703E+00	1.45389E-01	.00000E+00	.00000E+00	.00000E+00	3.47698E-01
4	9.87999E-01	8.72422E-02	1.00262E+00	8.76414E-02	.00000E+00	.00000E+00	.00000E+00	2.15629E-01
5	1.49053E+00	1.38966E-01	1.51357E+00	1.33160E-01	.00000E+00	.00000E+00	.00000E+00	3.25472E-01
6	2.86455E+00	2.65802E-01	2.91015E+00	2.50774E-01	.00000E+00	.00000E+00	.00000E+00	6.25698E-01
7	2.80777E+00	1.53110E-01	2.83401E+00	1.42298E-01	.00000E+00	.00000E+00	.00000E+00	6.11338E-01
8	2.06583E+00	1.50492E-02	2.06903E+00	2.08186E-02	.00000E+00	.00000E+00	.00000E+00	4.47995E-01
9	1.60418E+00	-1.51131E-02	1.60108E+00	-2.07975E-02	.00000E+00	.00000E+00	.00000E+00	3.47398E-01
10	1.46634E+00	-2.61250E-02	1.46208E+00	-2.53168E-02	.00000E+00	.00000E+00	.00000E+00	3.17346E-01
11	1.34732E+00	-5.66532E-02	1.33814E+00	-5.52919E-02	.00000E+00	.00000E+00	.00000E+00	2.91044E-01
12	8.43501E-01	-6.53775E-02	8.32856E-01	-6.53356E-02	.00000E+00	.00000E+00	.00000E+00	1.81716E-01
13	7.10885E-01	-5.66082E-02	7.01323E-01	-5.66145E-02	.00000E+00	.00000E+00	.00000E+00	1.53052E-01
14	6.43118E-01	-8.59004E-02	6.29104E-01	-8.59385E-02	.00000E+00	.00000E+00	.00000E+00	1.37945E-01
15	3.74092E-01	-8.89659E-03	3.72566E-01	-8.69178E-03	.00000E+00	.00000E+00	.00000E+00	8.09083E-02
16	2.06013E-01	-6.44628E-03	2.04960E-01	-6.39505E-03	.00000E+00	.00000E+00	.00000E+00	4.45361E-02
17	8.59562E-02	-8.17719E-03	8.46313E-02	-8.18167E-03	.00000E+00	.00000E+00	.00000E+00	1.84920E-02
18	5.17481E-02	-2.47997E-02	4.76518E-02	-2.50985E-02	.00000E+00	.00000E+00	.00000E+00	1.08013E-02
19	1.27194E-01	-1.37643E-02	1.24979E-01	-1.35437E-02	.00000E+00	.00000E+00	.00000E+00	2.73345E-02
20	4.34379E-01	-2.62331E-02	4.30180E-01	-2.61542E-02	.00000E+00	.00000E+00	.00000E+00	9.37004E-02
21	1.19775E-01	-2.43377E-02	1.15953E-01	-2.42179E-02	.00000E+00	.00000E+00	.00000E+00	2.55637E-02
22	2.17614E-01	-6.94237E-02	2.06694E-01	-6.95074E-02	.00000E+00	.00000E+00	.00000E+00	4.60538E-02
23	7.33468E-01	-1.26235E-01	7.14671E-01	-1.24958E-01	.00000E+00	.00000E+00	.00000E+00	1.57063E-01
24	5.56812E-01	-1.11760E-01	5.40872E-01	-1.10830E-01	.00000E+00	.00000E+00	.00000E+00	1.19084E-01
25	2.38642E-01	-5.52597E-02	2.31021E-01	-5.55659E-02	.00000E+00	.00000E+00	.00000E+00	5.09735E-02
26	1.57392E-01	-5.10579E-02	1.50749E-01	-5.10991E-02	.00000E+00	.00000E+00	.00000E+00	3.34673E-02
27	2.64896E-02	-1.40052E-02	2.47264E-02	-1.41956E-02	.00000E+00	.00000E+00	.00000E+00	5.57467E-03
28	2.31935E+01	5.20885E-02	2.32182E+01	5.94983E-02	1.08504E-04	.00000E+00	.00000E+00	5.02938E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	6.10617E-03	8.08209E-03	4.30736E-04	-8.51234E-03	9.99951E-01
2	.00000E+00	.00000E+00	4.63731E-03	7.69188E-03	1.01095E-01	1.08315E-03	-9.75370E-02	9.99962E-01
3	.00000E+00	.00000E+00	4.79783E-02	6.91827E-02	1.80000E-01	5.43767E-06	-1.32023E-01	9.99977E-01
4	.00000E+00	.00000E+00	7.05502E-02	4.59242E-02	1.57791E-01	3.23592E-06	-8.72422E-02	9.99987E-01
5	.00000E+00	.00000E+00	1.30270E-01	1.48609E-01	2.69235E-01	3.77797E-06	-1.38966E-01	9.99990E-01
6	.00000E+00	.00000E+00	2.75423E-01	4.55374E-01	5.41215E-01	1.14791E-05	-2.65801E-01	9.99998E-01
7	.00000E+00	.00000E+00	5.53092E-01	7.95321E-01	7.06186E-01	2.53562E-05	-1.53111E-01	9.99988E-01
8	.00000E+00	.00000E+00	7.35700E-01	1.00127E+00	7.50768E-01	4.70281E-05	-1.50491E-02	9.99911E-01
9	.00000E+00	.00000E+00	7.41080E-01	9.16651E-01	7.25902E-01	9.59697E-05	1.51130E-02	9.99889E-01
10	.00000E+00	.00000E+00	7.22582E-01	8.66449E-01	6.96320E-01	2.11712E-04	2.61250E-02	9.99896E-01

11	.00000E+00	.00000E+00	7.01225E-01	8.06847E-01	6.44155E-01	4.58187E-04	5.66533E-02	9.99940E-01
12	.00000E+00	.00000E+00	5.60698E-01	4.20470E-01	4.94735E-01	5.98279E-04	6.53774E-02	9.99979E-01
13	.00000E+00	.00000E+00	4.90687E-01	3.37798E-01	4.33197E-01	8.97254E-04	5.66081E-02	9.99969E-01
14	.00000E+00	.00000E+00	4.70437E-01	3.20692E-01	3.83091E-01	1.45136E-03	8.59003E-02	9.99989E-01
15	.00000E+00	.00000E+00	2.50396E-01	1.28231E-01	2.40229E-01	1.27767E-03	8.87064E-03	1.00007E+00
16	.00000E+00	.00000E+00	1.66003E-01	5.38644E-02	1.58689E-01	8.71922E-04	6.42820E-03	1.00008E+00
17	.00000E+00	.00000E+00	8.52379E-02	1.47329E-02	7.66513E-02	4.11508E-04	8.16897E-03	1.00007E+00
18	.00000E+00	.00000E+00	7.52768E-02	9.18684E-03	5.01988E-02	2.81082E-04	2.47930E-02	1.00005E+00
19	.00000E+00	.00000E+00	1.21976E-01	3.23915E-02	1.07505E-01	7.09788E-04	1.37523E-02	1.00008E+00
20	.00000E+00	.00000E+00	2.96567E-01	2.36429E-01	2.67314E-01	3.02475E-03	2.61975E-02	1.00010E+00
21	.00000E+00	.00000E+00	1.37852E-01	4.32250E-02	1.12448E-01	1.07102E-03	2.43225E-02	1.00008E+00
22	.00000E+00	.00000E+00	2.59266E-01	1.20520E-01	1.87956E-01	2.29087E-03	6.94045E-02	1.00006E+00
23	.00000E+00	.00000E+00	6.07051E-01	7.16451E-01	4.70474E-01	1.05289E-02	1.26234E-01	1.00002E+00
24	.00000E+00	.00000E+00	6.15921E-01	6.38135E-01	4.92582E-01	1.15689E-02	1.11756E-01	1.00002E+00
25	.00000E+00	.00000E+00	3.97665E-01	2.61008E-01	3.35781E-01	6.61997E-03	5.52596E-02	1.00001E+00
26	.00000E+00	.00000E+00	3.14313E-01	2.78086E-01	2.56849E-01	6.42634E-03	5.10286E-02	1.00003E+00
27	.00000E+00	.00000E+00	1.04722E-01	5.80976E-02	8.85057E-02	2.21064E-03	1.40051E-02	1.00000E+00
28	.00000E+00	.00000E+00	8.93664E+00	8.85795E+00	8.93655E+00	5.24145E-02	-5.22439E-02	9.99981E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dj**2	total flux
1	1.72873E-01	-5.88278E-09	1.73679E-01	8.51234E-03	4.46959E-10	.00000E+00	.00000E+00	1.97854E-01
2	1.25298E+00	-7.84505E-08	1.26455E+00	9.75369E-02	.00000E+00	.00000E+00	.00000E+00	1.43460E+00
3	1.57625E+00	4.51767E-08	1.59390E+00	1.32023E-01	.00000E+00	.00000E+00	.00000E+00	1.80528E+00
4	9.74847E-01	4.47741E-08	9.87999E-01	8.72422E-02	.00000E+00	.00000E+00	.00000E+00	1.11689E+00
5	1.46813E+00	3.21072E-08	1.49063E+00	1.38966E-01	.00000E+00	.00000E+00	.00000E+00	1.68243E+00
6	2.82061E+00	1.48563E-07	2.86455E+00	2.65802E-01	.00000E+00	.00000E+00	.00000E+00	3.23239E+00
7	2.78247E+00	-1.55781E-07	2.80777E+00	1.53110E-01	.00000E+00	.00000E+00	.00000E+00	3.18656E+00
8	2.05993E+00	2.50965E-08	2.06589E+00	1.50492E-02	.00000E+00	.00000E+00	.00000E+00	2.36381E+00
9	1.60625E+00	-3.31722E-08	1.60418E+00	-1.51131E-02	.00000E+00	.00000E+00	.00000E+00	1.83828E+00
10	1.47101E+00	2.56478E-08	1.46634E+00	-2.61250E-02	.00000E+00	.00000E+00	.00000E+00	1.68324E+00
11	1.35732E+00	3.41550E-08	1.34732E+00	-5.66532E-02	.00000E+00	.00000E+00	.00000E+00	1.55269E+00
12	8.54703E-01	-2.95514E-08	8.43501E-01	-6.53775E-02	.00000E+00	.00000E+00	.00000E+00	9.77399E-01
13	7.19884E-01	-1.49502E-08	7.10685E-01	-5.66082E-02	.00000E+00	.00000E+00	.00000E+00	8.23577E-01
14	6.57556E-01	-1.79083E-08	6.43118E-01	-8.59004E-02	.00000E+00	.00000E+00	.00000E+00	7.51611E-01
15	3.74697E-01	-2.59454E-05	3.74092E-01	-8.89689E-03	.00000E+00	.00000E+00	.00000E+00	4.29087E-01
16	2.06820E-01	-1.80713E-05	2.06013E-01	-6.44628E-03	.00000E+00	.00000E+00	.00000E+00	2.36736E-01
17	8.73505E-02	-8.21982E-06	8.59562E-02	-8.17719E-03	.00000E+00	.00000E+00	.00000E+00	9.98628E-02
18	5.61431E-02	-6.76165E-06	5.17481E-02	-2.47997E-02	.00000E+00	.00000E+00	.00000E+00	6.38786E-02
19	1.29439E-01	-1.19516E-05	1.27194E-01	-1.37643E-02	.00000E+00	.00000E+00	.00000E+00	1.48003E-01
20	4.38295E-01	-3.56484E-05	4.34379E-01	-2.62331E-02	.00000E+00	.00000E+00	.00000E+00	5.01482E-01
21	1.24194E-01	-1.51265E-05	1.19775E-01	-2.43377E-02	.00000E+00	.00000E+00	.00000E+00	1.41742E-01
22	2.30421E-01	-1.91628E-05	2.17614E-01	-6.94237E-02	.00000E+00	.00000E+00	.00000E+00	2.62563E-01
23	7.59424E-01	-1.40479E-06	7.33468E-01	-1.26235E-01	.00000E+00	.00000E+00	.00000E+00	8.66199E-01
24	5.85718E-01	-3.49594E-06	5.56812E-01	-1.11780E-01	.00000E+00	.00000E+00	.00000E+00	6.64155E-01
25	2.53578E-01	-1.09521E-07	2.38642E-01	-5.52597E-02	.00000E+00	.00000E+00	.00000E+00	2.87734E-01
26	1.73964E-01	-9.33473E-06	1.57392E-01	-5.10379E-02	.00000E+00	.00000E+00	.00000E+00	1.95874E-01
27	3.21713E-02	-1.21519E-07	2.64896E-02	-1.40052E-02	.00000E+00	.00000E+00	.00000E+00	3.55586E-02
28	2.32310E+01	-1.55436E-04	2.31985E+01	5.20885E-02	4.46959E-10	.00000E+00	.00000E+00	2.65795E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.29947E-02	.00000E+00	2.28642E-02	2.17173E-02	3.70656E-03	-5.88278E-09	9.98833E-01
2	.00000E+00	1.93992E-01	7.51923E-03	2.70906E-01	1.86727E-01	1.47973E-02	-7.84505E-08	1.00002E+00
3	.00000E+00	2.15874E-01	7.71209E-02	2.80897E-01	2.77527E-01	1.56716E-02	4.51767E-08	9.99986E-01
4	.00000E+00	1.23819E-01	1.14847E-01	1.93654E-01	2.31166E-01	7.49917E-03	4.47741E-08	1.00000E+00
5	.00000E+00	1.64144E-01	2.09563E-01	4.90174E-01	3.69161E-01	4.55042E-03	3.21072E-08	9.99988E-01
6	.00000E+00	1.77110E-01	4.28926E-01	1.34430E+00	5.98800E-01	7.22711E-03	1.48563E-07	1.00001E+00
7	.00000E+00	8.75260E-02	6.63945E-01	1.77516E+00	7.43704E-01	7.77489E-03	-1.55781E-07	9.99990E-01
8	.00000E+00	1.34833E-02	7.80448E-01	1.79054E+00	7.79920E-01	1.40748E-02	2.50965E-08	9.99920E-01
9	.00000E+00	9.78514E-04	7.70438E-01	1.55768E+00	7.47485E-01	2.40136E-02	-3.31722E-08	9.99895E-01
10	.00000E+00	7.26783E-05	7.44188E-01	1.41441E+00	7.07891E-01	3.64441E-02	2.56478E-08	9.99900E-01
11	.00000E+00	5.71782E-06	7.12797E-01	1.30862E+00	6.53192E-01	5.96513E-02	3.41550E-08	9.99942E-01

12	.00000E+00	4.01667E-07	5.69736E-01	7.07675E-01	5.04993E-01	6.47584E-02	-2.95514E-08	9.99974E-01
13	.00000E+00	6.37810E-08	5.00945E-01	5.56765E-01	4.40155E-01	6.08048E-02	-1.49502E-08	9.99970E-01
14	.00000E+00	1.26397E-08	4.77396E-01	5.08430E-01	3.91118E-01	8.62832E-02	-1.79083E-08	9.99989E-01
15	.00000E+00	1.42843E-09	2.58552E-01	2.32875E-01	2.49904E-01	8.58145E-03	-2.59454E-05	1.00036E+00
16	.00000E+00	4.19435E-10	1.75952E-01	1.06918E-01	1.69114E-01	6.76988E-03	-1.80713E-05	1.00038E+00
17	.00000E+00	1.35078E-10	9.38072E-02	3.27984E-02	8.48255E-02	8.96249E-03	-8.21982E-06	1.00029E+00
18	.00000E+00	9.67122E-11	8.32293E-02	1.93613E-02	5.46697E-02	2.85541E-02	-6.76165E-06	1.00015E+00
19	.00000E+00	1.36730E-10	1.28773E-01	6.16230E-02	1.16838E-01	1.19157E-02	-1.19516E-05	1.00024E+00
20	.00000E+00	2.22538E-10	3.07195E-01	3.59517E-01	2.77730E-01	2.93913E-02	-3.56484E-05	1.00036E+00
21	.00000E+00	3.25431E-11	1.47873E-01	6.87718E-02	1.21572E-01	2.62833E-02	-1.51266E-05	1.00022E+00
22	.00000E+00	3.77574E-11	2.72300E-01	1.69692E-01	1.97661E-01	7.46044E-02	-1.91628E-05	1.00020E+00
23	.00000E+00	3.61002E-11	6.22811E-01	9.12559E-01	4.90640E-01	1.32033E-01	-1.40479E-06	1.00022E+00
24	.00000E+00	9.82602E-12	6.40650E-01	7.76039E-01	5.17732E-01	1.22813E-01	-3.49594E-06	1.00017E+00
25	.00000E+00	2.87641E-12	4.19381E-01	3.13568E-01	3.52379E-01	6.69594E-02	-1.09521E-07	1.00010E+00
26	.00000E+00	2.01696E-12	3.24767E-01	3.15090E-01	2.64116E-01	6.06239E-02	-9.33473E-06	1.00011E+00
27	.00000E+00	4.80652E-13	1.06975E-01	6.39472E-02	8.95751E-02	1.73958E-02	-1.21519E-07	1.00004E+00
28	.00000E+00	1.00000E+00	9.64011E+00	1.56548E+01	9.64011E+00	1.00215E+00	-1.55334E-04	1.00004E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*adj**2	total flux
1	1.72873E-01	-5.88278E-09	1.80781E-01	.00000E+00	2.39950E-03	2.66921E-03	.00000E+00	3.64326E-01
2	1.25298E+00	-7.84505E-08	1.33782E+00	.00000E+00	1.69692E-05	1.18841E-02	.00000E+00	2.65803E+00
3	1.57625E+00	4.51767E-08	1.68529E+00	.00000E+00	.00000E+00	1.45034E-02	.00000E+00	3.34709E+00
4	9.74847E-01	4.47741E-08	1.04308E+00	.00000E+00	.00000E+00	6.24659E-03	.00000E+00	2.07195E+00
5	1.46813E+00	3.21072E-08	1.57647E+00	.00000E+00	.00000E+00	1.79278E-03	.00000E+00	3.12458E+00
6	2.82061E+00	1.48563E-07	3.08080E+00	.00000E+00	.00000E+00	1.50139E-03	.00000E+00	6.00408E+00
7	2.78247E+00	-1.55781E-07	2.90520E+00	.00000E+00	.00000E+00	1.42872E-03	.00000E+00	5.86827E+00
8	2.05593E+00	2.50965E-08	2.08166E+00	.00000E+00	.00000E+00	1.42930E-03	.00000E+00	4.30715E+00
9	1.60625E+00	-3.31722E-08	1.58861E+00	.00000E+00	.00000E+00	1.88846E-03	.00000E+00	3.33349E+00
10	1.47101E+00	2.56478E-08	1.44844E+00	.00000E+00	.00000E+00	4.02264E-03	.00000E+00	3.04795E+00
11	1.35752E+00	3.41550E-08	1.30820E+00	.00000E+00	.00000E+00	8.63481E-03	.00000E+00	2.79514E+00
12	8.54703E-01	-2.95514E-08	7.97077E-01	.00000E+00	.00000E+00	1.13917E-02	.00000E+00	1.74416E+00
13	7.19884E-01	-1.49502E-08	6.70649E-01	.00000E+00	.00000E+00	1.29779E-02	.00000E+00	1.46884E+00
14	6.57556E-01	-1.79083E-08	5.82013E-01	.00000E+00	.00000E+00	8.03307E-03	.00000E+00	1.32313E+00
15	3.74697E-01	-2.59454E-05	3.67673E-01	.00000E+00	.00000E+00	1.88096E-03	.00000E+00	7.76300E-01
16	2.06820E-01	-1.80713E-05	2.01597E-01	.00000E+00	.00000E+00	1.32236E-03	.00000E+00	4.27481E-01
17	8.73505E-02	-8.21982E-06	8.02856E-02	.00000E+00	.00000E+00	1.51080E-03	.00000E+00	1.77497E-01
18	5.61431E-02	-6.76165E-06	3.14057E-02	.00000E+00	.00000E+00	1.05237E-03	.00000E+00	1.02050E-01
19	1.29439E-01	-1.19516E-05	1.17572E-01	.00000E+00	.00000E+00	2.39214E-03	.00000E+00	2.62307E-01
20	4.38295E-01	-3.56484E-05	4.16236E-01	.00000E+00	.00000E+00	1.49907E-02	.00000E+00	8.99214E-01
21	1.24194E-01	-1.51265E-05	1.02549E-01	.00000E+00	.00000E+00	1.52027E-02	.00000E+00	2.45227E-01
22	2.30421E-01	-1.91628E-05	1.66122E-01	.00000E+00	.00000E+00	4.34857E-02	.00000E+00	4.40525E-01
23	7.59424E-01	-1.40479E-06	6.47548E-01	.00000E+00	.00000E+00	7.35685E-02	.00000E+00	1.51023E+00
24	5.83718E-01	-3.49594E-06	4.81509E-01	.00000E+00	.00000E+00	6.69890E-02	.00000E+00	1.14822E+00
25	2.53578E-01	-1.09521E-07	2.00695E-01	.00000E+00	.00000E+00	3.80096E-02	.00000E+00	4.92537E-01
26	1.73964E-01	-9.33473E-06	1.22354E-01	.00000E+00	.00000E+00	3.48944E-02	.00000E+00	3.26122E-01
27	3.21713E-02	-1.21519E-07	1.61634E-02	.00000E+00	.00000E+00	9.86634E-03	.00000E+00	5.53279E-02
28	2.32510E+01	-1.55436E-04	2.31873E+01	.00000E+00	2.41647E-03	3.95568E-01	.00000E+00	4.83211E+01

- elapsed time .02 min.
Odirect access unit 9 requires 516 blocks of length 1456 for cross section weighting.
1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.42234E-03	2.49847E-02	3.15362E-02	1.90531E-02	2.90892E-02	5.56074E-02	3.16623E-02	4.65054E-03
2	3.80569E-03	3.89376E-02	4.88739E-02	2.94615E-02	4.47630E-02	8.43008E-02	4.78349E-02	6.99836E-03
3	3.09226E-03	3.32185E-02	4.31495E-02	2.71715E-02	4.22554E-02	8.01985E-02	4.58541E-02	5.59651E-03
4	1.06741E-03	1.22231E-02	1.65398E-02	1.09248E-02	1.73966E-02	3.32783E-02	1.92438E-02	2.01088E-03
5	1.76814E-03	1.90574E-02	2.47636E-02	1.55875E-02	2.42895E-02	4.63270E-02	2.65579E-02	3.33334E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.65498E-03	5.67528E-03	1.23576E-02	1.45458E-02	1.26081E-02	1.90154E-02	1.96588E-03	1.43062E-03
2	6.99132E-03	8.51047E-03	1.85869E-02	2.19632E-02	1.90316E-02	2.88891E-02	2.92157E-03	2.14957E-03
3	5.60218E-03	7.98864E-03	1.73860E-02	2.03074E-02	1.75904E-02	2.66971E-02	2.73171E-03	1.99466E-03
4	1.85839E-03	3.25174E-03	7.06161E-03	8.15520E-03	7.09909E-03	1.07534E-02	1.19044E-03	8.30491E-04

5	3.25144E-03	4.62607E-03	1.00640E-02	1.17448E-02	1.01955E-02	1.54116E-02	1.63379E-03	1.17031E-03

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.81256E-03	5.11151E-03	3.04944E-03	5.86532E-03	5.29495E-03	1.49573E-02	2.75943E-02	2.43594E-02
2	2.75015E-03	8.43657E-03	4.55244E-03	8.79097E-03	8.14025E-03	2.33643E-02	4.20072E-02	3.72584E-02
3	2.54130E-03	7.75198E-03	4.24208E-03	8.13795E-03	7.54199E-03	2.15829E-02	3.90215E-02	3.45789E-02
4	1.02016E-03	3.05944E-03	1.73356E-03	3.34197E-03	3.02967E-03	8.64090E-03	1.60191E-02	1.41650E-02
5	1.46701E-03	4.30875E-03	2.47297E-03	4.75571E-03	4.32667E-03	1.22955E-02	2.26389E-02	2.00145E-02

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	1.21560E-02	1.10255E-02	2.92636E-03	3.85380E-01
2	1.86799E-02	1.71781E-02	4.77216E-03	5.89949E-01
3	1.72202E-02	1.58686E-02	4.38236E-03	5.43704E-01
4	6.98616E-03	6.33737E-03	1.60628E-03	2.18805E-01
5	9.94000E-03	9.04568E-03	2.38022E-03	3.13388E-01

1 880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0cell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.78831E-01	1.31743E+00	1.65986E+00	1.02776E+00	1.55217E+00	2.98279E+00	2.87659E+00	2.07668E+00
2	1.75550E-01	1.28423E+00	1.61999E+00	1.00392E+00	1.51543E+00	2.91346E+00	2.83583E+00	2.06940E+00
3	1.74344E-01	1.27217E+00	1.60434E+00	9.94946E-01	1.50178E+00	2.88707E+00	2.82082E+00	2.06711E+00
4	1.72868E-01	1.25343E+00	1.57730E+00	9.75843E-01	1.46996E+00	2.82418E+00	2.78415E+00	2.06529E+00
5	1.75035E-01	1.27702E+00	1.60806E+00	9.95431E-01	1.50116E+00	2.88455E+00	2.81953E+00	2.06931E+00

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59348E+00	1.45397E+00	1.32081E+00	8.11451E-01	6.82961E-01	6.00842E-01	3.69655E-01	2.02934E-01
2	1.60071E+00	1.46175E+00	1.33742E+00	8.31961E-01	7.00545E-01	6.27927E-01	3.72410E-01	2.04854E-01
3	1.60295E+00	1.46428E+00	1.34295E+00	8.38467E-01	7.06206E-01	6.36499E-01	3.73524E-01	2.05497E-01
4	1.60613E+00	1.47067E+00	1.35661E+00	8.53967E-01	7.19396E-01	6.56695E-01	3.74899E-01	2.06839E-01
5	1.60153E+00	1.46436E+00	1.34289E+00	8.37955E-01	7.05684E-01	6.35679E-01	3.72963E-01	2.05377E-01

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.20107E-02	3.75765E-02	1.20576E-01	4.21811E-01	1.07856E-01	1.82119E-01	6.74483E-01	5.05287E-01
2	8.45134E-02	4.72892E-02	1.24789E-01	4.29775E-01	1.15596E-01	2.05739E-01	7.13080E-01	5.35493E-01
3	8.53252E-02	4.98389E-02	1.26126E-01	4.32349E-01	1.17955E-01	2.12500E-01	7.24712E-01	5.49475E-01
4	8.72515E-02	5.58117E-02	1.29312E-01	4.38152E-01	1.23842E-01	2.29405E-01	7.56810E-01	5.80281E-01
5	8.52758E-02	4.90285E-02	1.26022E-01	4.32015E-01	1.17816E-01	2.11644E-01	7.25572E-01	5.51647E-01

Ozone	grp. 25	grp. 26	grp. 27
1	2.12828E-01	1.33660E-01	1.94868E-02
2	2.30327E-01	1.50125E-01	2.45508E-02
3	2.35200E-01	1.54424E-01	2.57225E-02
4	2.51397E-01	1.71137E-01	3.10680E-02
5	2.36633E-01	1.56681E-01	2.65815E-02

0flux disadvantage factors (zone average/cell average-flux)

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.02169E+00	1.03164E+00	1.03221E+00	1.03248E+00	1.03398E+00	1.03405E+00	1.02031E+00	1.00356E+00
2	1.00294E+00	1.00566E+00	1.00705E+00	1.00852E+00	1.00951E+00	1.01002E+00	1.00585E+00	1.00004E+00
3	9.96065E-01	9.96202E-01	9.97683E-01	9.99513E-01	1.00041E+00	1.00087E+00	1.00053E+00	9.98957E-01
4	9.87619E-01	9.81529E-01	9.80869E-01	9.80522E-01	9.79218E-01	9.79072E-01	9.87521E-01	9.98057E-01
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	9.94970E-01	9.92912E-01	9.88190E-01	9.68570E-01	9.67799E-01	9.45198E-01	9.91131E-01	9.88101E-01
2	9.99486E-01	9.98224E-01	9.95952E-01	9.92847E-01	9.92718E-01	9.87805E-01	9.98520E-01	9.97452E-01
3	1.00089E+00	9.99958E-01	1.00003E+00	1.00061E+00	1.00074E+00	1.00129E+00	1.00097E+00	1.00068E+00
4	1.00287E+00	1.00432E+00	1.01022E+00	1.01911E+00	1.01943E+00	1.03305E+00	1.00519E+00	1.00712E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.61711E-01	7.66422E-01	9.56787E-01	9.76381E-01	9.15461E-01	8.60498E-01	9.29589E-01	9.15960E-01
2	9.91060E-01	9.64525E-01	9.90215E-01	9.94816E-01	9.81155E-01	9.72101E-01	9.82783E-01	9.77988E-01
3	1.00058E+00	1.01653E+00	1.00083E+00	1.00077E+00	1.00118E+00	1.00404E+00	9.98816E-01	9.96062E-01
4	1.02317E+00	1.13835E+00	1.02611E+00	1.01420E+00	1.05115E+00	1.08392E+00	1.04305E+00	1.05191E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

Ozone	grp. 25	grp. 26	grp. 27
1	8.99401E-01	8.53071E-01	7.33094E-01
2	9.73365E-01	9.58156E-01	9.23606E-01
3	9.93947E-01	9.85592E-01	9.67682E-01
4	1.06240E+00	1.09227E+00	1.16878E+00
5	1.00000E+00	1.00000E+00	1.00000E+00

Ocell averaged currents

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.42234E-03	2.49847E-02	3.15362E-02	1.90531E-02	2.90892E-02	5.56074E-02	3.16623E-02	4.65054E-03
2	3.80559E-03	3.89576E-02	4.88739E-02	2.94615E-02	4.47630E-02	8.43008E-02	4.78349E-02	6.99836E-03
3	3.09226E-03	3.32185E-02	4.31495E-02	2.71715E-02	4.22554E-02	8.01985E-02	4.58541E-02	5.59651E-03
4	1.06741E-03	1.22231E-02	1.65398E-02	1.09248E-02	1.79366E-02	3.32783E-02	1.92438E-02	2.01088E-03
5	1.76814E-03	1.90374E-02	2.47636E-02	1.55875E-02	2.42695E-02	4.63270E-02	2.65579E-02	3.33334E-03

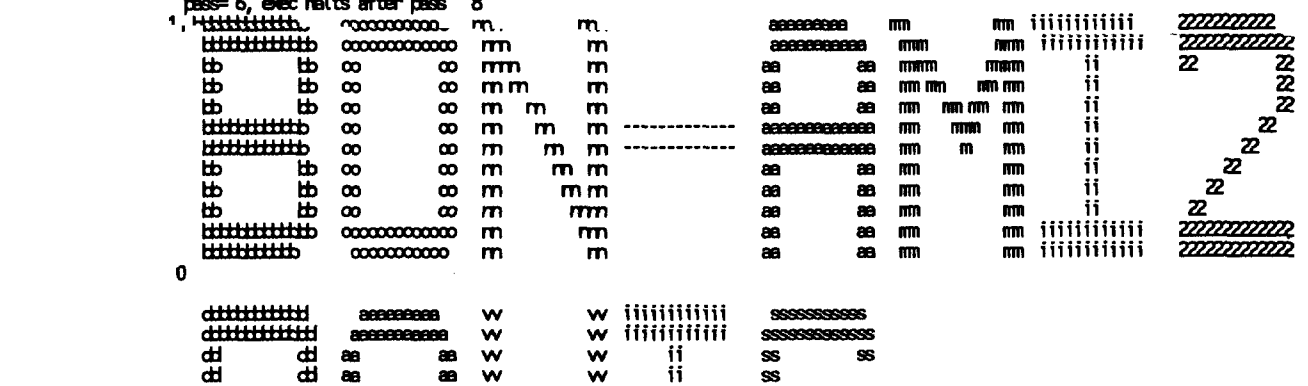
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.65498E-03	5.67328E-03	1.23576E-02	1.45458E-02	1.26081E-02	1.90154E-02	1.96588E-03	1.43062E-03
2	6.99132E-03	8.51047E-03	1.85869E-02	2.19632E-02	1.90316E-02	2.88891E-02	2.92157E-03	2.14957E-03
3	5.60218E-03	7.98864E-03	1.73860E-02	2.08074E-02	1.75904E-02	2.66971E-02	2.73171E-03	1.99465E-03
4	1.85839E-03	3.25174E-03	7.06161E-03	8.15520E-03	7.09509E-03	1.07334E-02	1.19044E-03	8.30491E-04
5	3.25144E-03	4.62607E-03	1.00640E-02	1.17448E-02	1.01955E-02	1.54116E-02	1.63579E-03	1.17031E-03

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.81256E-03	5.11151E-03	3.04944E-03	5.85532E-03	5.29495E-03	1.49573E-02	2.75943E-02	2.43594E-02
2	2.75015E-03	8.43657E-03	4.55246E-03	8.79097E-03	8.14025E-03	2.33643E-02	4.20072E-02	3.72584E-02
3	2.54130E-03	7.75198E-03	4.26208E-03	8.13795E-03	7.54199E-03	2.15829E-02	3.90215E-02	3.45789E-02
4	1.02016E-03	3.05944E-03	1.73356E-03	3.34197E-03	3.02967E-03	8.64090E-03	1.60191E-02	1.41650E-02
5	1.46701E-03	4.30875E-03	2.47297E-03	4.75571E-03	4.32667E-03	1.22955E-02	2.26389E-02	2.00145E-02

Ozone	grp. 25	grp. 26	grp. 27
1	1.21560E-02	1.10255E-02	2.92636E-03
2	1.86799E-02	1.71781E-02	4.77216E-03
3	1.72202E-02	1.58686E-02	4.38236E-03
4	6.98616E-03	6.33737E-03	1.60628E-03
5	9.94000E-03	9.04568E-03	2.38022E-03

Ozone	volume	vol. fraction
1	6.88443E-01	3.30753E-01
2	3.17352E-02	1.52468E-02
3	2.16724E-01	1.04122E-01
4	1.14454E+00	5.49878E-01
5	2.08144E+00	1.00000E+00

- elapsed time .02 min.
Orequested parm=halt8,skipcellwt,skipshipdata
pass= 6, exec halts after pass 8



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  dd       dd  aa       aa  w        w      ii       ss
  dd       dd  aaaaaaaaaaaa  w        w      ii       sssssssssssss
  dd       dd  aaaaaaaaaaaa   w      w       ii        sssssssssssss
  dd       dd  aa       aa     w    w        ii                 ss
  dd       dd  aa       aa      w  w         ii                 ss
  dd       dd  aa       aa       w w         ii       ss        ss
  dddddddddddd aa       aa        ww     iiiiiiiiiiii  sssssssssssss
  dddddddddddd aa       aa         v     iiiiiiiiiiii   sssssssssss
0

    0000000     2222222222          //      11      66666666666          //  99999999999   66666666666
   000000000    2222222222222         //     111     6666666666666         //  9999999999999  6666666666666
  00      00   22        22          //     1111     66                   //  99        99  66
 00        00            22          //       11     66                   //  99        99  66
 00        00            22         //        11     66                   //  99        99  66
 00        00          22          //         11     666666666666         //  9999999999999  666666666666
 00        00        22           //          11     6666666666666       //   999999999999  6666666666666
 00        00      22            //           11     66        66       //            99  66        66
 00        00    22             //            11     66        66      //             99  66        66
  00      00   22              //             11     66        66     //              99  66        66
   000000000   2222222222222  //           11111111  6666666666666  //        9999999999999  6666666666666
    0000000    2222222222222 //            11111111   66666666666  //         999999999999   66666666666
0

      11        0000000                  0000000    33333333333                 2222222222   7777777777777
     111       000000000                000000000   3333333333333               2222222222222  777777777777
    1111      00      00      :::      00      00  33        33      :::      22        22  77        77
      11      00      00      :::      00      00            33      :::               22            77
      11      00      00      :::      00      00            33      :::               22            77
      11      00      00               00      00          333                        22            77
      11      00      00               00      00          333                      22              77
      11      00      00      :::      00      00            33      :::          22              77
      11      00      00      :::      00      00            33      :::        22                77
      11      00      00      :::      00      00  33        33      :::      22                  77
   11111111   000000000                000000000   3333333333333               2222222222222      77
   11111111    0000000                  0000000    33333333333                2222222222222      77
1
0                                 sssssssssss   cccccccccc    aaaaaaaa   ll          eeeeeeeeeeee
                                 sssssssssssss cccccccccccc  aaaaaaaaaa  ll          eeeeeeeeeeee
                                 ss       ss  cc        cc  aa        aa  ll          ee
                                 ss           cc            aa        aa  ll          ee
                                 ss           cc            aa        aa  ll          ee
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                                  sssssssssss cc            aaaaaaaaaaaa  ll          eeeeeeee
                                          ss  cc            aa        aa  ll          ee
                                          ss  cc            aa        aa  ll          ee
                                 ss       ss  cc        cc  aa        aa  ll          ee
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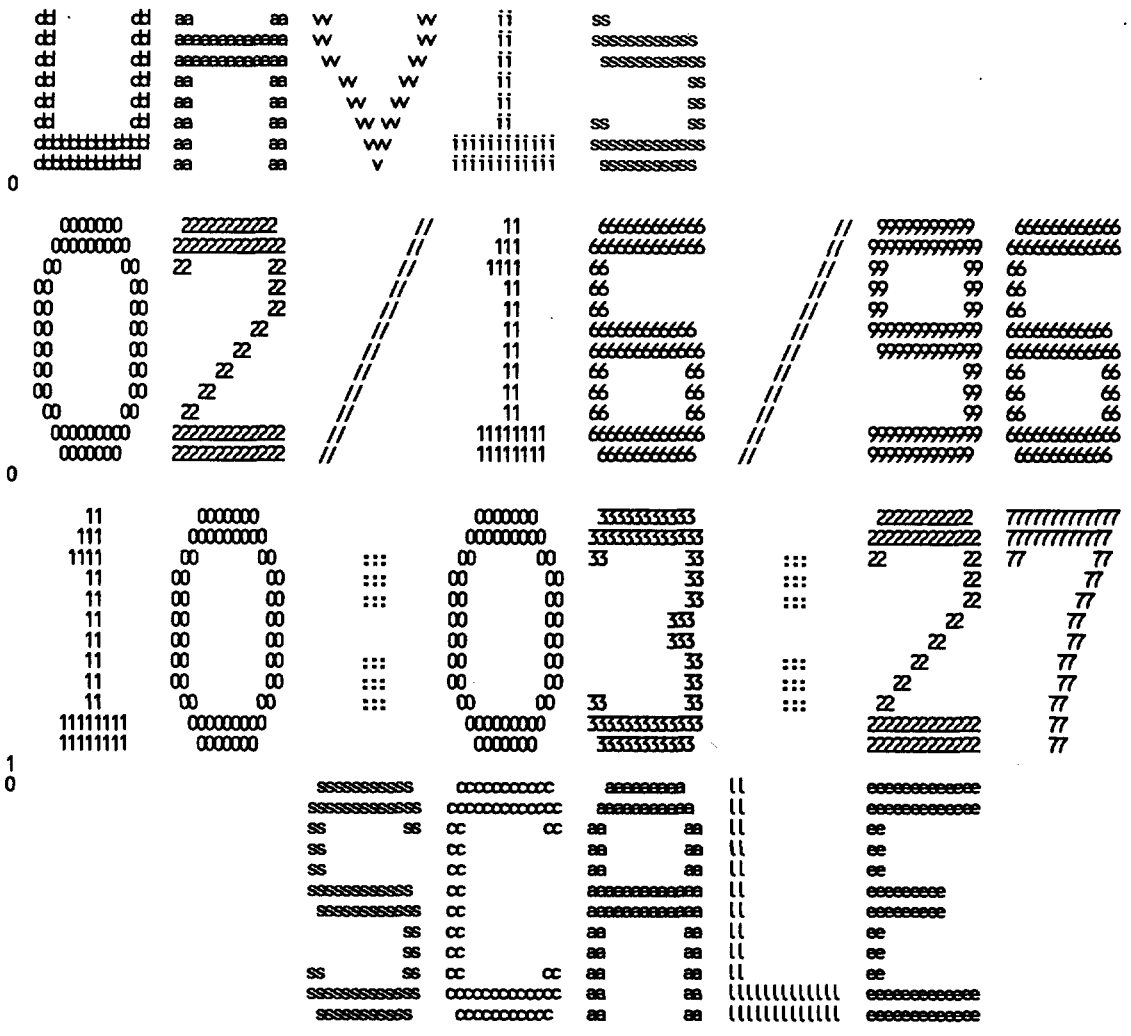

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
```

```
*****                code system:    scale  version:    4.2                *****
*****                                                                      *****
*****************************************************************************
*****************************************************************************
*****                                                                      *****
*****                                                                      *****
*****              program:  c0c008                                        *****
*****                                                                      *****
*****        creation date:  04/27/95                                      *****
*****                                                                      *****
*****              library:  /neutronics/scale/exe                         *****
*****                                                                      *****
*****                                                                      *****
*****    this is not a   scale  configuration controlled code              *****
*****                                                                      *****
*****              jobname:  davis                                         *****
*****                                                                      *****
*****    date of execution:  02/16/96                                      *****
*****                                                                      *****
*****    time of execution:  10:03:27                                      *****
*****                                                                      *****
*****                                                                      *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has      6 entries.
0        2q array has      2 entries.
1logical assignments
0master library   12
 working library  17
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere                 2
0izm--number of zones or material regions                        4
0ms--mixing table length                                        70
0ibl--shielded cross section edit option (0/1--no/yes)           0
0ibr--bondarenko factor edit option (0/1--no/yes)                0
0issqpt--dancoff factor option                                   0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has     70 entries.
0        4q array has     70 entries.
0        5q array has     70 entries.
0        6q array has      4 entries.
0        7q array has      4 entries.
0        8q array has      4 entries.
0        9q array has      4 entries.
0       10q array has     70 entries.
0       11q array has      4 entries.
0m i x i n g   t a b l e
0entry   mixture   isotope   number density   new identifier
   1       3         8016     2.09710E-02              201
   2       3         1001     4.19420E-02              202
   3       3         5010     3.81515E-06              203
   4       3         5011     1.54884E-05              204
   5       2        40302     4.25156E-02              205
```

6	1	92235	1.33192E-04	200006
7	1	92234	1.47781E-06	200007
8	1	92236	1.82292E-05	200008
9	1	92238	7.21946E-03	200009
10	1	8016	1.50611E-02	200010
11	1	8016	1.15315E-02	200011
12	1	36083	4.72043E-07	200012
13	1	36085	2.27030E-07	200013
14	1	38090	5.16852E-06	200014
15	1	39089	4.09755E-06	200015
16	1	42095	5.47657E-06	200016
17	1	40093	4.12203E-06	200017
18	1	40094	6.47876E-06	200018
19	1	40095	6.60385E-07	200019
20	1	41094	3.21149E-12	200020
21	1	43099	6.33732E-06	200021
22	1	45103	3.47568E-06	200022
23	1	45105	7.39443E-09	200023
24	1	44101	5.75136E-06	200024
25	1	44106	8.69130E-07	200025
26	1	46105	2.26913E-06	200026
27	1	46108	6.36851E-07	200027
28	1	47109	4.45102E-07	200028
29	1	51124	1.00830E-10	200029
30	1	54131	2.90271E-06	200030
31	1	54132	5.45567E-06	200031
32	1	54135	2.20848E-09	200032
33	1	54136	1.09418E-05	200033
34	1	55134	3.16663E-07	200034
35	1	55135	3.47362E-06	200035
36	1	55137	6.78821E-06	200036
37	1	56136	6.38766E-08	200037
38	1	57139	6.72223E-06	200038
39	1	59141	5.82082E-06	200039
40	1	59143	1.22771E-07	200040
41	1	58144	2.21790E-06	200041
42	1	60143	5.26395E-06	200042
43	1	60145	3.88111E-06	200043
44	1	61147	1.33040E-06	200044
45	1	61148	3.89552E-09	200045
46	1	60147	4.29701E-08	200046
47	1	62147	4.63566E-07	200047
48	1	62149	2.87617E-08	200048
49	1	62150	1.38277E-06	200049
50	1	62151	1.32930E-07	200050
51	1	62152	6.63045E-07	200051
52	1	64155	7.21936E-10	200052
53	1	63153	3.98698E-07	200053
54	1	63154	8.34053E-08	200054
55	1	63155	4.31432E-08	200055
56	1	40302	4.42681E-03	200056
57	1	1001	2.30630E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	6.95263E-06	200060
61	1	95237	1.23390E-06	200061
62	1	94238	1.76797E-07	200062
63	1	94239	3.56356E-05	200063
64	1	94240	6.95689E-06	200064
65	1	94241	3.76423E-06	200065

66	1	94242	4.23205E-07	200066
67	1	95241	1.12643E-07	200067
68	1	95243	3.90711E-08	200068
69	1	96244	3.73748E-09	200069
70	1	999	3.30753E-21	200070

0geometry and material description

0zone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.32460E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.23052E+01	0
3	3	8.14000E-01	6.07600E+02	3.54852E+00	0
4	1	2.96100E+00	9.75000E+02	2.32883E-01	0

8067 locations of 200000 available are required to make a new master containing the self-shielded values

0no nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

0copy	999	1/v cross sectio	from log 12	to log 1	bondarenko	trigger 0
0copy	1001	hydrogen	from log 12	to log 18	bondarenko	trigger 0
0copy	1001	hydrogen	from log 18	to log 1	bondarenko	trigger 0
0copy	1001	hydrogen	from log 18	to log 1	bondarenko	trigger 0
0copy	5010	b-10 1273 218ngp	from log 12	to log 18	bondarenko	trigger 0
0copy	5010	b-10 1273 218ngp	from log 18	to log 1	bondarenko	trigger 0
0copy	5010	b-10 1273 218ngp	from log 18	to log 1	bondarenko	trigger 0
0copy	5011	boron-11	from log 12	to log 18	bondarenko	trigger 0
0copy	5011	boron-11	from log 18	to log 1	bondarenko	trigger 0
0copy	5011	boron-11	from log 18	to log 1	bondarenko	trigger 0
0copy	8016	oxygen-16	from log 12	to log 18	bondarenko	trigger 0
0copy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
0copy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
0copy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
0copy	36083	kr-83	from log 12	to log 1	bondarenko	trigger 0
0copy	36085	kr-85	from log 12	to log 1	bondarenko	trigger 0
0copy	38090	sr-90	from log 12	to log 1	bondarenko	trigger 0
0copy	39089	y-89	from log 12	to log 1	bondarenko	trigger 0
0copy	40093	zr-93	from log 12	to log 1	bondarenko	trigger 0
0copy	40094	zr-94	from log 12	to log 1	bondarenko	trigger 0
0copy	40095	zr-95	from log 12	to log 1	bondarenko	trigger 0
0copy	40302	zircalloy	from log 12	to log 18	bondarenko	trigger 0
0copy	40302	zircalloy	from log 18	to log 1	bondarenko	trigger 0
0copy	40302	zircalloy	from log 18	to log 1	bondarenko	trigger 0
0copy	41094	nb-94	from log 12	to log 1	bondarenko	trigger 0
0copy	42095	mo-95	from log 12	to log 1	bondarenko	trigger 0
0copy	43099	tc-99	from log 12	to log 1	bondarenko	trigger 0
0copy	44101	ru-101	from log 12	to log 1	bondarenko	trigger 0
0copy	44106	ru-106	from log 12	to log 1	bondarenko	trigger 0
0copy	45103	rh-103	from log 12	to log 1	bondarenko	trigger 0
0copy	45105	rh-105	from log 12	to log 1	bondarenko	trigger 0
0copy	46105	pd-105	from log 12	to log 1	bondarenko	trigger 0
0copy	46108	pd-108	from log 12	to log 1	bondarenko	trigger 0
0copy	47109	silver-109	from log 12	to log 1	bondarenko	trigger 0
0copy	51124	sb-124	from log 12	to log 1	bondarenko	trigger 0
0copy	54131	xe-131	from log 12	to log 1	bondarenko	trigger 0
0copy	54132	xe-132	from log 12	to log 1	bondarenko	trigger 0
0copy	54135	xenon-135	from log 12	to log 1	bondarenko	trigger 0
0copy	54136	xe-136	from log 12	to log 1	bondarenko	trigger 0
0copy	55133	cesium-133	from log 12	to log 1	bondarenko	trigger 0
0copy	55134	cs-134	from log 12	to log 1	bondarenko	trigger 0
0copy	55135	cs-135	from log 12	to log 1	bondarenko	trigger 0
0copy	55137	cs-137	from log 12	to log 1	bondarenko	trigger 0
0copy	56136	ba-136	from log 12	to log 1	bondarenko	trigger 0
0copy	57139	la-139	from log 12	to log 1	bondarenko	trigger 0
0copy	58144	ce-144	from log 12	to log 1	bondarenko	trigger 0
0copy	59141	pr-141	from log 12	to log 1	bondarenko	trigger 0

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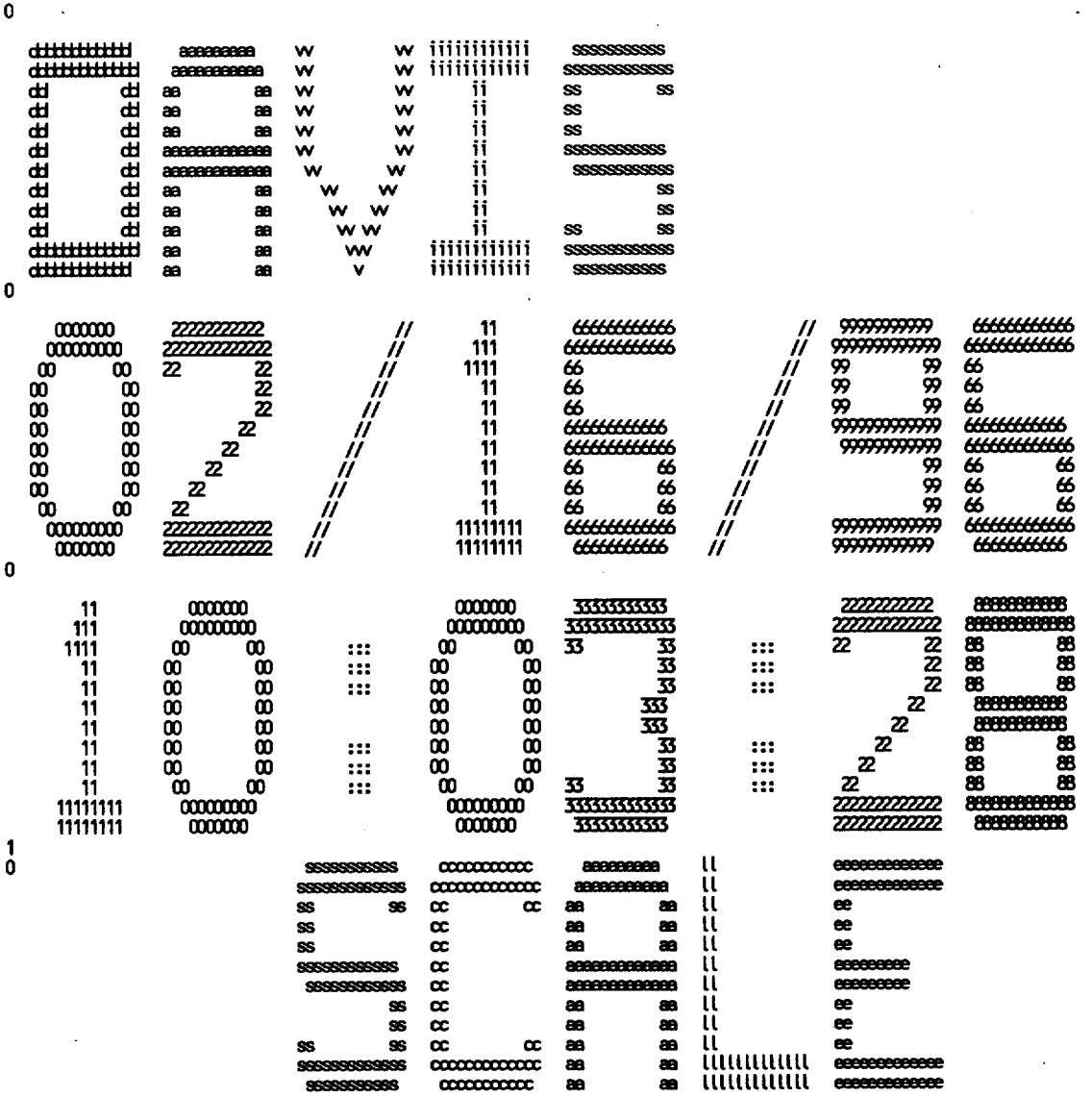
0copy    59143  pr-143          from log 12 to log  1    bondarenko trigger 0
0copy    60143  nd-143          from log 12 to log  1    bondarenko trigger 0
0copy    60145  nd-145          from log 12 to log  1    bondarenko trigger 0
0copy    60147  nd-147          from log 12 to log  1    bondarenko trigger 0
0copy    61147  pm-147          from log 12 to log  1    bondarenko trigger 0
0copy    61148  pm-148          from log 12 to log  1    bondarenko trigger 0
0copy    62147  sm-147          from log 12 to log  1    bondarenko trigger 0
0copy    62149  sm-149          from log 12 to log  1    bondarenko trigger 0
0copy    62150  sm-150          from log 12 to log  1    bondarenko trigger 0
0copy    62151  sm-151          from log 12 to log  1    bondarenko trigger 0
0copy    62152  sm-152          from log 12 to log  1    bondarenko trigger 0
0copy    63153  eu-153          from log 12 to log  1    bondarenko trigger 0
0copy    63154  eu-154          from log 12 to log  1    bondarenko trigger 0
0copy    63155  eu-155          from log 12 to log  1    bondarenko trigger 0
0copy    64155  gd-155          from log 12 to log  1    bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92235  uranium-235     from log 12 to log  1    bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92238  uranium-238     from log 12 to log  1    bondarenko trigger 0
0copy    93237  neptunium-237   from log 12 to log  1    bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1    bondarenko trigger 0
0copy    94239  plutonium-239   from log 12 to log  1    bondarenko trigger 0
0copy    94240  plutonium-240   from log 12 to log  1    bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1    bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1    bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1    bondarenko trigger 0
0copy    95243  am-243 1057 218 from log 12 to log  1    bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1    bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
           compiled for nrc     1/27/89
              last updated      9/16/93
                 l.m.petrie   -   ornl
        tape id                          4321        number of nuclides                  70
        number of neutron groups           27        number of gamma groups               0
        first thermal group                15        logical unit                         1
                                 table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id   200070
        hydrogen       endf/b-iv mat 1269/thnm1002   updated 10/13/89             id      202
        hydrogen       endf/b-iv mat 1269/thnm1002   updated 10/13/89             id   200057
       b-10 1273 218ngp 042375 p-3 293k                                           id      203
       b-10 1273 218ngp 042375 p-3 293k                                           id   200058
        boron-11       endf/b-iv mat 1160            updated 10/13/89             id      204
        boron-11       endf/b-iv mat 1160            updated 10/13/89             id   200059
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id      201
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id   200010
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id   200011
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89             id   200012
        kr-85            mt=  102                                                 id   200013
        sr-90          mt=102                        updated 10/13/89             id   200014
         y-89          mt=102                        updated 10/13/89             id   200015
        zr-93            mt=  102                                                 id   200017
        zr-94          mt=102                        updated 10/13/89             id   200018
        zr-95          mt=102                        updated 10/13/89             id   200019
        zircalloy      endf/b-iv mat 1284            updated 10/13/89             id      205
        zircalloy      endf/b-iv mat 1284            updated 10/13/89             id   200056
        nb-94          mt=102                        updated 10/13/89             id   200020
        mo-95          mt=102                        updated 10/13/89             id   200016
        tc-99          mt=102                        updated 10/13/89             id   200021
        ru-101         mt=102                        updated 10/13/89             id   200024
```

```
      ru-106        mt=102                        updated 10/13/89          id   200025
      rh-103        mt=102                        updated 10/13/89          id   200022
      rh-105          mt=  102                                              id   200023
      pd-105        mt=102                        updated 10/13/89          id   200026
      pd-108        mt=102                        updated 10/13/89          id   200027
      silver-109    endf/b-iv mat 1139            updated 10/13/89          id   200028
      sb-124        mt=102                        updated 10/13/89          id   200029
      xe-131        mt=102,103,104,105,106        updated 10/13/89          id   200030
      xe-132        mt=102,103,104,105,106        updated 10/13/89          id   200031
      xenon-135     endf/b-iv mat 1294            updated 10/13/89          id   200032
      xe-136          mt=  102, 103, 104, 105, 107                          id   200033
      cesium-133    endf/b-iv mat 1141            updated 10/13/89          id   200060
      cs-134        mt=102                        updated 10/13/89          id   200034
      cs-135          mt=  102                                              id   200035
      cs-137        mt=102                        updated 10/13/89          id   200036
      ba-136        mt=102                        updated 10/13/89          id   200037
      la-139        mt=102                        updated 10/13/89          id   200038
      ce-144          mt=  102                                              id   200041
      pr-141        mt=102,103,104,105,106,107    updated 10/13/89          id   200039
      pr-143        mt=102                        updated 10/13/89          id   200040
      nd-143        mt=102                        updated 10/13/89          id   200042
      nd-145        mt=102                        updated 10/13/89          id   200043
      nd-147        mt=102                        updated 10/13/89          id   200046
      pm-147        mt=102                        updated 10/13/89          id   200044
      pm-148          mt=  102                                              id   200045
      sm-147        endf/b-v fission product      updated 10/13/89          id   200047
      sm-149        mt=102,103,107                updated 10/13/89          id   200048
      sm-150        mt=102                        updated 10/13/89          id   200049
      sm-151        mt=102,103,104,105,106,107    updated 10/13/89          id   200050
      sm-152        mt=102,103,104,105,106,107    updated 10/13/89          id   200051
      eu-153        mt=102,103,104,105,106,107    updated 10/13/89          id   200053
      eu-154        mt=102,103,104,105,106,107    updated 10/13/89          id   200054
      eu-155        mt=102,103,104,105,106,107    updated 10/13/89          id   200055
      gd-155        mt=102                        updated 10/13/89          id   200052
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     id   200007
      uranium-235   endf/b-iv mat 1261            updated 10/13/89          id   200006
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     id   200008
      uranium-238   endf/b-iv mat 1262            updated 10/13/89          id   200009
      neptunium-237 endf/b-iv mat 1263            updated 10/13/89          id   200061
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id   200062
      plutonium-239 endf/b-iv mat 1264            updated 10/13/89          id   200063
      plutonium-240 endf/b-iv mat 1265            updated 10/13/89          id   200064
      plutonium-241 endf/b-iv mat 1266            updated 10/13/89          id   200065
      plutonium-242 endf/b-iv mat 1161            updated 10/13/89          id   200066
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                           id   200067
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                            id   200068
      curium-244    endf/b-iv mat 1162            updated 10/13/89          id   200069
0      tape copy used      0 i/o's, and took     .00 seconds
1            nn          nn  iiiiiiiiiiii    tttttttttttt     aaaaaaaaa    ww          ww  ll
             nnn         nn  iiiiiiiiiiii    tttttttttttt     aaaaaaaaaa   ww          ww  ll
             nnnn        nn       ii             tt        aa         aa  ww          ww  ll
             nn nn       nn       ii             tt        aa         aa  ww          ww  ll
             nn   nn     nn       ii             tt        aa         aa  ww          ww  ll
             nn    nn    nn       ii             tt        aaaaaaaaaaaaa  ww     w    ww  ll
             nn     nn   nn       ii             tt        aaaaaaaaaaaaa  ww    www   ww  ll
             nn      nn  nn       ii             tt        aa         aa  ww   ww ww  ww  ll
             nn       nn nn       ii             tt        aa         aa  ww ww    ww ww  ll
             nn        nnnn       ii             tt        aa         aa  wwww      wwww  ll
             nn         nnn  iiiiiiiiiiii        tt        aa         aa  www        www  llllllllllll
             nn          nn  iiiiiiiiiiii        tt        aa         aa  ww          ww  llllllllllll
```



```
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************
                    *****                                                                      *****
                    *****                  program verification information                   *****
                    *****                                                                      *****
                    *****                 code system:    scale  version:    4.2               *****
                    *****                                                                      *****
                    ********************************************************************************
                    ********************************************************************************
                    *****                                                                      *****
                    *****                                                                      *****
                    *****              program:  c0c002                                        *****
                    *****                                                                      *****
                    *****         creation date:  04/27/95                                     *****
                    *****                                                                      *****
                    *****              library:  /neutronics/scale/exe                         *****
                    *****                                                                      *****
                    *****                                                                      *****
                    *****     this is not a   scale  configuration controlled code             *****
                    *****                                                                      *****
                    *****              jobname:  davis                                         *****
                    *****                                                                      *****
                    *****     date of execution:  02/16/96                                     *****
                    *****                                                                      *****
                    *****     time of execution:  10:03:28                                     *****
                    *****                                                                      *****
                    *****                                                                      *****
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************
1
0       -1q array has       1 entries.
0        0q array has       4 entries.
0        1q array has      12 entries.
0select  5 nuclides from the master  library on logical  1
        65 nuclides from the working library on logical  3
         0 nuclides from the working library on logical  0
           to create the new working library on logical  4

         1 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has      70 entries.
0        3q array has      15 entries.
0        4q array has       5 entries.
0 general information concerning cross section library
    tape identification number                  4349
    number of nuclides on tape                    65
    number of neutron energy groups               27
    first thermal neutron energy group            15
    number of gamma energy groups                  0
0   direct access unit number  9 requires  72 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                          based on endf-b version 4 data with endf-b version 5 fission products
                             compiled for nrc      1/27/89
                                last updated       9/16/93
                                   l.m.petrie   -    ornl
-  work tape   4349
```

xsdrn weighted tape--parent case entitled-- 880 d, sas2h: babcock wilcox 15x15,
3.00wt%, 20gwd/mtu burn high temp

0 nuclides from xsdrn tape

1	hydrogen	endf/b-iv mat 1269/thrmf1002	updated 10/13/89	202
2	b-10 1273 218ngp 042375 p-3 293k			203
3	boron-11	endf/b-iv mat 1160	updated 10/13/89	204
4	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	201
5	zircalloy	endf/b-iv mat 1284	updated 10/13/89	205

0 nuclides from work tape

6	1/v cross sections normalized to 1.0 at 0.0253 ev			999
7	hydrogen	endf/b-iv mat 1269/thrmf1002	updated 10/13/89	1001
8	b-10 1273 218ngp 042375 p-3 293k			5010
9	boron-11	endf/b-iv mat 1160	updated 10/13/89	5011
10	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	8016
11	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	6
12	kr-83	mt=102,103,103,105,106,107	updated 10/13/89	36083
13	kr-85	mt= 102		36085
14	sr-90	mt=102	updated 10/13/89	38090
15	y-89	mt=102	updated 10/13/89	39089
16	zr-93	mt= 102		40093
17	zr-94	mt=102	updated 10/13/89	40094
18	zr-95	mt=102	updated 10/13/89	40095
19	zircalloy	endf/b-iv mat 1284	updated 10/13/89	40302
20	nb-94	mt=102	updated 10/13/89	41094
21	mo-95	mt=102	updated 10/13/89	42095
22	tc-99	mt=102	updated 10/13/89	43099
23	ru-101	mt=102	updated 10/13/89	44101
24	ru-106	mt=102	updated 10/13/89	44106
25	rh-103	mt=102	updated 10/13/89	45103
26	rh-105	mt= 102		45105
27	pd-105	mt=102	updated 10/13/89	46105
28	pd-108	mt=102	updated 10/13/89	46108
29	silver-109	endf/b-iv mat 1139	updated 10/13/89	47109
30	sb-124	mt=102	updated 10/13/89	51124
31	xe-131	mt=102,103,104,105,106	updated 10/13/89	54131
32	xe-132	mt=102,103,104,105,106	updated 10/13/89	54132
33	xenon-135	endf/b-iv mat 1294	updated 10/13/89	54135
34	xe-136	mt= 102, 103, 104, 105, 107		54136
35	cesium-133	endf/b-iv mat 1141	updated 10/13/89	55133
36	cs-134	mt=102	updated 10/13/89	55134
37	cs-135	mt= 102		55135
38	cs-137	mt=102	updated 10/13/89	55137
39	ba-136	mt=102	updated 10/13/89	56136
40	la-139	mt=102	updated 10/13/89	57139
41	ce-144	mt= 102		58144
42	pr-141	mt=102,103,104,105,106,107	updated 10/13/89	59141
43	pr-143	mt=102	updated 10/13/89	59143
44	nd-143	mt=102	updated 10/13/89	60143
45	nd-145	mt=102	updated 10/13/89	60145
46	nd-147	mt=102	updated 10/13/89	60147
47	pm-147	mt=102	updated 10/13/89	61147
48	pm-148	mt= 102		61148
49	sm-147	endf/b-v fission product	updated 10/13/89	62147
50	sm-149	mt=102,103,107	updated 10/13/89	62149
51	sm-150	mt=102	updated 10/13/89	62150
52	sm-151	mt=102,103,104,105,106,107	updated 10/13/89	62151

```
   53    sm-152        mt=102,103,104,105,106,107    updated 10/13/89          62152
   54    eu-153        mt=102,103,104,105,106,107    updated 10/13/89          63153
   55    eu-154        mt=102,103,104,105,106,107    updated 10/13/89          63154
   56    eu-155        mt=102,103,104,105,106,107    updated 10/13/89          63155
   57    gd-155        mt=102                        updated 10/13/89          64155
   58   u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    92234
   59    uranium-235   endf/b-iv mat 1261            updated 10/13/89          92235
   60   u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    92236
   61    uranium-238   endf/b-iv mat 1262            updated 10/13/89          92238
   62    neptunium-237 endf/b-iv mat 1263            updated 10/13/89          93237
   63   pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    94238
   64    plutonium-239 endf/b-iv mat 1264            updated 10/13/89          94239
   65    plutonium-240 endf/b-iv mat 1265            updated 10/13/89          94240
   66    plutonium-241 endf/b-iv mat 1266            updated 10/13/89          94241
   67    plutonium-242 endf/b-iv mat 1161            updated 10/13/89          94242
   68   am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                          95241
   69   am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           95243
   70    curium-244    endf/b-iv mat 1162            updated 10/13/89          96244
0 hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          202   temperature=  607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                         203   temperature=  607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160            updated 10/13/89          204   temperature=  607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276            updated 10/13/89          201   temperature=  607.60
0 zircalloy      endf/b-iv mat 1284            updated 10/13/89          205   temperature=  650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)       =   650.000
0potential scatter sigma  =     6.385          lumped nuclear density    = 4.2515602E-02
0spin factor (g)          =     1.079          lump dimension (a-bar)    = 6.7309999E-01
0inner radius             = 6.3246000E-01      dancoff correction (c)    = 1.6805907E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   8      -1.156752E-03    .000000E+00   -7.806033E-01
   9      -4.625978E-02    .000000E+00   -2.073270E+00
  10      -5.962230E-02    .000000E+00   -1.351984E+00
  11      -1.761672E-01    .000000E+00   -7.350731E-01
0excess resonance integrals
0                 resolved
0absorption      2.92402E-01
 fission          .00000E+00
- elapsed time    .00 min.
- elapsed time    .02 min.
1     this xsdrn working tape was created 02/16/96 at 10:03:28
      the title of the parent case is as follows
      xsdrn weighted tape--parent case entitled--  880 d, sas2h: babcock wilcox 15x15,
       3.00wt%, 20gwd/mtu burn high temp

         tape id                          8670        number of nuclides                  70
         number of neutron groups           27        number of gamma groups               0
         first thermal group                15        logical unit                         4
                                  table of contents
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          id     202
       b-10 1273 218ngp 042375 p-3 293k                                        id     203
        boron-11       endf/b-iv mat 1160            updated 10/13/89          id     204
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89          id     201
        zircalloy      endf/b-iv mat 1284            updated 10/13/89          id     205
       1/v cross sections normalized to 1.0 at 0.0253 ev                       id     999
```

```
 hydrogen      endf/b-iv mat 1269/thrm1002   updated 10/13/89          id    1001
b-10 1273 218ngp 042375 p-3 293k                                        id    5010
 boron-11      endf/b-iv mat 1160            updated 10/13/89          id    5011
 oxygen-16     endf/b-iv mat 1276            updated 10/13/89          id    8016
 oxygen-16     endf/b-iv mat 1276            updated 10/13/89          id       6
 kr-83         mt=102,103,103,105,106,107    updated 10/13/89          id   36083
 kr-85            mt=  102                                             id   36085
 sr-90         mt=102                        updated 10/13/89          id   38090
  y-89         mt=102                        updated 10/13/89          id   39089
 zr-93            mt=  102                                             id   40093
 zr-94         mt=102                        updated 10/13/89          id   40094
 zr-95         mt=102                        updated 10/13/89          id   40095
 zircalloy     endf/b-iv mat 1284            updated 10/13/89          id   40302
 nb-94         mt=102                        updated 10/13/89          id   41094
 mo-95         mt=102                        updated 10/13/89          id   42095
 tc-99         mt=102                        updated 10/13/89          id   43099
 ru-101        mt=102                        updated 10/13/89          id   44101
 ru-106        mt=102                        updated 10/13/89          id   44106
 rh-103        mt=102                        updated 10/13/89          id   45103
 rh-105           mt=  102                                             id   45105
 pd-105        mt=102                        updated 10/13/89          id   46105
 pd-108        mt=102                        updated 10/13/89          id   46108
 silver-109    endf/b-iv mat 1139            updated 10/13/89          id   47109
 sb-124        mt=102                        updated 10/13/89          id   51124
 xe-131        mt=102,103,104,105,106        updated 10/13/89          id   54131
 xe-132        mt=102,103,104,105,106        updated 10/13/89          id   54132
 xenon-135     endf/b-iv mat 1294            updated 10/13/89          id   54135
 xe-136           mt=  102, 103, 104, 105, 107                         id   54136
 cesium-133    endf/b-iv mat 1141            updated 10/13/89          id   55133
 cs-134        mt=102                        updated 10/13/89          id   55134
 cs-135           mt=  102                                             id   55135
 cs-137        mt=102                        updated 10/13/89          id   55137
 ba-136        mt=102                        updated 10/13/89          id   56136
 la-139        mt=102                        updated 10/13/89          id   57139
 ce-144           mt=  102                                             id   58144
 pr-141        mt=102,103,104,105,106,107    updated 10/13/89          id   59141
 pr-143        mt=102                        updated 10/13/89          id   59143
 nd-143        mt=102                        updated 10/13/89          id   60143
 nd-145        mt=102                        updated 10/13/89          id   60145
 nd-147        mt=102                        updated 10/13/89          id   60147
 pm-147        mt=102                        updated 10/13/89          id   61147
 pm-148           mt=  102                                             id   61148
 sm-147        endf/b-v fission product      updated 10/13/89          id   62147
 sm-149        mt=102,103,107                updated 10/13/89          id   62149
 sm-150        mt=102                        updated 10/13/89          id   62150
 sm-151        mt=102,103,104,105,106,107    updated 10/13/89          id   62151
 sm-152        mt=102,103,104,105,106,107    updated 10/13/89          id   62152
 eu-153        mt=102,103,104,105,106,107    updated 10/13/89          id   63153
 eu-154        mt=102,103,104,105,106,107    updated 10/13/89          id   63154
 eu-155        mt=102,103,104,105,106,107    updated 10/13/89          id   63155
 gd-155        mt=102                        updated 10/13/89          id   64155
u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     id   92234
 uranium-235   endf/b-iv mat 1261            updated 10/13/89          id   92235
u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     id   92236
 uranium-238   endf/b-iv mat 1262            updated 10/13/89          id   92238
 neptunium-237 endf/b-iv mat 1263            updated 10/13/89          id   93237
pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id   94238
 plutonium-239 endf/b-iv mat 1264            updated 10/13/89          id   94239
 plutonium-240 endf/b-iv mat 1265            updated 10/13/89          id   94240
 plutonium-241 endf/b-iv mat 1266            updated 10/13/89          id   94241
```

```
      plutonium-242  endf/b-iv mat 1161          updated 10/13/89              id    94242
      am-241 1056 sigp=5+4 newxlacs 218ngp p-3 293k                            id    95241
      am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                             id    95243
      curium-244     endf/b-iv mat 1162          updated 10/13/89              id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
1 xx         xx  sssssssssss   ddddddddddd  rrrrrrrrrrr   mm        mm  ppppppppppp   mm         mm
   xx       xx  sssssssssssss  ddddddddddd  rrrrrrrrrrrr  mm        mm  ppppppppppp  mmm         mmm
    xx     xx   ss         ss  dd        dd  rr        rr  mmm       mm  pp        pp  mmmm       mmmm
     xx   xx    ss             dd        dd  rr        rr  mm m     mm  pp        pp  mm mm     mm mm
      xx xx     ss             dd        dd  rr        rr  mm  m    mm  pp        pp  mm  mm   mm  mm
       xxx       sssssssssss   dd        dd  rrrrrrrrrrr   mm   m   mm  ppppppppppp   mm   mmm   mm
       xxx        sssssssssss  dd        dd  rrrrrrrrrrr   mm    m  mm  ppppppppppp   mm    m    mm
      xx xx             ss    dd        dd  rr        rr  mm     m mm  pp            mm         mm
     xx   xx            ss    dd        dd  rr        rr  mm      mmm  pp            mm         mm
    xx     xx     ss     ss    dd        dd  rr        rr  mm       mm  pp            mm         mm
   xx       xx    sssssssssss  ddddddddddd   rr       rr  mm       mm  pp            mm         mm
  xx         xx    sssssssss   ddddddddddd   rr       rr  mm       mm  pp            mm         mm
0

  ddddddddddd    aaaaaaaa   w         w  iiiiiiiiiii    sssssssss
  ddddddddddd   aaaaaaaaaa  w         w  iiiiiiiiiii   sssssssssss
  dd        dd  aa      aa  w         w      ii        ss       ss
  dd        dd  aa      aa  w         w      ii        ss
  dd        dd  aa      aa  w         w      ii        ss
  dd        dd  aaaaaaaaaa  w         w      ii        sssssssss
  dd        dd  aaaaaaaaaa   w       w       ii         sssssssss
  dd        dd  aa      aa    w  w  w        ii              ss
  dd        dd  aa      aa     w  w  w       ii              ss
  dd        dd  aa      aa      w w          ii        ss    ss
  ddddddddddd   aa      aa       ww      iiiiiiiiiii  sssssssss
  ddddddddddd   aa      aa        v      iiiiiiiiiii   sssssssss
0

   0000000    2222222222          //      11       6666666666          //  9999999999  6666666666
  00000000   22222222222         //      111      6666666666         //   9999999999  6666666666
 00      00  22        22        //      1111     66                 //    99      99  66
00        00          22       //        11      66                //     99      99  66
00        00          22      //         11      66               //      99      99  66
00        00        22       //          11      6666666666      //       9999999999  6666666666
00        00      22        //           11      6666666666     //         9999999999  6666666666
00        00    22         //            11      66      66    //                99  66      66
00        00  22          //             11      66      66   //                 99  66      66
 00      00  22          //              11      66      66  //                  99  66      66
  00000000  2222222222  //               11111111 6666666666 //                 9999999999  6666666666
   000000   2222222222  //               11111111  666666666 //                  999999999   666666666
0

     11       0000000                      0000000   3333333333                    2222222222  9999999999
    111      00000000                     00000000  3333333333333                 2222222222  99999999999
   1111     00      00      :::         00      00  33        33        :::     22        22  99      99
     11     00      00      :::         00      00            33        :::             22  99      99
     11     00      00      :::         00      00            33        :::            22   99      99
     11     00      00                  00      00          333                     22     9999999999
     11     00      00                  00      00          333                   22       9999999999
     11     00      00      :::         00      00            33        :::   22           99
     11     00      00      :::         00      00            33        :::  22            99
     11      00    00       :::         00    00   33        33        :::  22            99
 11111111    00000000                    00000000  3333333333333          2222222222  9999999999
 11111111     000000                      000000   3333333333             2222222222  9999999999
1
```

0

```
 ssssssssss    cccccccccc     aaaaaaaa    ll            eeeeeeeeeeee
ssssssssssss  cccccccccccc   aaaaaaaaaa   ll            eeeeeeeeeeee
ss        ss  cc        cc  aa        aa  ll            ee
ss            cc            aa        aa  ll            ee
ss            cc            aa        aa  ll            ee
ssssssssssss  cc            aaaaaaaaaaaa  ll            eeeeeeeee
 ssssssssssss cc            aaaaaaaaaaaa  ll            eeeeeeeee
        ss    cc            aa        aa  ll            ee
        ss    cc            aa        aa  ll            ee
ss      ss    cc        cc  aa        aa  ll            ee
ssssssssssss  cccccccccccc  aa        aa  llllllllllll  eeeeeeeeeeee
 ssssssssss    cccccccccc   aa        aa  llllllllllll  eeeeeeeeeeee
```

```
**********************************************************************
**********************************************************************
**********************************************************************
*****                                                            *****
*****                 program verification information            *****
*****                                                            *****
*****               code system:   scale  version:   4.2         *****
*****                                                            *****
**********************************************************************
**********************************************************************
*****                                                            *****
*****                                                            *****
*****             program:  c0c001                               *****
*****                                                            *****
*****        creation date:  04/27/95                            *****
*****                                                            *****
*****             library:  /neutronics/scale/exe                *****
*****                                                            *****
*****                                                            *****
*****   this is not a   scale  configuration controlled code     *****
*****                                                            *****
*****             jobname:  davis                                *****
*****                                                            *****
*****   date of execution:  02/16/96                             *****
*****                                                            *****
*****   time of execution:  10:03:29                             *****
*****                                                            *****
*****                                                            *****
**********************************************************************
**********************************************************************
**********************************************************************
```

1

880 d, second part of sas2h pass to make library

0 -1q array has 1 entries.
0 0q array has 11 entries.
0 1q array has 15 entries.
0 2q array has 10 entries.
0 3q array has 12 entries.
0 4q array has 9 entries.
0 5q array has 12 entries.
0direct access unit 9 requires 12 blocks of length 704 for cross section mixing.
1 880 d, second part of sas2h pass to make library
0general problem description data block

0 general problem data

ige 1/2/3 = plane/cylinder/sphere	2	isn quadrature order	8
izm number of zones	4	isct order of scattering	3
im number of special intervals	28	ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h	1
ibl 0/1/2/3 = vacuum/refl/per/white	1	iim inner iteration maximum	20
ibr right boundary condition	3	iom outer iteration maximum	25
mx number of mixtures	3	iclc -1/0/n--flat res/sn/qpt	0
ms mixing table length	70	ith 0/1 = forward/adjoint	0
igm number of energy groups	27	iflu not used(always wgtd)	0
nrg number of neutron groups	27	iprt -2/-1/0/n=mixture xsec print	-2
ngg number of gamma groups	0	idl 0/1/2/3=no/prt nd/pch n/both	14
iftg number of first thermal group	15	ipbt -1/0/1=none/fine/all bal. prt	0

0 special options

ifg 0/1 = none/weighting calculation	1	ipn 0/1/2 diff. coef. param	0
iqm volumetric sources (0/n=no/yes)	0	idfm 0/1 = none/density factors 38*	0
ipm boundary sources (0/n=no/yes)	0	iaz 0/n = none/n activities by zone	0
ifn 0/1/2 = input 35*/34*/use last	14	iai 0/1=none/activities by interval	0
itmx maximum time (minutes)	10	ifct 0/1=no/yes upscatter scaling	0
idt1 0/1/2/3=no/xsect/srce/flux--out	0	ipvt 0/1/2=no/k/alpha parametric srch	0
isx broad group fluxes	0	isen outer iteration acceleration	0
ibln activity data unit	0	nbnd band rebaln parameter	0
jbkl 0/1/2 buckling geometry	0		

0 weighting data (ifg=1)

icon -1/0/1=cell/zone/region weight	-1	ihtf total xsect psn in brd gp tables	3
igmf number of broad groups	3	ndsf psn g-g or file number	4
itp 0/10/20/30/40 0/c/e/ac/a	0	nusf table length or max order	6
ipp -2/-1/0/n=wgted xsect print	-2	mcm extra 1-d x-sect positions	0
iap -1/n anisn xsect print	-1		

0 floating point parameters

eps overall convergence	1.00000E-04	dy cyl/pla ht for buckling	.00000E+00
ptc point convergence	1.00000E-04	dz plane depth for buckling	2.00000E+02
xnf normalization factor	1.00000E+00	vsc void streaming correction	.00000E+00
ev eigenvalue guess	.00000E+00	pv ipvt=1/2--k/alpha	1.00000E+00
evm eigenvalue modifier	.00000E+00	eql ev change eps for search	1.00000E-03
bf buckling factor=1.420892	1.42089E+00	xrpm new param mod for search	7.50000E-01

this case will require 2611 locations for mixing
this case has been allocated 200000 locations

1 880 d, second part of sas2h pass to make library
0 13q array has 70 entries.
0 14q array has 70 entries.
0 15q array has 70 entries.
0 data block 2 (mixing table, etc.)

nuclides on tape	cccc identification	mixing table mixture	mixing table component	atom density	extra xsect id's
1 202		3	201	2.09710E-02	
2 205		3	202	4.19420E-02	
3 204		3	203	3.81515E-06	
4 201		3	204	1.54884E-05	
5 205		2	205	4.25156E-02	
6 999		1	92235	1.33192E-04	
7 1001		1	92234	1.47781E-06	
8 5010		1	92236	1.82292E-05	
9 5011		1	92238	7.21946E-03	
10 8016		1	8016	1.50611E-02	
11 6		1	6	1.15315E-02	
12 36083		1	36083	4.72043E-07	

13	36085		1	36085	2.27030E-07
14	38090		1	38090	5.16852E-06
15	39089		1	39089	4.09755E-06
16	40093		1	42095	5.47657E-06
17	40094		1	40093	4.12208E-06
18	40095		1	40094	6.47876E-06
19	40302		1	40095	6.60385E-07
20	41094		1	41094	3.21149E-12
21	42095		1	43099	6.33732E-06
22	43099		1	45103	3.47568E-06
23	44101		1	45105	7.39443E-09
24	44106		1	44101	5.75136E-06
25	45103		1	44106	8.69130E-07
26	45105		1	46105	2.26913E-06
27	46105		1	46108	6.36851E-07
28	46108		1	47109	4.45102E-07
29	47109		1	51124	1.00830E-10
30	51124		1	54131	2.90271E-06
31	54131		1	54132	5.45567E-06
32	54132		1	54135	2.20848E-09
33	54135		1	54136	1.09418E-05
34	54136		1	55134	3.16663E-07
35	55133		1	55135	3.47362E-06
36	55134		1	55137	6.78821E-06
37	55135		1	56136	6.38766E-08
38	55137		1	57139	6.72223E-06
39	56136		1	59141	5.82082E-06
40	57139		1	59143	1.22771E-07
41	58144		1	58144	2.21790E-06
42	59141		1	60143	5.26395E-06
43	59143		1	60145	3.88111E-06
44	60143		1	61147	1.33040E-06
45	60145		1	61148	3.89552E-09
46	60147		1	60147	4.29701E-08
47	61147		1	62147	4.63565E-07
48	61148		1	62149	2.87617E-08
49	62147		1	62150	1.38277E-06
50	62149		1	62151	1.32930E-07
51	62150		1	62152	6.63045E-07
52	62151		1	64155	7.21936E-10
53	62152		1	63153	3.98698E-07
54	63153		1	63154	8.34053E-08
55	63154		1	63155	4.31432E-08
56	63155		1	40302	4.42681E-03
57	64155		1	1001	2.30630E-02
58	92234		1	5010	2.09787E-06
59	92235		1	5011	8.51673E-06
60	92236		1	55133	6.95263E-06
61	92238		1	95237	1.23390E-06
62	95237		1	94238	1.76797E-07
63	94238		1	94239	3.56356E-05
64	94239		1	94240	6.93689E-06
65	94240		1	94241	3.76423E-06
66	94241		1	94242	4.23205E-07
67	94242		1	95241	1.12643E-07
68	95241		1	95243	3.90711E-08
69	95243		1	96244	3.73748E-09
70	96244		1	999	3.30753E-21

- elapsed time .00 min.
0 24259 locations will be used

0 35q array has 29 entries.
0 36q array has 28 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 880 d, second part of sas2h pass to make library

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	1	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	1	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	1	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	1	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	2	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	2	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72615E+08	2	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	2	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	2	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	2	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01036E+07	2	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	2	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	2	0	14	1.00000E+00	
15	3.04999E+00	1.50030E+01	2.10601E+06	2	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	2	0	16	1.00000E+00	
17	1.29999E+00	1.58557E+01	1.52545E+06	2	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	2	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	2	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	2	0	20	1.00000E+00	
21	4.00000E-01	1.70344E+01	8.17974E+05	3	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	3	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86953E+05	3	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	3	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	3	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	3	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	3	0	27	1.00000E+00	
28	1.00000E-05	2.76310E+01						

1 880 d, second part of sas2h pass to make library

0	mixture by zone	order p(l) by zone	activity table matl no.	activity table reaction	quadrature constants weights	quadrature constants directions	quadrature constants refl direc	quadrature constants wt x cos
1	3	3			0	-2.79004E-01	3	0
2	2	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	3	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	1	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28593E-02
7					5.55953E-02	2.31301E-01	6	1.28593E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02
16					0	-9.83052E-01	24	0
17					4.53365E-02	-9.64143E-01	24	-4.37099E-02
18					4.53365E-02	-8.17361E-01	23	-3.70655E-02
19					4.53365E-02	-5.46143E-01	22	-2.47597E-02

20					4.53355E-02	-1.91780E-01	21	-8.69444E-03
21					4.53355E-02	1.91780E-01	20	8.69444E-03
22					4.53355E-02	5.46143E-01	19	2.47597E-02
23					4.53355E-02	8.17361E-01	18	3.70555E-02
24					4.53355E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83052E-01	-4.49528E-01	8.36885E-01	5.00703E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20862E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20862E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17236E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17236E-01
22	5.46143E-01	-4.49528E-01	-3.20862E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20862E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.97644E-02	1	0	4.90881E-03		0	
2	3.95287E-02	5.92931E-02	1	2.48366E-01	1.47264E-02		0	
3	7.90575E-02	1.18586E-01	1	4.96733E-01	5.89057E-02		0	
4	1.58115E-01	1.97644E-01	1	9.93466E-01	9.81762E-02		0	
5	2.37172E-01	2.76701E-01	1	1.49020E+00	1.37447E-01			
6	3.16230E-01	3.55759E-01	1	1.98693E+00	1.76717E-01			
7	3.95288E-01	4.34816E-01	1	2.48366E+00	2.15988E-01			
8	4.74345E-01	5.13874E-01	1	2.98040E+00	2.55258E-01			
9	5.53403E-01	5.73167E-01	1	3.47713E+00	1.42355E-01			
10	5.92931E-01	6.12698E-01	1	3.72550E+00	1.52173E-01			
11	6.32460E-01	6.42620E-01	2	3.97386E+00	8.20460E-02			
12	6.52780E-01	6.62940E-01	2	4.10154E+00	8.46405E-02			
13	6.73100E-01	6.96583E-01	3	4.22921E+00	2.05562E-01			
14	7.20067E-01	7.43550E-01	3	4.52431E+00	2.19422E-01			
15	7.67033E-01	7.90517E-01	3	4.81941E+00	2.33282E-01			
16	8.14000E-01	8.62795E-01	4	5.11451E+00	5.29051E-01			
17	9.11591E-01	9.60886E-01	4	5.72769E+00	5.88691E-01			
18	1.00918E+00	1.10677E+00	4	6.34088E+00	1.35731E+00			
19	1.20436E+00	1.30195E+00	4	7.56724E+00	1.59667E+00			
20	1.39955E+00	1.49714E+00	4	8.79360E+00	1.83603E+00			
21	1.59473E+00	1.69252E+00	4	1.00200E+01	2.07540E+00			
22	1.78991E+00	1.88750E+00	4	1.12463E+01	2.31476E+00			
23	1.98509E+00	2.08268E+00	4	1.24727E+01	2.55412E+00			
24	2.18027E+00	2.27786E+00	4	1.36991E+01	2.79349E+00			
25	2.37545E+00	2.47305E+00	4	1.49254E+01	3.03285E+00			
26	2.57064E+00	2.66823E+00	4	1.61518E+01	3.27221E+00			
27	2.76582E+00	2.81461E+00	4	1.73781E+01	1.72587E+00			
28	2.86341E+00	2.91220E+00	4	1.79913E+01	1.78571E+00			

29 2.96100E+00 1.86045E+01

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	172	-8.63675E-06	1.03791E+00	-4.15808E-02	1.00000E+00	-1.29586E-02	.00000E+00	.0000
2	251	5.65640E-06	1.04195E+00	-9.95511E-04	-5.16134E-03	-2.02897E-03	.00000E+00	.0000
3	314	-3.70457E-07	1.04265E+00	-1.59963E-04	-7.56361E-04	-4.78393E-04	.00000E+00	.0167
4	361	-1.31994E-06	1.04280E+00	-3.61601E-05	-1.80436E-04	-1.10090E-04	.00000E+00	.0167

grp	to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	1	17	1.37238E-06	28	1.00000E+00	1
2	2	1	17	1.66839E-06	28	1.00000E+00	1
3	3	1	17	1.54704E-06	28	1.00000E+00	1
4	4	1	17	1.51222E-06	28	1.00000E+00	1
5	5	1	17	1.59874E-06	28	1.00000E+00	1
6	6	1	17	1.09976E-06	28	1.00000E+00	1
7	7	1	24	1.17530E-06	28	1.00000E+00	2
8	8	1	23	7.98909E-08	20	1.00000E+00	2
9	9	1	27	1.50382E-05	28	9.99986E-01	3
10	10	1	28	9.83594E-07	28	1.00000E+00	3
11	11	1	26	4.76753E-06	28	9.99996E-01	3
12	12	1	25	8.77948E-07	28	9.99999E-01	3
13	13	1	26	4.85440E-06	28	9.99995E-01	3
14	14	1	25	8.47489E-07	28	9.99999E-01	3
15	15	2	28	3.36890E-05	28	1.00000E+00	2
16	16	2	28	4.08855E-05	28	1.00001E+00	2
17	17	2	26	9.14355E-05	28	1.00010E+00	3
18	18	2	28	4.33017E-05	28	1.00002E+00	3
19	19	2	26	8.20417E-05	28	1.00009E+00	3
20	20	2	25	2.21060E-05	28	1.00002E+00	3
21	21	2	28	5.23587E-05	28	1.00001E+00	3
22	22	1	14	8.38734E-05	28	9.99920E-01	3
23	23	1	27	4.27573E-05	28	1.00004E+00	4
24	24	1	1	3.70277E-05	9	1.00003E+00	4
25	25	1	1	4.36447E-05	28	1.00003E+00	5
26	26	1	1	3.11986E-05	6	1.00002E+00	6
27	27	1	1	2.80956E-05	5	1.00002E+00	8

5 395 1.90825E-06 1.04280E+00 -8.50867E-06 -4.18172E-05 -2.48051E-05 .00000E+00 .0167

final monitor

lambda 1.04283E+00 production/absorption 1.05648E+00 angular flux on 16

- elapsed time .02 min.

1 880 d, second part of sas2h pass to make library

0 int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1	3.95287E-02	5.92931E-02	2.48366E-01	1.47264E-02	.00000E+00
3	1	7.90575E-02	1.18586E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1	1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1	2.37172E-01	2.76701E-01	1.49020E+00	1.37447E-01	.00000E+00
6	1	3.16230E-01	3.55759E-01	1.98693E+00	1.76717E-01	.00000E+00
7	1	3.95288E-01	4.34816E-01	2.48366E+00	2.15988E-01	.00000E+00
8	1	4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1	5.53403E-01	5.73167E-01	3.47713E+00	1.42355E-01	.00000E+00
10	1	5.92931E-01	6.12696E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2	6.32460E-01	6.42620E-01	3.97386E+00	8.20460E-02	.00000E+00
12	2	6.52780E-01	6.62940E-01	4.10154E+00	8.46405E-02	.00000E+00
13	3	6.73100E-01	6.96583E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3	7.20067E-01	7.43550E-01	4.52431E+00	2.19422E-01	.00000E+00
15	3	7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4	8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.38059E-02
17	4	9.11591E-01	9.60386E-01	5.72769E+00	5.88891E-01	2.59056E-02

18	4	1.00918E+00	1.10677E+00	6.34088E+00	1.35731E+00	5.84708E-02
19	4	1.20436E+00	1.30195E+00	7.56724E+00	1.59667E+00	6.73591E-02
20	4	1.39955E+00	1.49714E+00	8.79360E+00	1.83603E+00	7.63332E-02
21	4	1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	8.53572E-02
22	4	1.78991E+00	1.88750E+00	1.12463E+01	2.31476E+00	9.44350E-02
23	4	1.98509E+00	2.08268E+00	1.24727E+01	2.55412E+00	1.03575E-01
24	4	2.18027E+00	2.27786E+00	1.36991E+01	2.79349E+00	1.12792E-01
25	4	2.37545E+00	2.47305E+00	1.49254E+01	3.03285E+00	1.22108E-01
26	4	2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.31540E-01
27	4	2.76582E+00	2.81461E+00	1.73781E+01	1.72587E+00	6.93567E-02
28	4	2.86341E+00	2.91220E+00	1.79913E+01	1.78571E+00	7.17984E-02
29		2.96100E+00		1.86045E+01		

1 880 d, second part of sas2h pass to make library

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.29528E-02	9.08020E-02	1.12533E-01	6.90100E-02	1.02732E-01	1.92768E-01	1.95076E-01	1.47004E-01
2	1.29478E-02	9.07508E-02	1.12468E-01	6.89718E-02	1.02679E-01	1.92681E-01	1.95034E-01	1.46998E-01
3	1.29483E-02	9.07638E-02	1.12489E-01	6.89898E-02	1.02714E-01	1.92751E-01	1.95089E-01	1.47009E-01
4	1.29550E-02	9.08445E-02	1.12602E-01	6.90682E-02	1.02843E-01	1.92994E-01	1.95245E-01	1.47038E-01
5	1.29673E-02	9.09864E-02	1.12798E-01	6.92011E-02	1.03059E-01	1.93392E-01	1.95493E-01	1.47082E-01
6	1.29841E-02	9.11817E-02	1.13067E-01	6.93844E-02	1.03357E-01	1.93941E-01	1.95852E-01	1.47138E-01
7	1.30052E-02	9.14316E-02	1.13413E-01	6.96224E-02	1.03745E-01	1.94657E-01	1.96273E-01	1.47208E-01
8	1.30307E-02	9.17437E-02	1.13853E-01	6.99297E-02	1.04250E-01	1.95595E-01	1.96849E-01	1.47291E-01
9	1.30623E-02	9.20182E-02	1.14247E-01	7.02116E-02	1.04718E-01	1.96461E-01	1.97385E-01	1.47360E-01
10	1.30669E-02	9.22335E-02	1.14576E-01	7.04598E-02	1.05139E-01	1.97246E-01	1.97871E-01	1.47409E-01
11	1.30792E-02	9.24118E-02	1.14851E-01	7.06682E-02	1.05492E-01	1.97922E-01	1.98289E-01	1.47454E-01
12	1.30925E-02	9.25446E-02	1.15025E-01	7.07765E-02	1.05662E-01	1.98259E-01	1.98492E-01	1.47497E-01
13	1.31206E-02	9.27865E-02	1.15295E-01	7.09140E-02	1.05851E-01	1.98598E-01	1.98683E-01	1.47566E-01
14	1.31618E-02	9.31719E-02	1.15749E-01	7.11692E-02	1.06225E-01	1.99256E-01	1.97062E-01	1.47658E-01
15	1.32102E-02	9.36678E-02	1.16374E-01	7.15558E-02	1.06822E-01	2.00328E-01	1.97690E-01	1.47759E-01
16	1.32856E-02	9.44619E-02	1.17391E-01	7.22008E-02	1.07856E-01	2.02168E-01	1.98781E-01	1.47929E-01
17	1.33599E-02	9.52521E-02	1.18407E-01	7.28489E-02	1.08866E-01	2.04060E-01	1.99922E-01	1.48126E-01
18	1.34189E-02	9.58923E-02	1.19240E-01	7.33843E-02	1.09731E-01	2.05695E-01	2.00988E-01	1.48330E-01
19	1.34703E-02	9.64605E-02	1.19988E-01	7.38685E-02	1.10521E-01	2.07221E-01	2.01904E-01	1.48542E-01
20	1.35004E-02	9.68017E-02	1.20445E-01	7.41670E-02	1.11015E-01	2.08208E-01	2.02542E-01	1.48697E-01
21	1.35193E-02	9.70209E-02	1.20743E-01	7.43634E-02	1.11344E-01	2.08873E-01	2.02986E-01	1.48813E-01
22	1.35314E-02	9.71639E-02	1.20942E-01	7.44944E-02	1.11565E-01	2.09338E-01	2.03300E-01	1.48900E-01
23	1.35389E-02	9.72558E-02	1.21071E-01	7.45805E-02	1.11712E-01	2.09654E-01	2.03517E-01	1.48962E-01
24	1.35433E-02	9.73106E-02	1.21150E-01	7.46331E-02	1.11803E-01	2.09855E-01	2.03658E-01	1.49004E-01
25	1.35452E-02	9.73356E-02	1.21187E-01	7.46582E-02	1.11848E-01	2.09959E-01	2.03732E-01	1.49025E-01
26	1.35448E-02	9.73324E-02	1.21185E-01	7.46570E-02	1.11848E-01	2.09966E-01	2.03738E-01	1.49025E-01
27	1.35430E-02	9.73125E-02	1.21159E-01	7.46395E-02	1.11819E-01	2.09911E-01	2.03701E-01	1.49012E-01
28	1.35405E-02	9.72826E-02	1.21119E-01	7.46130E-02	1.11775E-01	2.09821E-01	2.03638E-01	1.48992E-01

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.15956E-01	1.07187E-01	1.00969E-01	6.54718E-02	5.58986E-02	5.32164E-02	2.89961E-02	1.60417E-02
2	1.15957E-01	1.07188E-01	1.00973E-01	6.54768E-02	5.59035E-02	5.32235E-02	2.89984E-02	1.60428E-02
3	1.15955E-01	1.07180E-01	1.00952E-01	6.54529E-02	5.58809E-02	5.31902E-02	2.89919E-02	1.60391E-02
4	1.15951E-01	1.07159E-01	1.00903E-01	6.53954E-02	5.58266E-02	5.31100E-02	2.89757E-02	1.60301E-02
5	1.15944E-01	1.07126E-01	1.00828E-01	6.53077E-02	5.57441E-02	5.29880E-02	2.89514E-02	1.60166E-02
6	1.15935E-01	1.07082E-01	1.00726E-01	6.51885E-02	5.56325E-02	5.28225E-02	2.89198E-02	1.59986E-02
7	1.15923E-01	1.07029E-01	1.00591E-01	6.50325E-02	5.54868E-02	5.26060E-02	2.88797E-02	1.59756E-02
8	1.15909E-01	1.06944E-01	1.00412E-01	6.48263E-02	5.52961E-02	5.23214E-02	2.88259E-02	1.59461E-02
9	1.15900E-01	1.06870E-01	1.00244E-01	6.46342E-02	5.51190E-02	5.20562E-02	2.87838E-02	1.59191E-02
10	1.15901E-01	1.06800E-01	1.00085E-01	6.44593E-02	5.49588E-02	5.18154E-02	2.87442E-02	1.58950E-02
11	1.15906E-01	1.06746E-01	9.99662E-02	6.43221E-02	5.48316E-02	5.16254E-02	2.87095E-02	1.58748E-02
12	1.15902E-01	1.06726E-01	9.99203E-02	6.42684E-02	5.47795E-02	5.15498E-02	2.86904E-02	1.58651E-02
13	1.15857E-01	1.06699E-01	9.98577E-02	6.41862E-02	5.47045E-02	5.14358E-02	2.86743E-02	1.58550E-02
14	1.15787E-01	1.06637E-01	9.97149E-02	6.40080E-02	5.45462E-02	5.11929E-02	2.86477E-02	1.58357E-02
15	1.15711E-01	1.06532E-01	9.94808E-02	6.37275E-02	5.42986E-02	5.08112E-02	2.86078E-02	1.58055E-02
16	1.15607E-01	1.06361E-01	9.90930E-02	6.32655E-02	5.38895E-02	5.01786E-02	2.85346E-02	1.57539E-02

17	1.15513E-01	1.06191E-01	9.87054E-02	6.28037E-02	5.34751E-02	4.95426E-02	2.84473E-02	1.56977E-02
18	1.15447E-01	1.06047E-01	9.85739E-02	6.24095E-02	5.31127E-02	4.89984E-02	2.83531E-02	1.56427E-02
19	1.15394E-01	1.05915E-01	9.80647E-02	6.20423E-02	5.27697E-02	4.84907E-02	2.82532E-02	1.55869E-02
20	1.15370E-01	1.05831E-01	9.78648E-02	6.18052E-02	5.25436E-02	4.81621E-02	2.81784E-02	1.55468E-02
21	1.15357E-01	1.05773E-01	9.77259E-02	6.16405E-02	5.23842E-02	4.79331E-02	2.81211E-02	1.55167E-02
22	1.15351E-01	1.05733E-01	9.76270E-02	6.15233E-02	5.22694E-02	4.77697E-02	2.80775E-02	1.54941E-02
23	1.15348E-01	1.05705E-01	9.75567E-02	6.14400E-02	5.21873E-02	4.76534E-02	2.80453E-02	1.54775E-02
24	1.15346E-01	1.05686E-01	9.75089E-02	6.13832E-02	5.21312E-02	4.75742E-02	2.80233E-02	1.54662E-02
25	1.15344E-01	1.05674E-01	9.74803E-02	6.13494E-02	5.20982E-02	4.75272E-02	2.80108E-02	1.54598E-02
26	1.15342E-01	1.05670E-01	9.74712E-02	6.13385E-02	5.20885E-02	4.75128E-02	2.80088E-02	1.54587E-02
27	1.15340E-01	1.05672E-01	9.74764E-02	6.13452E-02	5.20962E-02	4.75230E-02	2.80141E-02	1.54613E-02
28	1.15337E-01	1.05677E-01	9.74919E-02	6.13637E-02	5.21158E-02	4.75497E-02	2.80239E-02	1.54662E-02

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	6.99978E-03	5.26373E-03	1.05900E-02	3.52499E-02	1.07385E-02	2.23971E-02	7.57244E-02	6.21490E-02
2	7.00052E-03	5.26524E-03	1.05913E-02	3.52526E-02	1.07394E-02	2.23989E-02	7.57195E-02	6.21346E-02
3	6.99729E-03	5.25695E-03	1.05852E-02	3.52389E-02	1.07286E-02	2.23638E-02	7.56031E-02	6.20099E-02
4	6.98948E-03	5.23696E-03	1.05706E-02	3.52044E-02	1.07031E-02	2.22840E-02	7.53472E-02	6.17416E-02
5	6.97759E-03	5.20623E-03	1.05484E-02	3.51538E-02	1.06647E-02	2.21640E-02	7.49676E-02	6.13446E-02
6	6.96147E-03	5.16406E-03	1.05185E-02	3.50860E-02	1.06126E-02	2.20018E-02	7.44619E-02	6.08158E-02
7	6.94088E-03	5.10817E-03	1.04796E-02	3.49988E-02	1.05446E-02	2.17906E-02	7.38175E-02	6.01437E-02
8	6.91264E-03	5.03350E-03	1.04289E-02	3.48866E-02	1.04553E-02	2.15148E-02	7.30052E-02	5.92999E-02
9	6.88676E-03	4.96309E-03	1.03819E-02	3.47837E-02	1.03720E-02	2.12593E-02	7.22709E-02	5.85468E-02
10	6.86317E-03	4.89835E-03	1.03395E-02	3.46919E-02	1.02958E-02	2.10282E-02	7.16342E-02	5.78995E-02
11	6.84447E-03	4.84881E-03	1.03056E-02	3.46180E-02	1.02374E-02	2.08542E-02	7.11707E-02	5.74486E-02
12	6.83698E-03	4.83123E-03	1.02915E-02	3.45864E-02	1.02170E-02	2.07961E-02	7.10275E-02	5.73339E-02
13	6.82606E-03	4.79869E-03	1.02729E-02	3.45462E-02	1.01885E-02	2.06894E-02	7.07517E-02	5.70489E-02
14	6.80256E-03	4.72549E-03	1.02336E-02	3.44644E-02	1.01307E-02	2.04477E-02	7.01395E-02	5.63993E-02
15	6.76534E-03	4.60961E-03	1.01721E-02	3.43384E-02	1.01860E-02	2.00716E-02	6.92446E-02	5.54712E-02
16	6.70403E-03	4.40664E-03	1.00698E-02	3.41300E-02	9.98748E-03	1.94515E-02	6.78571E-02	5.40931E-02
17	6.64270E-03	4.20615E-03	9.96401E-03	3.39106E-02	9.79105E-03	1.88370E-02	6.64655E-02	5.27168E-02
18	6.59002E-03	4.05544E-03	9.86791E-03	3.37022E-02	9.62549E-03	1.83261E-02	6.51270E-02	5.13972E-02
19	6.54066E-03	3.92709E-03	9.77531E-03	3.34945E-02	9.47172E-03	1.78557E-02	6.37816E-02	5.00666E-02
20	6.50834E-03	3.85355E-03	9.71287E-03	3.33482E-02	9.37240E-03	1.75547E-02	6.28230E-02	4.91165E-02
21	6.48561E-03	3.80636E-03	9.66831E-03	3.32408E-02	9.30286E-03	1.73448E-02	6.21049E-02	4.84048E-02
22	6.46927E-03	3.77483E-03	9.63594E-03	3.31598E-02	9.25290E-03	1.71943E-02	6.15611E-02	4.78666E-02
23	6.45760E-03	3.75339E-03	9.61264E-03	3.31007E-02	9.21697E-03	1.70857E-02	6.11532E-02	4.74630E-02
24	6.44964E-03	3.73911E-03	9.59663E-03	3.30596E-02	9.19215E-03	1.70102E-02	6.08584E-02	4.71701E-02
25	6.44496E-03	3.73041E-03	9.58707E-03	3.30350E-02	9.17665E-03	1.69621E-02	6.06639E-02	4.69733E-02
26	6.44361E-03	3.72671E-03	9.58407E-03	3.30282E-02	9.17047E-03	1.69405E-02	6.05687E-02	4.68682E-02
27	6.44524E-03	3.72705E-03	9.58669E-03	3.30337E-02	9.17174E-03	1.69409E-02	6.05589E-02	4.68645E-02
28	6.44800E-03	3.73028E-03	9.59197E-03	3.30477E-02	9.17816E-03	1.69569E-02	6.06100E-02	4.68777E-02

0 int.	grp. 25	grp. 26	grp. 27
1	2.81217E-02	2.02933E-02	3.85498E-03
2	2.81110E-02	2.02814E-02	3.85212E-03
3	2.80442E-02	2.02229E-02	3.84012E-03
4	2.79023E-02	2.00993E-02	3.81469E-03
5	2.76920E-02	1.99151E-02	3.77623E-03
6	2.74114E-02	1.96672E-02	3.72358E-03
7	2.70550E-02	1.93497E-02	3.65472E-03
8	2.66095E-02	1.89496E-02	3.56892E-03
9	2.62144E-02	1.85931E-02	3.48563E-03
10	2.58796E-02	1.82886E-02	3.41665E-03
11	2.56557E-02	1.80930E-02	3.37492E-03
12	2.56077E-02	1.80633E-02	3.37213E-03
13	2.54485E-02	1.79169E-02	3.35282E-03
14	2.50858E-02	1.75694E-02	3.29808E-03
15	2.45809E-02	1.70788E-02	3.09726E-03
16	2.38500E-02	1.63782E-02	2.89161E-03
17	2.31323E-02	1.57165E-02	2.71461E-03
18	2.24490E-02	1.51197E-02	2.58104E-03

19	2.17641E-02	1.45404E-02	2.46055E-03
20	2.12802E-02	1.41490E-02	2.38726E-03
21	2.09215E-02	1.38691E-02	2.33791E-03
22	2.06531E-02	1.36661E-02	2.30572E-03
23	2.04535E-02	1.35186E-02	2.27948E-03
24	2.03094E-02	1.34140E-02	2.26261E-03
25	2.02119E-02	1.33437E-02	2.25142E-03
26	2.01574E-02	1.33032E-02	2.24497E-03
27	2.01415E-02	1.32888E-02	2.24254E-03
28	2.01520E-02	1.32919E-02	2.24244E-03

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	5.04510E-04	6.67761E-04	5.56019E-05	-7.23328E-04	9.99953E-01
2	.00000E+00	.00000E+00	3.83148E-04	6.16418E-03	8.10169E-03	1.76150E-04	-7.89438E-03	9.99963E-01
3	.00000E+00	.00000E+00	3.84799E-03	5.46596E-03	1.42214E-02	9.28018E-05	-1.04659E-02	9.99978E-01
4	.00000E+00	.00000E+00	5.59085E-03	3.60098E-03	1.25726E-02	4.20252E-05	-6.82364E-03	9.99988E-01
5	.00000E+00	.00000E+00	1.02689E-02	1.15287E-02	2.08865E-02	4.96820E-05	-1.06671E-02	9.99992E-01
6	.00000E+00	.00000E+00	2.15106E-02	3.45000E-02	4.10034E-02	8.42975E-05	-1.95771E-02	9.99999E-01
7	.00000E+00	.00000E+00	4.22446E-02	6.09745E-02	5.41408E-02	6.12258E-05	-1.19568E-02	9.99988E-01
8	.00000E+00	.00000E+00	5.63661E-02	7.83630E-02	5.87581E-02	3.64106E-05	-2.42325E-03	9.99912E-01
9	.00000E+00	.00000E+00	5.77976E-02	7.26404E-02	5.75244E-02	2.92873E-05	2.50246E-04	9.99890E-01
10	.00000E+00	.00000E+00	5.71018E-02	6.92160E-02	5.56253E-02	3.60861E-05	1.44639E-03	9.99894E-01
11	.00000E+00	.00000E+00	5.59047E-02	6.56589E-02	5.24190E-02	5.52110E-05	3.43382E-03	9.99939E-01
12	.00000E+00	.00000E+00	4.54492E-02	3.51301E-02	4.13349E-02	6.05084E-05	4.05481E-03	9.99978E-01
13	.00000E+00	.00000E+00	4.06016E-02	2.85832E-02	3.66561E-02	8.46726E-05	3.86204E-03	9.99970E-01
14	.00000E+00	.00000E+00	3.94906E-02	2.81708E-02	3.36515E-02	1.35950E-04	5.70361E-03	9.99988E-01
15	.00000E+00	.00000E+00	2.16591E-02	1.08422E-02	2.03118E-02	1.12496E-04	1.23565E-03	9.99961E-01
16	.00000E+00	.00000E+00	1.42107E-02	4.56608E-03	1.34521E-02	7.61473E-05	6.82897E-04	9.99972E-01
17	.00000E+00	.00000E+00	7.29140E-03	1.28544E-03	6.68810E-03	3.67973E-05	5.66708E-04	9.99972E-01
18	.00000E+00	.00000E+00	6.45842E-03	9.19768E-04	5.02580E-03	2.87800E-05	1.40390E-03	9.99990E-01
19	.00000E+00	.00000E+00	1.05662E-02	2.87901E-03	9.55519E-03	6.44814E-05	1.03678E-03	9.99977E-01
20	.00000E+00	.00000E+00	2.60612E-02	2.07213E-02	2.34283E-02	2.70250E-04	2.36309E-03	9.99986E-01
21	.00000E+00	.00000E+00	1.24522E-02	4.10951E-03	1.06907E-02	1.03060E-04	1.65858E-03	9.99983E-01
22	.00000E+00	.00000E+00	2.45964E-02	1.25329E-02	1.95089E-02	2.40724E-04	4.85135E-03	1.00002E+00
23	.00000E+00	.00000E+00	6.35782E-02	7.65646E-02	5.02779E-02	1.11145E-03	1.21839E-02	1.00005E+00
24	.00000E+00	.00000E+00	6.78364E-02	7.24320E-02	5.59109E-02	1.31776E-03	1.06050E-02	1.00004E+00
25	.00000E+00	.00000E+00	4.51868E-02	3.07501E-02	3.95600E-02	7.81536E-04	4.84419E-03	1.00002E+00
26	.00000E+00	.00000E+00	3.61066E-02	3.43883E-02	3.17622E-02	7.95286E-04	3.54856E-03	1.00002E+00
27	.00000E+00	.00000E+00	1.22538E-02	7.46532E-03	1.13726E-02	2.84159E-04	5.97017E-04	1.00000E+00
28	.00000E+00	.00000E+00	7.84903E-01	7.79957E-01	7.84903E-01	6.22283E-03	-6.20299E-03	9.99975E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.30740E-02	-7.23328E-04	1.29571E-02	.00000E+00	3.69291E-11	.00000E+00	2.00132E-05	1.63473E-02
2	9.23472E-02	-7.89438E-03	9.08455E-02	.00000E+00	.00000E+00	.00000E+00	8.93467E-05	1.14968E-01
3	1.14755E-01	-1.04659E-02	1.12588E-01	.00000E+00	.00000E+00	.00000E+00	9.23722E-05	1.42631E-01
4	7.05999E-02	-6.82364E-03	6.90441E-02	.00000E+00	.00000E+00	.00000E+00	4.17695E-05	8.75769E-02
5	1.05379E-01	-1.06671E-02	1.02781E-01	.00000E+00	.00000E+00	.00000E+00	4.95889E-05	1.30518E-01
6	1.97696E-01	-1.95771E-02	1.92851E-01	.00000E+00	.00000E+00	.00000E+00	8.34278E-05	2.44892E-01
7	1.96151E-01	-1.19568E-02	1.93118E-01	.00000E+00	.00000E+00	.00000E+00	5.92818E-05	2.44303E-01
8	1.47433E-01	-2.42325E-03	1.47011E-01	.00000E+00	.00000E+00	.00000E+00	3.27300E-05	1.85001E-01
9	1.15904E-01	2.50246E-04	1.15956E-01	.00000E+00	.00000E+00	.00000E+00	2.16822E-05	1.45675E-01
10	1.06760E-01	1.44639E-03	1.07184E-01	.00000E+00	.00000E+00	.00000E+00	1.91735E-05	1.34466E-01
11	9.99994E-02	3.43382E-03	1.00961E-01	.00000E+00	.00000E+00	.00000E+00	1.79254E-05	1.26353E-01
12	6.43590E-02	4.05481E-03	6.54629E-02	.00000E+00	.00000E+00	.00000E+00	1.05224E-05	8.16613E-02
13	5.48671E-02	3.86204E-03	5.58900E-02	.00000E+00	.00000E+00	.00000E+00	8.74912E-06	6.96722E-02
14	5.16774E-02	5.70361E-03	5.32088E-02	.00000E+00	.00000E+00	.00000E+00	8.45942E-06	6.60231E-02
15	2.87206E-02	1.23565E-03	2.89915E-02	.00000E+00	.00000E+00	.00000E+00	4.46673E-06	3.62800E-02
16	1.58805E-02	6.82897E-04	1.60393E-02	.00000E+00	.00000E+00	.00000E+00	2.23451E-06	2.00681E-02
17	6.84927E-03	5.66708E-04	6.99815E-03	.00000E+00	.00000E+00	.00000E+00	8.91854E-07	8.71339E-03
18	4.86091E-03	1.40390E-03	5.26061E-03	.00000E+00	.00000E+00	.00000E+00	6.38581E-07	6.39540E-03

19	1.03147E-02	1.03678E-03	1.05871E-02	.00000E+00	.00000E+00	.00000E+00	1.37643E-06	1.31547E-02
20	3.46379E-02	2.36309E-03	3.52432E-02	.00000E+00	.00000E+00	.00000E+00	5.15148E-06	4.39514E-02
21	1.04515E-02	1.65858E-03	1.09349E-02	.00000E+00	.00000E+00	.00000E+00	1.23561E-06	1.34758E-02
22	2.08960E-02	4.85135E-03	2.23888E-02	.00000E+00	.00000E+00	.00000E+00	2.49604E-06	2.73040E-02
23	7.12707E-02	1.21839E-02	7.57016E-02	.00000E+00	.00000E+00	.00000E+00	7.63495E-06	9.25676E-02
24	5.75309E-02	1.06050E-02	6.21325E-02	.00000E+00	.00000E+00	.00000E+00	4.62083E-06	7.53854E-02
25	2.56907E-02	4.84419E-03	2.81161E-02	.00000E+00	.00000E+00	.00000E+00	1.60526E-06	3.38993E-02
26	1.81170E-02	3.54856E-03	2.02911E-02	.00000E+00	.00000E+00	.00000E+00	8.47061E-07	2.42219E-02
27	3.37778E-03	5.97017E-04	3.85506E-03	.00000E+00	.00000E+00	.00000E+00	9.98282E-08	4.56914E-03
28	1.73960E+00	-6.20296E-03	1.74639E+00	.00000E+00	3.69291E-11	.00000E+00	5.88141E-04	2.19007E+00

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.23088E-04	1.67253E-04	2.50875E-06	-1.63776E-04	1.00001E+00
2	.00000E+00	.00000E+00	2.92068E-05	1.46077E-03	1.04817E-03	1.40696E-05	-1.03305E-03	1.00000E+00
3	.00000E+00	.00000E+00	1.50721E-04	2.77156E-03	8.76337E-04	2.02812E-05	-7.45839E-04	9.99995E-01
4	.00000E+00	.00000E+00	2.87481E-04	2.30585E-03	2.98558E-04	1.31034E-05	-2.41627E-05	9.99997E-01
5	.00000E+00	.00000E+00	6.18142E-04	4.41802E-03	2.79406E-04	1.68695E-05	3.21851E-04	1.00000E+00
6	.00000E+00	.00000E+00	1.02416E-03	1.24062E-02	1.69503E-04	2.70703E-05	8.27594E-04	1.00000E+00
7	.00000E+00	.00000E+00	6.73362E-04	1.25980E-02	6.33138E-05	2.68186E-05	5.85230E-04	1.00000E+00
8	.00000E+00	.00000E+00	1.17530E-04	9.20975E-03	4.43464E-04	2.21164E-05	-3.48079E-04	1.00001E+00
9	.00000E+00	.00000E+00	4.45309E-04	6.36202E-03	5.30344E-05	7.67387E-05	3.15545E-04	9.99987E-01
10	.00000E+00	.00000E+00	5.30996E-05	4.99152E-03	4.95246E-05	5.98821E-05	-5.58123E-05	1.00000E+00
11	.00000E+00	.00000E+00	4.95279E-05	4.45974E-03	5.03662E-05	9.01200E-05	-9.09623E-05	1.00000E+00
12	.00000E+00	.00000E+00	5.03665E-05	2.76454E-03	5.14333E-05	5.67973E-06	-6.74743E-06	1.00000E+00
13	.00000E+00	.00000E+00	5.14334E-05	2.35753E-03	4.80920E-05	6.31695E-06	-2.97604E-06	1.00000E+00
14	.00000E+00	.00000E+00	4.80921E-05	2.22465E-03	4.19238E-05	8.49585E-06	-2.32784E-06	1.00000E+00
15	.00000E+00	.00000E+00	4.45076E-05	1.21206E-03	4.96056E-05	6.27696E-06	-1.13790E-05	1.00000E+00
16	.00000E+00	.00000E+00	5.55508E-05	6.41699E-04	5.55914E-05	3.80325E-06	-3.84630E-06	1.00000E+00
17	.00000E+00	.00000E+00	6.03665E-05	2.41195E-04	5.95707E-05	1.79259E-06	-7.95196E-07	9.99994E-01
18	.00000E+00	.00000E+00	6.23429E-05	1.60750E-04	5.19055E-05	1.33832E-06	9.10077E-06	9.99999E-01
19	.00000E+00	.00000E+00	5.37654E-05	3.94315E-04	5.81776E-05	3.05978E-06	-7.46769E-06	9.99996E-01
20	.00000E+00	.00000E+00	7.09980E-05	1.45834E-03	6.19994E-05	1.25378E-05	-3.53763E-06	9.99997E-01
21	.00000E+00	.00000E+00	8.15146E-05	3.69810E-04	8.83341E-05	4.58408E-06	-1.13980E-05	9.99997E-01
22	.00000E+00	.00000E+00	1.16403E-04	8.07124E-04	1.07869E-04	1.04215E-05	-1.82679E-06	9.99988E-01
23	.00000E+00	.00000E+00	1.66569E-04	2.91009E-03	2.13649E-04	4.75308E-05	-9.46401E-05	1.00000E+00
24	.00000E+00	.00000E+00	2.75410E-04	2.21755E-03	3.04325E-04	5.44330E-05	-8.34102E-05	1.00001E+00
25	.00000E+00	.00000E+00	2.81808E-04	8.95630E-04	2.30523E-04	3.16952E-05	1.95573E-05	1.00001E+00
26	.00000E+00	.00000E+00	1.19951E-04	7.01566E-04	9.27138E-05	3.14948E-05	-4.27151E-06	1.00000E+00
27	.00000E+00	.00000E+00	2.68834E-05	1.48149E-04	7.63316E-08	1.09913E-05	1.58114E-05	1.00001E+00
28	.00000E+00	.00000E+00	5.01450E-03	8.07095E-02	5.01450E-03	6.09531E-04	-6.03612E-04	1.00001E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	nžn rate	fiss rate	flux*adj**2	total flux
1	1.31006E-02	-8.87104E-04	1.30740E-02	-7.23328E-04	5.97506E-06	.00000E+00	1.65175E-06	2.18126E-03
2	9.26127E-02	-8.92743E-03	9.23472E-02	-7.89438E-03	.00000E+00	.00000E+00	1.11676E-05	1.54150E-02
3	1.15103E-01	-1.12117E-02	1.14755E-01	-1.04689E-02	.00000E+00	.00000E+00	1.27008E-05	1.91588E-02
4	7.08166E-02	-6.84780E-03	7.05999E-02	-6.82364E-03	.00000E+00	.00000E+00	7.44280E-06	1.17886E-02
5	1.05718E-01	-1.03452E-02	1.05379E-01	-1.06671E-02	.00000E+00	.00000E+00	8.63880E-06	1.75985E-02
6	1.98369E-01	-1.87495E-02	1.97696E-01	-1.95771E-02	.00000E+00	.00000E+00	1.01766E-05	3.30194E-02
7	1.96556E-01	-1.13736E-02	1.96151E-01	-1.19568E-02	.00000E+00	.00000E+00	8.35461E-06	3.27359E-02
8	1.47521E-01	-2.77132E-03	1.47433E-01	-2.42525E-03	.00000E+00	.00000E+00	5.27569E-06	2.45822E-02
9	1.15894E-01	5.65790E-04	1.15904E-01	2.50246E-04	.00000E+00	.00000E+00	4.58652E-06	1.93196E-02
10	1.06721E-01	1.39058E-03	1.06760E-01	1.44639E-03	.00000E+00	.00000E+00	4.91381E-06	1.77914E-02
11	9.99075E-02	3.34286E-03	9.99994E-02	3.43382E-03	.00000E+00	.00000E+00	4.76975E-06	1.66591E-02
12	6.42518E-02	4.04806E-03	6.43590E-02	4.05481E-03	.00000E+00	.00000E+00	3.21838E-06	1.07171E-02
13	5.47628E-02	3.85906E-03	5.48671E-02	3.86204E-03	.00000E+00	.00000E+00	2.73753E-06	9.13528E-03
14	5.15252E-02	5.70129E-03	5.16774E-02	5.70861E-03	.00000E+00	.00000E+00	2.57040E-06	8.59881E-03
15	2.86823E-02	1.22427E-03	2.87205E-02	1.23565E-03	.00000E+00	.00000E+00	1.40948E-06	4.78387E-03
16	1.58612E-02	6.79060E-04	1.58805E-02	6.82897E-04	.00000E+00	.00000E+00	7.79422E-07	2.64530E-03
17	6.83429E-03	5.65915E-04	6.84927E-03	5.66708E-04	.00000E+00	.00000E+00	3.35805E-07	1.14025E-03
18	4.82575E-03	1.41300E-03	4.86091E-03	1.40890E-03	.00000E+00	.00000E+00	2.37513E-07	8.06744E-04
19	1.02866E-02	1.02931E-03	1.03147E-02	1.03678E-03	.00000E+00	.00000E+00	5.05165E-07	1.71661E-03

20	3.45746E-02	2.35955E-03	3.46379E-02	2.36309E-03	.00000E+00	.00000E+00	1.69494E-06	5.76768E-03
21	1.04109E-02	1.64718E-03	1.04515E-02	1.65858E-03	.00000E+00	.00000E+00	5.09913E-07	1.73805E-03
22	2.07798E-02	4.84952E-03	2.08960E-02	4.85135E-03	.00000E+00	.00000E+00	1.01706E-06	3.47119E-03
23	7.09843E-02	1.20892E-02	7.12707E-02	1.21839E-02	.00000E+00	.00000E+00	3.46012E-06	1.18511E-02
24	5.73016E-02	1.05216E-02	5.75309E-02	1.06050E-02	.00000E+00	.00000E+00	2.77605E-06	9.56620E-03
25	2.55947E-02	4.86374E-03	2.56907E-02	4.84419E-03	.00000E+00	.00000E+00	1.25246E-06	4.27240E-03
26	1.80577E-02	3.54429E-03	1.81170E-02	3.54856E-03	.00000E+00	.00000E+00	8.60109E-07	3.01335E-03
27	3.37218E-03	6.12828E-04	3.37776E-03	5.97017E-04	.00000E+00	.00000E+00	1.55587E-07	5.62318E-04
28	1.74042E+00	-6.80663E-03	1.73960E+00	-6.20296E-03	5.97506E-06	.00000E+00	1.03178E-04	2.90036E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.67474E-04	3.54023E-04	2.94782E-05	-3.85484E-04	9.99986E-01
2	.00000E+00	.00000E+00	2.08132E-04	3.29036E-03	4.32458E-03	9.40265E-05	-4.21532E-03	9.99988E-01
3	.00000E+00	.00000E+00	2.05364E-03	2.92198E-03	7.60229E-03	4.96085E-05	-5.59809E-03	9.99991E-01
4	.00000E+00	.00000E+00	2.98767E-03	1.92786E-03	6.62392E-03	2.24979E-05	-3.65867E-03	9.99994E-01
5	.00000E+00	.00000E+00	5.49275E-03	6.18193E-03	1.11998E-02	2.66405E-05	-5.73358E-03	9.99996E-01
6	.00000E+00	.00000E+00	1.15223E-02	1.84943E-02	2.19806E-02	4.51890E-05	-1.05085E-02	1.00000E+00
7	.00000E+00	.00000E+00	2.26403E-02	3.23952E-02	2.87627E-02	3.25267E-05	-6.15459E-03	9.99991E-01
8	.00000E+00	.00000E+00	2.99969E-02	4.11733E-02	3.08725E-02	1.91308E-05	-8.92048E-04	9.99919E-01
9	.00000E+00	.00000E+00	3.04304E-02	3.80044E-02	3.00960E-02	1.53227E-05	3.22407E-04	9.99893E-01
10	.00000E+00	.00000E+00	2.99079E-02	3.61271E-02	2.90335E-02	1.88350E-05	8.58774E-04	9.99900E-01
11	.00000E+00	.00000E+00	2.91981E-02	3.40957E-02	2.72207E-02	2.85705E-05	1.95049E-03	9.99946E-01
12	.00000E+00	.00000E+00	2.36271E-02	1.81134E-02	2.13127E-02	3.11988E-05	2.28369E-03	9.99982E-01
13	.00000E+00	.00000E+00	2.09892E-02	1.47201E-02	1.88778E-02	4.36057E-05	2.06864E-03	9.99974E-01
14	.00000E+00	.00000E+00	2.03649E-02	1.43616E-02	1.71560E-02	6.93090E-05	3.13989E-03	9.99991E-01
15	.00000E+00	.00000E+00	1.10848E-02	5.63445E-03	1.05556E-02	5.84617E-05	4.71198E-04	9.99962E-01
16	.00000E+00	.00000E+00	7.32352E-03	2.37109E-03	6.98545E-03	3.95420E-05	2.98753E-04	9.99972E-01
17	.00000E+00	.00000E+00	3.76259E-03	6.60032E-04	3.43412E-03	1.88942E-05	3.09684E-04	9.99975E-01
18	.00000E+00	.00000E+00	3.33065E-03	4.45639E-04	2.43506E-03	1.39442E-05	8.81677E-04	9.99994E-01
19	.00000E+00	.00000E+00	5.45331E-03	1.47294E-03	4.88858E-03	3.29896E-05	5.31881E-04	9.99979E-01
20	.00000E+00	.00000E+00	1.33362E-02	1.06900E-02	1.20864E-02	1.39420E-04	1.11058E-03	9.99985E-01
21	.00000E+00	.00000E+00	6.35607E-03	2.06524E-03	5.37266E-03	5.17930E-05	9.31733E-04	9.99986E-01
22	.00000E+00	.00000E+00	1.24484E-02	6.16087E-03	9.58764E-03	1.18334E-04	2.74224E-03	1.00001E+00
23	.00000E+00	.00000E+00	3.14738E-02	3.81199E-02	2.50323E-02	5.53369E-04	5.88688E-03	1.00008E+00
24	.00000E+00	.00000E+00	3.33394E-02	3.55915E-02	2.74734E-02	6.47516E-04	5.21752E-03	1.00008E+00
25	.00000E+00	.00000E+00	2.20632E-02	1.49598E-02	1.92201E-02	3.79707E-04	2.46298E-03	1.00002E+00
26	.00000E+00	.00000E+00	1.75554E-02	1.63585E-02	1.51093E-02	3.78517E-04	2.06758E-03	1.00001E+00
27	.00000E+00	.00000E+00	5.92781E-03	3.46074E-03	5.27208E-03	1.31729E-04	5.23982E-04	1.00000E+00
28	.00000E+00	.00000E+00	4.02870E-01	4.00043E-01	4.02870E-01	3.09006E-03	-3.07884E-03	9.99973E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.32375E-02	-1.27059E-03	1.31006E-02	-8.87104E-04	1.95785E-11	.00000E+00	1.06103E-05	8.66678E-03
2	9.39521E-02	-1.31427E-02	9.26127E-02	-8.92743E-03	.00000E+00	.00000E+00	4.76921E-05	6.13683E-02
3	1.16737E-01	-1.68098E-02	1.15103E-01	-1.12117E-02	.00000E+00	.00000E+00	4.95792E-05	7.62459E-02
4	7.17846E-02	-1.05065E-02	7.08166E-02	-6.84780E-03	.00000E+00	.00000E+00	2.23621E-05	4.68860E-02
5	1.07178E-01	-1.60788E-02	1.05718E-01	-1.03452E-02	.00000E+00	.00000E+00	2.64834E-05	6.99867E-02
6	2.09970E-01	-2.92530E-02	1.98369E-01	-1.87495E-02	.00000E+00	.00000E+00	4.47228E-05	1.31278E-01
7	1.98066E-01	-1.75281E-02	1.96556E-01	-1.13736E-02	.00000E+00	.00000E+00	3.14989E-05	1.29788E-01
8	1.47814E-01	-3.66337E-03	1.47521E-01	-2.77132E-03	.00000E+00	.00000E+00	1.71969E-05	9.72027E-02
9	1.15670E-01	8.88198E-04	1.15894E-01	5.65790E-04	.00000E+00	.00000E+00	1.13438E-05	7.62153E-02
10	1.06469E-01	2.24935E-03	1.06721E-01	1.39058E-03	.00000E+00	.00000E+00	1.00076E-05	7.01838E-02
11	9.95399E-02	5.29535E-03	9.99075E-02	3.34285E-03	.00000E+00	.00000E+00	9.30847E-06	6.56136E-02
12	6.35597E-02	6.33176E-03	6.42518E-02	4.04805E-03	.00000E+00	.00000E+00	5.42544E-06	4.21054E-02
13	5.41511E-02	5.92770E-03	5.47628E-02	3.85906E-03	.00000E+00	.00000E+00	4.50573E-06	3.58807E-02
14	5.05852E-02	8.84118E-03	5.15252E-02	5.70129E-03	.00000E+00	.00000E+00	4.31272E-06	3.36574E-02
15	2.85839E-02	1.69546E-03	2.86823E-02	1.22427E-03	.00000E+00	.00000E+00	2.32126E-06	1.88539E-02
16	1.57870E-02	9.77808E-04	1.58612E-02	6.79060E-04	.00000E+00	.00000E+00	1.16034E-06	1.04210E-02
17	6.74270E-03	8.75598E-04	6.83429E-03	5.69915E-04	.00000E+00	.00000E+00	4.57927E-07	4.47404E-03
18	4.53947E-03	2.29468E-03	4.82575E-03	1.41300E-03	.00000E+00	.00000E+00	3.09399E-07	3.09864E-03
19	1.01351E-02	1.56119E-03	1.02866E-02	1.02931E-03	.00000E+00	.00000E+00	7.04202E-07	6.73015E-03
20	3.42629E-02	3.47013E-03	3.45746E-02	2.35955E-03	.00000E+00	.00000E+00	2.65761E-06	2.26742E-02

21	1.01129E-02	2.57891E-03	1.04109E-02	1.64718E-03	.00000E+00	.00000E+00	6.20959E-07	6.77228E-03
22	1.98472E-02	7.59177E-03	2.07798E-02	4.84952E-03	.00000E+00	.00000E+00	1.22699E-06	1.34220E-02
23	6.87225E-02	1.79761E-02	7.09843E-02	1.20892E-02	.00000E+00	.00000E+00	3.80129E-06	4.60875E-02
24	5.49320E-02	1.57389E-02	5.73016E-02	1.05216E-02	.00000E+00	.00000E+00	2.27057E-06	3.70427E-02
25	2.42893E-02	7.32672E-03	2.55947E-02	4.86374E-03	.00000E+00	.00000E+00	7.79912E-07	1.64699E-02
26	1.67928E-02	5.61187E-03	1.80577E-02	3.54429E-03	.00000E+00	.00000E+00	4.02947E-07	1.15223E-02
27	3.01148E-03	1.13681E-03	3.37218E-03	6.12828E-04	.00000E+00	.00000E+00	4.62779E-08	2.11814E-03
28	1.73727E+00	-9.88547E-03	1.74042E+00	-6.80663E-03	1.95785E-11	.00000E+00	3.11604E-04	1.14477E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.32907E-02	.00000E+00	2.15981E-02	2.05148E-02	3.79999E-03	1.27058E-03	9.98905E-01
2	.00000E+00	1.94883E-01	7.10288E-03	2.51726E-01	1.73507E-01	1.53486E-02	1.31427E-02	1.00002E+00
3	.00000E+00	2.16031E-01	7.17082E-02	2.57985E-01	2.54706E-01	1.62264E-02	1.68097E-02	9.99989E-01
4	.00000E+00	1.23708E-01	1.05777E-01	1.76962E-01	2.11241E-01	7.73803E-03	1.05064E-02	1.00000E+00
5	.00000E+00	1.63830E-01	1.92574E-01	4.44771E-01	3.34967E-01	5.16145E-03	1.60787E-02	9.99990E-01
6	.00000E+00	1.76584E-01	3.91392E-01	1.19114E+00	5.30580E-01	8.13540E-03	2.92529E-02	1.00001E+00
7	.00000E+00	8.71931E-02	5.95645E-01	1.56400E+00	6.55240E-01	8.07672E-03	1.75290E-02	9.99989E-01
8	.00000E+00	1.34264E-02	6.89554E-01	1.57558E+00	6.86290E-01	1.30835E-02	3.66342E-03	9.99920E-01
9	.00000E+00	9.74272E-04	6.78380E-01	1.37263E+00	6.58684E-01	2.16321E-02	-8.97595E-04	9.99906E-01
10	.00000E+00	7.23618E-05	6.55693E-01	1.24970E+00	6.25453E-01	3.26288E-02	-2.24891E-03	9.99898E-01
11	.00000E+00	5.69250E-06	6.29467E-01	1.16465E+00	5.81327E-01	5.34754E-02	-5.29615E-03	9.99947E-01
12	.00000E+00	3.99916E-07	5.06309E-01	6.36473E-01	4.54183E-01	5.84704E-02	-6.33213E-03	9.99975E-01
13	.00000E+00	6.35030E-08	4.48841E-01	5.05227E-01	3.99411E-01	5.53707E-02	-5.92953E-03	9.99974E-01
14	.00000E+00	1.25846E-08	4.31262E-01	4.68528E-01	3.60423E-01	7.96850E-02	-8.84148E-03	9.99991E-01
15	.00000E+00	1.42220E-09	2.36696E-01	2.14619E-01	2.30314E-01	8.01925E-03	-1.69317E-03	1.00024E+00
16	.00000E+00	4.17607E-10	1.61569E-01	9.87491E-02	1.56194E-01	6.30966E-03	-9.76291E-04	1.00026E+00
17	.00000E+00	1.34490E-10	8.63537E-02	3.04912E-02	7.88587E-02	8.35307E-03	-8.71588E-04	1.00016E+00
18	.00000E+00	9.62907E-11	7.67666E-02	1.83898E-02	5.19267E-02	2.71259E-02	-2.29389E-03	1.00005E+00
19	.00000E+00	1.36134E-10	1.19175E-01	5.77618E-02	1.09517E-01	1.12012E-02	-1.55591E-03	1.00010E+00
20	.00000E+00	2.21369E-10	2.85464E-01	3.38005E-01	2.61112E-01	2.77545E-02	-3.46472E-03	1.00022E+00
21	.00000E+00	3.24012E-11	1.40025E-01	6.63100E-02	1.17220E-01	2.53680E-02	-2.57710E-03	1.00010E+00
22	.00000E+00	3.75928E-11	2.64641E-01	1.69624E-01	1.97581E-01	7.46177E-02	-7.59884E-03	1.00015E+00
23	.00000E+00	3.59429E-11	6.30940E-01	9.50573E-01	5.11078E-01	1.37696E-01	-1.79617E-02	1.00020E+00
24	.00000E+00	9.78520E-12	6.67393E-01	8.27379E-01	5.51983E-01	1.31037E-01	-1.57348E-02	1.00016E+00
25	.00000E+00	2.86388E-12	4.42915E-01	3.36617E-01	3.78280E-01	7.19151E-02	-7.32404E-03	1.00010E+00
26	.00000E+00	2.00817E-12	3.43672E-01	3.38860E-01	2.84041E-01	6.52141E-02	-5.61219E-03	1.00008E+00
27	.00000E+00	4.78557E-13	1.13558E-01	6.85610E-02	9.60378E-02	1.86526E-02	-1.13682E-03	1.00004E+00
28	.00000E+00	1.00000E+00	8.97067E+00	1.43969E+01	8.97067E+00	9.92100E-01	9.90674E-03	1.00003E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.35389E-02	-7.77195E-09	1.32375E-02	-1.27059E-03	2.26664E-03	2.52141E-03	2.98674E-04	3.44153E-01
2	9.72642E-02	-6.45417E-08	9.39521E-02	-1.31427E-02	1.57678E-05	1.10427E-02	1.59890E-03	2.46984E+00
3	1.21094E-01	-9.77021E-08	1.16737E-01	-1.68098E-02	.00000E+00	1.33204E-02	1.85303E-03	3.07408E+00
4	7.45965E-02	-8.01678E-08	7.17846E-02	-1.05065E-02	.00000E+00	5.70815E-03	8.85254E-04	1.89334E+00
5	1.11747E-01	-8.22760E-08	1.07178E-01	-1.60788E-02	.00000E+00	1.62672E-03	1.08252E-03	2.83516E+00
6	2.09764E-01	-6.88761E-08	2.00970E-01	-2.92530E-02	.00000E+00	1.33034E-03	1.73166E-03	5.32001E+00
7	2.08598E-01	8.54238E-07	1.98066E-01	-1.75281E-02	.00000E+00	1.25877E-03	1.22666E-03	5.17023E+00
8	1.48979E-01	5.02141E-08	1.47814E-01	-3.66337E-03	.00000E+00	1.25771E-03	6.98434E-04	3.79007E+00
9	1.15338E-01	-9.39736E-06	1.15670E-01	8.88198E-04	.00000E+00	1.66411E-03	4.71514E-04	2.95747E+00
10	1.05681E-01	4.43340E-07	1.05469E-01	2.24935E-03	.00000E+00	3.55418E-03	4.28867E-04	2.69300E+00
11	9.75028E-02	-2.80511E-06	9.95399E-02	5.29535E-03	.00000E+00	7.68478E-03	3.87139E-04	2.48761E+00
12	6.13761E-02	-3.70699E-07	6.35597E-02	6.33178E-03	.00000E+00	1.02455E-02	2.27869E-04	1.56867E+00
13	5.21291E-02	-1.63153E-06	5.41511E-02	5.92770E-03	.00000E+00	1.17766E-02	1.94428E-04	1.33287E+00
14	4.75676E-02	-3.01591E-07	5.05832E-02	8.84118E-03	.00000E+00	7.40263E-03	1.73596E-04	1.21929E+00
15	2.80289E-02	2.29467E-06	2.85838E-02	1.69546E-03	.00000E+00	1.73351E-03	1.10520E-04	7.15444E-01
16	1.54686E-02	1.51225E-06	1.57870E-02	9.77803E-04	.00000E+00	1.22133E-03	5.70208E-05	3.94820E-01
17	6.44890E-03	4.01001E-06	6.74270E-03	8.75598E-04	.00000E+00	1.40452E-03	2.10229E-05	1.65011E-01
18	3.75240E-03	7.91146E-07	4.53947E-03	2.29468E-03	.00000E+00	9.99567E-04	8.52702E-06	9.69296E-02
19	9.59424E-03	5.28060E-06	1.01351E-02	1.56119E-03	.00000E+00	2.24225E-03	3.20494E-05	2.45872E-01
20	3.30550E-02	5.40600E-06	3.42629E-02	3.47013E-03	.00000E+00	1.40957E-02	1.21869E-04	8.45408E-01
21	9.18212E-03	1.81122E-06	1.01129E-02	2.57891E-03	.00000E+00	1.46585E-02	2.55299E-05	2.36449E-01

22	1.69691E-02	-7.07403E-06	1.98472E-02	7.59177E-03	.00000E+00	4.34662E-02	4.33671E-05	4.40348E-01
23	6.06425E-02	1.43647E-05	6.87225E-02	1.79761E-02	.00000E+00	7.66330E-02	1.62200E-04	1.57315E+00
24	4.69019E-02	4.10178E-06	5.49520E-02	1.57389E-02	.00000E+00	7.14206E-02	9.90671E-05	1.22418E+00
25	2.01605E-02	2.68412E-06	2.42893E-02	7.32672E-03	.00000E+00	4.08034E-02	3.40254E-05	5.28740E-01
26	1.32954E-02	-3.23816E-07	1.67928E-02	5.61187E-03	.00000E+00	3.75268E-02	1.68204E-05	3.50725E-01
27	2.26254E-03	-9.92357E-09	3.01148E-03	1.13681E-03	.00000E+00	1.05782E-02	1.73149E-06	5.93197E-02
28	1.72590E+00	2.13532E-05	1.73727E+00	-9.88547E-03	2.28240E-03	3.97176E-01	1.19219E-02	4.40122E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.32907E-02	.00000E+00	2.25952E-02	2.17038E-02	3.88758E-03	-7.77195E-09	9.98903E-01
2	.00000E+00	1.94883E-01	7.71837E-03	2.62641E-01	1.86981E-01	1.56328E-02	-6.45417E-08	1.00002E+00
3	.00000E+00	2.16031E-01	7.77606E-02	2.69145E-01	2.77406E-01	1.63891E-02	-9.77021E-08	9.99987E-01
4	.00000E+00	1.23708E-01	1.14643E-01	1.84797E-01	2.30536E-01	7.81565E-03	-8.01678E-08	9.99999E-01
5	.00000E+00	1.63830E-01	2.08753E-01	4.66899E-01	3.67333E-01	5.25464E-03	-8.22760E-08	9.99990E-01
6	.00000E+00	1.76584E-01	4.25450E-01	1.25654E+00	5.95734E-01	8.29196E-03	-6.88761E-08	1.00001E+00
7	.00000E+00	8.71931E-02	6.59203E-01	1.66997E+00	7.38207E-01	8.19729E-03	8.54238E-07	9.99988E-01
8	.00000E+00	1.34264E-02	7.76085E-01	1.70433E+00	7.76364E-01	1.31612E-02	5.02141E-08	9.99919E-01
9	.00000E+00	9.74272E-04	7.67053E-01	1.48963E+00	7.46357E-01	2.17535E-02	-9.39736E-06	9.99904E-01
10	.00000E+00	7.23618E-05	7.42756E-01	1.36003E+00	7.10161E-01	3.27431E-02	4.43340E-07	9.99898E-01
11	.00000E+00	5.69290E-06	7.14619E-01	1.26886E+00	6.61017E-01	5.36494E-02	-2.80511E-06	9.99945E-01
12	.00000E+00	3.99916E-07	5.75435E-01	6.92481E-01	5.16882E-01	5.85678E-02	-3.70699E-07	9.99975E-01
13	.00000E+00	6.35030E-08	5.10483E-01	5.50888E-01	4.54993E-01	5.55053E-02	-1.63153E-06	9.99973E-01
14	.00000E+00	1.25846E-08	4.91166E-01	5.13284E-01	4.11272E-01	7.98988E-02	-3.01591E-07	9.99990E-01
15	.00000E+00	1.42220E-09	2.69485E-01	2.32308E-01	2.61231E-01	8.19648E-03	2.29467E-06	1.00020E+00
16	.00000E+00	4.17607E-10	1.83159E-01	1.06328E-01	1.76687E-01	6.42916E-03	1.51225E-06	1.00022E+00
17	.00000E+00	1.34490E-10	9.74680E-02	3.26779E-02	8.90402E-02	8.41055E-03	4.01001E-06	1.00014E+00
18	.00000E+00	9.62907E-11	8.66180E-02	1.99160E-02	5.94394E-02	2.71739E-02	7.91146E-07	1.00004E+00
19	.00000E+00	1.36134E-10	1.35338E-01	6.25080E-02	1.24019E-01	1.13017E-02	5.28060E-06	1.00009E+00
20	.00000E+00	2.21369E-10	3.24952E-01	3.70875E-01	2.96688E-01	2.81767E-02	5.40600E-06	1.00019E+00
21	.00000E+00	3.24012E-11	1.58915E-01	7.28546E-02	1.33372E-01	2.55274E-02	1.81122E-06	1.00009E+00
22	.00000E+00	3.75928E-11	3.01803E-01	1.89125E-01	2.26781E-01	7.49872E-02	-7.07403E-06	1.00014E+00
23	.00000E+00	3.59429E-11	7.26157E-01	1.06817E+00	5.86602E-01	1.39408E-01	1.43647E-05	1.00018E+00
24	.00000E+00	9.78520E-12	7.69844E-01	9.37620E-01	6.35671E-01	1.33057E-01	4.10178E-06	1.00015E+00
25	.00000E+00	2.86388E-12	5.10446E-01	3.85202E-01	4.37291E-01	7.31081E-02	2.68412E-06	1.00009E+00
26	.00000E+00	2.00817E-12	3.97454E-01	3.90309E-01	3.31005E-01	6.64192E-02	-3.23816E-07	1.00007E+00
27	.00000E+00	4.78657E-13	1.31766E-01	7.96352E-02	1.12683E-01	1.90795E-02	-9.92357E-09	1.00003E+00
28	.00000E+00	1.00000E+00	1.01635E+01	1.56576E+01	1.01635E+01	1.00202E+00	2.12889E-05	1.00002E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.35389E-02	-7.77195E-09	1.29571E-02	.00000E+00	2.27681E-03	2.52141E-03	3.30949E-04	3.71348E-01
2	9.72642E-02	-6.45417E-08	9.08455E-02	.00000E+00	1.57678E-03	1.10427E-02	1.74711E-03	2.66159E+00
3	1.21094E-01	-9.77021E-08	1.12588E-01	.00000E+00	.00000E+00	1.33204E-02	1.98748E-03	3.31211E+00
4	7.45965E-02	-8.01678E-08	6.90441E-02	.00000E+00	.00000E+00	5.70815E-03	9.56828E-04	2.03959E+00
5	1.11747E-01	-8.22760E-08	1.02781E-01	.00000E+00	.00000E+00	1.62672E-03	1.11703E-03	3.05326E+00
6	2.09764E-01	-6.88761E-08	1.92851E-01	.00000E+00	.00000E+00	1.33034E-03	1.86999E-03	5.72920E+00
7	2.08598E-01	8.54238E-07	1.95118E-01	.00000E+00	.00000E+00	1.25877E-03	1.32579E-03	5.57706E+00
8	1.48979E-01	5.02141E-08	1.47011E-01	.00000E+00	.00000E+00	1.25771E-03	7.53636E-04	4.09686E+00
9	1.15338E-01	-9.39736E-06	1.15956E-01	.00000E+00	.00000E+00	1.66411E-03	5.09126E-04	3.17868E+00
10	1.05681E-01	4.43340E-07	1.07184E-01	.00000E+00	.00000E+00	3.55418E-03	4.62962E-04	2.91544E+00
11	9.75028E-02	-2.80511E-06	1.00961E-01	.00000E+00	.00000E+00	7.68478E-03	4.19143E-04	2.69624E+00
12	6.13761E-02	-3.70699E-07	6.54629E-02	.00000E+00	.00000E+00	1.02455E-02	2.46806E-04	1.70315E+00
13	5.21291E-02	-1.63153E-06	5.58900E-02	.00000E+00	.00000E+00	1.17766E-02	2.10421E-04	1.44756E+00
14	4.75676E-02	-3.01591E-07	5.32038E-02	.00000E+00	.00000E+00	7.40263E-03	1.88738E-04	1.32757E+00
15	2.80286E-02	2.29467E-06	2.89915E-02	.00000E+00	.00000E+00	1.73351E-03	1.18718E-04	7.75362E-01
16	1.54686E-02	1.51225E-06	1.60393E-02	.00000E+00	.00000E+00	1.22133E-03	6.11950E-05	4.27955E-01
17	6.44890E-03	4.01001E-06	6.99815E-03	.00000E+00	.00000E+00	1.40452E-03	2.27084E-05	1.79339E-01
18	3.73240E-03	7.91146E-07	5.26061E-03	.00000E+00	.00000E+00	9.99567E-04	9.71251E-06	1.07230E-01
19	9.59424E-03	5.28060E-06	1.05871E-02	.00000E+00	.00000E+00	2.24225E-03	3.46352E-05	2.67473E-01
20	3.30650E-02	5.40600E-06	3.52432E-02	.00000E+00	.00000E+00	1.40957E-02	1.31373E-04	9.17802E-01
21	9.18212E-03	1.81122E-06	1.09349E-02	.00000E+00	.00000E+00	1.46585E-02	2.78964E-05	2.58435E-01
22	1.69691E-02	-7.07403E-06	2.23888E-02	.00000E+00	.00000E+00	4.34662E-02	4.81072E-05	4.84545E-01

23	6.06425E-02	1.43647E-05	7.57016E-02	.00000E+00	.00000E+00	7.66330E-02	1.77097E-04	1.72365E+00
24	4.69019E-02	4.10178E-06	6.21325E-02	.00000E+00	.00000E+00	7.14206E-02	1.08735E-04	1.34618E+00
25	2.01605E-02	2.68412E-06	2.81161E-02	.00000E+00	.00000E+00	4.08034E-02	3.76430E-05	5.83382E-01
26	1.32954E-02	-3.23816E-07	2.02911E-02	.00000E+00	.00000E+00	3.75268E-02	1.89305E-05	3.89482E-01
27	2.24254E-03	-9.92357E-09	3.85506E-03	.00000E+00	.00000E+00	1.05782E-02	2.03318E-06	6.65693E-02
28	1.72590E+00	2.13532E-05	1.74639E+00	.00000E+00	2.28858E-03	3.97176E-01	1.29248E-02	4.76371E+01

- elapsed time .02 min.
0direct access unit 9 requires 556 blocks of length 216 for cross section weighting.
1 transport cross section weighting function

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.15946E-03	5.07344E-03	5.30400E-03	2.51182E-03	3.18361E-03	5.52432E-03	3.71621E-03	1.74400E-03
2	7.06377E-04	5.01016E-03	5.80210E-03	3.44720E-03	4.30006E-03	6.15070E-03	4.33126E-03	2.14902E-03
3	1.18874E-03	5.49886E-03	5.88786E-03	2.91764E-03	3.86205E-03	6.77676E-03	4.37541E-03	1.82449E-03
4	8.16349E-04	4.31790E-03	4.94671E-03	2.39173E-03	2.82972E-03	4.80048E-03	3.32678E-03	1.79906E-03
5	8.40237E-04	4.38478E-03	4.99068E-03	2.41617E-03	2.87944E-03	4.88891E-03	3.37567E-03	1.79928E-03

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.11347E-03	1.01459E-03	1.09362E-03	8.74774E-04	7.97770E-04	1.05334E-03	3.20856E-04	1.67138E-04
2	1.79161E-03	1.95465E-03	2.04376E-03	1.60347E-03	1.42855E-03	1.71786E-03	6.28955E-04	3.47885E-04
3	1.12197E-03	1.05365E-03	1.29292E-03	1.22251E-03	1.12957E-03	1.60017E-03	3.86691E-04	2.10153E-04
4	1.19615E-03	1.09545E-03	1.03072E-03	6.78067E-04	6.01953E-04	6.43761E-04	3.11356E-04	1.61377E-04
5	1.19421E-03	1.09597E-03	1.04598E-03	7.05653E-04	6.28474E-04	6.91805E-04	3.15511E-04	1.63934E-04

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.06031E-04	2.28736E-04	1.89850E-04	4.89852E-04	2.82306E-04	8.12105E-04	2.11711E-03	1.81547E-03
2	1.90842E-04	3.55880E-04	3.20524E-04	8.79474E-04	4.49999E-04	1.24829E-03	3.25621E-03	2.79685E-03
3	1.59395E-04	3.92917E-04	2.84024E-04	6.73691E-04	4.52227E-04	1.32436E-03	3.22447E-03	2.80521E-03
4	7.23362E-05	8.06545E-05	1.21360E-04	3.84672E-04	1.38295E-04	3.43057E-04	1.05510E-03	8.28649E-04
5	7.66712E-05	9.65388E-05	1.29577E-04	3.99372E-04	1.54254E-04	3.95387E-04	1.16872E-03	9.32820E-04

0zone	grp. 25	grp. 26	grp. 27	grp. 28
1	8.19043E-04	5.78185E-04	8.80722E-05	4.21792E-02
2	1.27856E-03	9.28284E-04	1.59586E-04	5.52779E-02
3	1.29911E-03	9.70769E-04	1.81268E-04	5.21167E-02
4	3.45441E-04	2.09615E-04	2.60354E-05	3.45528E-02
5	3.95487E-04	2.48970E-04	3.33858E-05	3.54459E-02

1broad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.0000E+07	2.6594E+06	1.9694E+09	7.2174E-01
2	9.0000E+05	1.5150E+05	1.0065E+07	2.7826E-01
3	4.0000E-01	1.2516E-01	3.6496E+05	1.2107E-10
4	1.0000E-05			

1 880 d, second part of sas2h pass to make library
0cell averaged fluxes

0zone	grp. 1	grp. 2	grp. 3
1	3.91548E-01	1.13524E+00	2.15989E-01
2	3.96806E-01	1.13638E+00	2.06823E-01
3	3.99768E-01	1.13659E+00	2.02707E-01
4	4.16951E-01	1.13826E+00	1.73311E-01
5	4.15260E-01	1.13807E+00	1.76163E-01

0flux disadvantage factors (zone average/cell average-flux)

0zone	grp. 1	grp. 2	grp. 3
1	9.42899E-01	9.97518E-01	1.22607E+00
2	9.55560E-01	9.98517E-01	1.17404E+00
3	9.62694E-01	9.98708E-01	1.15067E+00
4	1.00407E+00	1.00017E+00	9.83808E-01
5	1.00000E+00	1.00000E+00	1.00000E+00

0cell averaged currents

0zone	grp. 1	grp. 2	grp. 3
1	1.72523E-02	1.84346E-02	6.51229E-03

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    2  1.92659E-02  2.58942E-02  1.01178E-02
    3  1.93552E-02  2.25041E-02  1.02574E-02
    4  1.53024E-02  1.63041E-02  2.94620E-03
    5  1.55113E-02  1.66075E-02  3.32702E-03
Ozone      volume      vol. fraction

    1     1.25665E+00     4.56234E-02
    2     1.66687E-01     6.05165E-03
    3     6.58265E-01     2.38987E-02
    4     2.54624E+01     9.24426E-01
    5     2.75440E+01     1.00000E+00
-  elapsed time    .02 min.
```
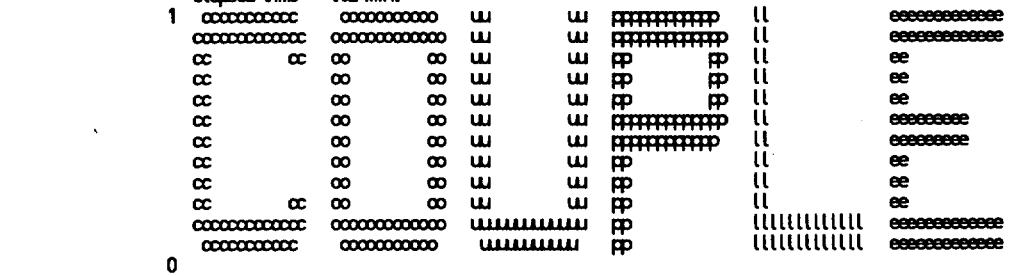
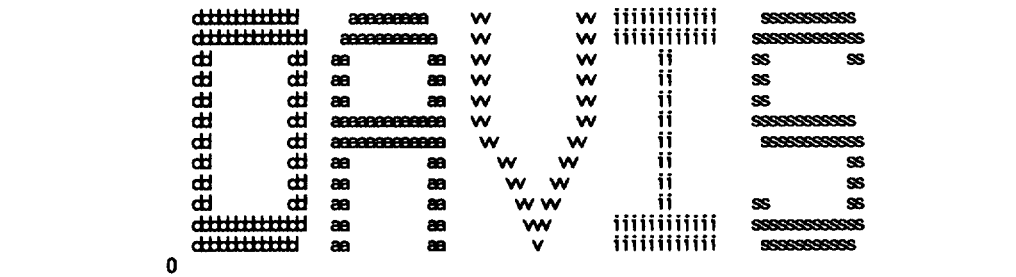
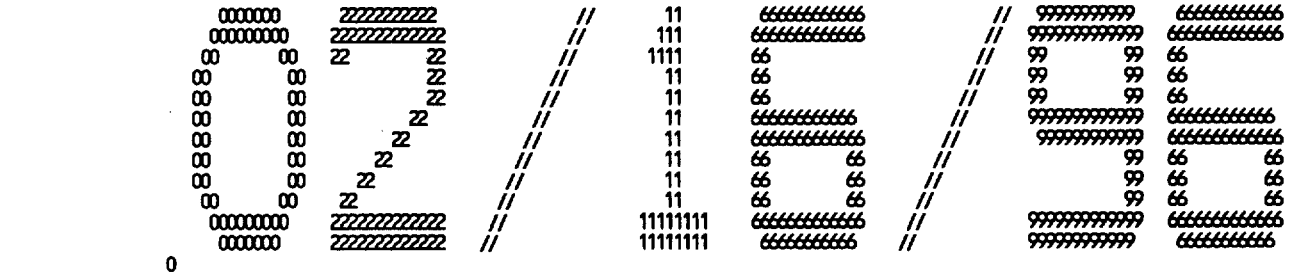
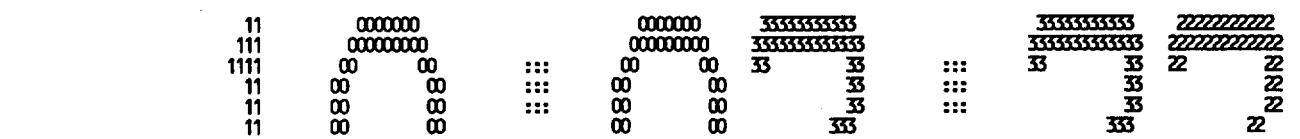
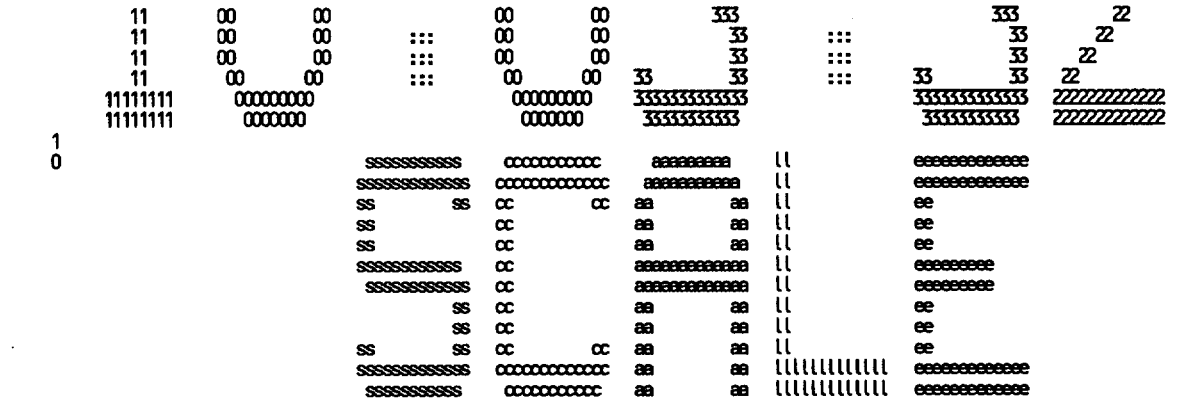









```
      11      00      00              00      00        333                    333       22
      11      00      00      :::     00      00         33      :::            33     22
      11      00      00      :::     00      00         33      :::            33    22
      11       00      00      :::     00      00   33      33      :::   33      33   22
   11111111     000000000               000000000   3333333333333           3333333333333  2222222222222
   11111111      0000000                 0000000     33333333333             33333333333   2222222222222
1
0                        sssssssssss    cccccccccc    aaaaaaaaa    ll          eeeeeeeeeeeee
                        ssssssssssss   cccccccccccc   aaaaaaaaaa   ll          eeeeeeeeeeeee
                        ss        ss   cc        cc   aa       aa   ll          ee
                        ss             cc             aa       aa   ll          ee
                        ss             cc             aa       aa   ll          ee
                        ssssssssssss   cc             aaaaaaaaaaaa  ll          eeeeeeeee
                         ssssssssssss  cc             aaaaaaaaaaaa  ll          eeeeeeeee
                                 ss    cc             aa       aa   ll          ee
                                 ss    cc             aa       aa   ll          ee
                        ss        ss   cc        cc   aa       aa   ll          ee
                        ssssssssssss   cccccccccccc   aa       aa   lllllllllllll eeeeeeeeeeeee
                         sssssssssss    cccccccccc    aa       aa   lllllllllllll eeeeeeeeeeeee


                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
                    *****                                                                *****
                    *****                program verification information                 *****
                    *****                                                                *****
                    *****                code system:    scale  version:    4.2           *****
                    *****                                                                *****
                    ************************************************************************
                    ************************************************************************
                    *****                                                                *****
                    *****                                                                *****
                    *****             program:  c0c005                                   *****
                    *****                                                                *****
                    *****        creation date:  04/27/95                                *****
                    *****                                                                *****
                    *****             library:  /neutronics/scale/exe                    *****
                    *****                                                                *****
                    *****                                                                *****
                    *****    this is not a   scale  configuration controlled code        *****
                    *****                                                                *****
                    *****             jobname:  davis                                    *****
                    *****                                                                *****
                    *****    date of execution:  02/16/96                                *****
                    *****                                                                *****
                    *****    time of execution:  10:03:32                                *****
                    *****                                                                *****
                    *****                                                                *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
0      -1q array has     1 entries.
0       0q array has     1 entries.
0       0q array has     1 entries.
0       1q array has     1 entries.
```



```
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       2q array has      1 entries.
0        * core allocated to array-data (by -1$$ or default) was   200000 words. *
1         * broad 3-group flux weighting factors *
0
0                 therm =    .5118
0                 res   =    .4417
0                 fast  =   3.4180
0 user requested (see jadd) that only the nuclide transitions presently included in
0 origen library be updated.
1cross sections, available from ampx (normalized to thermal flux), barns

                    10010 to  10020  2.84440E-01
                    10010 tot-cap    2.84440E-01
                    50100 to  40100  2.44839E-02
                    50100 to  10010  2.44839E-02
                    50100 to  40090  3.75530E-03
                    50100 to  10020  3.75530E-03
                    50100 to  30070  3.27073E+03
                    50100 to  20040  3.27091E+03
                    50100 to  10030  9.18802E-02
                    50100 tot-cap    3.27085E+03
                    50110 to  50100  1.08152E-05
                    50110 to  50120  4.33124E-03
                    50110 to  40110  1.38013E-06
                    50110 to  10010  1.38013E-06
                    50110 to  40090  1.23162E-05
                    50110 to  10030  1.23162E-05
                    50110 to  30080  1.60782E-04
                    50110 to  20040  1.60782E-04
                    50110 tot-cap    4.51653E-03
                    80160 to  80170  1.51959E-04
                    80160 to  70160  9.46311E-05
                    80160 to  10010  9.46311E-05
                    80160 to  70150  1.78473E-05
                    80160 to  10020  1.78473E-05
                    80160 to  60130  2.63247E-02
                    80160 to  20040  2.63247E-02
                    80160 to  80161  4.15019E-03
                    80160 tot-cap    2.65891E-02
                   360830 to 360820  2.14844E-02
                   360830 to 360810  2.26822E-09
                   360830 to 360840  1.54886E+02
                   360830 to 350830  8.78859E-04
                   360830 to  10010  8.78859E-04
                   360830 to 350820  7.09573E-06
                   360830 to  10020  7.09573E-06
                   360830 to 350810  2.48009E-06
                   360830 to  10030  2.48009E-06
                   360830 to 340810  4.01382E-08
                   360830 to  20030  4.01382E-08
                   360830 to 340800  4.71372E-05
                   360830 to  20040  4.71372E-05
                   360830 tot-cap    1.54908E+02
                   360850 to 360860  1.40538E+00
                   360850 tot-cap    1.40538E+00
                   380900 to 380910  6.31952E-01
```

380900	tot-cap	6.31952E-01
390890	to 390900	9.92494E-01
390890	tot-cap	9.92494E-01
400930	to 400940	1.35410E+01
400930	tot-cap	1.35410E+01
400940	to 400950	1.87693E-01
400940	tot-cap	1.87693E-01
400950	to 400960	2.24580E+00
400950	tot-cap	2.24580E+00
410940	to 410950	3.88374E+01
410940	tot-cap	3.88374E+01
420950	to 420960	3.82943E+01
420950	tot-cap	3.82943E+01
430990	to 430980	6.51869E-03
430990	to 431000	8.97106E+01
430990	tot-cap	8.97171E+01
441010	to 441020	2.84705E+01
441010	tot-cap	2.84705E+01
441060	to 441070	8.74631E-01
441060	tot-cap	8.74631E-01
451030	to 451020	2.36083E-03
451030	to 451040	3.50676E+02
451030	tot-cap	3.50679E+02
451050	to 451060	8.18578E+03
451050	tot-cap	8.18578E+03
461050	to 461060	3.40965E+01
461050	tot-cap	3.40965E+01
461080	to 461090	6.89271E+01
461080	tot-cap	6.89271E+01
471090	to 471080	5.48996E-03
471090	to 471100	3.71689E+02
471090	to 461090	3.10426E-04
471090	to 10010	3.10426E-04
471090	to 451060	2.57311E-04
471090	to 20040	2.57311E-04
471090	to 471091	6.43385E-01
471090	tot-cap	3.71695E+02
511240	to 511250	1.21394E+01
511240	tot-cap	1.21394E+01
541310	to 541300	6.65676E-02
541310	to 541290	1.39194E-05
541310	to 541320	2.55972E+02
541310	to 531310	3.99220E-05
541310	to 10010	3.99220E-05
541310	to 531300	5.58236E-07
541310	to 10020	5.58236E-07
541310	to 531290	5.72415E-07
541310	to 10030	5.72415E-07
541310	to 521280	1.87034E-05
541310	to 20040	1.87034E-05
541310	tot-cap	2.56038E+02
541320	to 541310	1.07537E-02
541320	to 541300	2.28078E-05
541320	to 541330	9.32093E-01
541320	to 531320	8.19490E-06
541320	to 10010	8.19490E-06
541320	to 531310	3.46993E-07
541320	to 10020	3.46993E-07
541320	to 531300	4.66688E-08
541320	to 10030	4.66688E-08

541320 to 521290 1.01067E-06
541320 to 20040 1.01067E-06
541320 tot-cap 9.42879E-01
541350 to 541360 1.47045E+06
541350 tot-cap 1.47045E+06
541360 to 541350 1.83949E-02
541360 to 541340 5.61825E-05
541360 to 541370 1.23898E-01
541360 to 531360 3.39678E-07
541360 to 10010 3.39678E-07
541360 to 531350 1.26459E-07
541360 to 10020 1.26459E-07
541360 to 531340 2.85694E-08
541360 to 10030 2.85694E-08
541360 to 521330 2.84934E-07
541360 to 20040 2.84934E-07
541360 tot-cap 1.42350E-01
551330 to 551320 8.61399E-05
551330 to 551340 1.01647E+02
551330 to 541330 9.29567E-04
551330 to 10010 9.29567E-04
551330 to 531300 1.47174E-05
551330 to 20040 1.47174E-05
551330 tot-cap 1.01656E+02
551340 to 551350 1.29469E+02
551340 tot-cap 1.29469E+02
551350 to 551360 2.15946E+01
551350 tot-cap 2.15946E+01
551370 to 551380 2.31515E-01
551370 tot-cap 2.31515E-01
561360 to 561370 9.08765E-01
561360 tot-cap 9.08765E-01
571390 to 571400 7.98602E+00
571390 tot-cap 7.98602E+00
581440 to 581450 1.24572E+00
581440 tot-cap 1.24572E+00
591410 to 591400 6.17258E-03
591410 to 591390 1.77353E-06
591410 to 571370 2.64952E-06
591410 to 20040 5.46942E-05
591410 to 581400 1.88146E-05
591410 to 10010 5.34694E-05
591410 to 591420 1.19000E+01
591410 to 581410 5.03813E-05
591410 to 10020 1.57265E-05
591410 to 581390 1.64928E-06
591410 to 10030 1.64928E-06
591410 to 571390 1.59280E-08
591410 to 20030 1.59280E-08
591410 to 571380 5.20447E-05
591410 tot-cap 1.19063E+01
591430 to 591440 9.85435E+01
591430 tot-cap 9.85435E+01
601430 to 601420 9.44140E-02
601430 to 601410 9.63916E-06
601430 to 581390 2.07491E-05
601430 to 20040 5.80742E-04
601430 to 591420 4.03494E-06
601430 to 10010 4.14371E-05
601430 to 601440 1.99531E+02

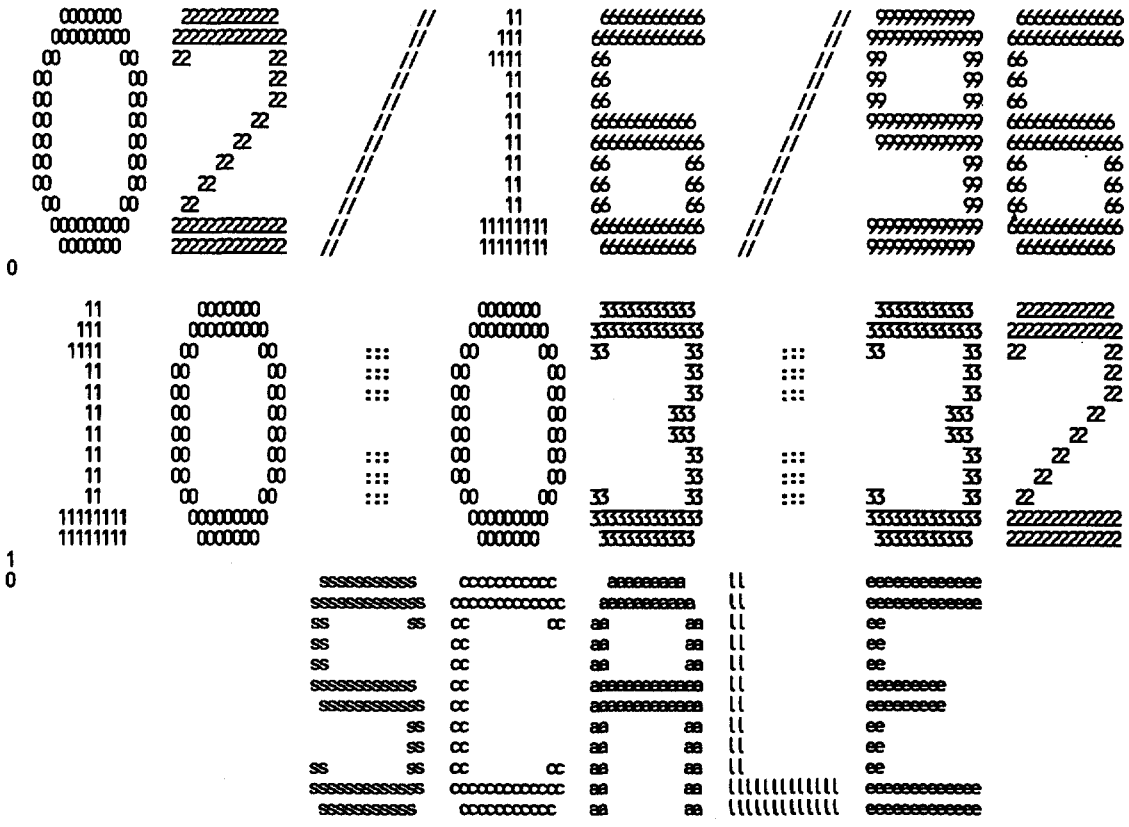
601430 to 591430 3.99169E-05
601430 to 10020 2.51478E-06
601430 to 591410 3.62380E-06
601430 to 10030 3.62380E-06
601430 to 581410 1.74109E-08
601430 to 20030 1.74109E-08
601430 to 581400 5.59993E-04
601430 tot-cap 1.99626E+02
601450 to 601440 1.21123E-01
601450 to 601430 1.23070E-04
601450 to 581410 8.67977E-06
601450 to 20040 2.17027E-04
601450 to 591440 2.31180E-06
601450 to 10010 1.50213E-05
601450 to 601460 7.87674E+01
601450 to 591450 1.40992E-05
601450 to 10020 1.38968E-06
601450 to 591430 2.19085E-06
601450 to 10030 2.19085E-06
601450 to 581430 4.46058E-09
601450 to 20030 4.46058E-09
601450 to 581420 2.08348E-04
601450 tot-cap 7.88889E+01
601470 to 601480 1.90249E+02
601470 tot-cap 1.90249E+02
611470 to 611460 3.31614E-02
611470 to 611450 1.03469E-04
611470 to 591430 9.16700E-06
611470 to 20040 8.48570E-05
611470 to 601460 1.26718E-05
611470 to 10010 2.88523E-05
611470 to 611480 5.83713E+02
611470 to 601470 2.57036E-05
611470 to 10020 9.54306E-06
611470 to 601450 3.60310E-06
611470 to 10030 3.60310E-06
611470 to 591450 5.41737E-09
611470 to 20030 5.41737E-09
611470 to 591440 7.57000E-05
611470 tot-cap 5.83746E+02
611480 to 611490 1.20692E+04
611480 tot-cap 1.20692E+04
621470 to 621460 8.65070E-02
621470 to 621450 7.78945E-03
621470 to 601430 6.70743E-05
621470 to 20040 1.28160E-03
621470 to 611460 1.56994E-04
621470 to 10010 2.23820E-04
621470 to 621480 2.34443E+02
621470 to 611470 1.97355E-04
621470 to 10020 1.30528E-04
621470 to 611450 1.40158E-04
621470 to 10030 1.40158E-04
621470 to 601450 6.44892E-06
621470 to 20030 6.44892E-06
621470 to 601440 1.21453E-03
621470 to 621471 1.68099E+00
621470 tot-cap 2.34539E+02
621490 to 621480 4.88893E-02
621490 to 621470 3.88270E-05

621490 to 621500 4.51610E+04
621490 to 611490 4.98298E-04
621490 to 10010 4.98298E-04
621490 to 601460 4.98298E-04
621490 to 20040 4.98298E-04
621490 tot-cap 4.51611E+04
621500 to 621510 1.34636E+02
621500 tot-cap 1.34636E+02
621510 to 621500 1.62978E-01
621510 to 621490 1.46103E-04
621510 to 601470 1.63534E-05
621510 to 20040 1.27239E-04
621510 to 611500 2.00058E-06
621510 to 10010 1.55395E-05
621510 to 621520 4.96056E+03
621510 to 611510 1.43172E-05
621510 to 10020 7.78299E-07
621510 to 611490 1.41451E-06
621510 to 10080 1.41451E-06
621510 to 601490 1.45722E-09
621510 to 20080 1.45722E-09
621510 to 601480 1.10885E-04
621510 tot-cap 4.96073E+03
621520 to 621510 1.95648E-02
621520 to 621500 1.32200E-04
621520 to 601480 2.95398E-06
621520 to 20040 1.22679E-05
621520 to 611510 8.47430E-07
621520 to 10010 2.50074E-06
621520 to 621530 7.31195E+02
621520 to 611520 2.22143E-06
621520 to 10020 5.68119E-07
621520 to 611500 1.47754E-07
621520 to 10080 1.47754E-07
621520 to 601500 4.47780E-10
621520 to 20080 4.47780E-10
621520 to 601490 9.31394E-06
621520 tot-cap 7.31215E+02
631530 to 631520 1.90020E-02
631530 to 631510 2.85759E-05
631530 to 611490 4.44449E-05
631530 to 20040 6.46822E-04
631530 to 621520 7.94485E-06
631530 to 10010 6.67364E-05
631530 to 631540 6.22530E+02
631530 to 621530 6.40248E-05
631530 to 10020 5.23328E-06
631530 to 621510 1.17306E-06
631530 to 10080 1.17306E-06
631530 to 611510 2.68175E-08
631530 to 20080 2.68175E-08
631530 to 611500 6.02377E-04
631530 tot-cap 6.22550E+02
631540 to 631530 3.03770E-02
631540 to 631520 1.09120E-05
631540 to 611500 1.06100E-10
631540 to 20040 7.77437E-04
631540 to 621530 2.38844E-06
631540 to 10010 1.26831E-03
631540 to 631550 1.07363E+03

631540	to 621540	1.26831E-03
631540	to 10020	2.38712E-06
631540	to 621520	4.04318E-06
631540	to 10030	4.04318E-06
631540	to 611520	1.71447E-08
631540	to 20030	1.71447E-08
631540	to 611510	7.77436E-04
631540	tot-cap	1.07366E+03
631550	to 631540	2.49407E-02
631550	to 631530	6.98394E-05
631550	to 611510	1.87941E-06
631550	to 20040	9.24945E-06
631550	to 621540	3.80822E-06
631550	to 10010	7.98825E-06
631550	to 631560	2.56117E+03
631550	to 621550	6.13529E-06
631550	to 10020	1.95526E-06
631550	to 621530	6.47259E-07
631550	to 10030	6.47259E-07
631550	to 611530	1.46704E-10
631550	to 20030	1.46704E-10
631550	to 611520	7.37004E-06
631550	tot-cap	2.56119E+03
641550	to 641560	1.70609E+04
641550	tot-cap	1.70609E+04
922340	to 922330	6.53411E-03
922340	fission	4.49894E+00
922340	nu-sigf	1.18286E+01
922340	to 922320	9.47408E-05
922340	to 922350	1.87219E+02
922340	to 922341	3.01266E+00
922340	tot-cap	1.91725E+02
922350	to 922340	2.97957E-02
922350	fission	3.62536E+02
922350	nu-sigf	8.77960E+02
922350	to 922330	2.85392E-05
922350	to 922360	8.63216E+01
922350	to 922351	8.56857E-02
922350	tot-cap	4.48887E+02
922360	to 922350	3.32861E-02
922360	fission	1.93115E+00
922360	nu-sigf	5.30249E+00
922360	to 922340	4.43594E-04
922360	to 922370	7.20576E+01
922360	to 922361	3.29586E+00
922360	tot-cap	7.40225E+01
922380	to 922370	6.64767E-02
922380	fission	9.68614E-01
922380	nu-sigf	2.72801E+00
922380	to 922360	4.29632E-04
922380	to 922390	8.55442E+00
922380	tot-cap	9.58994E+00
932370	to 932360	1.51552E-02
932370	fission	5.21673E+00
932370	nu-sigf	1.57137E+01
932370	to 932350	5.79792E-05
932370	to 932380	3.01354E+02
932370	to 932371	7.72498E-01
932370	tot-cap	3.06586E+02
942380	to 942370	2.43600E-03

```
                    942380 fission   2.24679E+01
                    942380 nu-sigf   6.37163E+01
                    942380 to 942360 1.36331E-05
                    942380 to 942390 2.66029E+02
                    942380 to 942381 3.02734E+00
                    942380 tot-cap   2.88499E+02
                    942390 to 942380 1.28918E-02
                    942390 fission   8.36076E+02
                    942390 nu-sigf   2.40898E+03
                    942390 to 942370 2.19485E-05
                    942390 to 942360 2.17579E-08
                    942390 to 942400 4.67858E+02
                    942390 tot-cap   1.30895E+03
                    942400 to 942390 6.06672E-03
                    942400 fission   5.90498E+00
                    942400 nu-sigf   1.85024E+01
                    942400 to 942380 5.92015E-05
                    942400 to 942410 1.39334E+03
                    942400 tot-cap   1.39925E+03
                    942410 to 942400 7.63800E-02
                    942410 fission   8.96700E+02
                    942410 nu-sigf   2.63112E+03
                    942410 to 942390 1.26675E-04
                    942410 to 942420 2.92817E+02
                    942410 tot-cap   1.18959E+03
                    942420 to 942410 2.47305E-02
                    942420 fission   4.52350E+00
                    942420 nu-sigf   1.41737E+01
                    942420 to 942400 3.00658E-04
                    942420 to 942430 3.33458E+02
                    942420 tot-cap   3.38006E+02
                    952410 fission   1.24977E+01
                    952410 nu-sigf   4.04062E+01
                    952410 to 952420 1.01282E+03
                    952410 tot-cap   1.02531E+03
                    952430 fission   3.49225E+00
                    952430 nu-sigf   1.17422E+01
                    952430 to 952440 4.22109E+02
                    952430 tot-cap   4.25601E+02
                    962440 to 962430 5.94350E-03
                    962440 fission   1.55149E+01
                    962440 nu-sigf   5.19995E+01
                    962440 to 962420 5.92708E-05
                    962440 to 962450 1.42507E+02
                    962440 to 962441 3.86081E+00
                    962440 tot-cap   1.58028E+02
0the reaction  50100 to  30070 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
0the reaction  50100 to  40090 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
0the reaction  50110 to  40090 was not used, because  50110 is not in library., (in subr pool)
                                    in the search of library number 3
0the reaction  50100 to  40100 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
0the reaction  80160 to  80161 was not used, because  80161 is not in library., (in subr pool)
0the reaction 621470 to 621471 was not used, because 621471 is not in library., (in subr pool)
0the fission product transitions for  922340 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  922340 to 922341 was not used, because  922341 is not in library., (in subr pool)
```

```
0the reaction  922350 to 922351 was not used, because  922351 is not in library., (in subr pool)
0the fission product transitions for  922360 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  922360 to 922361 was not used, because  922361 is not in library., (in subr pool)
0the fission product transitions for  952370 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  952370 to 952371 was not used, because  952371 is not in library., (in subr pool)
0the fission product transitions for  942380 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  942380 to 942381 was not used, because  942381 is not in library., (in subr pool)
0the fission product transitions for  942400 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  942420 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952410 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952430 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  962440 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  962440 to 962441 was not used, because  962441 is not in library., (in subr pool)
1
0                          case completed.  date,  2/16/1996
0 * normal termination *
1   ccccccccccc   rrrrrrrrrrr   iiiiiiiiiiii    ggggggggggg   eeeeeeeeeeee  mm         mm  sssssssssss
   ccccccccccccc  rrrrrrrrrrrr  iiiiiiiiiiii   ggggggggggggg  eeeeeeeeeeee  mmm       mmm  ssssssssssss
   cc       cc   rr       rr       ii        gg       gg    ee            mmmm     mmmm  ss          ss
   cc       cc   rr       rr       ii        gg             ee            mm mm   mm mm  ss
   cc       cc   rr       rr       ii        gg             ee            mm  mm m  mm  ss
   cc       cc   rrrrrrrrrrrr       ii        gg   ggggggg  eeeeeeeee     mm   mmm   mm  sssssssssss
   cc       cc   rrrrrrrrrrr        ii        gg   ggggggg  eeeeeeeee     mm    m    mm  sssssssssss
   cc       cc   rr     rr           ii        gg       gg   ee            mm         mm            ss
   cc       cc   rr      rr          ii        gg       gg   ee            mm         mm            ss
   cc       cc   rr       rr         ii        gg       gg   ee            mm         mm  ss        ss
   ccccccccccc   rr        rr  iiiiiiiiiiii   ggggggggggg   eeeeeeeeeeee  mm         mm  ssssssssssss
    ccccccccc    rr        rr  iiiiiiiiiiii    ggggggggg    eeeeeeeeeeee  mm         mm  sssssssssss
0

   ddddddddddd     aaaaaaaa    w         w  iiiiiiiiiii    sssssssss
   ddddddddddddd   aaaaaaaaaa  w         w  iiiiiiiiiii   sssssssssss
   dd        dd   aa        aa  w         w      ii       ss         ss
   dd        dd   aa        aa  w         w      ii       ss
   dd        dd   aa        aa  w         w      ii       ss
   dd        dd   aaaaaaaaaaaa  w         w      ii       sssssssssss
   dd        dd   aaaaaaaaaaaa   w       w       ii        sssssssssss
   dd        dd   aa        aa    w     w        ii                ss
   dd        dd   aa        aa     w   w         ii                ss
   dd        dd   aa        aa      w w          ii       ss       ss
   ddddddddddd    aa        aa       ww     iiiiiiiiiii  sssssssssss
   ddddddddddd    aa        aa        v     iiiiiiiiiii   sssssssss
0
```

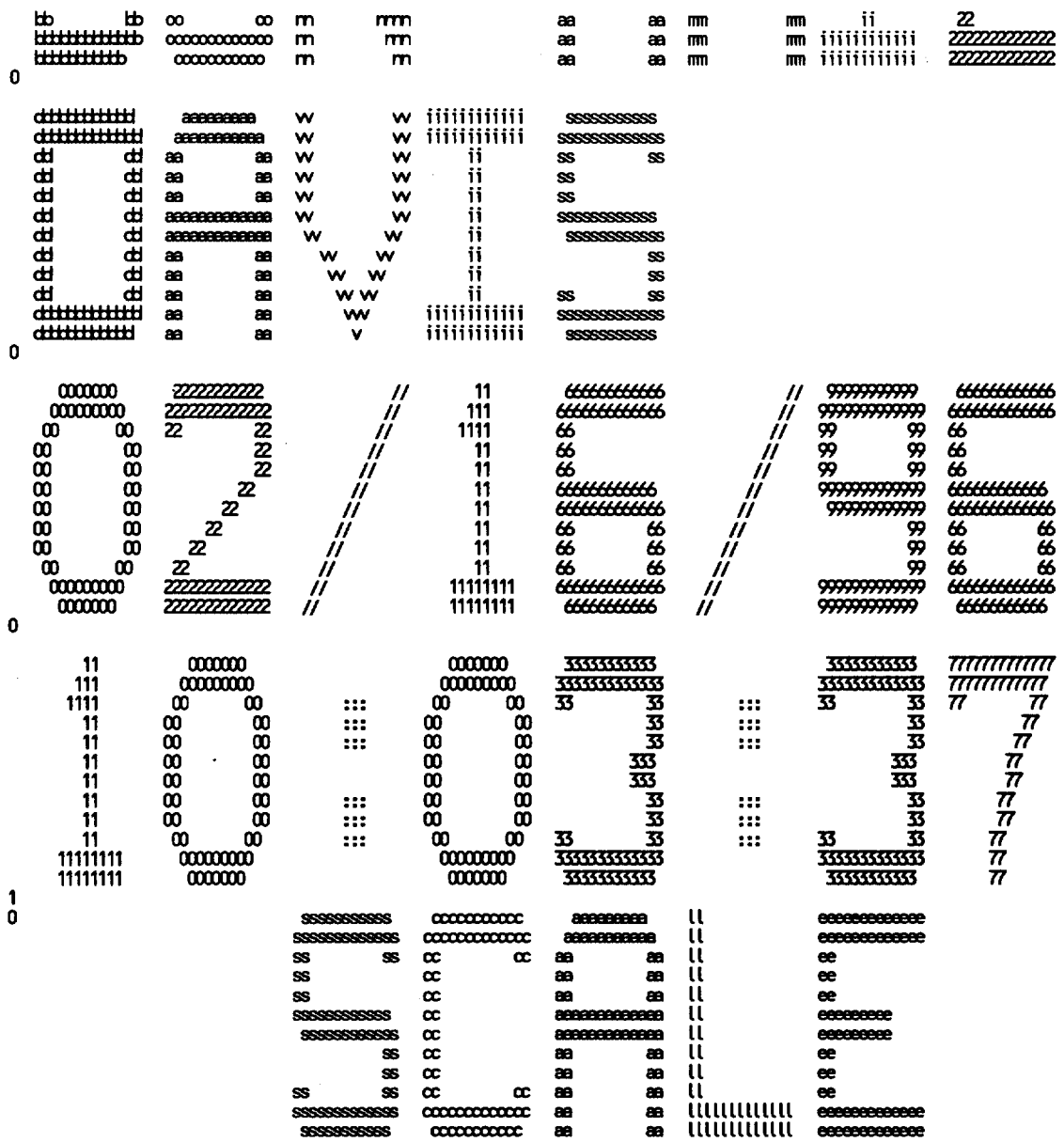

program verification information
code system: scale version: 4.2
program: c0c004
creation date: 04/27/95

```
                    *****          library:  /neutronics/scale/exe                  *****
                    *****                                                           *****
                    *****                                                           *****
                    *****    this is not a   scale  configuration controlled code  *****
                    *****                                                           *****
                    *****          jobname:  davis                                  *****
                    *****                                                           *****
                    *****    date of execution:  02/16/96                           *****
                    *****                                                           *****
                    *****    time of execution:  10:03:32                           *****
                    *****                                                           *****
                    *****                                                           *****
                    ********************************************************************
                    ********************************************************************
                    ********************************************************************
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0        dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0            short-lived split test fraction, qxn =    9.1188E-04
0            half-norm of matrix used, axn =    7.0000E+00
0            4-place-accuracy-retention ratio, ratio4 =    6.4516E-13
0       1q array has     20 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       4q array has      1 entries.
0      54q array has     12 entries.
1library information...

         cross-section data taken from position number  1 of library on unit 15.

         pass  6
         pass  1
         pass  0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
           pass 0 applies start-up fuel densiities
           pass n applies mid time densities of nth library interval
         first library updated was...
         pass  1
         pass  0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
           pass 0 applies start-up fuel densiities
           pass n applies mid time densities of nth library interval
         first library updated was...
         ********************************************************************
         *                                                                  *
         *          prelim lwr origen-s binary working library--id = 1143   *
         *        made from modified card-image origen-s libraries of scale 4.2 *
         *      data from the light element, actinide, and fission product libraries *
         *        decay data, including gamma and total energy, are from endf/b-vi *
         *                                                                  *
         *     neutron flux spectrum factors and cross sections were produced from *
         *     the "presas2" case updating all nuclides on the scale "burnup" library *
         *                                                                  *
```

```
      *                fission product yields are from endf/b-v                *
      *                                                                        *
      *             photon libraries use an 18-energy-group structure          *
      *           the photon data are from the master photon data base,        *
      *            produced to include bremsstrahlung from u02 matrix          *
      *                                                                        *
      *       see information above this box (if present) for later updates    *
      *                                                                        *
      **************************************************************************
      *                                                                        *
0     **************************************************************************
0              .other identification and sizes of library.
0               data set name:  ft15f001
0            2/16/1996    date library was produced
0                1697     total number of nuclides in library
                  689     number of light-element nuclides
                  129     number of actinide nuclides
                  879     number of fission product nuclides
0                7955     number of nonzero off-diagonal matrix elements
0     **************************************************************************
1
   sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                    actinides        page   1
    power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.61E+13n/cm**2-sec
0                                    nuclide concentrations, gram atoms
                                     basis = converted to atoms/(barn-cm)
          charge   840.1 d   880.1 d   920.1 d   960.1 d   960.1 d  1000.1 d  1040.1 d
   he  4 3.05E-08 3.70E-08 4.46E-08 5.34E-08 6.33E-08 6.33E-08 7.46E-08 8.72E-08
   u230  7.96E-21 9.22E-21 1.05E-20 1.19E-20 1.33E-20 1.33E-20 1.49E-20 1.67E-20
   u231  1.58E-19 1.84E-19 2.07E-19 2.32E-19 2.59E-19 2.58E-19 2.89E-19 3.21E-19
   u232  2.10E-12 2.38E-12 2.68E-12 3.02E-12 3.37E-12 3.37E-12 3.76E-12 4.17E-12
   u233  3.62E-11 3.75E-11 3.87E-11 3.99E-11 4.10E-11 4.10E-11 4.21E-11 4.31E-11
   u234  4.56E-06 4.51E-06 4.47E-06 4.42E-06 4.37E-06 4.37E-06 4.33E-06 4.28E-06
   u235  4.23E-04 4.13E-04 4.03E-04 3.93E-04 3.83E-04 3.83E-04 3.74E-04 3.64E-04
   u236  5.16E-05 5.34E-05 5.51E-05 5.68E-05 5.84E-05 5.84E-05 6.00E-05 6.16E-05
   u237  6.85E-08 7.10E-08 7.28E-08 7.44E-08 7.64E-08 7.61E-08 7.81E-08 7.98E-08
   u238  2.19E-02 2.18E-02 2.18E-02 2.18E-02 2.18E-02 2.18E-02 2.18E-02 2.18E-02
   u239  1.53E-09 6.08E-09 6.09E-09 6.10E-09 6.11E-09 1.19E-09 6.12E-09 6.13E-09
   u240   .00E+00 1.25E-32 2.03E-32 3.23E-32 5.04E-32 5.04E-32 7.71E-32 1.16E-31
   u241   .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00
   np235 5.69E-14 6.36E-14 7.05E-14 7.77E-14 8.52E-14 8.52E-14 9.30E-14 1.01E-13
   np236m 6.50E-14 7.35E-14 7.86E-14 8.37E-14 8.90E-14 8.65E-14 9.44E-14 9.98E-14
   np236 5.53E-12 6.27E-12 7.05E-12 7.90E-12 8.79E-12 8.79E-12 9.74E-12 1.07E-11
   np237 3.27E-06 3.50E-06 3.73E-06 3.97E-06 4.21E-06 4.21E-06 4.45E-06 4.70E-06
   np238 4.07E-09 4.45E-09 4.75E-09 5.07E-09 5.39E-09 5.32E-09 5.71E-09 6.04E-09
   np239 8.60E-07 8.78E-07 8.79E-07 8.80E-07 8.82E-07 8.77E-07 8.83E-07 8.85E-07
   np240m  .00E+00 1.06E-34 1.73E-34 2.76E-34 4.30E-34 4.30E-34 6.58E-34 9.88E-34
   np240 9.30E-12 1.61E-11 1.62E-11 1.62E-11 1.63E-11 8.77E-12 1.64E-11 1.64E-11
   np241   .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00
   pu236 6.38E-12 7.18E-12 8.02E-12 8.91E-12 9.84E-12 9.84E-12 1.08E-11 1.19E-11
   pu237 2.62E-13 2.83E-13 3.02E-13 3.22E-13 3.41E-13 3.41E-13 3.61E-13 3.82E-13
   pu238 4.23E-07 4.77E-07 5.35E-07 5.98E-07 6.64E-07 6.64E-07 7.34E-07 8.09E-07
   pu239 1.03E-04 1.06E-04 1.08E-04 1.11E-04 1.13E-04 1.13E-04 1.15E-04 1.17E-04
   pu240 1.87E-05 2.00E-05 2.12E-05 2.23E-05 2.35E-05 2.35E-05 2.46E-05 2.57E-05
   pu241 9.57E-06 1.04E-05 1.12E-05 1.20E-05 1.29E-05 1.29E-05 1.38E-05 1.48E-05
   pu242 9.75E-07 1.12E-06 1.27E-06 1.44E-06 1.62E-06 1.62E-06 1.81E-06 2.01E-06
   pu243 1.19E-10 1.54E-10 1.76E-10 1.99E-10 2.24E-10 1.97E-10 2.51E-10 2.79E-10
   pu244 3.72E-22 6.20E-22 1.01E-21 1.61E-21 2.51E-21 2.51E-21 3.84E-21 5.76E-21
   pu245 2.53E-28 4.44E-28 7.24E-28 1.16E-27 1.81E-27 1.70E-27 2.77E-27 4.17E-27
   pu246 1.00E-30 1.69E-30 2.80E-30 4.51E-30 7.12E-30 7.11E-30 1.10E-29 1.67E-29
   am239 4.18E-18 5.09E-18 5.76E-18 6.46E-18 7.21E-18 6.83E-18 8.00E-18 8.82E-18
```

```
    am240   1.87E-15  2.20E-15  2.49E-15  2.80E-15  3.12E-15  3.08E-15  3.46E-15  3.82E-15
    am241   2.64E-07  3.01E-07  3.40E-07  3.80E-07  4.23E-07  4.23E-07  4.69E-07  5.16E-07
    am242m  5.47E-09  6.38E-09  7.36E-09  8.42E-09  9.56E-09  9.56E-09  1.08E-08  1.20E-08
    am242   2.90E-10  3.40E-10  3.85E-10  4.32E-10  4.82E-10  4.63E-10  5.34E-10  5.90E-10
    am243   8.11E-08  9.86E-08  1.18E-07  1.41E-07  1.66E-07  1.66E-07  1.94E-07  2.25E-07
    am244m   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
    am244   2.69E-11  3.49E-11  4.21E-11  5.01E-11  5.92E-11  5.56E-11  6.94E-11  8.07E-11
    am245   2.29E-26  3.82E-26  6.20E-26  9.81E-26  1.52E-25  1.52E-25  2.30E-25  3.42E-25
    am246    .00E+00  4.24E-33  6.99E-33  1.13E-32  1.78E-32  1.78E-32  2.75E-32  4.17E-32
    cm241   3.66E-18  4.67E-18  5.82E-18  7.14E-18  8.65E-18  8.64E-18  1.03E-17  1.23E-17
    cm242   2.99E-08  3.51E-08  4.09E-08  4.72E-08  5.40E-08  5.40E-08  6.13E-08  6.92E-08
    cm243   4.28E-10  5.30E-10  6.48E-10  7.83E-10  9.35E-10  9.35E-10  1.11E-09  1.29E-09
    cm244   6.95E-09  8.95E-09  1.14E-08  1.42E-08  1.76E-08  1.76E-08  2.16E-08  2.62E-08
    cm245   1.36E-10  1.83E-10  2.43E-10  3.17E-10  4.09E-10  4.09E-10  5.20E-10  6.54E-10
    cm246   5.12E-12  7.28E-12  1.02E-11  1.40E-11  1.90E-11  1.90E-11  2.53E-11  3.34E-11
    cm247   3.30E-14  4.96E-14  7.30E-14  1.05E-13  1.49E-13  1.49E-13  2.08E-13  2.85E-13
1
    sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                                  actinides        page   2
      power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.61E+13n/cm**2-sec
0                                          nuclide concentrations, gram atoms
                                           basis = converted to atoms/(barn-cm)
             charge   840.1 d   880.1 d   920.1 d   960.1 d   960.1 d  1000.1 d  1040.1 d
    cm248   9.52E-16  1.52E-15  2.35E-15  3.58E-15  5.32E-15  5.32E-15  7.78E-15  1.12E-14
    cm249   3.88E-21  1.04E-20  1.61E-20  2.46E-20  3.66E-20  2.02E-20  5.37E-20  7.74E-20
    cm250   9.60E-25  1.62E-24  2.66E-24  4.26E-24  6.68E-24  6.68E-24  1.03E-23  1.55E-23
    cm251    .00E+00  3.86E-32  6.35E-32  1.02E-31  1.60E-31  1.63E-32  2.46E-31  3.73E-31
   totals   2.25E-02  2.25E-02  2.24E-02  2.24E-02  2.24E-02  2.24E-02  2.24E-02  2.24E-02
0   flux              1.60E+13  1.61E+13  1.61E+13  1.61E+13   .00E+00  1.62E+13  1.62E+13
0  .results on logical unit no. 71, position  1, for time step  7, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  2, for time step  5, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  3, for time step  4, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0    .terminated logical unit no. 71 with zero flag record.
1  * normal termination of execution *
0                                   table of contents for material tables
0                                     case or subcase printed      page

                                                 1                  1
0ndset          33
          15          4          1         27          6          0          0          0          0          0
           0          0          0          0          0          0         -1       1698        690        130
         880       7935          0          5         99          2         16         96         18         18
          18          0         71
0      56q array has      2 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      57q array has      3 entries.
0       1q array has     20 entries.
0       1q array has     10 entries.
    l90   97376
    l116  60826
    l32   33663 nudata (library) storage size
    l44   33734
    l103  75953
```

```
0       58q array has      4 entries.
0       60q array has      7 entries.
0       58q array has      7 entries.
0       66q array has      1 entries.
0       73q array has   1697 entries.
0       74q array has   1697 entries.
0       75q array has   1697 entries.
     l140  66991
     used   101044 in size   200000
0jqpt          12
           0           0           0           0           0           0           0           0           0           0
           0           0
0therm          4
  5.117607E-01 4.416862E-01 3.418002E+00 1.000000E-31
0non            5
        7935          20           6          18        1697
0mm            19
           7           7           0           0           1           1           0           0           0           0
          21         100        1697           4           3          74           4           1           0
0tconst         5
  8.640000E+04 8.000961E+02  .000000E+00  .000000E+00 1.000000E-08
0mzero          4
           0         689         129         879
0pow            3
   .000000E+00  .000000E+00  .000000E+00
0 linp          9
           6           0          51          26           2        3000        1000        1697          94
 n-gamma, fission and total mev/fission =          7.0320E+00      1.9653E+02      2.0356E+02
 start of interval flux =        1.60012E+13
 n-gamma, fission and total mev/fission =          7.1140E+00      1.9661E+02      2.0372E+02
 start of interval flux =        1.60313E+13
 n-gamma, fission and total mev/fission =          7.2102E+00      1.9669E+02      2.0390E+02
 start of interval flux =        1.60621E+13
 n-gamma, fission and total mev/fission =          7.3057E+00      1.9677E+02      2.0407E+02
 start of interval flux =        1.60956E+13
 start of interval flux =         .00000E+00
 n-gamma, fission and total mev/fission =          7.4184E+00      1.9684E+02      2.0426E+02
 start of interval flux =        1.61296E+13
 n-gamma, fission and total mev/fission =          7.4947E+00      1.9692E+02      2.0441E+02
 start of interval flux =        1.61696E+13
0 case or subcase    1  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       56q array has     20 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has     20 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has     20 entries.
0       56q array has     20 entries.
0requested parm=halt8,skipcellwt,skipshipdata
  pass= 7, exec halts after pass   8
1 bbbbbbbbbbb    ooooooooooo   mn         mn                 aaaaaaaaa    mm         mm iiiiiiiiiiii    22222222222
  bbbbbbbbbbbb  oooooooooooo  mnn        mn                 aaaaaaaaaaa   mmm       mmm iiiiiiiiiiii   222222222222
  bb        bb  oo        oo  mnnn       mn                aa        aa  mmmm     mmmm      ii        22        22
  bb        bb  oo        oo  mn mn      mn                aa        aa  mm mm   mm mm      ii                  22
  bb        bb  oo        oo  mn  mn     mn                aa        aa  mm  mm mm  mm      ii                  22
  bbbbbbbbbbb   oo        oo  mn   mn    mn ------------   aaaaaaaaaaaaa  mm   mmm   mm      ii                22
  bbbbbbbbbbb   oo        oo  mn    mn   mn ------------   aaaaaaaaaaaaa  mm    m    mm      ii              22
  bb        bb  oo        oo  mn     mn  mn                aa        aa  mm         mm      ii            22
  bb        bb  oo        oo  mn      mn mn                aa        aa  mm         mm      ii          22
```



```
*******************************************************************************
*******************************************************************************
*******************************************************************************
*****                                                                     *****
*****                  program verification information                *****
*****                                                                     *****
*****                  code system:    scale  version:    4.2          *****
*****                                                                     *****
*******************************************************************************
*******************************************************************************
*****                                                                     *****
*****                                                                     *****
*****              program:  c0c008                                       *****
*****                                                                     *****
*****         creation date:  04/27/95                                    *****
*****                                                                     *****
*****              library:  /neutronics/scale/exe                        *****
*****                                                                     *****
*****                                                                     *****
*****     this is not a   scale  configuration controlled code            *****
*****                                                                     *****
*****              jobname:  davis                                        *****
*****                                                                     *****
*****     date of execution:  02/16/96                                    *****
*****                                                                     *****
*****     time of execution:  10:03:37                                    *****
*****                                                                     *****
*****                                                                     *****
*******************************************************************************
*******************************************************************************
*******************************************************************************
```

```
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has      6 entries.
0        2q array has      2 entries.
1logical assignments
0master library    12
 working library    0
 scratch file      18
 new library        1
0p r o b l e m   d e s c r i p t i o n
0igm--geometry (0/1/2/3--inf med/slab/cyl/sphere                2
0izm--number of zones or material regions                       4
0ms--mixing table length                                       66
0ibl--shielded cross section edit option (0/1--no/yes)          0
0ibr--bondarenko factor edit option (0/1--no/yes)               0
0issopt--dancoff factor option                                  0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has     66 entries.
0        4q array has     66 entries.
0        5q array has     66 entries.
0        6q array has      4 entries.
0        7q array has      4 entries.
0        8q array has      4 entries.
0        9q array has      4 entries.
```

0 10q array has 66 entries.
0 11q array has 4 entries.
0 m i x i n g t a b l e

0entry	mixture	isotope	number density	new identifier
1	1	92235	3.64452E-04	92235
2	1	92234	4.28462E-06	92234
3	1	92236	6.15586E-06	92236
4	1	92238	2.17803E-02	92238
5	1	8016	4.55359E-02	8016
6	3	8016	2.09710E-02	6
7	1	36083	1.62790E-06	36083
8	1	36085	7.82545E-07	36085
9	1	38090	1.79089E-05	38090
10	1	39089	1.44715E-05	39089
11	1	42095	1.98509E-05	42095
12	1	40093	1.44900E-05	40093
13	1	40094	2.28864E-05	40094
14	1	40095	1.96022E-06	40095
15	1	41094	1.19775E-11	41094
16	1	43099	2.23951E-05	43099
17	1	45103	1.24431E-05	45103
18	1	45105	2.38399E-08	45105
19	1	44101	2.05378E-05	44101
20	1	44106	3.08150E-06	44106
21	1	46105	8.54907E-06	46105
22	1	46108	2.52032E-06	46108
23	1	47109	1.72855E-06	47109
24	1	51124	3.84646E-10	51124
25	1	54131	1.01675E-05	54131
26	1	54132	1.98610E-05	54132
27	1	54135	6.66399E-09	54135
28	1	54136	3.91142E-05	54136
29	1	55134	1.27988E-06	55134
30	1	55135	1.24307E-05	55135
31	1	55137	2.41337E-05	55137
32	1	56136	2.66545E-07	56136
33	1	57139	2.38740E-05	57139
34	1	59141	2.08456E-05	59141
35	1	59143	3.65349E-07	59143
36	1	58144	6.86967E-06	58144
37	1	60143	1.82864E-05	60143
38	1	60145	1.36331E-05	60145
39	1	61147	4.30510E-06	61147
40	1	61148	1.28358E-08	61148
41	1	60147	1.29256E-07	60147
42	1	62147	1.79999E-06	62147
43	1	62149	8.91136E-08	62149
44	1	62150	5.01098E-06	62150
45	1	62151	4.32635E-07	62151
46	1	62152	2.36311E-06	62152
47	1	64155	2.83530E-09	64155
48	1	63153	1.53061E-06	63153
49	1	63154	3.59468E-07	63154
50	1	63155	1.67707E-07	63155
51	2	40302	4.25156E-02	40302
52	3	1001	4.19420E-02	1001
53	3	5010	3.81515E-06	5010
54	3	5011	1.54884E-05	5011
55	1	55133	2.45710E-05	55133
56	1	95237	4.70039E-06	95237

57	1	94238	8.09288E-07	94238
58	1	94239	1.16852E-04	94239
59	1	94240	2.56808E-05	94240
60	1	94241	1.47624E-05	94241
61	1	94242	2.01045E-06	94242
62	1	95241	5.15913E-07	95241
63	1	95243	2.25204E-07	95243
64	1	96244	2.62419E-08	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Ogeometry and material description

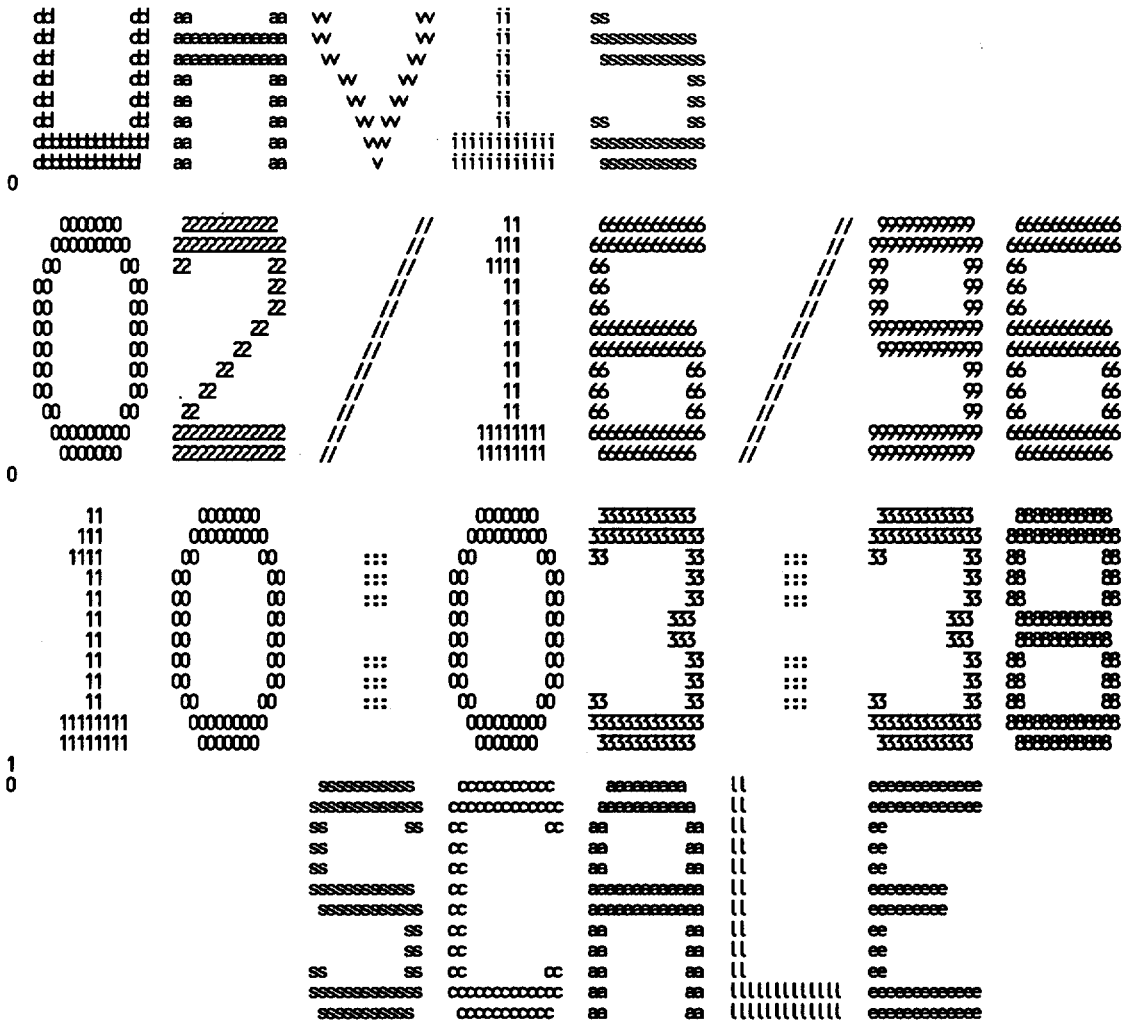
Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05844E-01	0
2	4	4.78790E-01	2.93000E+02	5.49010E-01	0
3	2	5.46100E-01	6.50000E+02	.00000E+00	0
4	3	8.13968E-01	6.07600E+02	.00000E+00	0

7711 locations of 200000 available are required to make a new master containing the self-shielded values
Ono nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

Ocopy	999	1/v cross sectio	from log	12	to log	18	bondarenko trigger 0
Ocopy	999	1/v cross sectio	from log	18	to log	1	bondarenko trigger 0
Ocopy	999	1/v cross sectio	from log	18	to log	1	bondarenko trigger 0
Ocopy	1001	hydrogen	from log	12	to log	1	bondarenko trigger 0
Ocopy	5010	b-10 1273 218mgp	from log	12	to log	1	bondarenko trigger 0
Ocopy	5011	boron-11	from log	12	to log	1	bondarenko trigger 0
Ocopy	8016	oxygen-16	from log	12	to log	18	bondarenko trigger 0
Ocopy	8016	oxygen-16	from log	18	to log	1	bondarenko trigger 0
Ocopy	8016	oxygen-16	from log	18	to log	1	bondarenko trigger 0
Ocopy	36083	kr-83	from log	12	to log	1	bondarenko trigger 0
Ocopy	36085	kr-85	from log	12	to log	1	bondarenko trigger 0
Ocopy	38090	sr-90	from log	12	to log	1	bondarenko trigger 0
Ocopy	39089	y-89	from log	12	to log	1	bondarenko trigger 0
Ocopy	40093	zr-93	from log	12	to log	1	bondarenko trigger 0
Ocopy	40094	zr-94	from log	12	to log	1	bondarenko trigger 0
Ocopy	40095	zr-95	from log	12	to log	1	bondarenko trigger 0
Ocopy	40302	zircalloy	from log	12	to log	1	bondarenko trigger 0
Ocopy	41094	nb-94	from log	12	to log	1	bondarenko trigger 0
Ocopy	42095	mo-95	from log	12	to log	1	bondarenko trigger 0
Ocopy	43099	tc-99	from log	12	to log	1	bondarenko trigger 0
Ocopy	44101	ru-101	from log	12	to log	1	bondarenko trigger 0
Ocopy	44106	ru-106	from log	12	to log	1	bondarenko trigger 0
Ocopy	45103	rh-103	from log	12	to log	1	bondarenko trigger 0
Ocopy	45105	rh-105	from log	12	to log	1	bondarenko trigger 0
Ocopy	46105	pd-105	from log	12	to log	1	bondarenko trigger 0
Ocopy	46108	pd-108	from log	12	to log	1	bondarenko trigger 0
Ocopy	47109	silver-109	from log	12	to log	1	bondarenko trigger 0
Ocopy	51124	sb-124	from log	12	to log	1	bondarenko trigger 0
Ocopy	54131	xe-131	from log	12	to log	1	bondarenko trigger 0
Ocopy	54132	xe-132	from log	12	to log	1	bondarenko trigger 0
Ocopy	54135	xenon-135	from log	12	to log	1	bondarenko trigger 0
Ocopy	54136	xe-136	from log	12	to log	1	bondarenko trigger 0
Ocopy	55133	cesium-133	from log	12	to log	1	bondarenko trigger 0
Ocopy	55134	cs-134	from log	12	to log	1	bondarenko trigger 0
Ocopy	55135	cs-135	from log	12	to log	1	bondarenko trigger 0
Ocopy	55137	cs-137	from log	12	to log	1	bondarenko trigger 0
Ocopy	56136	ba-136	from log	12	to log	1	bondarenko trigger 0
Ocopy	57139	la-139	from log	12	to log	1	bondarenko trigger 0
Ocopy	58144	ce-144	from log	12	to log	1	bondarenko trigger 0
Ocopy	59141	pr-141	from log	12	to log	1	bondarenko trigger 0
Ocopy	59143	pr-143	from log	12	to log	1	bondarenko trigger 0
Ocopy	60143	nd-143	from log	12	to log	1	bondarenko trigger 0

```
0copy    60145  nd-145          from log 12 to log  1   bondarenko trigger 0
0copy    60147  nd-147          from log 12 to log  1   bondarenko trigger 0
0copy    61147  pm-147          from log 12 to log  1   bondarenko trigger 0
0copy    61148  pm-148          from log 12 to log  1   bondarenko trigger 0
0copy    62147  sm-147          from log 12 to log  1   bondarenko trigger 0
0copy    62149  sm-149          from log 12 to log  1   bondarenko trigger 0
0copy    62150  sm-150          from log 12 to log  1   bondarenko trigger 0
0copy    62151  sm-151          from log 12 to log  1   bondarenko trigger 0
0copy    62152  sm-152          from log 12 to log  1   bondarenko trigger 0
0copy    63153  eu-153          from log 12 to log  1   bondarenko trigger 0
0copy    63154  eu-154          from log 12 to log  1   bondarenko trigger 0
0copy    63155  eu-155          from log 12 to log  1   bondarenko trigger 0
0copy    64155  gd-155          from log 12 to log  1   bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1   bondarenko trigger 0
0copy    92235  uranium-235     from log 12 to log  1   bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1   bondarenko trigger 0
0copy    92238  uranium-238     from log 12 to log  1   bondarenko trigger 0
0copy    93237  neptunium-237   from log 12 to log  1   bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1   bondarenko trigger 0
0copy    94239  plutonium-239   from log 12 to log  1   bondarenko trigger 0
0copy    94240  plutonium-240   from log 12 to log  1   bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1   bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1   bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1   bondarenko trigger 0
0copy    95243  am-243 1057 218 from log 12 to log  1   bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1   bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
           compiled for nrc     1/27/89
              last updated      9/16/93
                l.m.petrie   -   ornl
         tape id                          4321        number of nuclides                  66
         number of neutron groups           27        number of gamma groups               0
         first thermal group                15        logical unit                         1
                                   table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id      999
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id       66
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89              id     1001
       b-10 1273 218ngp 042375 p-3 293k                                            id     5010
        boron-11       endf/b-iv mat 1160            updated 10/13/89              id     5011
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id     8016
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id        6
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89              id    36083
        kr-85            mt=  102                                                  id    36085
        sr-90          mt=102                        updated 10/13/89              id    38090
         y-89          mt=102                        updated 10/13/89              id    39089
        zr-93            mt=  102                                                  id    40093
        zr-94          mt=102                        updated 10/13/89              id    40094
        zr-95          mt=102                        updated 10/13/89              id    40095
        zircalloy      endf/b-iv mat 1284            updated 10/13/89              id    40302
        nb-94          mt=102                        updated 10/13/89              id    41094
        mo-95          mt=102                        updated 10/13/89              id    42095
        tc-99          mt=102                        updated 10/13/89              id    43099
        ru-101         mt=102                        updated 10/13/89              id    44101
        ru-106         mt=102                        updated 10/13/89              id    44106
        rh-103         mt=102                        updated 10/13/89              id    45103
        rh-105           mt=  102                                                  id    45105
        pd-105         mt=102                        updated 10/13/89              id    46105
        pd-108         mt=102                        updated 10/13/89              id    46108
        silver-109     endf/b-iv mat 1139            updated 10/13/89              id    47109
```

```
      sb-124        mt=102                        updated 10/13/89          id    51124
      xe-131        mt=102,103,104,105,106        updated 10/13/89          id    54131
      xe-132        mt=102,103,104,105,106        updated 10/13/89          id    54132
      xenon-135     endf/b-iv mat 1294            updated 10/13/89          id    54135
      xe-136          mt=  102, 103, 104, 105, 107                          id    54136
      cesium-133    endf/b-iv mat 1141            updated 10/13/89          id    55133
      cs-134        mt=102                        updated 10/13/89          id    55134
      cs-135          mt=  102                                              id    55135
      cs-137        mt=102                        updated 10/13/89          id    55137
      ba-136        mt=102                        updated 10/13/89          id    56136
      la-139        mt=102                        updated 10/13/89          id    57139
      ce-144          mt=  102                                              id    58144
      pr-141        mt=102,103,104,105,106,107    updated 10/13/89          id    59141
      pr-143        mt=102                        updated 10/13/89          id    59143
      nd-143        mt=102                        updated 10/13/89          id    60143
      nd-145        mt=102                        updated 10/13/89          id    60145
      nd-147        mt=102                        updated 10/13/89          id    60147
      pm-147        mt=102                        updated 10/13/89          id    61147
      pm-148          mt=  102                                              id    61148
      sm-147        endf/b-v fission product      updated 10/13/89          id    62147
      sm-149        mt=102,103,107                updated 10/13/89          id    62149
      sm-150        mt=102                        updated 10/13/89          id    62150
      sm-151        mt=102,103,104,105,106,107    updated 10/13/89          id    62151
      sm-152        mt=102,103,104,105,106,107    updated 10/13/89          id    62152
      eu-153        mt=102,103,104,105,106,107    updated 10/13/89          id    63153
      eu-154        mt=102,103,104,105,106,107    updated 10/13/89          id    63154
      eu-155        mt=102,103,104,105,106,107    updated 10/13/89          id    63155
      gd-155        mt=102                        updated 10/13/89          id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92234
      uranium-235   endf/b-iv mat 1261            updated 10/13/89          id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92236
      uranium-238   endf/b-iv mat 1262            updated 10/13/89          id    92238
      neptunium-237 endf/b-iv mat 1263            updated 10/13/89          id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                   id    94238
      plutonium-239 endf/b-iv mat 1264            updated 10/13/89          id    94239
      plutonium-240 endf/b-iv mat 1265            updated 10/13/89          id    94240
      plutonium-241 endf/b-iv mat 1266            updated 10/13/89          id    94241
      plutonium-242 endf/b-iv mat 1161            updated 10/13/89          id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                          id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           id    95243
      curium-244    endf/b-iv mat 1162            updated 10/13/89          id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
1              rn         rn iiiiiiiiiiii   tttttttttttt     aaaaaaaaa    ww         ww ll
               rnn        rn iiiiiiiiiiii   tttttttttttt    aaaaaaaaaaa   ww         ww ll
               rnnn       rn      ii            tt        aa        aa  ww         ww ll
               rn rn      rn      ii            tt        aa        aa  ww         ww ll
               rn  rn     rn      ii            tt        aa        aa  ww         ww ll
               rn   rn    rn      ii            tt        aaaaaaaaaaaaa  ww    w    ww ll
               rn    rn   rn      ii            tt        aaaaaaaaaaaaa  ww   www   ww ll
               rn     rn  rn      ii            tt        aa        aa  ww  ww ww  ww ll
               rn.     rn rn      ii            tt        aa        aa  ww ww   ww ww ll
               rn       rnn       ii            tt        aa        aa  wwww     wwww ll
               rn        rnn iiiiiiiiiiii       tt        aa        aa  www       www llllllllllll
               rn         rn iiiiiiiiiiii       tt        aa        aa  ww         ww llllllllllll
0

  dddddddddddd     aaaaaaaaa     w         w iiiiiiiiiiii    sssssssssss
  dddddddddddd    aaaaaaaaaaa    w         w iiiiiiiiiiii    sssssssssssss
  dd        dd  aa        aa  w         w      ii        ss        ss
  dd        dd  aa        aa  w         w      ii        ss
```



program verification information

```
                    *****              code system:    scale  version:    4.2              *****
                    *****                                                                  *****
                    ***********************************************************************
                    ***********************************************************************
                    *****                                                                  *****
                    *****                                                                  *****
                    *****              program:  c0c002                                    *****
                    *****                                                                  *****
                    *****        creation date:  04/27/95                                  *****
                    *****                                                                  *****
                    *****              library:  /neutronics/scale/exe                     *****
                    *****                                                                  *****
                    *****                                                                  *****
                    *****    this is not a   scale  configuration controlled code          *****
                    *****                                                                  *****
                    *****              jobname:  davis                                     *****
                    *****                                                                  *****
                    *****    date of execution:  02/16/96                                  *****
                    *****                                                                  *****
                    *****    time of execution:  10:03:38                                  *****
                    *****                                                                  *****
                    *****                                                                  *****
                    ***********************************************************************
                    ***********************************************************************
                    ***********************************************************************
1
0       -1q array has      1 entries.
0        0q array has      9 entries.
0        1q array has     12 entries.
0select 65 nuclides from the master  library on logical  1
        0 nuclides from the working library on logical  2
        0 nuclides from the working library on logical  3
          to create the new working library on logical  4

       61 resonance calculations have been requested
        0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has     65 entries.
0        3q array has    915 entries.
0        4q array has     65 entries.
0 general information concerning cross section library
    tape identification number                 4321
    number of nuclides on tape                   66
    number of neutron energy groups              27
    first thermal neutron energy group           15
    number of gamma energy groups                 0
0   direct access unit number  9 requires 117 blocks of length  1484 words
- xsdrn tape   4321
                    scale 4.2 - 27 group neutron burnup library
                       based on endf-b version 4 data with endf-b version 5 fission products
                          compiled for nrc      1/27/89
                             last updated      9/16/93
                                l.m.petrie   -   ornl
0 nuclides from xsdrn tape
     1    1/v cross sections normalized to 1.0 at 0.0253 ev                          999
     2     hydrogen        endf/b-iv mat 1269/thnm1002    updated 10/13/89          1001
     3    b-10 1273 218ngp 042375 p-3 293k                                          5010
     4     boron-11        endf/b-iv mat 1160             updated 10/13/89          5011
     5     oxygen-16       endf/b-iv mat 1276             updated 10/13/89          8016
     6     oxygen-16       endf/b-iv mat 1276             updated 10/13/89             6
```

```
  7    kr-83          mt=102,103,103,105,106,107     updated 10/13/89          36083
  8    kr-85             mt=  102                                              36085
  9    sr-90          mt=102                         updated 10/13/89          38090
 10     y-89          mt=102                         updated 10/13/89          39089
 11    zr-93             mt=  102                                              40093
 12    zr-94          mt=102                         updated 10/13/89          40094
 13    zr-95          mt=102                         updated 10/13/89          40095
 14    zircalloy      endf/b-iv mat 1284             updated 10/13/89          40802
 15    nb-94          mt=102                         updated 10/13/89          41094
 16    mo-95          mt=102                         updated 10/13/89          42095
 17    tc-99          mt=102                         updated 10/13/89          43099
 18    ru-101         mt=102                         updated 10/13/89          44101
 19    ru-106         mt=102                         updated 10/13/89          44106
 20    rh-103         mt=102                         updated 10/13/89          45103
 21    rh-105            mt=  102                                              45105
 22    pd-105         mt=102                         updated 10/13/89          46105
 23    pd-108         mt=102                         updated 10/13/89          46108
 24    silver-109     endf/b-iv mat 1139             updated 10/13/89          47109
 25    sb-124         mt=102                         updated 10/13/89          51124
 26    xe-131         mt=102,103,104,105,106         updated 10/13/89          54131
 27    xe-132         mt=102,103,104,105,106         updated 10/13/89          54132
 28    xenon-135      endf/b-iv mat 1294             updated 10/13/89          54135
 29    xe-136            mt=  102, 103, 104, 105, 107                          54136
 30    cesium-133     endf/b-iv mat 1141             updated 10/13/89          55133
 31    cs-134         mt=102                         updated 10/13/89          55134
 32    cs-135            mt=  102                                              55135
 33    cs-137         mt=102                         updated 10/13/89          55137
 34    ba-136         mt=102                         updated 10/13/89          56136
 35    la-139         mt=102                         updated 10/13/89          57139
 36    ce-144            mt=  102                                              58144
 37    pr-141         mt=102,103,104,105,106,107     updated 10/13/89          59141
 38    pr-143         mt=102                         updated 10/13/89          59143
 39    nd-143         mt=102                         updated 10/13/89          60143
 40    nd-145         mt=102                         updated 10/13/89          60145
 41    nd-147         mt=102                         updated 10/13/89          60147
 42    pm-147         mt=102                         updated 10/13/89          61147
 43    pm-148            mt=  102                                              61148
 44    sm-147         endf/b-v fission product       updated 10/13/89          62147
 45    sm-149         mt=102,103,107                 updated 10/13/89          62149
 46    sm-150         mt=102                         updated 10/13/89          62150
 47    sm-151         mt=102,103,104,105,106,107     updated 10/13/89          62151
 48    sm-152         mt=102,103,104,105,106,107     updated 10/13/89          62152
 49    eu-153         mt=102,103,104,105,106,107     updated 10/13/89          63153
 50    eu-154         mt=102,103,104,105,106,107     updated 10/13/89          63154
 51    eu-155         mt=102,103,104,105,106,107     updated 10/13/89          63155
 52    gd-155         mt=102                         updated 10/13/89          64155
 53   u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                       92234
 54    uranium-235    endf/b-iv mat 1261             updated 10/13/89          92235
 55   u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                       92236
 56    uranium-238    endf/b-iv mat 1262             updated 10/13/89          92238
 57    neptunium-237  endf/b-iv mat 1263             updated 10/13/89          93237
 58   pu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                      94238
 59    plutonium-239  endf/b-iv mat 1264             updated 10/13/89          94239
 60    plutonium-240  endf/b-iv mat 1265             updated 10/13/89          94240
 61    plutonium-241  endf/b-iv mat 1266             updated 10/13/89          94241
 62    plutonium-242  endf/b-iv mat 1161             updated 10/13/89          94242
 63   am-241 1056 sigo=5+4 newklacs 218ngp p-3 293k                             95241
 64   am-243 1057 218 gp wt f-1/e-m 090576 p3 293k                              95243
 65    curium-244     endf/b-iv mat 1162             updated 10/13/89          96244
01/v cross sections normalized to 1.0 at 0.0253 ev                    999    temperature=  975.00
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0 hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          1001    temperature=  607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                        5010    temperature=  607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160            updated 10/13/89          5011    temperature=  607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276            updated 10/13/89          8016    temperature=  975.00
0 oxygen-16      endf/b-iv mat 1276            updated 10/13/89             6    temperature=  607.60
0 kr-83          mt=102,103,103,105,106,107    updated 10/13/89         36083    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =    82.202          temperature(kelvin)      =   975.000
0potential scatter sigma  =     7.004          lumped nuclear density   = 1.6278995E-06
0spin factor (g)          =  4988.190          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.0489573E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 1.1703092E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11      -2.429425E-03    .000000E+00   -3.070467E-03
  12       2.164846E-02    .000000E+00    9.887995E-03
  13      -5.318041E-01    .000000E+00   -1.593370E-01
  14       4.783232E-05    .000000E+00   -1.723491E-05
0excess resonance integrals
0                 resolved
0absorption      1.44660E+02
 fission          .00000E+00
- elapsed time    .00 min.
0 kr-85           mt=  102                                               36085    temperature=  975.00
0 sr-90          mt=102                        updated 10/13/89          38090    temperature=  975.00
0  y-89          mt=102                        updated 10/13/89          39089    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =    88.142          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.644          lumped nuclear density   = 1.4471508E-05
0spin factor (g)          =    78.664          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.1799717E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 1.3164805E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   9      -4.184804E-06    .000000E+00   -3.315778E-04
  10      -8.859182E-05    .000000E+00   -2.498568E-04
0excess resonance integrals
0                 resolved
0absorption      1.46374E-01
 fission          .00000E+00
- elapsed time    .00 min.
0 zr-93           mt=  102                                               40093    temperature=  975.00
0 zr-94          mt=102                        updated 10/13/89          40094    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =    93.100          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.779          lumped nuclear density   = 2.2886412E-05
0spin factor (g)          =   180.853          lump dimension (a-bar)   = 4.6812201E-01
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0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995               sigma(per absorber atom)= 7.4611826E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.953               sigma(per absorber atom)= 8.3243535E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   8      -1.463173E-06      .000000E+00    -1.371799E-03
   9      -4.468161E-05      .000000E+00    -3.950986E-03
0excess resonance integrals
0                 resolved
0absorption      3.43578E-02
 fission          .0000E+00
-  elapsed time    .00 min.
0 zr-95          mt=102                    updated 10/13/89          40095     temperature=  975.00
0 zircalloy      endf/b-iv mat 1284        updated 10/13/89          40302     temperature=  650.00
0resonance data for this nuclide
0mass number (a)         =   90.436           temperature(kelvin)      =  650.000
0potential scatter sigma =    6.385           lumped nuclear density   = 4.2515602E-02
0spin factor (g)         =    1.079           lump dimension (a-bar)   = 5.4610002E-01
0inner radius            = 4.7878999E-01      dancoff correction (c)   = 5.0364637E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   8      -1.780594E-03      .000000E+00    -1.286907E+00
   9      -5.895373E-02      .000000E+00    -2.695297E+00
  10      -6.959955E-02      .000000E+00    -1.601321E+00
  11      -1.883957E-01      .000000E+00    -7.920912E-01
0excess resonance integrals
0                 resolved
0absorption      2.28539E-01
 fission          .0000E+00
-  elapsed time    .02 min.
0 rb-94          mt=102                    updated 10/13/89          41094     temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   93.101           temperature(kelvin)      =  975.000
0potential scatter sigma =    3.779           lumped nuclear density   = 1.1977532E-11
0spin factor (g)         = 43808.801           lump dimension (a-bar)   = 4.6812201E-01
0inner radius            =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995           sigma(per absorber atom)= 1.4256668E+10
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.953           sigma(per absorber atom)= 1.5905996E+10
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  13       1.043531E-02      .000000E+00     9.253882E-04
  14       9.836712E-03      .000000E+00    -4.064814E-04
0excess resonance integrals
0                 resolved
0absorption      9.15001E+01
 fission          .0000E+00
-  elapsed time    .02 min.
0 mo-95          mt=102                    updated 10/13/89          42095     temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   94.091           temperature(kelvin)      =  975.000
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0potential scatter sigma =    3.806          lumped nuclear density   = 1.9850915E-05
0spin factor (g)         =  607.724          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995            sigma(per absorber atom)= 8.6021064E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.933            sigma(per absorber atom)= 9.5972686E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  10     -4.213186E-03    .000000E+00   -2.519524E-02
  11     -7.851104E-03    .000000E+00   -1.294423E-02
  12     -5.421113E+00    .000000E+00   -6.236655E+00
  13      1.567912E-04    .000000E+00   -2.000911E-05
0excess resonance integrals
0              resolved
0absorption    9.65135E+01
 fission        .0000E+00
- elapsed time   .02 min.
0 tc-99        mt=102                  updated 10/13/89          43099    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   98.150          temperature(kelvin)      =  975.000
0potential scatter sigma =    6.000          lumped nuclear density   = 2.2955130E-05
0spin factor (g)         = 4527.940          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995            sigma(per absorber atom)= 7.6248579E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.933            sigma(per absorber atom)= 8.5069639E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11     -2.889046E-02    .000000E+00   -1.360966E-02
  12     -7.652462E-03    .000000E+00   -2.696194E-04
  13     -4.684640E-01    .000000E+00   -2.465246E-02
  14     -9.945614E+00    .000000E+00   -3.170968E-01
  15      1.069754E-02    .000000E+00   -5.383165E-04
  16      4.835994E-03    .000000E+00   -2.802093E-04
  17      2.074366E-04    .000000E+00   -1.191927E-05
0excess resonance integrals
0              resolved
0absorption    3.21540E+02
 fission        .0000E+00
- elapsed time   .03 min.
0 ru-101       mt=102                  updated 10/13/89          44101    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =  100.089          temperature(kelvin)      =  975.000
0potential scatter sigma =    3.965          lumped nuclear density   = 2.0537844E-05
0spin factor (g)         = 8785.290          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995            sigma(per absorber atom)= 8.3143926E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.933            sigma(per absorber atom)= 9.2762695E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
```

```
  11      -3.670957E-02     .000000E+00   -3.695435E-03
  12      -1.758472E-01     .000000E+00   -4.277066E-02
  13      -5.516006E-01     .000000E+00   -1.485083E-02
  14       2.369341E-04     .000000E+00   -4.143942E-05
0excess resonance integrals
0                 resolved
0absorption      7.90961E+01
 fission          .0000E+00
- elapsed time    .03 min.
0 ru-106        mt=102                    updated 10/13/89          44106    temperature=  975.00
0 rh-103        mt=102                    updated 10/13/89          45103    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   102.021          temperature(kelvin)     =   975.000
0potential scatter sigma =     5.408          lumped nuclear density  = 1.2443061E-05
0spin factor (g)         =      .500          lump dimension (a-bar)  = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995          sigma(per absorber atom)= 1.3725287E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   237.933          sigma(per absorber atom)= 1.5310909E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9     1.220378E-03     .000000E+00    1.838315E-03
  10    -4.532174E-03     .000000E+00   -6.215322E-03
  11    -2.501817E-02     .000000E+00   -2.197417E-02
  12    -4.149507E-04     .000000E+00   -2.594820E-05
  13      .000000E+00     .000000E+00     .000000E+00
  14      .000000E+00     .000000E+00     .000000E+00
  15     2.257050E-01     .000000E+00    3.206996E-03
  16     2.989938E+01     .000000E+00   -7.773024E-02
  17    -1.871487E+02     .000000E+00   -1.707123E-01
  18     8.668073E+01     .000000E+00    2.604877E-01
  19     1.142152E+01     .000000E+00   -1.308896E-03
  20     1.081809E+00     .000000E+00   -2.425992E-03
  21     2.165767E-01     .000000E+00    1.925245E-03
  22     2.583930E-01     .000000E+00    2.928540E-03
  23    -9.878896E-02     .000000E+00    1.798803E-03
0excess resonance integrals
0                 resolved
0absorption      1.13757E+03
 fission          .0000E+00
- elapsed time    .07 min.
0 rh-105         mt=  102                                             45105    temperature=  975.00
0 pd-105        mt=102                    updated 10/13/89          46105    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   104.004          temperature(kelvin)     =   975.000
0potential scatter sigma =     4.069          lumped nuclear density  = 8.5490719E-06
0spin factor (g)         = 15210.000          lump dimension (a-bar)  = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995          sigma(per absorber atom)= 1.9974063E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   237.933          sigma(per absorber atom)= 2.2284826E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12    -6.388361E-02     .000000E+00   -1.985383E-03
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  13      -5.664188E-02     .000000E+00   -1.451314E-03
  14       7.759710E-04     .000000E+00   -8.119541E-05
0excess resonance integrals
0                 resolved
0absorption       6.11833E+01
 fission           .00000E+00
- elapsed time     .07 min.
0 pd-108          mt=102                    updated 10/13/89          46108     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   106.977          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.146          lumped nuclear density   = 2.5205244E-06
0spin factor (g)          = 21175.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 6.7753055E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953          sigma(per absorber atom)= 7.5591289E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11       1.169935E-04     .000000E+00    3.530870E-04
  12      -2.278071E+00     .000000E+00   -1.677253E+00
  13       6.742267E-03     .000000E+00    1.870996E-03
  14       8.561006E-02     .000000E+00   -3.209501E-05
  15      -1.841239E-01     .000000E+00    8.083533E-05
  16       2.946561E-04     .000000E+00   -9.255422E-06
0excess resonance integrals
0                 resolved
0absorption       2.11309E+02
 fission           .00000E+00
- elapsed time     .07 min.
0 silver-109      endf/b-iv mat 1139        updated 10/13/89          47109     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   107.969          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.988          lumped nuclear density   = 1.7285453E-06
0spin factor (g)          =  1441.870          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 9.8788094E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953          sigma(per absorber atom)= 1.1021671E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  10      -2.004977E-04     .000000E+00   -2.261498E-04
  11      -8.000466E-03     .000000E+00   -5.853405E-03
  12      -7.368214E-01     .000000E+00   -3.566231E-02
  13       7.668183E-01     .000000E+00    3.380727E-02
  14      -1.647573E+01     .000000E+00   -1.531124E+00
0excess resonance integrals
0                 resolved
0absorption       1.38134E+03
 fission           .00000E+00
- elapsed time     .07 min.
0 sb-124          mt=102                    updated 10/13/89          51124     temperature=   975.00
0 xe-131          mt=102,103,104,105,106    updated 10/13/89          54131     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   129.781          temperature(kelvin)      =   975.000
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0potential scatter sigma =    4.301          lumped nuclear density    = 1.0167540E-05
0spin factor (g)         =  246.825          lump dimension (a-bar)    = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995          sigma(per absorber atom)= 1.6794592E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.933          sigma(per absorber atom)= 1.8737529E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  9      -3.357824E-06    .000000E+00   -3.102342E-05
 10      -2.273006E-04    .000000E+00   -1.970430E-04
 11      -2.755318E-03    .000000E+00   -2.050894E-03
 12      -5.243095E-02    .000000E+00   -4.881767E-03
 13      -7.980322E+01    .000000E+00   -1.870293E+02
 14       1.050233E-02    .000000E+00    1.471501E-02
0excess resonance integrals
0                resolved
0absorption     7.4744E+02
 fission          .0000E+00
- elapsed time    .08 min.
0 xe-132      mt=102,103,104,105,106      updated 10/13/89          54132    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =  130.771          temperature(kelvin)       =  975.000
0potential scatter sigma =    4.301          lumped nuclear density    = 1.9860965E-05
0spin factor (g)         =  675.899          lump dimension (a-bar)    = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995          sigma(per absorber atom)= 8.5977539E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.933          sigma(per absorber atom)= 9.5926121E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  9      -3.071550E-05    .000000E+00   -1.421780E-04
 10      -9.339992E-03    .000000E+00   -1.188144E-01
 11       3.337750E-08    .000000E+00   -9.213736E-07
0excess resonance integrals
0                resolved
0absorption     9.6848E-01
 fission          .0000E+00
- elapsed time    .08 min.
0 xenon-135   endf/b-iv mat 1294        updated 10/13/89          54135    temperature=  975.00
0 xe-136        mt= 102, 103, 104, 105, 107                     54136    temperature=  975.00
0 cesium-133  endf/b-iv mat 1141        updated 10/13/89          55133    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =  131.764          temperature(kelvin)       =  975.000
0potential scatter sigma =    7.100          lumped nuclear density    = 2.4571029E-05
0spin factor (g)         =  374.437          lump dimension (a-bar)    = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995          sigma(per absorber atom)= 6.9496348E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  238.051          sigma(per absorber atom)= 7.4543945E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
```

```
   9      -6.734279E-05     .000000E+00   -4.651886E-04
  10      -3.395013E-03     .000000E+00   -6.490357E-03
  11      -1.260895E-01     .000000E+00   -2.203344E-01
  12      -1.956238E-01     .000000E+00   -2.720965E-02
  13      -3.254609E-01     .000000E+00   -1.770940E-02
  14      -1.403704E+01     .000000E+00   -6.143198E-01
  15       5.619422E-03     .000000E+00   -4.043774E-04
  16       2.777897E-03     .000000E+00   -2.215109E-04
  17       2.352275E-03     .000000E+00   -1.830948E-04
  18       2.215023E-03     .000000E+00   -1.679522E-04
  19       1.317540E-03     .000000E+00   -9.688846E-05
0excess resonance integrals
0                resolved
0absorption      3.4853OE+02
 fission          .00000E+00
- elapsed time    .10 min.
0 cs-134        mt=102                    updated 10/13/89              55134    temperature=  975.00
0 cs-135          mt=  102                                              55135    temperature=  975.00
0 cs-137        mt=102                    updated 10/13/89              55137    temperature=  975.00
0 ba-136        mt=102                    updated 10/13/89              56136    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   134.737          temperature(kelvin)      =   975.000
0potential scatter sigma =     4.835          lumped nuclear density   = 2.6654541E-07
0spin factor (g)         =  1247.690          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995          sigma(per absorber atom)= 6.4064013E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   237.933          sigma(per absorber atom)= 7.1475463E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
  10      9.818274E-07      .000000E+00    4.101368E-07
  11     -2.649077E-05      .000000E+00   -2.197935E-05
0excess resonance integrals
0                resolved
0absorption      1.3946BE+00
 fission          .00000E+00
- elapsed time    .10 min.
0 la-139        mt=102                    updated 10/13/89              57139    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   137.713          temperature(kelvin)      =   975.000
0potential scatter sigma =     4.906          lumped nuclear density   = 2.3873978E-05
0spin factor (g)         =   145.855          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995          sigma(per absorber atom)= 7.1525449E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   237.933          sigma(per absorber atom)= 7.9800098E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
   9     -2.480891E-05      .000000E+00   -1.666073E-03
  10     -4.548107E-04      .000000E+00   -2.495017E-02
  11       .000000E+00      .000000E+00     .000000E+00
  12     -8.164309E-02      .000000E+00   -4.928368E-02
0excess resonance integrals
0                resolved
```

```
0absorption      8.05083E+00
 fission         .00000E+00
- elapsed time   .12 min.
0 ce-144          mt=  102                                          58144    temperature=  975.00
0 pr-141        mt=102,103,104,105,106,107    updated 10/13/89      59141    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  139.697          temperature(kelvin)    =  975.000
0potential scatter sigma  =    4.953          lumped nuclear density = 2.0845648E-05
0spin factor (g)          = 1026.500          lump dimension (a-bar) = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c) = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 8.1916235E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.953             sigma(per absorber atom)= 9.1392979E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  10     -8.135539E-03    .000000E+00   -2.763613E-01
  11     -1.326336E-01    .000000E+00   -1.763402E+00
  12     -3.073294E-03    .000000E+00   -3.009180E-04
0excess resonance integrals
0                resolved
0absorption      1.20611E+01
 fission         .00000E+00
- elapsed time   .12 min.
0 pr-143        mt=102                  updated 10/13/89      59143    temperature=  975.00
0 nd-143        mt=102                  updated 10/13/89      60143    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  141.682          temperature(kelvin)    =  975.000
0potential scatter sigma  =    5.000          lumped nuclear density = 1.8286411E-05
0spin factor (g)          = 1964.850          lump dimension (a-bar) = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c) = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 9.3380645E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.953             sigma(per absorber atom)= 1.0418368E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  10     -1.801388E-04    .000000E+00   -1.069724E-04
  11     -4.224906E-01    .000000E+00   -4.906454E+00
  12     -2.802144E-01    .000000E+00   -1.378043E-01
0excess resonance integrals
0                resolved
0absorption      5.06298E+01
 fission         .00000E+00
- elapsed time   .12 min.
0 nd-145        mt=102                  updated 10/13/89      60145    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  143.668          temperature(kelvin)    =  975.000
0potential scatter sigma  =    5.047          lumped nuclear density = 1.3633068E-05
0spin factor (g)          = 1007.250          lump dimension (a-bar) = 4.6812201E-01
0inner radius             = .0000000E+00      dancoff correction (c) = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 1.2525414E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.953             sigma(per absorber atom)= 1.3974456E+04
0moderator-2 will be treated by the nordheim integral method.
```

```
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  10      -5.566130E-03     .000000E+00    -8.732536E-02
  11      -8.355895E-02     .000000E+00    -2.531122E-01
  12      -1.992898E+00     .000000E+00    -1.253801E+01
  13       9.566028E-05     .000000E+00     2.045997E-04
  14      -1.849842E+00     .000000E+00    -4.860699E-02
  15       5.895222E-03     .000000E+00    -4.604220E-04
  16       1.326667E-03     .000000E+00    -1.451281E-04
  17       9.642541E-04     .000000E+00    -1.063925E-04
  18       8.539588E-04     .000000E+00    -9.313388E-05
  19       7.634191E-04     .000000E+00    -8.069647E-05
  20       2.839438E-05     .000000E+00    -2.920866E-06
0excess resonance integrals
0                  resolved
0absorption       2.05303E+02
 fission           .00000E+00
- elapsed time    .13 min.
0 nd-147        mt=102                    updated 10/13/89          60147    temperature=   975.00
0 pm-147        mt=102                    updated 10/13/89          61147    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 4.3050986E-06
0spin factor (g)          = 21589.500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 3.9664523E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 4.4253242E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  12      -2.166141E-01     .000000E+00    -6.936160E-02
  13      -5.553136E-02     .000000E+00    -3.134629E-03
  14      -9.633698E+01     .000000E+00    -4.139169E+01
  15       4.126164E-02     .000000E+00     6.974615E-03
  16       1.697905E-02     .000000E+00     1.746689E-03
  17       1.369750E-02     .000000E+00     1.150443E-03
  18       1.253758E-02     .000000E+00     9.649043E-04
  19       6.999389E-04     .000000E+00     5.070706E-05
0excess resonance integrals
0                  resolved
0absorption       1.99739E+03
 fission           .00000E+00
- elapsed time    .13 min.
0 pm-148          mt=  102                                            61148    temperature=   975.00
0 sm-147        endf/b-v fission product  updated 10/13/89          62147    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 1.7999949E-06
0spin factor (g)          =      .000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 9.4866766E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 1.0584173E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
```

```
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11       2.611994E-01    .000000E+00    1.049366E+00
  12       7.963288E-01    .000000E+00   -1.698698E+00
  13      -4.507339E+00    .000000E+00   -2.825725E+00
  14      -5.416480E-01    .000000E+00   -7.173979E-03
  15       3.110962E-01    .000000E+00   -1.897037E-03
  16       7.287653E-03    .000000E+00   -3.738371E-04
  17       4.281464E-03    .000000E+00   -2.401531E-04
  18       3.510412E-03    .000000E+00   -1.997157E-04
  19       2.910591E-03    .000000E+00   -1.649537E-04
  20       8.434759E-04    .000000E+00   -4.626545E-05
0excess resonance integrals
0                  resolved
0absorption       7.20794E+02
 fission           .00000E+00
- elapsed time     .15 min.
                                thermal scattering matrix number   3 at a temperature of    900.03 was selected.
0 sm-149        mt=102,103,107                updated 10/13/89              62149     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   147.638              temperature(kelvin)       =   975.000
0potential scatter sigma  =     3.260              lumped nuclear density    = 8.9113627E-08
0spin factor (g)          = 10407.900              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.9162018E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 2.1378838E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11       8.546577E-03    .000000E+00    3.071155E-02
  12      -5.576071E-02    .000000E+00   -1.828570E-01
  13       2.267975E-02    .000000E+00    2.764212E-03
  14       5.020254E-04    .000000E+00   -8.204340E-03
0excess resonance integrals
0                  resolved
0absorption       8.04328E+02
 fission           .00000E+00
- elapsed time     .15 min.
0 sm-150        mt=102                        updated 10/13/89              62150     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   148.629              temperature(kelvin)       =   975.000
0potential scatter sigma  =     5.162              lumped nuclear density    = 5.0109784E-06
0spin factor (g)          = 4376.420               lump dimension (a-bar)    = 4.6812201E-01
0inner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 3.4077117E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 3.8019438E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  10      -1.657741E-03    .000000E+00   -1.602149E-02
  11      -3.778702E-02    .000000E+00   -4.268902E-01
  12      -1.232369E-01    .000000E+00   -3.724020E-02
  13      -8.618197E+00    .000000E+00   -6.782185E+00
  14       1.064539E-04    .000000E+00   -6.370232E-05
```

```
0excess resonance integrals
0                resolved
0absorption      2.85057E+02
 fission          .00000E+00
- elapsed time    .15 min.
0 sm-151        mt=102,103,104,105,106,107     updated 10/13/89            62151     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   149.623            temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.185            lumped nuclear density   = 4.3263481E-07
0spin factor (g)          = 75574.703            lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00        dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 3.9469706E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 4.4035888E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  14      -2.494376E-01     .000000E+00   -2.305733E-02
  15       1.483919E+01     .000000E+00    7.504057E-02
  16      -2.183372E+01     .000000E+00   -6.208440E-02
  17       1.734995E+02     .000000E+00    8.262178E-01
  18      -3.207909E+02     .000000E+00   -1.785116E+00
  19       6.253349E+01     .000000E+00    3.867444E-01
  20       1.141094E+00     .000000E+00   -1.387528E-04
  21      -7.117627E-02     .000000E+00    1.244099E-02
  22       6.952599E-02     .000000E+00    3.838917E-03
  23      -1.091933E-02     .000000E+00    3.374087E-04
0excess resonance integrals
0                resolved
0absorption      2.05598E+03
 fission          .00000E+00
- elapsed time    .17 min.
0 sm-152        mt=102,103,104,105,106,107     updated 10/13/89            62152     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   150.615            temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.208            lumped nuclear density   = 2.3631060E-06
0spin factor (g)          =   863.594            lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00        dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 7.2260695E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 8.0620406E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9       2.402629E-06     .000000E+00    1.158523E-04
  10      -1.917727E-03     .000000E+00   -2.963686E-02
  11      -2.752391E-02     .000000E+00   -1.047432E-01
  12      -1.840857E-01     .000000E+00   -5.836282E-01
  13       4.164582E-02     .000000E+00    1.012530E-01
  14      -1.591912E+02     .000000E+00   -3.072400E+02
0excess resonance integrals
0                resolved
0absorption      2.70562E+03
 fission          .00000E+00
- elapsed time    .17 min.
0 eu-153        mt=102,103,104,105,106,107     updated 10/13/89            63153     temperature=  975.00
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0resonance data for this nuclide
0mass number (a)          =   151.607          temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.731          lumped nuclear density   = 1.5306148E-06
0spin factor (g)          = 12265.900          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995           sigma(per absorber atom)= 1.1156282E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  237.933           sigma(per absorber atom)= 1.2446952E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -3.047509E-01     .000000E+00   -5.960166E-02
  13      -2.161284E-01     .000000E+00   -8.911429E-03
  14      -1.044091E+00     .000000E+00   -3.930978E-03
  15       6.289871E-01     .000000E+00   -5.131698E-02
  16      -3.304040E+00     .000000E+00    8.154124E-03
  17       1.505573E-01     .000000E+00   -3.437618E-03
  18       7.726830E-02     .000000E+00   -2.231212E-03
  19       5.055436E-02     .000000E+00   -1.541073E-03
  20      -1.253806E-01     .000000E+00   -1.274959E-03
0excess resonance integrals
0                  resolved
0absorption       1.35315E+03
 fission           .00000E+00
-  elapsed time    .18 min.
0 eu-154        mt=102,103,104,105,106,107     updated 10/13/89          63154     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   152.601          temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.731          lumped nuclear density   = 3.5946826E-07
0spin factor (g)          = 19135.801          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995           sigma(per absorber atom)= 4.7503416E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  237.933           sigma(per absorber atom)= 5.2999000E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -3.975526E-01     .000000E+00   -6.197735E-02
  13      -3.375991E-01     .000000E+00   -2.584699E-02
  14       2.938449E-01     .000000E+00    1.397187E-02
  15       7.538726E-02     .000000E+00    2.053046E-02
  16       7.086454E+00     .000000E+00    9.177127E-02
  17      -1.446384E+02     .000000E+00   -1.899228E+00
  18       1.132616E+02     .000000E+00    1.855863E+00
  19      -1.014847E+02     .000000E+00    1.187440E+00
0excess resonance integrals
0                  resolved
0absorption       2.13582E+03
 fission           .00000E+00
-  elapsed time    .18 min.
0 eu-155        mt=102,103,104,105,106,107     updated 10/13/89          63155     temperature=   975.00
0 gd-155        mt=102                         updated 10/13/89          64155     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   153.592          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.277          lumped nuclear density   = 2.8352998E-09
0spin factor (g)          = 12700.100          lump dimension (a-bar)   = 4.6812201E-01
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0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995               sigma(per absorber atom)= 6.0226324E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.933               sigma(per absorber atom)= 6.7195800E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -1.439346E+00     .000000E+00   -1.839517E-01
  13       1.540958E+00     .000000E+00    1.984828E-01
  14       2.188145E-01     .000000E+00    9.802756E-03
  15      -3.373435E-01     .000000E+00   -1.646314E-04
  16       1.477357E+00     .000000E+00   -4.148866E-03
  17       1.568662E-01     .000000E+00   -1.479115E-03
  18       9.605145E-02     .000000E+00   -1.078055E-03
  19       6.295369E-02     .000000E+00   -8.026906E-04
  20       1.670850E-02     .000000E+00    1.627252E-04
  21        .000000E+00     .000000E+00     .000000E+00
  22        .000000E+00     .000000E+00     .000000E+00
  23        .000000E+00     .000000E+00     .000000E+00
  24        .000000E+00     .000000E+00     .000000E+00
  25      -2.127942E+03     .000000E+00   -1.622130E+00
  26      -5.205795E+03     .000000E+00    1.961528E+00
  27      -1.660027E+03     .000000E+00    7.392855E-01
0excess resonance integrals
0                resolved
0absorption     3.97015E+04
 fission         .00000E+00
-  elapsed time    .20 min.
0u-234 1043 sigo=5+4 new+lacs p-3 293k f-1/e-m(1.+5)                    92234     temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =  232.029              temperature(kelvin)       =   975.000
0potential scatter sigma =   10.021              lumped nuclear density    = 4.2846223E-06
0spin factor (g)         =  6948.450             lump dimension (a-bar)    = 4.6812201E-01
0inner radius            =  .0000000E+00         dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =   15.995              sigma(per absorber atom)= 3.9854086E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =  237.955              sigma(per absorber atom)= 4.4451117E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      -2.047309E-02     .000000E+00   -5.972941E-02
  12      -1.670759E-01     .000000E+00   -6.992950E-02
  13       7.760423E-04     .000000E+00   -6.473117E-04
  14      -1.645193E+01     .000000E+00   -2.694678E+00
0excess resonance integrals
0                resolved
0absorption     5.84496E+02
 fission         .00000E+00
-  elapsed time    .20 min.
0 uranium-235    endf/b-iv mat 1261          updated 10/13/89            92235     temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =  233.025              temperature(kelvin)       =   975.000
0potential scatter sigma =   11.500              lumped nuclear density    = 3.6445219E-04
0spin factor (g)         = 15171.100             lump dimension (a-bar)    = 4.6812201E-01
0inner radius            =  .0000000E+00         dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
```

```
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 4.6853799E+02
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.049              sigma(per absorber atom)= 5.0281970E+02
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12     -1.548013E+00   -9.642566E-01   -3.629514E-02
  13     -5.519265E+00   -2.750468E+00   -1.197143E-01
  14     -4.442442E+00   -2.737241E+00   -3.041829E-02
0excess resonance integrals
0                 resolved
0absorption      2.14703E+02
 fission         1.27737E+02
- elapsed time    .22 min.
0u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                92236     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   234.017              temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.995              lumped nuclear density   = 6.1558632E-05
0spin factor (g)          =  6328.460              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 2.7739358E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.934              sigma(per absorber atom)= 3.0943074E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11     -2.948088E-01    .000000E+00   -7.413376E-01
  12     -1.598138E+00    .000000E+00   -1.081784E+00
  13     -6.908284E-02    .000000E+00   -3.552606E-03
  14     -5.045822E+01    .000000E+00   -4.414418E+00
0excess resonance integrals
0                 resolved
0absorption      2.68511E+02
 fission          .00000E+00
- elapsed time    .22 min.
0 uranium-238   endf/b-iv mat 1262          updated 10/13/89          92238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.006              temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.599              lumped nuclear density   = 2.1780336E-02
0spin factor (g)          =   666.527              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 7.8400850E+00
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   235.041              sigma(per absorber atom)= 3.3757189E-01
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9     -3.927211E-02    .000000E+00   -4.035209E-01
  10     -1.023942E+00   -1.742067E-05   -6.471695E+00
  11     -9.702673E+00    .000000E+00   -2.688686E+01
  12     -4.305799E+01    .000000E+00   -4.997792E+01
  13     -5.400405E+01    .000000E+00   -1.768848E+01
  14     -1.044813E+02    .000000E+00   -6.058750E+00
0excess resonance integrals
0                 resolved
```

```
0absorption       1.80663E+01
 fission          5.04115E-04
- elapsed time     .25 min.
0 neptunium-237  endf/b-iv mat 1263          updated 10/13/89          93237     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   235.012          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.500          lumped nuclear density   = 4.7003864E-06
0spin factor (g)          = 10100.800          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 3.6328859E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 3.8967465E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss       res scat
  11      -6.394980E-02  -2.252332E-06  -7.444753E-03
  12       1.017181E-02  -1.263774E-04   5.530881E-03
  13      -7.820910E-02   8.428999E-05  -3.659707E-03
  14      -1.378659E-01  -1.646240E-05  -2.075727E-03
0excess resonance integrals
0                resolved
0absorption       2.92875E+02
 fission          1.38520E-01
- elapsed time     .27 min.
0pu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                          94238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.167          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.890          lumped nuclear density   = 8.0928805E-07
0spin factor (g)          = 13130.600          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 2.1099988E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 2.2632503E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss       res scat
  11      -5.186105E-03  -8.081063E-04  -4.934089E-03
  12      -3.566360E-03  -4.077103E-04  -1.670922E-03
  13       3.811535E-01   7.427578E-02  -1.213191E-02
  14      -3.829654E-01  -7.001112E-02   8.539177E-03
0excess resonance integrals
0                resolved
0absorption       8.25002E+01
 fission          9.08183E+00
- elapsed time     .27 min.
0 plutonium-239  endf/b-iv mat 1264          updated 10/13/89          94239     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.999          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.200          lumped nuclear density   = 1.1685169E-04
0spin factor (g)          =  6435.710          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.4613369E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 1.5674755E+03
0moderator-2 will be treated by the nordheim integral method.
```

```
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11      -2.433271E-01   -9.805850E-02   -7.439817E-02
  12      -2.148567E+00   -8.067330E-01   -2.823401E-01
  13      -7.017735E+00   -4.128114E+00   -1.074359E-01
  14      -2.236326E+00   -1.190446E+00   -1.976972E-02
0excess resonance integrals
0                resolved
0absorption      3.05723E+02
 fission         1.71805E+02
- elapsed time    .28 min.
0 plutonium-240  endf/b-iv mat 1265          updated 10/13/89          94240     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   237.992          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density   = 2.5680782E-05
0spin factor (g)          =   669.244          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 6.6493179E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 7.1322651E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   9      -6.711484E-05   -2.113045E-06   -3.290113E-04
  10      -6.139901E-03   -3.795295E-04   -2.802343E-02
  11      -1.941598E-01   -1.123520E-03   -2.580330E-01
  12      -2.667729E+00   -1.456635E-02   -2.554560E+00
  13      -3.328218E-01   -2.040751E-03   -2.425588E-02
  14       .000000E+00     .000000E+00     .000000E+00
  15       1.726114E-02    3.294365E-06    3.385407E-03
  16       2.701083E+00    5.155136E-04    3.333627E-01
  17       4.089492E+02    7.709549E-02    3.576860E+01
  18      -8.924690E+03   -1.703316E+00   -7.032175E+02
  19       5.111380E+02    9.755294E-02    4.121003E+01
  20      -9.411130E+01   -1.796156E-02    1.798258E+00
0excess resonance integrals
0                resolved
0absorption      4.12001E+03
 fission         1.79168E+00
- elapsed time    .32 min.
0 plutonium-241  endf/b-iv mat 1266          updated 10/13/89          94241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   238.978          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.939          lumped nuclear density   = 1.4762393E-05
0spin factor (g)          = 16402.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.1567209E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 1.2407349E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  12      -8.929748E-03   -8.586234E-03    5.350622E-04
  13      -9.712595E-01   -7.429292E-01   -2.818558E-02
  14      -9.685243E-01   -6.832704E-01   -2.741366E-03
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  15       1.781677E-02    1.596397E-02   -4.623220E-04
0excess resonance integrals
0                  resolved
0absorption       5.06839E+02
 fission          4.25058E+02
-  elapsed time    .32 min.
0 plutonium-242  endf/b-iv mat 1161            updated 10/13/89            94242     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   240.145              temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.694              lumped nuclear density    = 2.0104515E-06
0spin factor (g)          =  6606.710              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 8.4935984E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 9.1104984E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11      -5.444935E-03     .000000E+00   -1.480576E-02
  12      -1.144884E-01     .000000E+00   -2.216890E-01
  13      -2.757552E-04     .000000E+00    9.763985E-07
  14       8.116283E-02     .000000E+00    1.516041E-02
  15      -3.984634E+01     .000000E+00   -3.216101E+00
  16       4.027087E-02     .000000E+00   -3.445925E-03
  17       1.550369E-02     .000000E+00   -1.848117E-03
  18       1.112546E-02     .000000E+00   -1.430697E-03
0excess resonance integrals
0                  resolved
0absorption       1.08606E+03
 fission          .00000E+00
-  elapsed time    .32 min.
0am-241 1056 sigp=5+4 newxlacs 218ngp p-3 293k                                95241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   238.950              temperature(kelvin)       =   975.000
0potential scatter sigma  =     9.511              lumped nuclear density    = 5.1591286E-07
0spin factor (g)          = 82058.203              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 3.3098553E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 3.5502538E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  13       4.837694E-01    1.207759E-02    4.451496E-03
  14      -4.743611E-01   -1.142380E-02   -5.411783E-03
0excess resonance integrals
0                  resolved
0absorption       1.93410E+02
 fission          1.07564E+00
-  elapsed time    .33 min.
0am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                                 95243     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   240.940              temperature(kelvin)       =   975.000
0potential scatter sigma  =     9.511              lumped nuclear density    = 2.2520386E-07
0spin factor (g)          = 82052.602              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
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0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 7.5824494E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 8.1331713E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  13      -9.115445E-03     .000000E+00     3.664919E-04
  14       1.020618E-02     .000000E+00     5.452318E-05
0excess resonance integrals
0                  resolved
0absorption       1.60134E+02
 fission           .00000E+00
- elapsed time    .33 min.
0 curium-244     endf/b-iv mat 1162          updated 10/13/89          96244     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   242.133          temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.320          lumped nuclear density    = 2.6241885E-08
0spin factor (g)          =  5251.150          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 6.5071425E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 6.9797635E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11       1.785139E-04     4.906880E-06     1.973946E-04
  12       4.277681E-04     2.202040E-05     4.707649E-05
  13       2.291097E-03     1.158380E-04     6.961012E-04
  14      -4.282206E-02    -2.562004E-03    -1.985917E-02
0excess resonance integrals
0                  resolved
0absorption       6.13745E+02
 fission          3.54127E+01
- elapsed time    .33 min.
- elapsed time    .33 min.
1     this xsdrn working tape was created 02/16/96 at 10:03:38
      the title of the parent case is as follows
      scale 4.2 - 27 group neutron burnup library
         based on endf-b version 4 data with endf-b version 5 fission products
            compiled for nrc      1/27/89
          tape id                          4321        number of nuclides                  65
          number of neutron groups           27        number of gamma groups               0
          first thermal group                15        logical unit                         4
                                  table of contents
        1/v cross sections normalized to 1.0 at 0.0253 ev                          id      999
         hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89              id     1001
        b-10 1273 218ngp 042375 p-3 293k                                           id     5010
         boron-11       endf/b-iv mat 1160            updated 10/13/89              id     5011
         oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id     8016
         oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id        6
         kr-83          mt=102,103,103,105,106,107    updated 10/13/89              id    36083
         kr-85             mt=  102                                                 id    36085
         sr-90          mt=102                        updated 10/13/89              id    38090
          y-89          mt=102                        updated 10/13/89              id    39089
         zr-93             mt=  102                                                 id    40093
         zr-94          mt=102                        updated 10/13/89              id    40094
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      zr-95          mt=102                          updated 10/13/89          id    40095
      zircalloy      endf/b-iv mat 1284              updated 10/13/89          id    40302
      nb-94          mt=102                          updated 10/13/89          id    41094
      mo-95          mt=102                          updated 10/13/89          id    42095
      tc-99          mt=102                          updated 10/13/89          id    43099
      ru-101         mt=102                          updated 10/13/89          id    44101
      ru-106         mt=102                          updated 10/13/89          id    44106
      rh-103         mt=102                          updated 10/13/89          id    45103
      rh-105           mt=  102                                                id    45105
      pd-105         mt=102                          updated 10/13/89          id    46105
      pd-108         mt=102                          updated 10/13/89          id    46108
      silver-109     endf/b-iv mat 1139              updated 10/13/89          id    47109
      sb-124         mt=102                          updated 10/13/89          id    51124
      xe-131         mt=102,103,104,105,106          updated 10/13/89          id    54131
      xe-132         mt=102,103,104,105,106          updated 10/13/89          id    54132
      xenon-135      endf/b-iv mat 1294              updated 10/13/89          id    54135
      xe-136           mt=  102, 103, 104, 105, 107                            id    54136
      cesium-133     endf/b-iv mat 1141              updated 10/13/89          id    55133
      cs-134         mt=102                          updated 10/13/89          id    55134
      cs-135           mt=  102                                                id    55135
      cs-137         mt=102                          updated 10/13/89          id    55137
      ba-136         mt=102                          updated 10/13/89          id    56136
      la-139         mt=102                          updated 10/13/89          id    57139
      ce-144           mt=  102                                                id    58144
      pr-141         mt=102,103,104,105,106,107      updated 10/13/89          id    59141
      pr-143         mt=102                          updated 10/13/89          id    59143
      nd-143         mt=102                          updated 10/13/89          id    60143
      nd-145         mt=102                          updated 10/13/89          id    60145
      nd-147         mt=102                          updated 10/13/89          id    60147
      pm-147         mt=102                          updated 10/13/89          id    61147
      pm-148           mt=  102                                                id    61148
      sm-147         endf/b-v fission product        updated 10/13/89          id    62147
      sm-149         mt=102,103,107                  updated 10/13/89          id    62149
      sm-150         mt=102                          updated 10/13/89          id    62150
      sm-151         mt=102,103,104,105,106,107      updated 10/13/89          id    62151
      sm-152         mt=102,103,104,105,106,107      updated 10/13/89          id    62152
      eu-153         mt=102,103,104,105,106,107      updated 10/13/89          id    63153
      eu-154         mt=102,103,104,105,106,107      updated 10/13/89          id    63154
      eu-155         mt=102,103,104,105,106,107      updated 10/13/89          id    63155
      gd-155         mt=102                          updated 10/13/89          id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    92234
      uranium-235    endf/b-iv mat 1261              updated 10/13/89          id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    92236
      uranium-238    endf/b-iv mat 1262              updated 10/13/89          id    92238
      neptunium-237  endf/b-iv mat 1263              updated 10/13/89          id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    94238
      plutonium-239  endf/b-iv mat 1264              updated 10/13/89          id    94239
      plutonium-240  endf/b-iv mat 1265              updated 10/13/89          id    94240
      plutonium-241  endf/b-iv mat 1266              updated 10/13/89          id    94241
      plutonium-242  endf/b-iv mat 1161              updated 10/13/89          id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                             id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                              id    95243
      curium-244     endf/b-iv mat 1162              updated 10/13/89          id    96244
0       tape copy used     0 i/o's, and took     .00 seconds
1  xx        xx  sssssssssss  dddddddddd  rrrrrrrrrrr  nn        nn  pppppppppp  mm        mm
   xx        xx  sssssssssssss dddddddddddd rrrrrrrrrrrr nnn       nn  pppppppppp  mmm       mmm
     xx     xx  ss        ss  dd        dd  rr        rr  nnnn      nn  pp        pp  mmmm     mmmm
      xx   xx   ss            dd        dd  rr        rr  nn nn     nn  pp        pp  mm mm   mm mm
       xx xx    ss            dd        dd  rr        rr  nn  nn    nn  pp        pp  mm  mm mm  mm
        xxx     sssssssssssss dd        dd  rrrrrrrrrrrr nn   nn   nn  pppppppppp  mm   mmm   mm
```
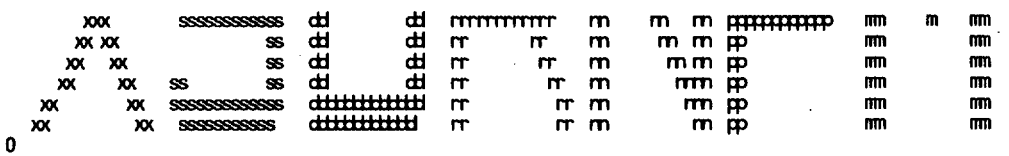
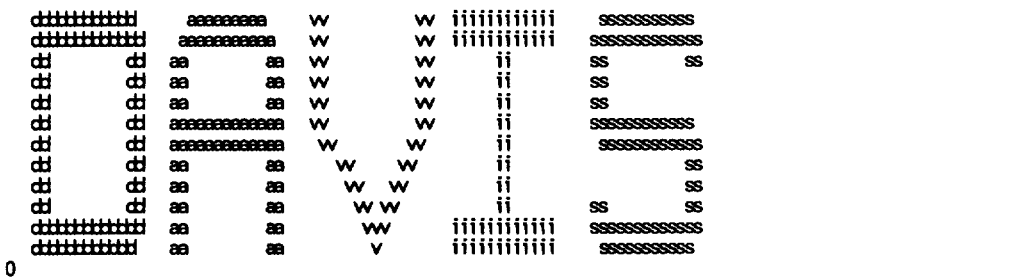
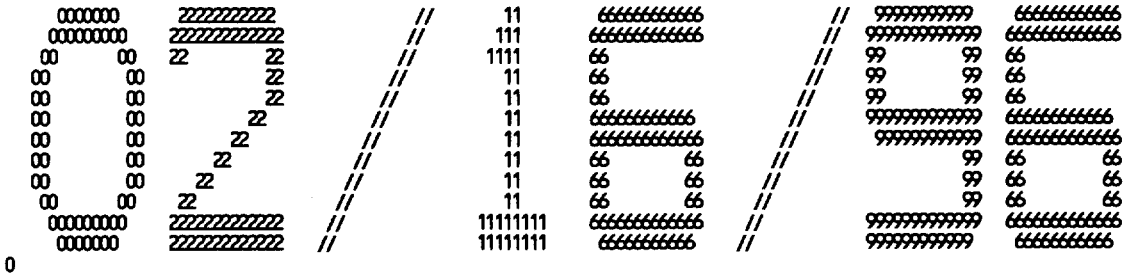
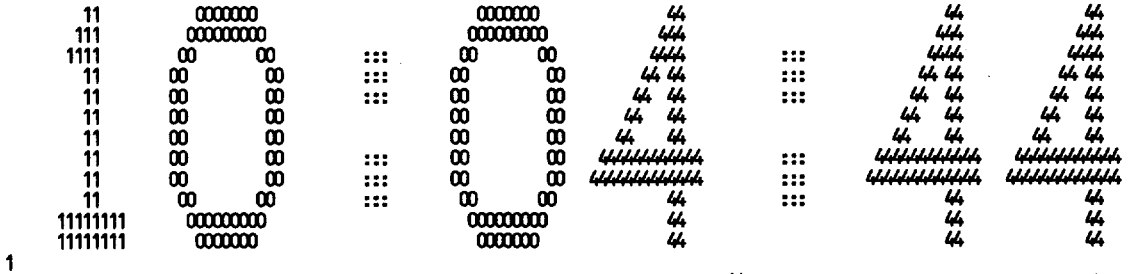
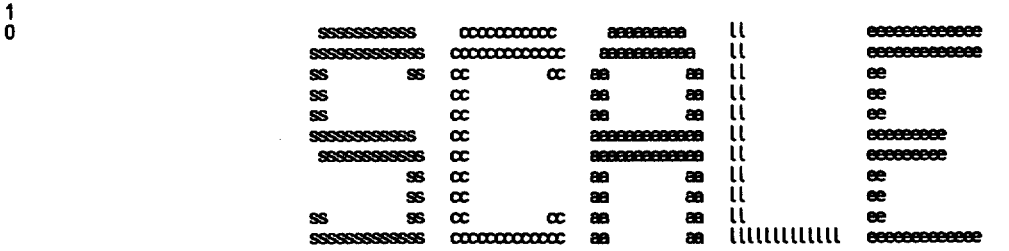











sssssssssss ccccccccccc aa aa lllllllllllll eeeeeeeeeeee

```
*********************************************************************
*********************************************************************
*********************************************************************
*****                                                           *****
*****                 program verification information           *****
*****                                                           *****
*****                 code system:  scale  version:  4.2        *****
*****                                                           *****
*********************************************************************
*********************************************************************
*****                                                           *****
*****                                                           *****
*****                       program:  c0c001                    *****
*****                                                           *****
*****                  creation date:  04/27/95                 *****
*****                                                           *****
*****                       library:  /neutronics/scale/exe     *****
*****                                                           *****
*****                                                           *****
*****  this is not a  scale  configuration controlled code      *****
*****                                                           *****
*****                       jobname:  davis                     *****
*****                                                           *****
*****  date of execution:  02/16/96                             *****
*****                                                           *****
*****  time of execution:  10:04:44                             *****
*****                                                           *****
*****                                                           *****
*********************************************************************
*********************************************************************
*********************************************************************
```

```
1
                  1040 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0      -1q array has      1 entries.
0       1q array has     15 entries.
0       2q array has     10 entries.
0       3q array has     12 entries.
0       4q array has      9 entries.
0       5q array has     12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                  1040 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0general problem description data block
0                          general problem data

 ige  1/2/3 = plane/cylinder/sphere      2      isn  quadrature order                  8
 izm  number of zones                    4      isct order of scattering               3
 im   number of special intervals       24      ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1      iim  inner iteration maximum         20
 ibr  right boundary condition           3      iom  outer iteration maximum         25
 mxx  number of mixtures                 3      iclc -1/0/n--flat res/sn/cpt           0
 ms   mixing table length               65      ith  0/1 = forward/adjoint           0
 igm  number of energy groups           27      iflu not used(always wgtd)             0
 nng  number of neutron groups          27      iprt -2/-1/0/n=mixture xsec print     -2
 ngg  number of gamma groups             0      idfl 0/1/2/3=no/prt nd/pch n/both     53
```

```
 iftg number of first thermal group      15       ipbt -1/0/1=none/fine/all bal. prt      0
0                                 special options

 ifg  0/1 = none/weighting calculation    1       ipn  0/1/2 diff. coef. param            0
 iqm  volumetric sources (0/n=no/yes)     0       idfm 0/1 = none/density factors 38*     1
 ipm  boundary sources (0/n=no/yes)       0       iaz  0/n = none/n activities by zone    0
 ifn  0/1/2 = input 33*/34*/use last     53       iai  0/1=none/activities by interval    0
 itmx maximum time (minutes)             10       ifct 0/1=no/yes upscatter scaling       0
 idt1 0/1/2/3=no/xsect/srce/flux--out     0       ipvt 0/1/2=no/k/alpha parametric srch   0
 isx  broad group fluxes                  0       isen outer iteration acceleration       0
 ibln activity data unit                  0       nbnd band rebaln parameter              0
 jbkl 0/1/2 buckling geometry             0
0                              weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight     -1       ihtf total xsect psn in brd gp tables   3
 igmf number of broad groups             27       ndsf psn g-g or file number             4
 itp  0/10/20/30/40 0/c/e/ac/a            0       nusf table length or max order          4
 ipp  -2/-1/0/n=wgted xsect print        -2       nscm extra 1-d x-sect positions         0
 iap  -1/n anisn xsect print             -1
0                            floating point parameters

 eps  overall convergence       1.00000E-04       dy   cyl/pla ht for buckling    .00000E+00
 ptc  point convergence         1.00000E-04       dz   plane depth for buckling   .00000E+00
 xnf  normalization factor      1.00000E+00       vsc  void streaming correction  .00000E+00
 ev   eigenvalue guess           .00000E+00       pv   ipvt=1/2--k/alpha          1.00000E+00
 evm  eigenvalue modifier        .00000E+00       eql  ev change eps for search   1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00       xnpm new param mod for search   7.50000E-01
     this case will require      2535 locations for mixing
     this case has been allocated 200000 locations
1                  1040 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0      13q array has     65 entries.
0      14q array has     65 entries.
0      15q array has     65 entries.
0                              data block 2 (mixing table, etc.)
0    nuclides          cccc                          mixing table                    extra
      on tape    identification              mixture   component    atom density    xsect id's
     1     999                                    1       92235    3.64452E-04
     2    1001                                    1       92234    4.28462E-06
     3    5010                                    1       92236    6.15586E-05
     4    5011                                    1       92238    2.17803E-02
     5    8016                                    1        8016    4.55359E-02
     6       6                                    3           6    2.09710E-02
     7   36083                                    1       36083    1.62790E-06
     8   36085                                    1       36085    7.82545E-07
     9   38090                                    1       38090    1.79089E-05
    10   39089                                    1       39089    1.44715E-05
    11   40093                                    1       42095    1.98509E-05
    12   40094                                    1       40093    1.44900E-05
    13   40095                                    1       40094    2.28864E-05
    14   40302                                    1       40095    1.96022E-06
    15   41094                                    1       41094    1.19775E-11
    16   42095                                    1       43099    2.29951E-05
    17   43099                                    1       45103    1.24431E-05
    18   44101                                    1       45105    2.38399E-08
    19   44106                                    1       44101    2.05378E-05
    20   45103                                    1       44106    3.08150E-06
    21   45105                                    1       46105    8.54907E-06
    22   46105                                    1       46108    2.52032E-06
    23   46108                                    1       47109    1.72855E-06
    24   47109                                    1       51124    3.84646E-10
```

25	51124	1	54131	1.01675E-05
26	54131	1	54132	1.98610E-05
27	54132	1	54135	6.66399E-09
28	54135	1	54136	3.91142E-05
29	54136	1	55134	1.27988E-06
30	55133	1	55135	1.24307E-05
31	55134	1	55137	2.41337E-05
32	55135	1	56136	2.66545E-07
33	55137	1	57139	2.38740E-05
34	56136	1	59141	2.08456E-05
35	57139	1	59143	3.65349E-07
36	58144	1	58144	6.86967E-06
37	59141	1	60143	1.82864E-05
38	59143	1	60145	1.36331E-05
39	60143	1	61147	4.30510E-06
40	60145	1	61148	1.28358E-08
41	60147	1	60147	1.29256E-07
42	61147	1	62147	1.79999E-06
43	61148	1	62149	8.91136E-08
44	62147	1	62150	5.01098E-06
45	62149	1	62151	4.32635E-07
46	62150	1	62152	2.36311E-06
47	62151	1	64155	2.83530E-09
48	62152	1	63153	1.53061E-06
49	63153	1	63154	3.59468E-07
50	63154	1	63155	1.67707E-07
51	63155	2	40802	4.25156E-02
52	64155	3	1001	4.19420E-02
53	92234	3	5010	3.81515E-06
54	92235	3	5011	1.54884E-05
55	92236	1	55133	2.45710E-05
56	92238	1	95237	4.70039E-06
57	95237	1	94238	8.09288E-07
58	94238	1	94239	1.16852E-04
59	94239	1	94240	2.56808E-05
60	94240	1	94241	1.47624E-05
61	94241	1	94242	2.01045E-06
62	94242	1	95241	5.15913E-07
63	95241	1	95243	2.25204E-07
64	95243	1	96244	2.62419E-08
65	96244	1	999	1.00000E-20

- elapsed time .00 min.
0 21649 locations will be used
0 35q array has 25 entries.
0 36q array has 24 entries.
0 38q array has 24 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 1040 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	2	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	3	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	4	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	5	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	6	0	6	1.00000E+00	

7	4.00000E+05	3.21888E+00	6.07557E+08	7	0	7	1.00000E+00
8	1.00000E+05	4.60517E+00	2.72415E+08	8	0	8	1.00000E+00
9	1.70000E+04	6.37713E+00	1.13526E+08	9	0	9	1.00000E+00
10	3.00000E+03	8.11173E+00	4.82126E+07	10	0	10	1.00000E+00
11	5.50000E+02	9.80818E+00	2.05946E+07	11	0	11	1.00000E+00
12	1.00000E+02	1.15129E+01	1.01036E+07	12	0	12	1.00000E+00
13	3.00000E+01	1.27169E+01	5.69595E+06	13	0	13	1.00000E+00
14	1.00000E+01	1.38155E+01	3.20957E+06	14	0	14	1.00000E+00
15	3.04999E+00	1.50030E+01	2.10601E+06	15	0	15	1.00000E+00
16	1.77000E+00	1.55471E+01	1.70522E+06	16	0	16	1.00000E+00
17	1.29999E+00	1.58557E+01	1.52545E+06	17	0	17	1.00000E+00
18	1.12999E+00	1.59959E+01	1.42867E+06	18	0	18	1.00000E+00
19	1.00000E+00	1.61181E+01	1.31002E+06	19	0	19	1.00000E+00
20	8.00000E-01	1.63412E+01	9.05898E+05	20	0	20	1.00000E+00
21	4.00000E-01	1.70844E+01	8.17974E+05	21	0	21	1.00000E+00
22	3.25000E-01	1.72420E+01	6.90070E+05	22	0	22	1.00000E+00
23	2.25000E-01	1.76098E+01	4.86953E+05	23	0	23	1.00000E+00
24	9.99999E-02	1.84207E+01	3.57766E+05	24	0	24	1.00000E+00
25	5.00000E-02	1.91138E+01	2.71895E+05	25	0	25	1.00000E+00
26	3.00000E-02	1.96247E+01	1.87283E+05	26	0	26	1.00000E+00
27	1.00000E-02	2.07235E+01	8.88201E+04	27	0	27	1.00000E+00
28	1.00000E-05	2.76310E+01					

1 1040 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0

	mixture by zone	order p(l) by zone	activity table matl no.	reaction	quadrature constants weights	directions	refl direc	wt x cos
1	1	3			0	-2.79004E-01	3	0
2	1	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	2	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	3	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28595E-02
7					5.55953E-02	2.31301E-01	6	1.28595E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02
16					0	-9.89032E-01	24	0
17					4.53355E-02	-9.64143E-01	24	-4.37099E-02
18					4.53355E-02	-8.17361E-01	23	-3.70555E-02
19					4.53355E-02	-5.46143E-01	22	-2.47597E-02
20					4.53355E-02	-1.91780E-01	21	-8.69444E-03
21					4.53355E-02	1.91780E-01	20	8.69444E-03
22					4.53355E-02	5.46143E-01	19	2.47597E-02
23					4.53355E-02	8.17361E-01	18	3.70555E-02
24					4.53355E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.85235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.85235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.85235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01

10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83032E-01	-4.49528E-01	8.36885E-01	5.00708E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20262E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20262E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17234E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17234E-01
22	5.46143E-01	-4.49528E-01	-3.20262E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20262E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.29551E-02	1	0	2.10906E-03	1.00000E+00	0	
2	2.59102E-02	4.33406E-02	1	1.62798E-01	9.49318E-03	1.00000E+00	0	
3	6.07710E-02	8.75100E-02	1	3.81835E-01	2.94045E-02	1.00000E+00	0	
4	1.14249E-01	1.74155E-01	1	7.17848E-01	1.31104E-01	1.00000E+00	0	
5	2.34061E-01	2.93967E-01	1	1.47065E+00	2.21259E-01	1.00000E+00		
6	3.53873E-01	3.80612E-01	1	2.22345E+00	1.27890E-01	1.00000E+00		
7	4.07351E-01	4.24781E-01	1	2.55946E+00	9.30429E-02	1.00000E+00		
8	4.42212E-01	4.55167E-01	1	2.77850E+00	7.41004E-02	1.00000E+00		
9	4.68122E-01	4.68814E-01	2	2.94130E+00	4.07944E-03	0		
10	4.69507E-01	4.71481E-01	2	2.95000E+00	1.16988E-02	0		
11	4.73456E-01	4.75431E-01	2	2.97481E+00	1.17968E-02	0		
12	4.77405E-01	4.78098E-01	2	2.99962E+00	4.16023E-03	0		
13	4.78790E-01	4.83159E-01	3	3.00833E+00	2.65268E-02	1.00000E+00		
14	4.87528E-01	4.99987E-01	3	3.06323E+00	7.82768E-02	1.00000E+00		
15	5.12445E-01	5.24903E-01	3	3.21979E+00	8.21777E-02	1.00000E+00		
16	5.37362E-01	5.41731E-01	3	3.37634E+00	2.97427E-02	1.00000E+00		
17	5.46100E-01	5.53513E-01	4	3.43125E+00	5.15631E-02	1.00000E+00		
18	5.60926E-01	5.70900E-01	4	3.52440E+00	7.15548E-02	1.00000E+00		
19	5.80874E-01	5.96175E-01	4	3.64974E+00	1.14628E-01	1.00000E+00		
20	6.11475E-01	6.45755E-01	4	3.84201E+00	2.78169E-01	1.00000E+00		
21	6.80034E-01	7.14313E-01	4	4.27278E+00	3.07702E-01	1.00000E+00		
22	7.48592E-01	7.63893E-01	4	4.70354E+00	1.46875E-01	1.00000E+00		
23	7.79193E-01	7.89167E-01	4	4.89582E+00	9.89116E-02	1.00000E+00		
24	7.99141E-01	8.06554E-01	4	5.02115E+00	7.51357E-02	1.00000E+00		
25	8.13968E-01			5.11431E+00				

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	119	-2.23557E-05	1.01176E+00	-1.25636E-02	1.00000E+00	-4.22462E-03	.00000E+00	.0000
2	185	8.53298E-06	1.01259E+00	-3.16202E-04	-1.23238E-03	-8.13098E-04	.00000E+00	.0000
3	252	3.91929E-06	1.01285E+00	-6.28068E-05	-2.22519E-04	-2.08430E-04	.00000E+00	.0000
4	265	-1.24623E-05	1.01309E+00	-1.67925E-05	-5.70544E-05	-4.65967E-05	.00000E+00	.0000

grp	to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	1	1	5.78574E-08	24	1.00000E+00	1
2	2	1	1	6.59902E-08	24	1.00000E+00	1
3	3	1	1	5.81585E-08	24	1.00000E+00	1
4	4	1	1	5.37730E-08	24	1.00000E+00	1
5	5	1	1	4.50401E-08	24	1.00000E+00	1
6	6	1	1	2.47275E-08	24	1.00000E+00	1
7	7	1	1	1.02030E-08	24	1.00000E+00	1
8	8	1	24	1.38611E-08	24	1.00000E+00	1
9	9	1	1	2.17652E-08	24	1.00000E+00	1
10	10	1	1	1.83806E-08	24	1.00000E+00	1

11	11	1	1	1.91079E-08	24	1.00000E+00	1
12	12	1	24	4.32918E-09	24	1.00000E+00	1
13	13	1	24	1.11999E-08	24	1.00000E+00	1
14	14	1	24	1.24675E-08	24	1.00000E+00	1
15	15	1	24	4.54743E-05	24	9.99967E-01	1
16	16	1	24	5.61643E-05	24	9.99974E-01	1
17	17	1	18	2.29950E-05	24	9.99947E-01	1
18	18	1	22	2.51828E-05	24	9.99879E-01	2
19	19	1	19	2.14472E-05	24	9.99942E-01	1
20	20	1	24	5.17553E-05	24	9.99956E-01	1
21	21	1	18	3.11258E-05	24	9.99933E-01	1
22	22	1	24	5.35801E-05	24	9.99984E-01	1
23	23	1	24	4.10872E-06	24	1.00000E+00	1
24	24	1	2	1.24449E-05	24	1.00001E+00	1
25	25	1	24	2.19474E-05	24	1.00001E+00	1
26	26	1	21	1.67941E-05	24	1.00003E+00	2
27	27	1	2	6.65707E-06	24	1.00001E+00	2

5 292 -1.38947E-06 1.01298E+00 -3.34742E-06 -1.28063E-05 -1.06925E-05 .00000E+00 .0167

final monitor

lambda 1.01297E+00 production/absorption 1.01297E+00 angular flux on 16

\- elapsed time .02 min.

1 1040 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 int. zone number

		radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.29551E-02	.00000E+00	2.10906E-03	2.95670E-03
2	1	2.59102E-02	4.33406E-02	1.62798E-01	9.49318E-03	1.33025E-02
3	1	6.07710E-02	8.75100E-02	3.81835E-01	2.94045E-02	4.12845E-02
4	1	1.14249E-01	1.74155E-01	7.17848E-01	1.31104E-01	1.85931E-01
5	1	2.34061E-01	2.93967E-01	1.47065E+00	2.21259E-01	3.21681E-01
6	1	3.53873E-01	3.80612E-01	2.22345E+00	1.27890E-01	1.90999E-01
7	1	4.07351E-01	4.24781E-01	2.55946E+00	9.30429E-02	1.41781E-01
8	1	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02	1.15033E-01
9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07944E-03	.00000E+00
10	2	4.69507E-01	4.71481E-01	2.95000E+00	1.16988E-02	.00000E+00
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	2	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.65268E-02	.00000E+00
14	3	4.87528E-01	4.99387E-01	3.06329E+00	7.82768E-02	.00000E+00
15	3	5.12445E-01	5.24903E-01	3.21979E+00	8.21777E-02	.00000E+00
16	3	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02	.00000E+00
17	4	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02	.00000E+00
18	4	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	4	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01	.00000E+00
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01	.00000E+00
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	4	7.48592E-01	7.63893E-01	4.70354E+00	1.46875E-01	.00000E+00
23	4	7.79193E-01	7.89167E-01	4.89582E+00	9.89116E-02	.00000E+00
24	4	7.99141E-01	8.06554E-01	5.02115E+00	7.51357E-02	.00000E+00
25		8.13968E-01		5.11431E+00		

1 1040 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 total flux

0 int.

	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.82381E-01	1.34291E+00	1.68857E+00	1.04435E+00	1.57780E+00	3.03195E+00	2.90620E+00	2.08230E+00
2	1.82446E-01	1.34355E+00	1.68941E+00	1.04493E+00	1.57850E+00	3.03325E+00	2.90686E+00	2.08236E+00
3	1.82389E-01	1.34298E+00	1.68864E+00	1.04447E+00	1.57772E+00	3.03165E+00	2.90584E+00	2.08217E+00
4	1.81984E-01	1.33866E+00	1.68321E+00	1.04117E+00	1.57248E+00	3.02121E+00	2.89956E+00	2.08111E+00
5	1.80950E-01	1.32767E+00	1.66940E+00	1.03282E+00	1.55929E+00	2.99534E+00	2.88408E+00	2.07849E+00
6	1.79713E-01	1.31511E+00	1.65383E+00	1.02348E+00	1.54463E+00	2.96699E+00	2.86721E+00	2.07560E+00
7	1.78740E-01	1.30525E+00	1.64179E+00	1.01635E+00	1.53357E+00	2.94605E+00	2.85485E+00	2.07341E+00
8	1.77771E-01	1.29562E+00	1.63023E+00	1.00960E+00	1.52326E+00	2.92691E+00	2.84366E+00	2.07136E+00
9	1.77241E-01	1.29041E+00	1.62401E+00	1.00601E+00	1.51784E+00	2.91694E+00	2.83787E+00	2.07027E+00

10	1.77130E-01	1.28936E+00	1.62277E+00	1.00532E+00	1.51684E+00	2.91516E+00	2.83688E+00	2.07007E+00
11	1.76969E-01	1.28788E+00	1.62097E+00	1.00433E+00	1.51542E+00	2.91262E+00	2.83549E+00	2.06979E+00
12	1.76862E-01	1.28682E+00	1.61980E+00	1.00368E+00	1.51451E+00	2.91100E+00	2.83460E+00	2.06960E+00
13	1.76663E-01	1.28495E+00	1.61757E+00	1.00244E+00	1.51270E+00	2.90757E+00	2.83267E+00	2.06922E+00
14	1.76123E-01	1.27964E+00	1.61103E+00	9.98605E-01	1.50690E+00	2.89632E+00	2.82627E+00	2.06817E+00
15	1.75517E-01	1.27321E+00	1.60262E+00	9.95285E-01	1.49851E+00	2.87971E+00	2.81670E+00	2.06702E+00
16	1.75221E-01	1.26965E+00	1.59758E+00	9.89811E-01	1.49279E+00	2.86817E+00	2.80999E+00	2.06650E+00
17	1.75078E-01	1.26761E+00	1.59446E+00	9.87479E-01	1.48881E+00	2.86022E+00	2.80534E+00	2.06636E+00
18	1.74891E-01	1.26497E+00	1.59046E+00	9.84505E-01	1.48376E+00	2.85026E+00	2.79948E+00	2.06621E+00
19	1.74657E-01	1.26183E+00	1.58583E+00	9.81138E-01	1.47808E+00	2.83912E+00	2.79292E+00	2.06597E+00
20	1.74345E-01	1.25778E+00	1.57993E+00	9.76919E-01	1.47101E+00	2.82529E+00	2.78479E+00	2.06563E+00
21	1.74130E-01	1.25494E+00	1.57578E+00	9.73952E-01	1.46598E+00	2.81548E+00	2.77910E+00	2.06553E+00
22	1.74132E-01	1.25482E+00	1.57549E+00	9.73649E-01	1.46544E+00	2.81447E+00	2.77866E+00	2.06575E+00
23	1.74211E-01	1.25568E+00	1.57661E+00	9.74378E-01	1.46663E+00	2.81676E+00	2.78014E+00	2.06603E+00
24	1.74301E-01	1.25670E+00	1.57798E+00	9.75278E-01	1.46809E+00	2.81961E+00	2.78193E+00	2.06631E+00

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58921E+00	1.44957E+00	1.30922E+00	7.97323E-01	6.70089E-01	5.79053E-01	3.66095E-01	2.00079E-01
2	1.58914E+00	1.44927E+00	1.30902E+00	7.97092E-01	6.69877E-01	5.78762E-01	3.66058E-01	2.00050E-01
3	1.58852E+00	1.44948E+00	1.30948E+00	7.97644E-01	6.70348E-01	5.79495E-01	3.66142E-01	2.00105E-01
4	1.59034E+00	1.45068E+00	1.31210E+00	8.00739E-01	6.73022E-01	5.83560E-01	3.66607E-01	2.00422E-01
5	1.59285E+00	1.45362E+00	1.31854E+00	8.08382E-01	6.79621E-01	5.93649E-01	3.67730E-01	2.01200E-01
6	1.59573E+00	1.45682E+00	1.32559E+00	8.16797E-01	6.86881E-01	6.04828E-01	3.68941E-01	2.02049E-01
7	1.59789E+00	1.45917E+00	1.33078E+00	8.23036E-01	6.92256E-01	6.13181E-01	3.69813E-01	2.02672E-01
8	1.59993E+00	1.46130E+00	1.33550E+00	8.28765E-01	6.97186E-01	6.20889E-01	3.70593E-01	2.03239E-01
9	1.60102E+00	1.46240E+00	1.33795E+00	8.31742E-01	6.99748E-01	6.24898E-01	3.70992E-01	2.03533E-01
10	1.60121E+00	1.46258E+00	1.33834E+00	8.32220E-01	7.00166E-01	6.25534E-01	3.71060E-01	2.03583E-01
11	1.60149E+00	1.46283E+00	1.33890E+00	8.32908E-01	7.00761E-01	6.26443E-01	3.71156E-01	2.03655E-01
12	1.60168E+00	1.46300E+00	1.33926E+00	8.33345E-01	7.01147E-01	6.27032E-01	3.71219E-01	2.03702E-01
13	1.60205E+00	1.46334E+00	1.34001E+00	8.34246E-01	7.01955E-01	6.28259E-01	3.71347E-01	2.03797E-01
14	1.60306E+00	1.46442E+00	1.34257E+00	8.37065E-01	7.04402E-01	6.31994E-01	3.71758E-01	2.04095E-01
15	1.60418E+00	1.46597E+00	1.34571E+00	8.40955E-01	7.07803E-01	6.37174E-01	3.72340E-01	2.04507E-01
16	1.60470E+00	1.46700E+00	1.34791E+00	8.43464E-01	7.09993E-01	6.40507E-01	3.72724E-01	2.04772E-01
17	1.60499E+00	1.46777E+00	1.34956E+00	8.45309E-01	7.11576E-01	6.42957E-01	3.72957E-01	2.04948E-01
18	1.60541E+00	1.46881E+00	1.35180E+00	8.47832E-01	7.13717E-01	6.46249E-01	3.73175E-01	2.05175E-01
19	1.60594E+00	1.47000E+00	1.35436E+00	8.50735E-01	7.16187E-01	6.50067E-01	3.73455E-01	2.05440E-01
20	1.60668E+00	1.47151E+00	1.35761E+00	8.54433E-01	7.19332E-01	6.54930E-01	3.73798E-01	2.05773E-01
21	1.60724E+00	1.47258E+00	1.35993E+00	8.57070E-01	7.21546E-01	6.58373E-01	3.73974E-01	2.05987E-01
22	1.60730E+00	1.47269E+00	1.36015E+00	8.57305E-01	7.21694E-01	6.58641E-01	3.73883E-01	2.05970E-01
23	1.60715E+00	1.47242E+00	1.35957E+00	8.56618E-01	7.21070E-01	6.57712E-01	3.73725E-01	2.05877E-01
24	1.60696E+00	1.47208E+00	1.35884E+00	8.55773E-01	7.20315E-01	6.56577E-01	3.73566E-01	2.05775E-01

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.82863E-02	2.69570E-02	1.13867E-01	4.10013E-01	9.95278E-02	1.57997E-01	6.31219E-01	4.73088E-01
2	7.82533E-02	2.69523E-02	1.13813E-01	4.09906E-01	9.92614E-02	1.57891E-01	6.30820E-01	4.72764E-01
3	7.83247E-02	2.72522E-02	1.13940E-01	4.10122E-01	9.94738E-02	1.58559E-01	6.31851E-01	4.73661E-01
4	7.87325E-02	2.84738E-02	1.14653E-01	4.11368E-01	1.00609E-01	1.61872E-01	6.37561E-01	4.78570E-01
5	7.97463E-02	3.17233E-02	1.16400E-01	4.14425E-01	1.03452E-01	1.70245E-01	6.51725E-01	4.90771E-01
6	8.08692E-02	3.56440E-02	1.18308E-01	4.17763E-01	1.06642E-01	1.79806E-01	6.67412E-01	5.04329E-01
7	8.17081E-02	3.89235E-02	1.19704E-01	4.20212E-01	1.09059E-01	1.87209E-01	6.79125E-01	5.14496E-01
8	8.24852E-02	4.22680E-02	1.20966E-01	4.22441E-01	1.11319E-01	1.94259E-01	6.89985E-01	5.23925E-01
9	8.28871E-02	4.40729E-02	1.21615E-01	4.23596E-01	1.12499E-01	1.97970E-01	6.95551E-01	5.28835E-01
10	8.29525E-02	4.42786E-02	1.21719E-01	4.23788E-01	1.12676E-01	1.98482E-01	6.96413E-01	5.29573E-01
11	8.30460E-02	4.45735E-02	1.21867E-01	4.24060E-01	1.12950E-01	1.99216E-01	6.97641E-01	5.30622E-01
12	8.31065E-02	4.47651E-02	1.21963E-01	4.24237E-01	1.13094E-01	1.99691E-01	6.98433E-01	5.31298E-01
13	8.32302E-02	4.51538E-02	1.22160E-01	4.24598E-01	1.13429E-01	2.00657E-01	7.00053E-01	5.32679E-01
14	8.35166E-02	4.63501E-02	1.22785E-01	4.25729E-01	1.14474E-01	2.03655E-01	7.05094E-01	5.36938E-01
15	8.41472E-02	4.79545E-02	1.23660E-01	4.27283E-01	1.15906E-01	2.07717E-01	7.11953E-01	5.42633E-01
16	8.44875E-02	4.89584E-02	1.24252E-01	4.28278E-01	1.16820E-01	2.10281E-01	7.16246E-01	5.46157E-01
17	8.47383E-02	4.97102E-02	1.24646E-01	4.28969E-01	1.17523E-01	2.12276E-01	7.19791E-01	5.49582E-01
18	8.50828E-02	5.07558E-02	1.25202E-01	4.29897E-01	1.18513E-01	2.15121E-01	7.25068E-01	5.54466E-01
19	8.54797E-02	5.19561E-02	1.25845E-01	4.30982E-01	1.19658E-01	2.18430E-01	7.31367E-01	5.60608E-01

20	8.59855E-02	5.34785E-02	1.26663E-01	4.32570E-01	1.21128E-01	2.22687E-01	7.39738E-01	5.68903E-01
21	8.63460E-02	5.45636E-02	1.27238E-01	4.33319E-01	1.22187E-01	2.25765E-01	7.46050E-01	5.75376E-01
22	8.63782E-02	5.46656E-02	1.27277E-01	4.33332E-01	1.22296E-01	2.26093E-01	7.46975E-01	5.76605E-01
23	8.62857E-02	5.43984E-02	1.27114E-01	4.33010E-01	1.22089E-01	2.25354E-01	7.45693E-01	5.75577E-01
24	8.61717E-02	5.40651E-02	1.26918E-01	4.32637E-01	1.21716E-01	2.24422E-01	7.44007E-01	5.74114E-01

0 int. grp. 25 grp. 26 grp. 27

1	1.97809E-01	1.20966E-01	1.60694E-02
2	1.97673E-01	1.20879E-01	1.60684E-02
3	1.98139E-01	1.21327E-01	1.62073E-02
4	2.00612E-01	1.23589E-01	1.68403E-02
5	2.06762E-01	1.29239E-01	1.84460E-02
6	2.13626E-01	1.35609E-01	2.03164E-02
7	2.18803E-01	1.40479E-01	2.18147E-02
8	2.23636E-01	1.45084E-01	2.32969E-02
9	2.26160E-01	1.47501E-01	2.40885E-02
10	2.26528E-01	1.47831E-01	2.41809E-02
11	2.27051E-01	1.48299E-01	2.43123E-02
12	2.27389E-01	1.48600E-01	2.43969E-02
13	2.28075E-01	1.49212E-01	2.45686E-02
14	2.30159E-01	1.51057E-01	2.50764E-02
15	2.32871E-01	1.53420E-01	2.57046E-02
16	2.34493E-01	1.54804E-01	2.60551E-02
17	2.36123E-01	1.56460E-01	2.66003E-02
18	2.38822E-01	1.59353E-01	2.75966E-02
19	2.42120E-01	1.62871E-01	2.87644E-02
20	2.46627E-01	1.67670E-01	3.03020E-02
21	2.50227E-01	1.71590E-01	3.15666E-02
22	2.51013E-01	1.72598E-01	3.19426E-02
23	2.50546E-01	1.72255E-01	3.18991E-02
24	2.49827E-01	1.71622E-01	3.17584E-02

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.31854E-02	.00000E+00	1.29920E-02	1.08272E-02	3.28173E-03	1.14174E-02	9.98839E-01
2	.00000E+00	1.94563E-01	2.39775E-03	1.68290E-01	6.70948E-02	1.36782E-02	1.16197E-01	1.00004E+00
3	.00000E+00	2.15975E-01	2.65706E-02	1.61584E-01	8.15227E-02	1.55117E-02	1.45510E-01	1.00000E+00
4	.00000E+00	1.23748E-01	3.92102E-02	1.05664E-01	6.79376E-02	7.37861E-03	8.76398E-02	1.00001E+00
5	.00000E+00	1.63943E-01	6.82620E-02	2.60003E-01	9.47533E-02	4.37817E-03	1.33075E-01	9.99992E-01
6	.00000E+00	1.76773E-01	1.35034E-01	6.53824E-01	5.43663E-02	6.84980E-03	2.50581E-01	1.00003E+00
7	.00000E+00	8.73119E-02	9.85313E-02	7.44390E-01	3.63567E-02	7.33603E-03	1.42170E-01	1.00001E+00
8	.00000E+00	1.34466E-02	4.25851E-02	6.30482E-01	2.15198E-02	1.36461E-02	2.08633E-02	1.00005E+00
9	.00000E+00	9.75775E-04	2.17433E-02	5.35903E-01	2.07200E-02	2.26987E-02	-2.06991E-02	9.99989E-01
10	.00000E+00	7.24738E-05	2.07420E-02	4.63053E-01	1.07345E-02	3.52242E-02	-2.51446E-02	1.00001E+00
11	.00000E+00	5.70172E-06	1.07355E-02	4.25674E-01	8.17623E-03	5.77065E-02	-5.51421E-02	1.00001E+00
12	.00000E+00	4.00535E-07	8.17628E-03	2.41088E-01	9.39423E-03	6.42022E-02	-6.54166E-02	9.99958E-01
13	.00000E+00	6.36013E-08	9.39424E-03	1.80290E-01	6.15279E-03	6.02052E-02	-5.69640E-02	1.00000E+00
14	.00000E+00	1.26041E-08	6.15280E-03	1.52071E-01	7.32639E-03	8.58341E-02	-8.70078E-02	1.00000E+00
15	.00000E+00	1.42440E-09	7.41172E-03	8.37812E-02	8.80050E-03	7.59718E-03	-9.07206E-03	1.00525E+00
16	.00000E+00	4.18253E-10	8.95337E-03	4.19522E-02	9.42420E-03	6.31422E-03	-6.84555E-03	1.00384E+00
17	.00000E+00	1.34698E-10	7.50465E-03	1.39004E-02	7.06917E-03	9.38662E-03	-8.97564E-03	1.00149E+00
18	.00000E+00	9.64398E-11	6.83582E-03	7.55428E-03	3.41334E-03	3.01750E-02	-2.67613E-02	1.00026E+00
19	.00000E+00	1.36345E-10	5.69446E-03	2.23549E-02	8.17551E-03	1.21377E-02	-1.46440E-02	1.00124E+00
20	.00000E+00	2.21711E-10	9.23074E-03	9.78938E-02	9.27267E-03	2.63381E-02	-2.64888E-02	1.00249E+00
21	.00000E+00	3.24514E-11	8.61736E-03	1.95256E-02	7.60776E-03	2.56944E-02	-2.47096E-02	1.00074E+00
22	.00000E+00	3.78510E-11	1.11111E-02	3.68291E-02	8.31380E-03	7.35241E-02	-7.07850E-02	1.00047E+00
23	.00000E+00	3.59985E-11	1.32075E-02	1.53627E-01	1.69174E-02	1.20497E-01	-1.24354E-01	1.00107E+00
24	.00000E+00	9.79834E-12	2.07954E-02	1.08285E-01	2.09913E-02	1.07959E-01	-1.08266E-01	1.00087E+00
25	.00000E+00	2.86831E-12	1.79975E-02	4.12148E-02	1.36521E-02	5.83624E-02	-5.40646E-02	1.00066E+00
26	.00000E+00	2.01128E-12	8.89672E-03	2.88298E-02	6.16425E-03	5.23895E-02	-4.96861E-02	1.00050E+00
27	.00000E+00	4.79298E-13	1.95224E-03	4.33982E-03	1.06015E-03	1.47001E-02	-1.38326E-02	1.00029E+00

28	.00000E+00	1.00000E+00	6.17724E-01	5.39535E+00	6.17724E-01	9.43006E-01	5.86340E-02	1.00043E+00
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.77270E-01	1.14174E-02	1.82319E-01	.00000E+00	2.31132E-03	2.68495E-03	.00000E+00	1.24165E-01
2	1.29068E+00	1.16197E-01	1.34229E+00	.00000E+00	1.68906E-05	1.18944E-02	.00000E+00	9.10031E-01
3	1.62434E+00	1.45510E-01	1.68776E+00	.00000E+00	.00000E+00	1.44862E-02	.00000E+00	1.14443E+00
4	1.00619E+00	8.76398E-02	1.04395E+00	.00000E+00	.00000E+00	6.23335E-03	.00000E+00	7.08168E-01
5	1.51810E+00	1.33075E-01	1.57709E+00	.00000E+00	.00000E+00	1.77908E-03	.00000E+00	1.06904E+00
6	2.91742E+00	2.50581E-01	3.03060E+00	.00000E+00	.00000E+00	1.46332E-03	.00000E+00	2.05374E+00
7	2.88813E+00	1.42170E-01	2.90547E+00	.00000E+00	.00000E+00	1.36962E-03	.00000E+00	1.98058E+00
8	2.07052E+00	2.08633E-02	2.08220E+00	.00000E+00	.00000E+00	1.35758E-03	.00000E+00	1.43005E+00
9	1.60097E+00	-2.06991E-02	1.58931E+00	.00000E+00	.00000E+00	1.78092E-03	.00000E+00	1.09748E+00
10	1.46235E+00	-2.51446E-02	1.44949E+00	.00000E+00	.00000E+00	3.79531E-03	.00000E+00	1.00167E+00
11	1.33784E+00	-5.51421E-02	1.30947E+00	.00000E+00	.00000E+00	8.20207E-03	.00000E+00	9.09815E-01
12	8.31615E-01	-6.54166E-02	7.97617E-01	.00000E+00	.00000E+00	1.08575E-02	.00000E+00	5.59027E-01
13	6.99638E-01	-5.69640E-02	6.70351E-01	.00000E+00	.00000E+00	1.27581E-02	.00000E+00	4.70036E-01
14	6.24730E-01	-8.70078E-02	5.79429E-01	.00000E+00	.00000E+00	7.86777E-03	.00000E+00	4.12048E-01
15	3.70981E-01	-9.07206E-03	3.66144E-01	.00000E+00	.00000E+00	1.78316E-03	.00000E+00	2.53509E-01
16	2.03522E-01	-6.84555E-03	2.00115E-01	.00000E+00	.00000E+00	1.26621E-03	.00000E+00	1.38764E-01
17	8.28729E-02	-8.97564E-03	7.85296E-02	.00000E+00	.00000E+00	1.37635E-03	.00000E+00	5.52378E-02
18	4.40207E-02	-2.67613E-02	2.69833E-02	.00000E+00	.00000E+00	8.73139E-04	.00000E+00	2.31790E-02
19	1.21593E-01	-1.46440E-02	1.13940E-01	.00000E+00	.00000E+00	2.18628E-03	.00000E+00	8.06934E-02
20	4.23559E-01	-2.64688E-02	4.10153E-01	.00000E+00	.00000E+00	1.44888E-02	.00000E+00	2.86288E-01
21	1.12458E-01	-2.47096E-02	9.94272E-02	.00000E+00	.00000E+00	1.53465E-02	.00000E+00	7.21953E-02
22	1.97834E-01	-7.07650E-02	1.58213E-01	.00000E+00	.00000E+00	4.39663E-02	.00000E+00	1.20200E-01
23	6.95310E-01	-1.24354E-01	6.31728E-01	.00000E+00	.00000E+00	7.19866E-02	.00000E+00	4.53379E-01
24	5.28625E-01	-1.08266E-01	4.73507E-01	.00000E+00	.00000E+00	6.39588E-02	.00000E+00	3.41955E-01
25	2.26057E-01	-5.40646E-02	1.98004E-01	.00000E+00	.00000E+00	3.61556E-02	.00000E+00	1.44427E-01
26	1.47409E-01	-4.96861E-02	1.21120E-01	.00000E+00	.00000E+00	3.31709E-02	.00000E+00	9.09579E-02
27	2.40635E-02	-1.38526E-02	1.60976E-02	.00000E+00	.00000E+00	9.39899E-03	.00000E+00	1.33072E-02
28	2.31779E+01	5.86341E-02	2.31411E+01	.00000E+00	2.32821E-03	3.82485E-01	.00000E+00	1.59444E+01

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-3.72529E-08	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.21541E-08	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.96046E-08	1.00000E+00
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.98023E-08	1.00000E+00
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.96046E-08	1.00000E+00
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-4.09782E-08	1.00000E+00
9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-4.65661E-08	1.00000E+00
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.35276E-08	9.99999E-01
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.11759E-08	1.00000E+00
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
14	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.32831E-08	9.99997E-01
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.58794E-09	1.00000E+00
19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.11759E-08	9.99999E-01
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.58794E-09	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86265E-09	1.00000E+00
22	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.23517E-08	1.00000E+00
23	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.11759E-08	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	9.31323E-10	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.33762E-07	1.00001E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.76835E-01	1.14174E-02	1.77270E-01	1.14174E-02	.00000E+00	.00000E+00	.00000E+00	5.61870E-03
2	1.28657E+00	1.16197E-01	1.29068E+00	1.16197E-01	.00000E+00	.00000E+00	.00000E+00	4.08937E-02
3	1.61950E+00	1.45510E-01	1.62434E+00	1.45510E-01	.00000E+00	.00000E+00	.00000E+00	5.14705E-02
4	1.00352E+00	8.76397E-02	1.00619E+00	8.76398E-02	.00000E+00	.00000E+00	.00000E+00	3.18883E-02
5	1.51428E+00	1.33075E-01	1.51810E+00	1.33075E-01	.00000E+00	.00000E+00	.00000E+00	4.81149E-02
6	2.91059E+00	2.50581E-01	2.91742E+00	2.50581E-01	.00000E+00	.00000E+00	.00000E+00	9.24733E-02
7	2.83438E+00	1.42170E-01	2.83813E+00	1.42170E-01	.00000E+00	.00000E+00	.00000E+00	9.00073E-02
8	2.06955E+00	2.08632E-02	2.07052E+00	2.08633E-02	.00000E+00	.00000E+00	.00000E+00	6.56897E-02
9	1.60173E+00	-2.06992E-02	1.60097E+00	-2.06991E-02	.00000E+00	.00000E+00	.00000E+00	5.08193E-02
10	1.46304E+00	-2.51446E-02	1.46235E+00	-2.51446E-02	.00000E+00	.00000E+00	.00000E+00	4.64195E-02
11	1.33936E+00	-5.51421E-02	1.33784E+00	-5.51421E-02	.00000E+00	.00000E+00	.00000E+00	4.24815E-02
12	8.33455E-01	-6.54166E-02	8.31615E-01	-6.54166E-02	.00000E+00	.00000E+00	.00000E+00	2.64215E-02
13	7.01244E-01	-5.69640E-02	6.99638E-01	-5.69640E-02	.00000E+00	.00000E+00	.00000E+00	2.22293E-02
14	6.27179E-01	-8.70078E-02	6.24730E-01	-8.70078E-02	.00000E+00	.00000E+00	.00000E+00	1.98658E-02
15	3.71241E-01	-9.07204E-03	3.70981E-01	-9.07206E-03	.00000E+00	.00000E+00	.00000E+00	1.17772E-02
16	2.03716E-01	-6.84555E-03	2.03522E-01	-6.84555E-03	.00000E+00	.00000E+00	.00000E+00	6.46190E-03
17	8.31248E-02	-8.97564E-03	8.28729E-02	-8.97564E-03	.00000E+00	.00000E+00	.00000E+00	2.63399E-03
18	4.48153E-02	-2.67613E-02	4.40207E-02	-2.67613E-02	.00000E+00	.00000E+00	.00000E+00	1.40986E-03
19	1.21993E-01	-1.46440E-02	1.21593E-01	-1.46440E-02	.00000E+00	.00000E+00	.00000E+00	3.86513E-03
20	4.24294E-01	-2.64688E-02	4.23559E-01	-2.64688E-02	.00000E+00	.00000E+00	.00000E+00	1.34533E-02
21	1.13141E-01	-2.47096E-02	1.12658E-01	-2.47096E-02	.00000E+00	.00000E+00	.00000E+00	3.57981E-03
22	1.99810E-01	-7.07650E-02	1.97834E-01	-7.07650E-02	.00000E+00	.00000E+00	.00000E+00	6.31047E-03
23	6.98619E-01	-1.24354E-01	6.95310E-01	-1.24354E-01	.00000E+00	.00000E+00	.00000E+00	2.21202E-02
24	5.31452E-01	-1.08266E-01	5.28625E-01	-1.08266E-01	.00000E+00	.00000E+00	.00000E+00	1.68227E-02
25	2.27468E-01	-5.40644E-02	2.26057E-01	-5.40644E-02	.00000E+00	.00000E+00	.00000E+00	7.19716E-03
26	1.48671E-01	-4.96861E-02	1.47409E-01	-4.96861E-02	.00000E+00	.00000E+00	.00000E+00	4.69882E-03
27	2.44175E-02	-1.38526E-02	2.40635E-02	-1.38526E-02	.00000E+00	.00000E+00	.00000E+00	7.69458E-04
28	2.31740E+01	5.86336E-02	2.31779E+01	5.86341E-02	.00000E+00	.00000E+00	.00000E+00	7.35495E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	3.89747E-03	2.92165E-03	1.49722E-05	-2.85240E-03	1.00001E+00
2	.00000E+00	.00000E+00	5.10259E-04	2.62155E-02	1.88109E-02	5.20813E-05	-1.85530E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.68711E-03	5.03761E-02	1.59284E-02	1.37782E-04	-1.33780E-02	9.99995E-01
4	.00000E+00	.00000E+00	5.17995E-03	4.22153E-02	5.46597E-03	1.03634E-04	-3.89203E-04	9.99995E-01
5	.00000E+00	.00000E+00	1.11564E-02	8.17470E-02	5.16988E-03	1.52295E-04	5.85398E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.85975E-02	2.35127E-01	3.21269E-03	3.20176E-04	1.50649E-02	1.00000E+00
7	.00000E+00	.00000E+00	1.23587E-02	2.35259E-01	1.18253E-03	3.44858E-04	1.08316E-02	9.99998E-01
8	.00000E+00	.00000E+00	2.16706E-03	1.58680E-01	7.64071E-03	2.95102E-04	-5.76934E-03	1.00038E+00
9	.00000E+00	.00000E+00	7.67421E-03	1.05330E-01	8.78040E-04	1.11068E-03	5.68567E-03	9.99992E-01
10	.00000E+00	.00000E+00	8.79224E-04	8.57581E-02	8.50869E-04	8.37479E-04	-8.09178E-04	1.00000E+00
11	.00000E+00	.00000E+00	8.50931E-04	7.72845E-02	8.72815E-04	1.34101E-03	-1.36291E-03	1.00000E+00
12	.00000E+00	.00000E+00	8.72821E-04	4.69086E-02	8.72719E-04	4.17641E-05	-4.17754E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.72720E-04	3.94952E-02	8.05675E-04	5.99651E-05	7.15256E-06	9.99999E-01
14	.00000E+00	.00000E+00	8.05676E-04	3.55857E-02	6.70617E-04	9.47841E-05	4.02629E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.13866E-04	2.04299E-02	8.36128E-04	8.20439E-05	-2.03717E-04	9.99941E-01
16	.00000E+00	.00000E+00	9.30922E-04	1.07411E-02	9.30516E-04	5.06144E-05	-4.98118E-05	9.99949E-01
17	.00000E+00	.00000E+00	9.80395E-04	3.84579E-03	9.46652E-04	2.32333E-05	1.05482E-05	9.99996E-01
18	.00000E+00	.00000E+00	9.90550E-04	2.03699E-03	6.57734E-04	1.39492E-05	3.18820E-04	1.00000E+00
19	.00000E+00	.00000E+00	7.12318E-04	6.13518E-03	9.05190E-04	3.97476E-05	-2.32544E-04	9.99995E-01
20	.00000E+00	.00000E+00	1.07841E-03	2.33730E-02	9.93670E-04	1.73780E-04	-8.82149E-05	9.99970E-01
21	.00000E+00	.00000E+00	1.21549E-03	5.31273E-03	1.26902E-03	5.85300E-05	-1.11971E-04	9.99997E-01
22	.00000E+00	.00000E+00	1.60204E-03	1.03677E-02	1.38561E-03	1.20802E-04	9.59337E-05	9.99996E-01
23	.00000E+00	.00000E+00	2.08594E-03	3.77100E-02	2.76855E-03	5.71084E-04	-1.25364E-03	1.00000E+00
24	.00000E+00	.00000E+00	3.43304E-03	2.71211E-02	3.72196E-03	6.31776E-04	-9.20936E-04	1.00000E+00
25	.00000E+00	.00000E+00	3.36262E-03	1.05188E-02	2.70740E-03	3.57771E-04	2.97349E-04	1.00000E+00
26	.00000E+00	.00000E+00	1.40900E-03	7.68174E-03	1.01516E-03	3.35432E-04	5.84386E-05	9.99999E-01
27	.00000E+00	.00000E+00	2.94362E-04	1.44954E-03	7.46856E-07	1.06021E-04	1.87588E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.34216E-02	1.39060E+00	8.34216E-02	7.47136E-03	-7.36431E-03	9.99977E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux

1	1.75162E-01	8.58500E-03	1.76835E-01	1.14174E-02	1.04387E-04	.00000E+00	.00000E+00	3.81077E-02
2	1.26884E+00	9.78441E-02	1.28657E+00	1.16197E-01	.00000E+00	.00000E+00	.00000E+00	2.76644E-01
3	1.59635E+00	1.32132E-01	1.61950E+00	1.45510E-01	.00000E+00	.00000E+00	.00000E+00	3.48232E-01
4	9.88902E-01	8.72505E-02	1.00352E+00	8.76397E-02	.00000E+00	.00000E+00	.00000E+00	2.15825E-01
5	1.49125E+00	1.38909E-01	1.51428E+00	1.33075E-01	.00000E+00	.00000E+00	.00000E+00	3.25626E-01
6	2.86502E+00	2.65646E-01	2.91059E+00	2.50581E-01	.00000E+00	.00000E+00	.00000E+00	6.25798E-01
7	2.80816E+00	1.53002E-01	2.83438E+00	1.42170E-01	.00000E+00	.00000E+00	.00000E+00	6.11420E-01
8	2.06641E+00	1.50795E-02	2.08955E+00	2.08532E-02	.00000E+00	.00000E+00	.00000E+00	4.48106E-01
9	1.60480E+00	-1.50135E-02	1.60173E+00	-2.06992E-02	.00000E+00	.00000E+00	.00000E+00	3.47536E-01
10	1.46727E+00	-2.59538E-02	1.46304E+00	-2.51446E-02	.00000E+00	.00000E+00	.00000E+00	3.17550E-01
11	1.34849E+00	-5.65051E-02	1.33956E+00	-5.51421E-02	.00000E+00	.00000E+00	.00000E+00	2.91301E-01
12	8.44113E-01	-6.54584E-02	8.33455E-01	-6.54166E-02	.00000E+00	.00000E+00	.00000E+00	1.81847E-01
13	7.10562E-01	-5.69569E-02	7.01264E-01	-5.69640E-02	.00000E+00	.00000E+00	.00000E+00	1.53041E-01
14	6.41366E-01	-8.69675E-02	6.27179E-01	-8.70078E-02	.00000E+00	.00000E+00	.00000E+00	1.37547E-01
15	3.72852E-01	-9.27576E-03	3.71241E-01	-9.07204E-03	.00000E+00	.00000E+00	.00000E+00	8.06345E-02
16	2.04843E-01	-6.89536E-03	2.03716E-01	-6.84555E-03	.00000E+00	.00000E+00	.00000E+00	4.42783E-02
17	8.45783E-02	-8.96509E-03	8.31268E-02	-8.97564E-03	.00000E+00	.00000E+00	.00000E+00	1.81810E-02
18	4.92158E-02	-2.64424E-02	4.48153E-02	-2.67613E-02	.00000E+00	.00000E+00	.00000E+00	1.02225E-02
19	1.24387E-01	-1.48766E-02	1.21993E-01	-1.46440E-02	.00000E+00	.00000E+00	.00000E+00	2.67088E-02
20	4.28547E-01	-2.65570E-02	4.24294E-01	-2.64688E-02	.00000E+00	.00000E+00	.00000E+00	9.24392E-02
21	1.17061E-01	-2.48216E-02	1.13141E-01	-2.47096E-02	.00000E+00	.00000E+00	.00000E+00	2.49690E-02
22	2.10934E-01	-7.06690E-02	1.99810E-01	-7.07650E-02	.00000E+00	.00000E+00	.00000E+00	4.45882E-02
23	7.17324E-01	-1.25608E-01	6.98619E-01	-1.24354E-01	.00000E+00	.00000E+00	.00000E+00	1.53571E-01
24	5.47018E-01	-1.09187E-01	5.31452E-01	-1.08266E-01	.00000E+00	.00000E+00	.00000E+00	1.16997E-01
25	2.34880E-01	-5.37672E-02	2.27468E-01	-5.40646E-02	.00000E+00	.00000E+00	.00000E+00	5.01775E-02
26	1.55127E-01	-4.96277E-02	1.48671E-01	-4.96861E-02	.00000E+00	.00000E+00	.00000E+00	3.29944E-02
27	2.61341E-02	-1.36450E-02	2.44175E-02	-1.38526E-02	.00000E+00	.00000E+00	.00000E+00	5.50192E-03
28	2.31498E+01	5.12699E-02	2.31740E+01	5.86336E-02	1.04387E-04	.00000E+00	.00000E+00	5.01984E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	6.15830E-03	8.15102E-03	4.34413E-04	-8.58500E-03	9.99950E-01
2	.00000E+00	.00000E+00	4.67689E-03	7.71794E-02	1.01438E-01	1.08683E-03	-9.78441E-02	9.99961E-01
3	.00000E+00	.00000E+00	4.81474E-02	6.92896E-02	1.80278E-01	5.44607E-06	-1.32132E-01	9.99978E-01
4	.00000E+00	.00000E+00	7.06872E-02	4.59665E-02	1.57986E-01	3.23892E-06	-8.72505E-02	9.99988E-01
5	.00000E+00	.00000E+00	1.30458E-01	1.48682E-01	2.69367E-01	3.77982E-06	-1.38909E-01	9.99991E-01
6	.00000E+00	.00000E+00	2.75673E-01	4.55453E-01	5.41308E-01	1.14811E-05	-2.65646E-01	9.99998E-01
7	.00000E+00	.00000E+00	5.53301E-01	7.95434E-01	7.06287E-01	2.53598E-05	-1.53002E-01	9.99987E-01
8	.00000E+00	.00000E+00	7.35840E-01	1.00151E+00	7.50953E-01	4.70397E-05	-1.50957E-02	9.99912E-01
9	.00000E+00	.00000E+00	7.41206E-01	9.16999E-01	7.26178E-01	9.60052E-05	1.50135E-02	9.99889E-01
10	.00000E+00	.00000E+00	7.22838E-01	8.66981E-01	6.96747E-01	2.11842E-04	2.59538E-02	9.99896E-01
11	.00000E+00	.00000E+00	7.01622E-01	8.07529E-01	6.44700E-01	4.58575E-04	5.65050E-02	9.99940E-01
12	.00000E+00	.00000E+00	5.61142E-01	4.20778E-01	4.95097E-01	5.98718E-04	6.54584E-02	9.99979E-01
13	.00000E+00	.00000E+00	4.91056E-01	3.37808E-01	4.33217E-01	8.97295E-04	5.69569E-02	9.99970E-01
14	.00000E+00	.00000E+00	4.70578E-01	3.19919E-01	3.82167E-01	1.44786E-03	8.69675E-02	9.99989E-01
15	.00000E+00	.00000E+00	2.50024E-01	1.27829E-01	2.39475E-01	1.27366E-03	9.27523E-03	9.99999E-01
16	.00000E+00	.00000E+00	1.65622E-01	5.35826E-02	1.57859E-01	8.67361E-04	6.89527E-03	9.99997E-01
17	.00000E+00	.00000E+00	8.49281E-02	1.45222E-02	7.55586E-02	4.05641E-04	8.96078E-03	1.00004E+00
18	.00000E+00	.00000E+00	7.48727E-02	8.81425E-03	4.81629E-02	2.69682E-04	2.64364E-02	1.00006E+00
19	.00000E+00	.00000E+00	1.20894E-01	3.17342E-02	1.05323E-01	6.95581E-04	1.48701E-02	1.00004E+00
20	.00000E+00	.00000E+00	2.95333E-01	2.33311E-01	2.63790E-01	2.98487E-03	2.65563E-02	1.00001E+00
21	.00000E+00	.00000E+00	1.35923E-01	4.23052E-02	1.10055E-01	1.04823E-03	2.48134E-02	1.00004E+00
22	.00000E+00	.00000E+00	2.55156E-01	1.17117E-01	1.82259E-01	2.22618E-03	7.06706E-02	9.99999E-01
23	.00000E+00	.00000E+00	5.96057E-01	7.01015E-01	4.60338E-01	1.01064E-02	1.25608E-01	1.00001E+00
24	.00000E+00	.00000E+00	6.04357E-01	6.26760E-01	4.85801E-01	1.13627E-02	1.09190E-01	1.00000E+00
25	.00000E+00	.00000E+00	3.90581E-01	2.56743E-01	3.30301E-01	6.51192E-03	5.37661E-02	1.00001E+00
26	.00000E+00	.00000E+00	3.08856E-01	2.73811E-01	2.52900E-01	6.32557E-03	4.96356E-02	9.99981E-01
27	.00000E+00	.00000E+00	1.02984E-01	5.72154E-02	8.71618E-02	2.17708E-03	1.36453E-02	9.99998E-01
28	.00000E+00	.00000E+00	8.89081E+00	8.81445E+00	8.89081E+00	5.15827E-02	-5.12840E-02	9.99967E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.74348E-01	3.18745E-09	1.75162E-01	8.58500E-03	4.50774E-10	.00000E+00	.00000E+00	1.99543E-01

2	1.25723E+00	-1.07280E-08	1.26884E+00	9.78441E-02	.00000E+00	.00000E+00	.00000E+00	1.43947E+00
3	1.57869E+00	-1.82101E-07	1.59635E+00	1.32132E-01	.00000E+00	.00000E+00	.00000E+00	1.80807E+00
4	9.75745E-01	-1.69666E-08	9.89902E-01	8.72505E-02	.00000E+00	.00000E+00	.00000E+00	1.11792E+00
5	1.46885E+00	-6.87630E-10	1.49125E+00	1.38909E-01	.00000E+00	.00000E+00	.00000E+00	1.68825E+00
6	2.82110E+00	1.04633E-07	2.86502E+00	2.65644E-01	.00000E+00	.00000E+00	.00000E+00	3.23295E+00
7	2.78287E+00	-5.72649E-08	2.80816E+00	1.53002E-01	.00000E+00	.00000E+00	.00000E+00	3.18702E+00
8	2.06644E+00	1.45577E-07	2.06641E+00	1.50939E-02	.00000E+00	.00000E+00	.00000E+00	2.36439E+00
9	1.60686E+00	-2.25194E-08	1.60480E+00	-1.50135E-02	.00000E+00	.00000E+00	.00000E+00	1.83958E+00
10	1.47191E+00	4.32910E-08	1.46727E+00	-2.59538E-02	.00000E+00	.00000E+00	.00000E+00	1.68428E+00
11	1.35846E+00	-1.14983E-08	1.34849E+00	-5.65051E-02	.00000E+00	.00000E+00	.00000E+00	1.55401E+00
12	8.55330E-01	1.09428E-08	8.44113E-01	-6.54584E-02	.00000E+00	.00000E+00	.00000E+00	9.78115E-01
13	7.19921E-01	-4.60423E-09	7.10562E-01	-5.69569E-02	.00000E+00	.00000E+00	.00000E+00	8.23415E-01
14	6.55984E-01	8.07822E-09	6.41366E-01	-8.69675E-02	.00000E+00	.00000E+00	.00000E+00	7.49799E-01
15	3.73492E-01	-5.27418E-07	3.72852E-01	-9.27576E-03	.00000E+00	.00000E+00	.00000E+00	4.27740E-01
16	2.05725E-01	-8.87998E-08	2.04843E-01	-6.89536E-03	.00000E+00	.00000E+00	.00000E+00	2.35497E-01
17	8.61152E-02	-4.30856E-06	8.45783E-02	-8.96509E-03	.00000E+00	.00000E+00	.00000E+00	9.84392E-02
18	5.38955E-02	-6.05269E-06	4.92158E-02	-2.64424E-02	.00000E+00	.00000E+00	.00000E+00	6.12879E-02
19	1.26821E-01	-6.40948E-06	1.24387E-01	-1.48766E-02	.00000E+00	.00000E+00	.00000E+00	1.44999E-01
20	4.32457E-01	-6.47404E-07	4.28547E-01	-2.66570E-02	.00000E+00	.00000E+00	.00000E+00	4.94870E-01
21	1.21553E-01	-8.18080E-06	1.17061E-01	-2.48216E-02	.00000E+00	.00000E+00	.00000E+00	1.38726E-01
22	2.29352E-01	1.60042E-06	2.10934E-01	-7.06690E-02	.00000E+00	.00000E+00	.00000E+00	2.55149E-01
23	7.43099E-01	-1.16484E-07	7.17324E-01	-1.25608E-01	.00000E+00	.00000E+00	.00000E+00	8.47536E-01
24	5.73308E-01	3.00304E-06	5.47018E-01	-1.09187E-01	.00000E+00	.00000E+00	.00000E+00	6.52316E-01
25	2.49426E-01	-1.13063E-06	2.34880E-01	-5.37672E-02	.00000E+00	.00000E+00	.00000E+00	2.88037E-01
26	1.71255E-01	7.89560E-06	1.55127E-01	-4.96277E-02	.00000E+00	.00000E+00	.00000E+00	1.92862E-01
27	3.16723E-02	3.10201E-07	2.61341E-02	-1.36450E-02	.00000E+00	.00000E+00	.00000E+00	3.50186E-02
28	2.31865E+01	-1.47269E-05	2.31496E+01	5.12699E-02	4.50774E-10	.00000E+00	.00000E+00	2.65287E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.31854E-02	.00000E+00	2.30478E-02	2.18999E-02	3.73111E-03	3.18745E-09	9.98834E-01
2	.00000E+00	1.94563E-01	7.58490E-03	2.71685E-01	1.87344E-01	1.48171E-02	-1.07280E-08	1.00002E+00
3	.00000E+00	2.15975E-01	7.74051E-02	2.81250E-01	2.77729E-01	1.56549E-02	-1.82101E-07	9.99987E-01
4	.00000E+00	1.23748E-01	1.15077E-01	1.93846E-01	2.31340E-01	7.48549E-03	-1.69666E-08	1.00000E+00
5	.00000E+00	1.63943E-01	2.09877E-01	4.90432E-01	3.69290E-01	4.53424E-03	-6.87630E-10	9.99989E-01
6	.00000E+00	1.76773E-01	4.29305E-01	1.34440E+00	5.98887E-01	7.18146E-03	1.04633E-07	1.00001E+00
7	.00000E+00	8.73119E-02	6.64191E-01	1.77508E+00	7.43805E-01	7.70625E-03	-5.72649E-08	9.99990E-01
8	.00000E+00	1.34466E-02	7.80592E-01	1.79067E+00	7.80114E-01	1.39882E-02	1.45577E-07	9.99920E-01
9	.00000E+00	9.75775E-04	7.70623E-01	1.55823E+00	7.47778E-01	2.39053E-02	-2.25194E-08	9.99828E-01
10	.00000E+00	7.24738E-05	7.44459E-01	1.41579E+00	7.08333E-01	3.62735E-02	4.32910E-08	9.99900E-01
11	.00000E+00	5.70172E-06	7.13208E-01	1.31049E+00	6.53749E-01	5.95061E-02	-1.14983E-08	9.99942E-01
12	.00000E+00	4.00535E-07	5.70191E-01	7.08725E-01	5.05364E-01	6.48427E-02	1.09428E-08	9.99974E-01
13	.00000E+00	6.36013E-08	5.01323E-01	5.57594E-01	4.40175E-01	6.11625E-02	-4.60423E-09	9.99971E-01
14	.00000E+00	1.26041E-08	4.77536E-01	5.07576E-01	3.90164E-01	8.73767E-02	8.07822E-09	9.99989E-01
15	.00000E+00	1.42440E-09	2.58149E-01	2.32040E-01	2.49112E-01	8.95289E-03	-5.27418E-07	1.00033E+00
16	.00000E+00	4.18253E-10	1.75506E-01	1.06276E-01	1.68214E-01	7.23219E-03	-8.87998E-08	1.00034E+00
17	.00000E+00	1.34698E-10	9.34131E-02	3.22685E-02	8.35744E-02	9.81550E-03	-4.30856E-06	1.00029E+00
18	.00000E+00	9.64398E-11	8.26991E-02	1.84055E-02	5.22340E-02	3.04586E-02	-6.05269E-06	1.00015E+00
19	.00000E+00	1.36345E-10	1.27300E-01	6.02243E-02	1.14404E-01	1.28730E-02	-6.40948E-06	1.00024E+00
20	.00000E+00	2.21711E-10	3.03643E-01	3.54578E-01	2.74056E-01	2.94967E-02	-6.47404E-07	1.00030E+00
21	.00000E+00	3.24514E-11	1.45756E-01	6.71435E-02	1.18852E-01	2.68012E-02	-8.18020E-06	1.00021E+00
22	.00000E+00	3.76510E-11	2.67869E-01	1.64314E-01	1.91959E-01	7.58710E-02	1.60042E-06	1.00014E+00
23	.00000E+00	3.59985E-11	6.11351E-01	8.92352E-01	4.80024E-01	1.31174E-01	-1.16484E-07	1.00025E+00
24	.00000E+00	9.79834E-12	6.28585E-01	7.62166E-01	5.08515E-01	1.19953E-01	3.00304E-06	1.00018E+00
25	.00000E+00	2.86831E-12	4.11941E-01	3.08477E-01	3.46660E-01	6.52321E-02	-1.13063E-06	1.00012E+00
26	.00000E+00	2.01128E-12	3.19162E-01	3.10322E-01	2.60080E-01	5.90505E-02	7.89560E-06	1.00007E+00
27	.00000E+00	4.79298E-13	1.05211E-01	6.30048E-02	8.82227E-02	1.69852E-02	3.10201E-07	1.00004E+00
28	.00000E+00	1.00000E+00	9.59196E+00	1.56004E+01	9.59196E+00	1.00206E+00	-1.46431E-05	1.00004E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.74348E-01	3.18745E-09	1.82319E-01	.00000E+00	2.41571E-03	2.68493E-03	.00000E+00	3.67435E-01
2	1.25723E+00	-1.07280E-08	1.34229E+00	.00000E+00	1.68906E-05	1.18944E-02	.00000E+00	2.66704E+00

3	1.57869E+00	-1.82101E-07	1.68776E+00	.00000E+00	.00000E+00	1.44862E-02	.00000E+00	3.35220E+00
4	9.75745E-01	-1.69666E-08	1.04395E+00	.00000E+00	.00000E+00	6.23335E-03	.00000E+00	2.07380E+00
5	1.46885E+00	-6.87630E-10	1.57709E+00	.00000E+00	.00000E+00	1.77908E-03	.00000E+00	3.12603E+00
6	2.82110E+00	1.04633E-07	3.03060E+00	.00000E+00	.00000E+00	1.46332E-03	.00000E+00	6.00496E+00
7	2.78287E+00	-5.72649E-08	2.90547E+00	.00000E+00	.00000E+00	1.36962E-03	.00000E+00	5.86903E+00
8	2.06644E+00	1.45577E-07	2.08220E+00	.00000E+00	.00000E+00	1.35758E-03	.00000E+00	4.30823E+00
9	1.60686E+00	-2.25194E-08	1.58931E+00	.00000E+00	.00000E+00	1.78092E-03	.00000E+00	3.33482E+00
10	1.47191E+00	4.32910E-08	1.44949E+00	.00000E+00	.00000E+00	3.79531E-03	.00000E+00	3.04992E+00
11	1.35846E+00	-1.14983E-08	1.30947E+00	.00000E+00	.00000E+00	8.20207E-03	.00000E+00	2.79760E+00
12	8.55330E-01	1.09428E-08	7.97617E-01	.00000E+00	.00000E+00	1.08575E-02	.00000E+00	1.74541E+00
13	7.19921E-01	-4.60423E-09	6.70351E-01	.00000E+00	.00000E+00	1.27581E-02	.00000E+00	1.46872E+00
14	6.55984E-01	8.07822E-09	5.79429E-01	.00000E+00	.00000E+00	7.86777E-03	.00000E+00	1.31926E+00
15	3.73492E-01	-5.27418E-07	3.66144E-01	.00000E+00	.00000E+00	1.78316E-03	.00000E+00	7.73660E-01
16	2.05725E-01	-8.87998E-08	2.00115E-01	.00000E+00	.00000E+00	1.26621E-03	.00000E+00	4.25001E-01
17	8.61152E-02	-4.30856E-06	7.85296E-02	.00000E+00	.00000E+00	1.37635E-03	.00000E+00	1.74492E-01
18	5.39855E-02	-6.05269E-06	2.69853E-02	.00000E+00	.00000E+00	8.73139E-04	.00000E+00	9.60996E-02
19	1.26821E-01	-6.40948E-06	1.13940E-01	.00000E+00	.00000E+00	2.18628E-03	.00000E+00	2.56267E-01
20	4.32457E-01	-6.47404E-07	4.10153E-01	.00000E+00	.00000E+00	1.44888E-02	.00000E+00	8.87050E-01
21	1.21553E-01	-8.18020E-06	9.94272E-02	.00000E+00	.00000E+00	1.53466E-02	.00000E+00	2.39470E-01
22	2.23952E-01	1.60042E-06	1.58213E-01	.00000E+00	.00000E+00	4.39663E-02	.00000E+00	4.26248E-01
23	7.43099E-01	-1.16484E-07	6.31728E-01	.00000E+00	.00000E+00	7.19866E-02	.00000E+00	1.47661E+00
24	5.75308E-01	3.00304E-06	4.73507E-01	.00000E+00	.00000E+00	6.39589E-02	.00000E+00	1.12809E+00
25	2.49426E-01	-1.13063E-06	1.98004E-01	.00000E+00	.00000E+00	3.61555E-02	.00000E+00	4.84839E-01
26	1.71255E-01	7.89560E-06	1.21120E-01	.00000E+00	.00000E+00	3.31709E-02	.00000E+00	3.21495E-01
27	3.16723E-02	3.10201E-07	1.60976E-02	.00000E+00	.00000E+00	9.39899E-03	.00000E+00	5.45972E-02
28	2.31865E+01	-1.47269E-05	2.31411E+01	.00000E+00	2.43260E-03	3.82485E-01	.00000E+00	4.82284E+01

- elapsed time .02 min.
0direct access unit 9 requires 516 blocks of length 1456 for cross section weighting.
1 transport cross section weighting function

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.44142E-03	2.50505E-02	3.15479E-02	1.90445E-02	2.90898E-02	5.55530E-02	3.16283E-02	4.65972E-03
2	3.83808E-03	3.90608E-02	4.89146E-02	2.94610E-02	4.47346E-02	8.42353E-02	4.77920E-02	7.01338E-03
3	3.11865E-03	3.33234E-02	4.31853E-02	2.71725E-02	4.22334E-02	8.01441E-02	4.58173E-02	5.61041E-03
4	1.07652E-03	1.22616E-02	1.65535E-02	1.09259E-02	1.73895E-02	3.32588E-02	1.92301E-02	2.01638E-03
5	1.78270E-03	1.90952E-02	2.47793E-02	1.55854E-02	2.42532E-02	4.62917E-02	2.65346E-02	3.34108E-03

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.63303E-03	5.63482E-03	1.23243E-02	1.45637E-02	1.26850E-02	1.92469E-02	2.05110E-03	1.53102E-03
2	6.95824E-03	8.45264E-03	1.85366E-02	2.19905E-02	1.91490E-02	2.92486E-02	3.04961E-03	2.30118E-03
3	5.57143E-03	7.93529E-03	1.73397E-02	2.05325E-02	1.76989E-02	2.70290E-02	2.84990E-03	2.13457E-03
4	1.84599E-03	3.23057E-03	7.04299E-03	8.16508E-03	7.14230E-03	1.08660E-02	1.23569E-03	8.84530E-04
5	3.23366E-03	4.59516E-03	1.00371E-02	1.17591E-02	1.02578E-02	1.56012E-02	1.70112E-03	1.25011E-03

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.98569E-03	5.33941E-03	3.29442E-03	5.92742E-03	5.39561E-03	1.51634E-02	2.74520E-02	2.38008E-02
2	3.01714E-03	8.99564E-03	4.92252E-03	8.89748E-03	8.30597E-03	2.37884E-02	4.18057E-02	3.63958E-02
3	2.78715E-03	8.26565E-03	4.58600E-03	8.23783E-03	7.69397E-03	2.19730E-02	3.88298E-02	3.37803E-02
4	1.11695E-03	3.26190E-03	1.87186E-03	3.38396E-03	3.08957E-03	8.79571E-03	1.59383E-02	1.38418E-02
5	1.60716E-03	4.55747E-03	2.67149E-03	4.81468E-03	4.41125E-03	1.25014E-02	2.25243E-02	1.95555E-02

0zone	grp. 25	grp. 26	grp. 27	grp. 28
1	1.18521E-02	1.07284E-02	2.85632E-03	3.85430E-01
2	1.81747E-02	1.67030E-02	4.65005E-03	5.90891E-01
3	1.67546E-02	1.54259E-02	4.26991E-03	5.44104E-01
4	6.79941E-03	6.16208E-03	1.56505E-03	2.18950E-01
5	9.67400E-03	8.79807E-03	2.32082E-03	3.13532E-01

1 1040 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0cell averaged fluxes

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.80356E-01	1.32187E+00	1.66235E+00	1.02865E+00	1.55283E+00	2.98316E+00	2.87690E+00	2.07722E+00
2	1.77049E-01	1.28859E+00	1.62187E+00	1.00482E+00	1.51614E+00	2.91390E+00	2.83619E+00	2.06993E+00
3	1.75885E-01	1.27648E+00	1.60680E+00	9.95850E-01	1.50249E+00	2.88754E+00	2.82119E+00	2.06763E+00

4	1.74344E-01	1.25768E+00	1.57973E+00	9.76742E-01	1.47068E+00	2.82468E+00	2.78454E+00	2.06580E+00
5	1.76529E-01	1.28134E+00	1.61052E+00	9.96328E-01	1.50186E+00	2.88500E+00	2.81969E+00	2.06983E+00

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59415E+00	1.45498E+00	1.32155E+00	8.12016E-01	6.82752E-01	5.98522E-01	3.68235E-01	2.01562E-01
2	1.60135E+00	1.46271E+00	1.33862E+00	8.32560E-01	7.00462E-01	6.25986E-01	3.71108E-01	2.03619E-01
3	1.60359E+00	1.46523E+00	1.34411E+00	8.39073E-01	7.06158E-01	6.34666E-01	3.72061E-01	2.04307E-01
4	1.60674E+00	1.47158E+00	1.35776E+00	8.54993E-01	7.19430E-01	6.55110E-01	3.73722E-01	2.05757E-01
5	1.60217E+00	1.46529E+00	1.34407E+00	8.38659E-01	7.05627E-01	6.33821E-01	3.71695E-01	2.04186E-01

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.02358E-02	3.36687E-02	1.17211E-01	4.15848E-01	1.04868E-01	1.74597E-01	6.58658E-01	4.96708E-01
2	8.29991E-02	4.44255E-02	1.21793E-01	4.23923E-01	1.12802E-01	1.98847E-01	6.97023E-01	5.30094E-01
3	8.38900E-02	4.71700E-02	1.23239E-01	4.26529E-01	1.15211E-01	2.05738E-01	7.08601E-01	5.39841E-01
4	8.60077E-02	5.35481E-02	1.26688E-01	4.32575E-01	1.21207E-01	2.22927E-01	7.40504E-01	5.69938E-01
5	8.38323E-02	4.61697E-02	1.23120E-01	4.26171E-01	1.15060E-01	2.04786E-01	7.09419E-01	5.41976E-01

Ozone	grp. 25	grp. 26	grp. 27
1	2.09788E-01	1.32092E-01	1.95294E-02
2	2.26788E-01	1.48063E-01	2.42462E-02
3	2.31527E-01	1.52241E-01	2.53868E-02
4	2.47294E-01	1.68506E-01	3.05963E-02
5	2.32934E-01	1.54457E-01	2.62305E-02

Oflux disadvantage factors (zone average/cell average flux)

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.02168E+00	1.03163E+00	1.03218E+00	1.03244E+00	1.03394E+00	1.03402E+00	1.02029E+00	1.00357E+00
2	1.00295E+00	1.00566E+00	1.00705E+00	1.00853E+00	1.00951E+00	1.01002E+00	1.00586E+00	1.00005E+00
3	9.96069E-01	9.96209E-01	9.97689E-01	9.99520E-01	1.00042E+00	1.00088E+00	1.00053E+00	9.98958E-01
4	9.87622E-01	9.81536E-01	9.80885E-01	9.80341E-01	9.79241E-01	9.79090E-01	9.87533E-01	9.98053E-01
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	9.94997E-01	9.92963E-01	9.85248E-01	9.68347E-01	9.67581E-01	9.44308E-01	9.90692E-01	9.87149E-01
2	9.99493E-01	9.98236E-01	9.95946E-01	9.92846E-01	9.92680E-01	9.87640E-01	9.98422E-01	9.97225E-01
3	1.00089E+00	9.99958E-01	1.00003E+00	1.00061E+00	1.00075E+00	1.00133E+00	1.00099E+00	1.00059E+00
4	1.00286E+00	1.00429E+00	1.01018E+00	1.01912E+00	1.01956E+00	1.03359E+00	1.00546E+00	1.00769E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.57099E-01	7.29237E-01	9.52011E-01	9.75778E-01	9.11495E-01	8.52587E-01	9.28310E-01	9.16477E-01
2	9.90061E-01	9.62222E-01	9.89223E-01	9.94726E-01	9.80465E-01	9.71005E-01	9.82532E-01	9.78077E-01
3	1.00069E+00	1.02166E+00	1.00097E+00	1.00084E+00	1.00140E+00	1.00465E+00	9.98852E-01	9.96062E-01
4	1.02595E+00	1.15981E+00	1.02898E+00	1.01456E+00	1.05351E+00	1.08859E+00	1.04382E+00	1.05159E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

Ozone	grp. 25	grp. 26	grp. 27
1	9.00633E-01	8.55204E-01	7.36906E-01
2	9.73612E-01	9.58604E-01	9.24351E-01
3	9.98958E-01	9.85665E-01	9.67885E-01
4	1.06165E+00	1.09096E+00	1.16644E+00
5	1.00000E+00	1.00000E+00	1.00000E+00

Ocell averaged currents

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.44142E-03	2.50505E-02	3.15479E-02	1.90445E-02	2.90598E-02	5.55530E-02	3.16283E-02	4.69972E-03
2	3.83808E-03	3.90608E-02	4.89146E-02	2.94610E-02	4.47346E-02	8.42353E-02	4.77920E-02	7.01338E-03
3	3.11865E-03	3.33234E-02	4.31853E-02	2.71725E-02	4.22534E-02	8.01441E-02	4.58173E-02	5.61041E-03
4	1.07652E-03	1.22616E-02	1.65535E-02	1.09259E-02	1.73895E-02	3.32588E-02	1.92301E-02	2.01638E-03
5	1.78270E-03	1.90952E-02	2.47793E-02	1.55854E-02	2.42552E-02	4.62917E-02	2.65346E-02	3.34108E-03

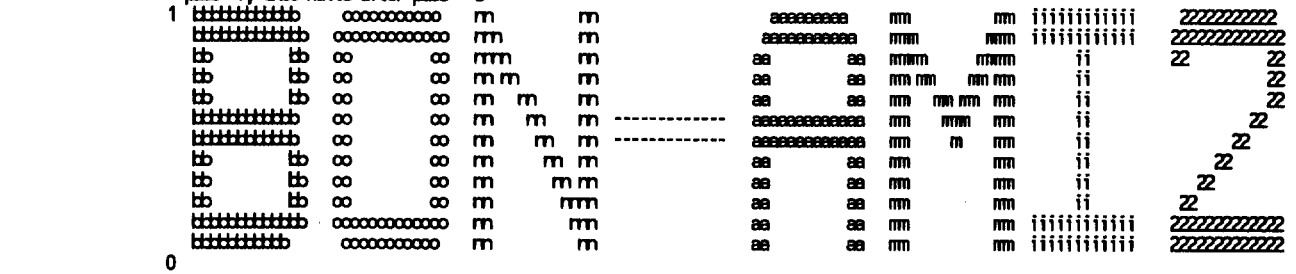
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.63303E-03	5.63482E-03	1.25243E-02	1.45637E-02	1.26850E-02	1.92469E-02	2.05110E-03	1.53102E-03
2	6.95824E-03	8.45264E-03	1.85366E-02	2.19905E-02	1.91490E-02	2.92485E-02	3.04961E-03	2.30118E-03
3	5.57143E-03	7.93529E-03	1.73397E-02	2.03325E-02	1.76989E-02	2.70290E-02	2.84990E-03	2.13457E-03
4	1.84599E-03	3.23037E-03	7.04299E-03	8.14603E-03	7.14230E-03	1.08660E-02	1.23569E-03	8.84530E-04
5	3.23366E-03	4.59516E-03	1.00371E-02	1.17591E-02	1.02578E-02	1.56012E-02	1.70112E-03	1.25011E-03

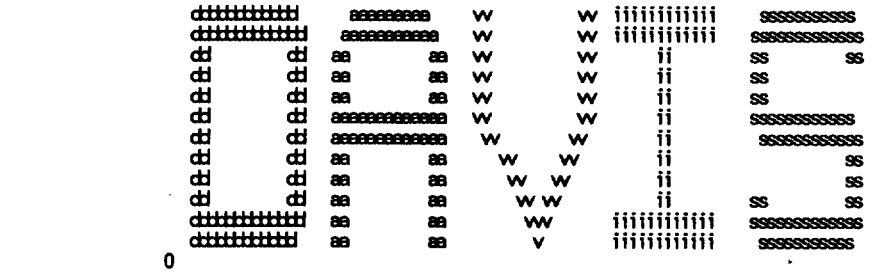
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.98569E-03	5.33941E-03	3.29442E-03	5.92742E-03	5.39561E-03	1.51634E-02	2.74520E-02	2.38003E-02
2	3.01714E-03	8.99564E-03	4.92252E-03	8.89748E-03	8.30697E-03	2.37884E-02	4.18037E-02	3.63958E-02
3	2.78715E-03	8.26565E-03	4.58600E-03	8.23783E-03	7.69397E-03	2.19730E-02	3.88298E-02	3.37803E-02
4	1.11695E-03	3.26190E-03	1.87186E-03	3.38396E-03	3.08957E-03	8.79571E-03	1.59383E-02	1.38418E-02
5	1.60716E-03	4.55747E-03	2.67149E-03	4.81468E-03	4.41125E-03	1.25014E-02	2.25243E-02	1.95555E-02

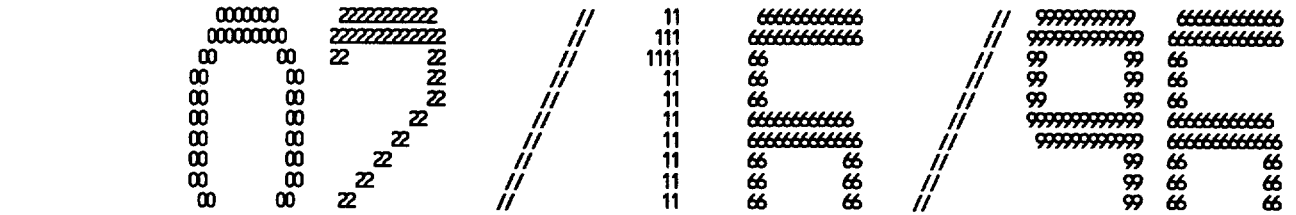
Ozone	grp. 25	grp. 26	grp. 27
1	1.18321E-02	1.07284E-02	2.85632E-03
2	1.81747E-02	1.67030E-02	4.65005E-03
3	1.67546E-02	1.54299E-02	4.26991E-03
4	6.79941E-03	6.16208E-03	1.56505E-03
5	9.67400E-03	8.79807E-03	2.32082E-03

Ozone	volume	vol. fraction
1	6.88443E-01	3.30753E-01
2	3.17352E-02	1.52468E-02
3	2.16724E-01	1.04122E-01
4	1.14454E+00	5.49878E-01
5	2.08144E+00	1.00000E+00

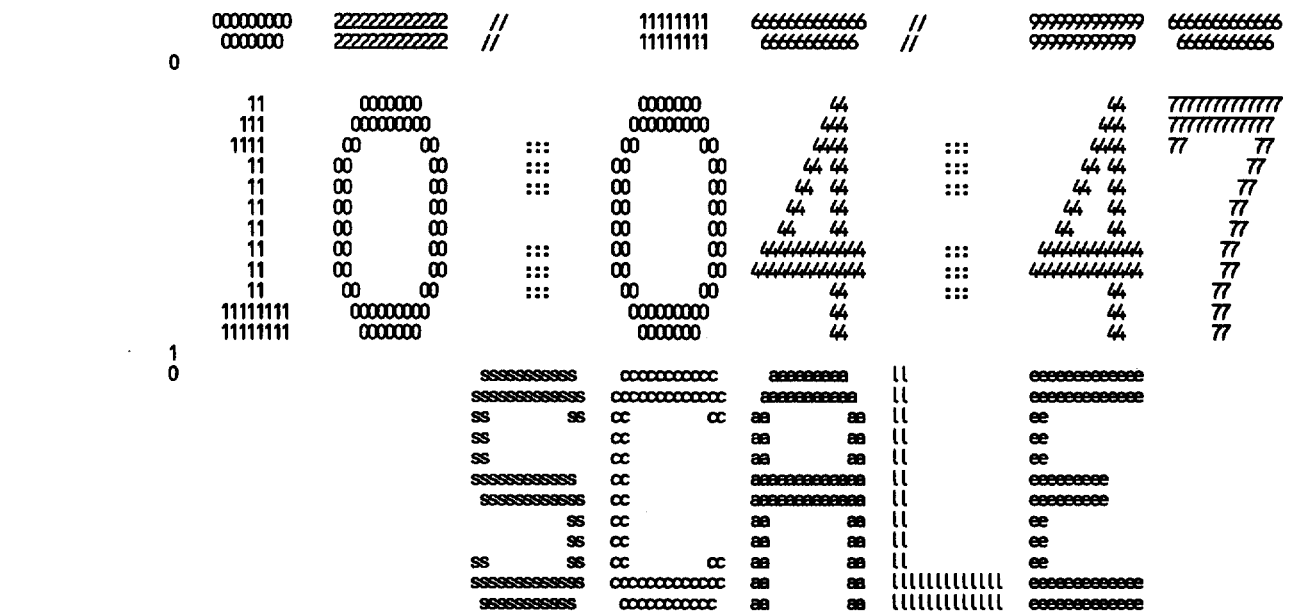
- elapsed time .03 min.
Orequested parm=halt8,skipcellwt,skipshipdata
pass= 7, exec halts after pass 8







```
    000000000    2222222222222    //          11111111    6666666666666    //        9999999999999   6666666666666
     0000000     2222222222222    //          11111111     66666666666     //        999999999999     66666666666
0

       11         0000000                      0000000          44                          44    7777777777777
      111        000000000                    000000000         444                         444    777777777777
     1111       00      00        :::       00      00        4444        :::             4444    77        77
       11      00       00        :::      00       00       44 44        :::            44 44          77
       11      00       00        :::      00       00      44  44        :::           44  44         77
       11      00       00                 00       00     44   44                     44   44        77
       11      00       00                 00       00    44    44                    44    44        77
       11      00       00        :::      00       00   444444444444     :::      444444444444       77
       11      00       00        :::      00       00   444444444444     :::      444444444444       77
       11       00      00        :::       00      00          44        :::              44       77
    11111111     000000000                  000000000          44                          44       77
    11111111      0000000                    0000000           44                          44       77
1
0                                 sssssssssss    cccccccccc    aaaaaaaaa    ll          eeeeeeeeeeeee
                                 sssssssssssss  cccccccccccc  aaaaaaaaaaa  ll          eeeeeeeeeeeee
                                 ss        ss   cc        cc  aa       aa  ll          ee
                                 ss             cc            aa       aa  ll          ee
                                 ss             cc            aa       aa  ll          ee
                                 sssssssssssss  cc            aaaaaaaaaaaaa ll          eeeeeeeee
                                  sssssssssssss cc            aaaaaaaaaaaaa ll          eeeeeeeee
                                          ss    cc            aa       aa  ll          ee
                                          ss    cc            aa       aa  ll          ee
                                 ss        ss   cc        cc  aa       aa  ll          ee
                                 sssssssssssss  cccccccccccc  aa       aa  llllllllllll eeeeeeeeeeeee
                                  sssssssssss    cccccccccc   aa       aa  llllllllllll eeeeeeeeeeeee
```



```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                 code system:    scale  version:    4.2            *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****              program:  c0c008                                     *****
*****                                                                   *****
*****        creation date:  04/27/95                                   *****
*****                                                                   *****
*****              library:  /neutronics/scale/exe                      *****
*****                                                                   *****
*****                                                                   *****
*****     this is not a   scale  configuration controlled code          *****
*****                                                                   *****
*****              jobname:  davis                                      *****
*****                                                                   *****
*****     date of execution:  02/16/96                                  *****
*****                                                                   *****
*****     time of execution:  10:04:47                                  *****
```

```
                    *****                                                                  *****
                    *****                                                                  *****
                    ***********************************************************************
                    ***********************************************************************
                    ***********************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has      6 entries.
0        2q array has      2 entries.
1logical assignments
0master library   12
 working library  17
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere              2
0izm--number of zones or material regions                     4
0ms--mixing table length                                     70
0ibl--shielded cross section edit option (0/1--no/yes)        0
0ibr--bondarenko factor edit option (0/1--no/yes)             0
0issopt--dancoff factor option                                0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has     70 entries.
0        4q array has     70 entries.
0        5q array has     70 entries.
0        6q array has      4 entries.
0        7q array has      4 entries.
0        8q array has      4 entries.
0        9q array has      4 entries.
0       10q array has     70 entries.
0       11q array has      4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope  number density  new identifier
   1      3        8016    2.09710E-02            201
   2      3        1001    4.19420E-02            202
   3      3        5010    3.81515E-06            203
   4      3        5011    1.54884E-05            204
   5      2       40302    4.25156E-02            205
   6      1       92235    1.20544E-04         200006
   7      1       92234    1.41715E-06         200007
   8      1       92236    2.03607E-05         200008
   9      1       92238    7.20391E-03         200009
  10      1        8016    1.50611E-02         200010
  11      1        8016    1.15315E-02         200011
  12      1       36083    5.38432E-07         200012
  13      1       36085    2.58829E-07         200013
  14      1       38090    5.92341E-06         200014
  15      1       39089    4.78649E-06         200015
  16      1       42095    6.56575E-06         200016
  17      1       40093    4.79260E-06         200017
  18      1       40094    7.56974E-06         200018
  19      1       40095    6.48349E-07         200019
  20      1       41094    3.96160E-12         200020
  21      1       43099    7.40725E-06         200021
  22      1       45103    4.11558E-06         200022
  23      1       45105    7.88511E-09         200023
  24      1       44101    6.79295E-06         200024
  25      1       44106    1.01922E-06         200025
```

26	1	46105	2.82763E-06	200026
27	1	46108	8.33604E-07	200027
28	1	47109	5.71721E-07	200028
29	1	51124	1.27223E-10	200029
30	1	54131	3.36294E-06	200030
31	1	54132	6.56907E-06	200031
32	1	54135	2.20413E-09	200032
33	1	54136	1.29571E-05	200033
34	1	55134	4.23324E-07	200034
35	1	55135	4.11148E-06	200035
36	1	55137	7.98229E-06	200036
37	1	56136	8.81606E-08	200037
38	1	57139	7.89638E-06	200038
39	1	59141	6.89476E-06	200039
40	1	59143	1.20840E-07	200040
41	1	58144	2.27216E-06	200041
42	1	60143	6.04828E-06	200042
43	1	60145	4.50917E-06	200043
44	1	61147	1.42392E-06	200044
45	1	61148	4.24549E-09	200045
46	1	60147	4.27517E-08	200046
47	1	62147	5.95353E-07	200047
48	1	62149	2.94746E-08	200048
49	1	62150	1.65740E-06	200049
50	1	62151	1.43095E-07	200050
51	1	62152	7.81604E-07	200051
52	1	64155	9.37783E-10	200052
53	1	63153	5.06256E-07	200053
54	1	63154	1.18895E-07	200054
55	1	63155	5.54695E-08	200055
56	1	40302	4.42681E-05	200056
57	1	1001	2.30630E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	8.12694E-06	200060
61	1	95237	1.55467E-06	200061
62	1	94238	2.67674E-07	200062
63	1	94239	3.86490E-05	200063
64	1	94240	8.49399E-06	200064
65	1	94241	4.88270E-06	200065
66	1	94242	6.64962E-07	200066
67	1	95241	1.70640E-07	200067
68	1	95243	7.44868E-08	200068
69	1	96244	8.67958E-09	200069
70	1	999	3.30753E-21	200070

0geometry and material description

0zone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.32460E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.23032E+01	0
3	3	8.14000E-01	6.07600E+02	3.54852E+00	0
4	1	2.96100E+00	9.75000E+02	2.32883E-01	0

8067 locations of 200000 available are required to make a new master containing the self-shielded values

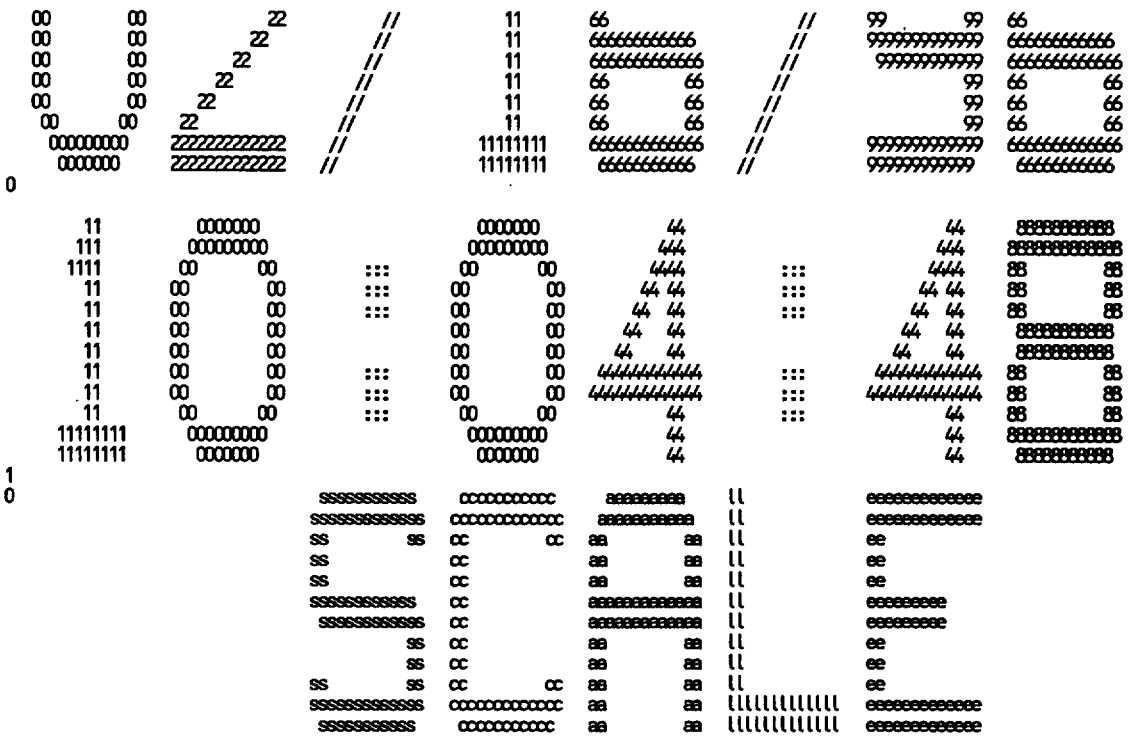
0no nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

0copy 999 1/v cross sectio from log 12 to log 1 bondarenko trigger 0
0copy 1001 hydrogen from log 12 to log 18 bondarenko trigger 0
0copy 1001 hydrogen from log 18 to log 1 bondarenko trigger 0
0copy 1001 hydrogen from log 18 to log 1 bondarenko trigger 0
0copy 5010 b-10 1273 218ngp from log 12 to log 18 bondarenko trigger 0
0copy 5010 b-10 1273 218ngp from log 18 to log 1 bondarenko trigger 0
0copy 5010 b-10 1273 218ngp from log 18 to log 1 bondarenko trigger 0

```
0copy   5011  boron-11       from log 12 to log 18   bondarenko trigger 0
0copy   5011  boron-11       from log 18 to log  1   bondarenko trigger 0
0copy   5011  boron-11       from log 18 to log  1   bondarenko trigger 0
0copy   8016  oxygen-16      from log 12 to log 18   bondarenko trigger 0
0copy   8016  oxygen-16      from log 18 to log  1   bondarenko trigger 0
0copy   8016  oxygen-16      from log 18 to log  1   bondarenko trigger 0
0copy   8016  oxygen-16      from log 18 to log  1   bondarenko trigger 0
0copy  36083  kr-83          from log 12 to log  1   bondarenko trigger 0
0copy  36085  kr-85          from log 12 to log  1   bondarenko trigger 0
0copy  38090  sr-90          from log 12 to log  1   bondarenko trigger 0
0copy  39089   y-89          from log 12 to log  1   bondarenko trigger 0
0copy  40093  zr-93          from log 12 to log  1   bondarenko trigger 0
0copy  40094  zr-94          from log 12 to log  1   bondarenko trigger 0
0copy  40095  zr-95          from log 12 to log  1   bondarenko trigger 0
0copy  40302  zircalloy      from log 12 to log 18   bondarenko trigger 0
0copy  40302  zircalloy      from log 18 to log  1   bondarenko trigger 0
0copy  40302  zircalloy      from log 18 to log  1   bondarenko trigger 0
0copy  41094  nb-94          from log 12 to log  1   bondarenko trigger 0
0copy  42095  mo-95          from log 12 to log  1   bondarenko trigger 0
0copy  43099  tc-99          from log 12 to log  1   bondarenko trigger 0
0copy  44101  ru-101         from log 12 to log  1   bondarenko trigger 0
0copy  44106  ru-106         from log 12 to log  1   bondarenko trigger 0
0copy  45103  rh-103         from log 12 to log  1   bondarenko trigger 0
0copy  45105  rh-105         from log 12 to log  1   bondarenko trigger 0
0copy  46105  pd-105         from log 12 to log  1   bondarenko trigger 0
0copy  46108  pd-108         from log 12 to log  1   bondarenko trigger 0
0copy  47109  silver-109     from log 12 to log  1   bondarenko trigger 0
0copy  51124  sb-124         from log 12 to log  1   bondarenko trigger 0
0copy  54131  xe-131         from log 12 to log  1   bondarenko trigger 0
0copy  54132  xe-132         from log 12 to log  1   bondarenko trigger 0
0copy  54135  xenon-135      from log 12 to log  1   bondarenko trigger 0
0copy  54136  xe-136         from log 12 to log  1   bondarenko trigger 0
0copy  55133  cesium-133     from log 12 to log  1   bondarenko trigger 0
0copy  55134  cs-134         from log 12 to log  1   bondarenko trigger 0
0copy  55135  cs-135         from log 12 to log  1   bondarenko trigger 0
0copy  55137  cs-137         from log 12 to log  1   bondarenko trigger 0
0copy  56136  ba-136         from log 12 to log  1   bondarenko trigger 0
0copy  57139  la-139         from log 12 to log  1   bondarenko trigger 0
0copy  58144  ce-144         from log 12 to log  1   bondarenko trigger 0
0copy  59141  pr-141         from log 12 to log  1   bondarenko trigger 0
0copy  59143  pr-143         from log 12 to log  1   bondarenko trigger 0
0copy  60143  nd-143         from log 12 to log  1   bondarenko trigger 0
0copy  60145  nd-145         from log 12 to log  1   bondarenko trigger 0
0copy  60147  nd-147         from log 12 to log  1   bondarenko trigger 0
0copy  61147  pm-147         from log 12 to log  1   bondarenko trigger 0
0copy  61148  pm-148         from log 12 to log  1   bondarenko trigger 0
0copy  62147  sm-147         from log 12 to log  1   bondarenko trigger 0
0copy  62149  sm-149         from log 12 to log  1   bondarenko trigger 0
0copy  62150  sm-150         from log 12 to log  1   bondarenko trigger 0
0copy  62151  sm-151         from log 12 to log  1   bondarenko trigger 0
0copy  62152  sm-152         from log 12 to log  1   bondarenko trigger 0
0copy  63153  eu-153         from log 12 to log  1   bondarenko trigger 0
0copy  63154  eu-154         from log 12 to log  1   bondarenko trigger 0
0copy  63155  eu-155         from log 12 to log  1   bondarenko trigger 0
0copy  64155  gd-155         from log 12 to log  1   bondarenko trigger 0
0copy  92234  u-234 1043 sigo= from log 12 to log  1   bondarenko trigger 0
0copy  92235  uranium-235    from log 12 to log  1   bondarenko trigger 0
0copy  92236  u-236 1163 sigo= from log 12 to log  1   bondarenko trigger 0
0copy  92238  uranium-238    from log 12 to log  1   bondarenko trigger 0
0copy  93237  neptunium-237  from log 12 to log  1   bondarenko trigger 0
```

```
0copy    94238  pu-238 1050 sigo from log 12 to log  1    bondarenko trigger 0
0copy    94239   plutonium-239   from log 12 to log  1    bondarenko trigger 0
0copy    94240   plutonium-240   from log 12 to log  1    bondarenko trigger 0
0copy    94241   plutonium-241   from log 12 to log  1    bondarenko trigger 0
0copy    94242   plutonium-242   from log 12 to log  1    bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1    bondarenko trigger 0
0copy    95243  am-243 1057 218  from log 12 to log  1    bondarenko trigger 0
0copy    96244   curium-244      from log 12 to log  1    bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
           compiled for nrc      1/27/89
              last updated      9/16/93
                 l.m.petrie   -   ornl
         tape id                          4321        number of nuclides                  70
         number of neutron groups           27        number of gamma groups               0
         first thermal group                15        logical unit                         1
                                   table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                                  id   200070
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89                      id      202
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89                      id   200057
       b-10 1273 218ngp 042375 p-3 293k                                                    id      203
       b-10 1273 218ngp 042375 p-3 293k                                                    id   200058
        boron-11       endf/b-iv mat 1160            updated 10/13/89                      id      204
        boron-11       endf/b-iv mat 1160            updated 10/13/89                      id   200059
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89                      id      201
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89                      id   200010
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89                      id   200011
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89                      id   200012
        kr-85             mt=  102                                                         id   200013
        sr-90          mt=102                        updated 10/13/89                      id   200014
         y-89          mt=102                        updated 10/13/89                      id   200015
        zr-93             mt=  102                                                         id   200017
        zr-94          mt=102                        updated 10/13/89                      id   200018
        zr-95          mt=102                        updated 10/13/89                      id   200019
        zircalloy      endf/b-iv mat 1284            updated 10/13/89                      id      205
        zircalloy      endf/b-iv mat 1284            updated 10/13/89                      id   200056
        nb-94          mt=102                        updated 10/13/89                      id   200020
        mo-95          mt=102                        updated 10/13/89                      id   200016
        tc-99          mt=102                        updated 10/13/89                      id   200021
        ru-101         mt=102                        updated 10/13/89                      id   200024
        ru-106         mt=102                        updated 10/13/89                      id   200025
        rh-103         mt=102                        updated 10/13/89                      id   200022
        rh-105            mt=  102                                                         id   200023
        pd-105         mt=102                        updated 10/13/89                      id   200026
        pd-108         mt=102                        updated 10/13/89                      id   200027
        silver-109     endf/b-iv mat 1139            updated 10/13/89                      id   200028
        sb-124         mt=102                        updated 10/13/89                      id   200029
        xe-131         mt=102,103,104,105,106        updated 10/13/89                      id   200030
        xe-132         mt=102,103,104,105,106        updated 10/13/89                      id   200031
        xenon-135      endf/b-iv mat 1294            updated 10/13/89                      id   200032
        xe-136            mt=  102, 103, 104, 105, 107                                     id   200033
        cesium-133     endf/b-iv mat 1141            updated 10/13/89                      id   200060
        cs-134         mt=102                        updated 10/13/89                      id   200034
        cs-135            mt=  102                                                         id   200035
        cs-137         mt=102                        updated 10/13/89                      id   200036
        ba-136         mt=102                        updated 10/13/89                      id   200037
        la-139         mt=102                        updated 10/13/89                      id   200038
        ce-144            mt=  102                                                         id   200041
        pr-141         mt=102,103,104,105,106,107    updated 10/13/89                      id   200039
        pr-143         mt=102                        updated 10/13/89                      id   200040
```

```
      nd-143        mt=102                          updated 10/13/89          id   200042
      nd-145        mt=102                          updated 10/13/89          id   200043
      nd-147        mt=102                          updated 10/13/89          id   200046
      pm-147        mt=102                          updated 10/13/89          id   200044
      pm-148          mt=  102                                                id   200045
      sm-147        endf/b-v fission product        updated 10/13/89          id   200047
      sm-149        mt=102,103,107                  updated 10/13/89          id   200048
      sm-150        mt=102                          updated 10/13/89          id   200049
      sm-151        mt=102,103,104,105,106,107      updated 10/13/89          id   200050
      sm-152        mt=102,103,104,105,106,107      updated 10/13/89          id   200051
      eu-153        mt=102,103,104,105,106,107      updated 10/13/89          id   200053
      eu-154        mt=102,103,104,105,106,107      updated 10/13/89          id   200054
      eu-155        mt=102,103,104,105,106,107      updated 10/13/89          id   200055
      gd-155        mt=102                          updated 10/13/89          id   200052
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      id   200007
      uranium-235   endf/b-iv mat 1261              updated 10/13/89          id   200006
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      id   200008
      uranium-238   endf/b-iv mat 1262              updated 10/13/89          id   200009
      neptunium-237 endf/b-iv mat 1263              updated 10/13/89          id   200061
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     id   200062
      plutonium-239 endf/b-iv mat 1264              updated 10/13/89          id   200063
      plutonium-240 endf/b-iv mat 1265              updated 10/13/89          id   200064
      plutonium-241 endf/b-iv mat 1266              updated 10/13/89          id   200065
      plutonium-242 endf/b-iv mat 1161              updated 10/13/89          id   200066
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                            id   200067
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                             id   200068
      curium-244    endf/b-iv mat 1162              updated 10/13/89          id   200069
0       tape copy used      0 i/o's, and took     .00 seconds
1              nn         nn  iiiiiiiiiiii   ttttttttttt     aaaaaaaaa    ww         ww  ll
               nnn        nn  iiiiiiiiiiii   ttttttttttt    aaaaaaaaaaa   ww         ww  ll
               nnnn       nn      ii             tt        aa        aa  ww         ww  ll
               nn nn      nn      ii             tt        aa        aa  ww         ww  ll
               nn  nn     nn      ii             tt        aa        aa  ww         ww  ll
               nn   nn    nn      ii             tt        aaaaaaaaaaaa  ww    w    ww  ll
               nn    nn   nn      ii             tt        aaaaaaaaaaaa  ww   www   ww  ll
               nn     nn  nn      ii             tt        aa        aa  ww  ww ww  ww  ll
               nn      nn nn      ii             tt        aa        aa  ww ww    ww ww  ll
               nn       nnnn      ii             tt        aa        aa  wwww      wwww  ll
               nn        nnn  iiiiiiiiiiii       tt        aa        aa  www       www  llllllllllll
               nn         nn  iiiiiiiiiiii       tt        aa        aa  ww         ww  llllllllllll
0

  dddddddddddd     aaaaaaaaa    w         w  iiiiiiiiiiii    sssssssssss
  dddddddddddd    aaaaaaaaaaa   w         w  iiiiiiiiiiii   sssssssssssss
  dd        dd  aa        aa  w         w      ii        ss        ss
  dd        dd  aa        aa  w         w      ii        ss
  dd        dd  aa        aa  w         w      ii        ss
  dd        dd  aaaaaaaaaaaa  w         w      ii        sssssssssss
  dd        dd  aaaaaaaaaaaa   w       w       ii         sssssssssss
  dd        dd  aa        aa     w    w        ii                  ss
  dd        dd  aa        aa      w  w         ii                  ss
  dd        dd  aa        aa       w w         ii        ss        ss
  dddddddddddd  aa        aa        ww     iiiiiiiiiiii   sssssssssssss
  dddddddddddd  aa        aa         v     iiiiiiiiiiii    sssssssssss
0

    0000000     22222222222          //       11       666666666666          //  99999999999   666666666666
   000000000    22222222222          //      111       666666666666          //  99999999999   666666666666
  00       00  22        22          //     1111       66                    //  99        99  66
 00        00            22          //       11       66                    //  99        99  66
```



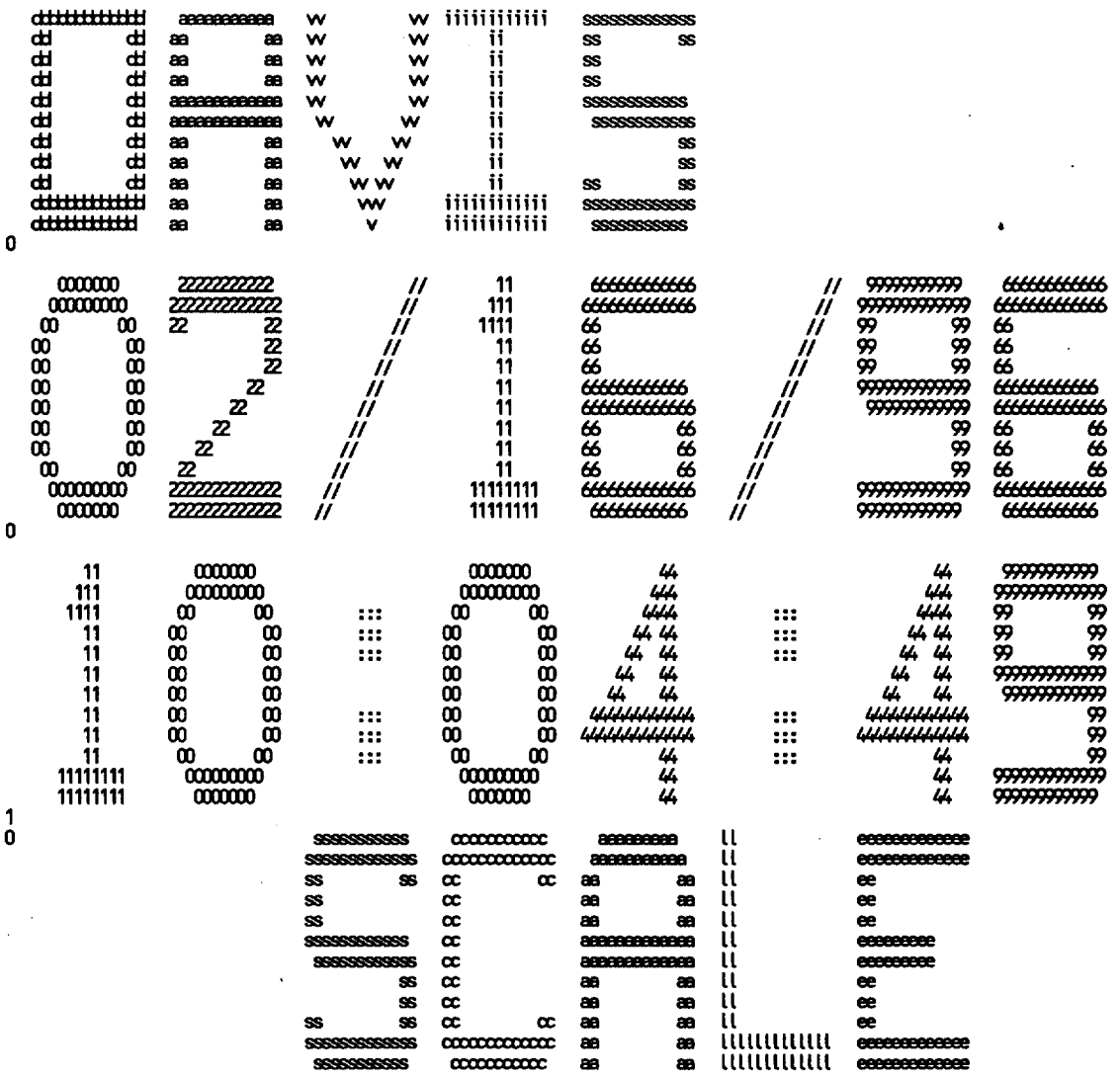
```
**********************************************************************
**********************************************************************
**********************************************************************
******                                                          ******
******                program verification information          ******
******                                                          ******
******              code system:   scale  version:   4.2        ******
******                                                          ******
**********************************************************************
**********************************************************************
******                                                          ******
******                                                          ******
******           program:  c0c002                               ******
******                                                          ******
******       creation date:  04/27/95                           ******
******                                                          ******
******           library:  /neutronics/scale/exe                ******
******                                                          ******
******                                                          ******
******   this is not a  scale  configuration controlled code    ******
```

```
                    *****                                                                  *****
                    *****            jobname:  davis                                       *****
                    *****                                                                  *****
                    *****   date of execution:  02/16/96                                   *****
                    *****                                                                  *****
                    *****   time of execution:  10:04:48                                   *****
                    *****                                                                  *****
                    *****                                                                  *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has     12 entries.
0select  5 nuclides from the master  library on logical  1
        65 nuclides from the working library on logical  3
         0 nuclides from the working library on logical  0
           to create the new working library on logical  4

         1 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has     70 entries.
0        3q array has     15 entries.
0        4q array has      5 entries.
0 general information concerning cross section library
    tape identification number                 4349
    number of nuclides on tape                   65
    number of neutron energy groups              27
    first thermal neutron energy group           15
    number of gamma energy groups                 0
0   direct access unit number  9 requires  72 blocks of length  1484 words
- xsdrn tape   4321
                    scale 4.2 - 27 group neutron burnup library
                       based on endf-b version 4 data with endf-b version 5 fission products
                          compiled for nrc      1/27/89
                             last updated       9/16/93
                                l.m.petrie   -   ornl
-  work tape   4349

 xsdrn weighted tape--parent case entitled-- 1040 d, sas2h: babcock wilcox 15x15,
  3.00wt%, 20gwd/mtu burn high temp


0 nuclides from xsdrn tape
     1     hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89              202
     2    b-10 1273 218ngp 042375 p-3 293k                                              203
     3     boron-11       endf/b-iv mat 1160             updated 10/13/89              204
     4     oxygen-16      endf/b-iv mat 1276             updated 10/13/89              201
     5     zircalloy      endf/b-iv mat 1284             updated 10/13/89              205
0 nuclides from  work tape
     6    1/v cross sections normalized to 1.0 at 0.0253 ev                            999
     7     hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89             1001
     8    b-10 1273 218ngp 042375 p-3 293k                                             5010
     9     boron-11       endf/b-iv mat 1160             updated 10/13/89             5011
    10     oxygen-16      endf/b-iv mat 1276             updated 10/13/89             8016
    11     oxygen-16      endf/b-iv mat 1276             updated 10/13/89                6
    12     kr-83          mt=102,103,103,105,106,107     updated 10/13/89            36083
```

```
 13   kr-85          mt=  102                                                  36085
 14   sr-90        mt=102                      updated 10/13/89                38090
 15    y-89        mt=102                      updated 10/13/89                39089
 16   zr-93          mt=  102                                                  40093
 17   zr-94        mt=102                      updated 10/13/89                40094
 18   zr-95        mt=102                      updated 10/13/89                40095
 19   zircalloy    endf/b-iv mat 1284          updated 10/13/89                40302
 20   nb-94        mt=102                      updated 10/13/89                41094
 21   mo-95        mt=102                      updated 10/13/89                42095
 22   tc-99        mt=102                      updated 10/13/89                43099
 23   ru-101       mt=102                      updated 10/13/89                44101
 24   ru-106       mt=102                      updated 10/13/89                44106
 25   rh-103       mt=102                      updated 10/13/89                45103
 26   rh-105         mt=  102                                                  45105
 27   pd-105       mt=102                      updated 10/13/89                46105
 28   pd-108       mt=102                      updated 10/13/89                46108
 29   silver-109   endf/b-iv mat 1139          updated 10/13/89                47109
 30   sb-124       mt=102                      updated 10/13/89                51124
 31   xe-131       mt=102,103,104,105,106      updated 10/13/89                54131
 32   xe-132       mt=102,103,104,105,106      updated 10/13/89                54132
 33   xenon-135    endf/b-iv mat 1294          updated 10/13/89                54135
 34   xe-136         mt=  102, 103, 104, 105, 107                              54136
 35   cesium-133   endf/b-iv mat 1141          updated 10/13/89                55133
 36   cs-134       mt=102                      updated 10/13/89                55134
 37   cs-135         mt=  102                                                  55135
 38   cs-137       mt=102                      updated 10/13/89                55137
 39   ba-136       mt=102                      updated 10/13/89                56136
 40   la-139       mt=102                      updated 10/13/89                57139
 41   ce-144         mt=  102                                                  58144
 42   pr-141       mt=102,103,104,105,106,107  updated 10/13/89                59141
 43   pr-143       mt=102                      updated 10/13/89                59143
 44   nd-143       mt=102                      updated 10/13/89                60143
 45   nd-145       mt=102                      updated 10/13/89                60145
 46   nd-147       mt=102                      updated 10/13/89                60147
 47   pm-147       mt=102                      updated 10/13/89                61147
 48   pm-148         mt=  102                                                  61148
 49   sm-147       endf/b-v fission product    updated 10/13/89                62147
 50   sm-149       mt=102,103,107              updated 10/13/89                62149
 51   sm-150       mt=102                      updated 10/13/89                62150
 52   sm-151       mt=102,103,104,105,106,107  updated 10/13/89                62151
 53   sm-152       mt=102,103,104,105,106,107  updated 10/13/89                62152
 54   eu-153       mt=102,103,104,105,106,107  updated 10/13/89                63153
 55   eu-154       mt=102,103,104,105,106,107  updated 10/13/89                63154
 56   eu-155       mt=102,103,104,105,106,107  updated 10/13/89                63155
 57   gd-155       mt=102                      updated 10/13/89                64155
 58   u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      92234
 59   uranium-235  endf/b-iv mat 1261          updated 10/13/89                92235
 60   u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      92236
 61   uranium-238  endf/b-iv mat 1262          updated 10/13/89                92238
 62   neptunium-237 endf/b-iv mat 1263         updated 10/13/89                93237
 63   pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                      94238
 64   plutonium-239 endf/b-iv mat 1264         updated 10/13/89                94239
 65   plutonium-240 endf/b-iv mat 1265         updated 10/13/89                94240
 66   plutonium-241 endf/b-iv mat 1266         updated 10/13/89                94241
 67   plutonium-242 endf/b-iv mat 1161         updated 10/13/89                94242
 68   am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                            95241
 69   am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                             95243
 70   curium-244   endf/b-iv mat 1162          updated 10/13/89                96244
0 hydrogen      endf/b-iv mat 1269/thrm1002   updated 10/13/89          202   temperature=   607.60
                    thermal scattering matrix number   2 at a temperature of    550.00 was selected.
```

```
0b-10 1273 218ngp 042375 p-3 293k                                          203     temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of    550.00 was selected.
0 boron-11       endf/b-iv mat 1160          updated 10/13/89              204     temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of    550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276          updated 10/13/89              201     temperature=   607.60
0 zircalloy      endf/b-iv mat 1284          updated 10/13/89              205     temperature=   650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)       =   650.000
0potential scatter sigma  =     6.385          lumped nuclear density    = 4.2515602E-02
0spin factor (g)          =     1.079          lump dimension (a-bar)    = 6.7309999E-01
0inner radius             = 6.3246000E-01      dancoff correction (c)    = 1.6805907E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   8      -1.156752E-03    .000000E+00   -7.806033E-01
   9      -4.625978E-02    .000000E+00   -2.073270E+00
  10      -5.962230E-02    .000000E+00   -1.351984E+00
  11      -1.761672E-01    .000000E+00   -7.350731E-01
0excess resonance integrals
0                  resolved
0absorption       2.92402E-01
 fission           .00000E+00
-  elapsed time    .00 min.
-  elapsed time    .02 min.
1     this xsdrn working tape was created 02/16/96 at 10:04:48
      the title of the parent case is as follows
      xsdrn weighted tape--parent case entitled-- 1040 d, sas2h: babcock wilcox 15x15,
       3.00wt%, 20gwd/mtu burn high temp

         tape id                          8670        number of nuclides                  70
         number of neutron groups           27        number of gamma groups               0
         first thermal group                15        logical unit                         4
                                  table of contents
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          id      202
       b-10 1273 218ngp 042375 p-3 293k                                         id      203
        boron-11       endf/b-iv mat 1160           updated 10/13/89          id      204
        oxygen-16      endf/b-iv mat 1276           updated 10/13/89          id      201
        zircalloy      endf/b-iv mat 1284           updated 10/13/89          id      205
       1/v cross sections normalized to 1.0 at 0.0253 ev                        id      999
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          id     1001
       b-10 1273 218ngp 042375 p-3 293k                                         id     5010
        boron-11       endf/b-iv mat 1160           updated 10/13/89          id     5011
        oxygen-16      endf/b-iv mat 1276           updated 10/13/89          id     8016
        oxygen-16      endf/b-iv mat 1276           updated 10/13/89          id        6
        kr-83          mt=102,103,103,105,106,107   updated 10/13/89          id    36083
        kr-85            mt=  102                                               id    36085
        sr-90          mt=102                       updated 10/13/89          id    38090
         y-89          mt=102                       updated 10/13/89          id    39089
        zr-93            mt=  102                                               id    40093
        zr-94          mt=102                       updated 10/13/89          id    40094
        zr-95          mt=102                       updated 10/13/89          id    40095
        zircalloy      endf/b-iv mat 1284           updated 10/13/89          id    40302
        nb-94          mt=102                       updated 10/13/89          id    41094
        mo-95          mt=102                       updated 10/13/89          id    42095
        tc-99          mt=102                       updated 10/13/89          id    43099
        ru-101         mt=102                       updated 10/13/89          id    44101
        ru-106         mt=102                       updated 10/13/89          id    44106
        rh-103         mt=102                       updated 10/13/89          id    45103
        rh-105           mt=  102                                               id    45105
```

```
        pd-105        mt=102                        updated 10/13/89          id    46105
        pd-108        mt=102                        updated 10/13/89          id    46108
        silver-109    endf/b-iv mat 1139            updated 10/13/89          id    47109
        sb-124        mt=102                        updated 10/13/89          id    51124
        xe-131        mt=102,103,104,105,106        updated 10/13/89          id    54131
        xe-132        mt=102,103,104,105,106        updated 10/13/89          id    54132
        xenon-135     endf/b-iv mat 1294            updated 10/13/89          id    54135
        xe-136          mt=  102, 103, 104, 105, 107                          id    54136
        cesium-133    endf/b-iv mat 1141            updated 10/13/89          id    55133
        cs-134        mt=102                        updated 10/13/89          id    55134
        cs-135          mt=  102                                              id    55135
        cs-137        mt=102                        updated 10/13/89          id    55137
        ba-136        mt=102                        updated 10/13/89          id    56136
        la-139        mt=102                        updated 10/13/89          id    57139
        ce-144          mt=  102                                              id    58144
        pr-141        mt=102,103,104,105,106,107    updated 10/13/89          id    59141
        pr-143        mt=102                        updated 10/13/89          id    59143
        nd-143        mt=102                        updated 10/13/89          id    60143
        nd-145        mt=102                        updated 10/13/89          id    60145
        nd-147        mt=102                        updated 10/13/89          id    60147
        pm-147        mt=102                        updated 10/13/89          id    61147
        pm-148          mt=  102                                              id    61148
        sm-147        endf/b-v fission product      updated 10/13/89          id    62147
        sm-149        mt=102,103,107                updated 10/13/89          id    62149
        sm-150        mt=102                        updated 10/13/89          id    62150
        sm-151        mt=102,103,104,105,106,107    updated 10/13/89          id    62151
        sm-152        mt=102,103,104,105,106,107    updated 10/13/89          id    62152
        eu-153        mt=102,103,104,105,106,107    updated 10/13/89          id    63153
        eu-154        mt=102,103,104,105,106,107    updated 10/13/89          id    63154
        eu-155        mt=102,103,104,105,106,107    updated 10/13/89          id    63155
        gd-155        mt=102                        updated 10/13/89          id    64155
       u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92234
        uranium-235   endf/b-iv mat 1261            updated 10/13/89          id    92235
       u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92236
        uranium-238   endf/b-iv mat 1262            updated 10/13/89          id    92238
        neptunium-237 endf/b-iv mat 1263            updated 10/13/89          id    93237
       pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    94238
        plutonium-239 endf/b-iv mat 1264            updated 10/13/89          id    94239
        plutonium-240 endf/b-iv mat 1265            updated 10/13/89          id    94240
        plutonium-241 endf/b-iv mat 1266            updated 10/13/89          id    94241
        plutonium-242 endf/b-iv mat 1161            updated 10/13/89          id    94242
       am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                          id    95241
       am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           id    95243
        curium-244    endf/b-iv mat 1162            updated 10/13/89          id    96244
0        tape copy used      0 i/o's, and took     .00 seconds
1 xx        xx  sssssssssss  dddddddddddd  rrrrrrrrrrrr  rrn        rrn pppppppppppp  mmm        mmm
   xx      xx  sssssssssssss dddddddddddd rrrrrrrrrrrr  rrrn       rrn pppppppppppp  mmmm      mmmm
     xx    xx  ss        ss  dd        dd  rr        rr  rrrrn      rrn pp        pp  mmmmm    mmmmm
      xx  xx   ss            dd        dd  rr        rr  rrn rrn     rrn pp        pp  mm mm   mm mm
       xx xx   ss            dd        dd  rr        rr  rrn  rrn    rrn pp        pp  mm  mm mm  mm
        xxx    sssssssssssss dd        dd  rrrrrrrrrrrr  rrn   rrn   rrn pppppppppppp  mm   mmm   mm
        xxx     sssssssssssss dd        dd  rrrrrrrrrrrr  rrn    rrn  rrn pppppppppppp  mm    m    mm
       xx xx              ss  dd        dd  rr      rr   rrn     rrn rrn pp            mm         mm
      xx  xx              ss  dd        dd  rr       rr  rrn      rrn rrn pp            mm         mm
     xx    xx  ss        ss  dd        dd  rr        rr  rrn       rrrrn pp            mm         mm
   xx      xx  sssssssssssss dddddddddddd rr         rr rrn        rrrn pp            mm         mm
  xx        xx  sssssssssss  dddddddddddd  rr         rr rrn         rrn pp            mm         mm
0

  dddddddddddd    aaaaaaaaa    vv        vv iiiiiiiiiiii    sssssssssss
```



```
  ddddddddddd   aaaaaaaaaa   w        w  iiiiiiiiiiii   sssssssssssss
  dd       dd  aa        aa  w        w      ii        ss        ss
  dd       dd  aa        aa  w        w      ii        ss
  dd       dd  aa        aa  w        w      ii        ss
  dd       dd  aaaaaaaaaaaa  w        w      ii        sssssssssssss
  dd       dd  aaaaaaaaaaaa   w      w       ii         sssssssssssss
  dd       dd  aa        aa    w    w        ii                  ss
  dd       dd  aa        aa     w  w         ii                  ss
  dd       dd  aa        aa      w w         ii        ss        ss
  ddddddddddd  aa        aa       ww     iiiiiiiiiiii   sssssssssssss
  ddddddddddd  aa        aa        v     iiiiiiiiiiii    sssssssssss
0

    0000000     22222222222          //      11      666666666666          //  99999999999   666666666666
   000000000    22222222222          //     111      666666666666          //  99999999999   666666666666
  00      00   22        22          //    1111      66                    //  99        99  66
 00        00            22          //      11      66                    //  99        99  66
 00        00            22          //      11      66                    //  99        99  66
 00        00          22           //      11      666666666666          //  99999999999   666666666666
 00        00        22             //      11      666666666666          //   99999999999  666666666666
 00        00      22               //      11      66        66          //            99  66        66
 00        00    22                 //      11      66        66          //            99  66        66
  00      00   22                   //      11      66        66          //            99  66        66
   000000000   22222222222          //    11111111  666666666666          //  99999999999   666666666666
    0000000    22222222222          //    11111111   66666666666          //  99999999999   66666666666
0

      11        0000000                  0000000          44                        44   99999999999
     111       000000000                000000000         444                       444   99999999999
    1111      00      00        :::    00      00       4444        :::          4444   99        99
      11     00       00        :::    00       00     44 44        :::         44 44   99        99
      11     00       00        :::    00       00    44  44        :::        44  44   99        99
      11     00       00               00       00   44   44                  44   44   99999999999
      11     00       00               00       00  44    44                 44    44    99999999999
      11     00       00        :::    00       00  44444444444       :::    44444444444            99
      11     00       00        :::    00       00  44444444444       :::    44444444444            99
      11      00      00        :::    00      00         44        :::            44            99
   11111111    000000000                000000000         44                        44   99999999999
   11111111     0000000                  0000000          44                        44   99999999999
1
0                          sssssssssss   cccccccccc   aaaaaaaaa   ll          eeeeeeeeeeeee
                          sssssssssssss  cccccccccccc  aaaaaaaaaa  ll          eeeeeeeeeeeee
                          ss        ss  cc        cc  aa       aa  ll          ee
                          ss            cc            aa       aa  ll          ee
                          ss            cc            aa       aa  ll          ee
                          sssssssssssss  cc            aaaaaaaaaaaaa  ll          eeeeeeeee
                           sssssssssssss cc            aaaaaaaaaaaaa  ll          eeeeeeeee
                                    ss  cc            aa       aa  ll          ee
                                    ss  cc            aa       aa  ll          ee
                          ss        ss  cc        cc  aa       aa  ll          ee
                          sssssssssssss  cccccccccccc  aa       aa  llllllllllll  eeeeeeeeeeeee
                           sssssssssss   cccccccccc   aa       aa  llllllllllll  eeeeeeeeeeeee
```

****
****
****

```
*****                                                                  *****
*****              program verification information                     *****
*****                                                                  *****
*****             code system:    scale  version:    4.2               *****
*****                                                                  *****
*****************************************************************************
*****************************************************************************
*****                                                                  *****
*****                                                                  *****
*****            program:  c0c001                                      *****
*****                                                                  *****
*****       creation date:  04/27/95                                   *****
*****                                                                  *****
*****            library:  /neutronics/scale/exe                       *****
*****                                                                  *****
*****                                                                  *****
*****   this is not a   scale  configuration controlled code           *****
*****                                                                  *****
*****            jobname:  davis                                       *****
*****                                                                  *****
*****   date of execution:  02/16/96                                   *****
*****                                                                  *****
*****   time of execution:  10:04:49                                   *****
*****                                                                  *****
*****                                                                  *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
1
                    1040 d, second part of sas2h pass to make library
0       -1q array has      1 entries.
0        0q array has     11 entries.
0        1q array has     15 entries.
0        2q array has     10 entries.
0        3q array has     12 entries.
0        4q array has      9 entries.
0        5q array has     12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                   1040 d, second part of sas2h pass to make library
0general problem description data block
0                              general problem data

 ige  1/2/3 = plane/cylinder/sphere      2      isn  quadrature order                  8
 izm  number of zones                    4      isct order of scattering               3
 im   number of special intervals       28      ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1      iim  inner iteration maximum          20
 ibr  right boundary condition           3      iom  outer iteration maximum          25
 mxx  number of mixtures                 3      iclc -1/0/n--flat res/sn/opt           0
 ms   mixing table length               70      ith  0/1 = forward/adjoint             0
 igm  number of energy groups           27      iflu not used(always wgtd)             0
 nng  number of neutron groups          27      iprt -2/-1/0/n=mixture xsec print     -2
 ngg  number of gamma groups             0      id1  0/1/2/3=no/prt nd/pch n/both     14
 iftg number of first thermal group     15      ipbt -1/0/1=none/fine/all bal. prt     0
0                              special options

 ifg  0/1 = none/weighting calculation   1      ipn  0/1/2 diff. coef. param           0
 iqm  volumetric sources (0/n=no/yes)    0      idfm 0/1 = none/density factors 38*    0
 ipm  boundary sources (0/n=no/yes)      0      iaz  0/n = none/n activities by zone   0
 ifn  0/1/2 = input 33*/34*/use last    14      iai  0/1=none/activities by interval   0
 itmx maximum time (minutes)            10      ifct 0/1=no/yes upscatter scaling      0
```

```
 idt1 0/1/2/3=no/xsect/srce/flux--out      0        ipvt 0/1/2=no/k/alpha parametric srch    0
 isx  broad group fluxes                   0        isen outer iteration acceleration        0
 ibln activity data unit                   0        nbnd band rebaln parameter               0
 jbkl 0/1/2 buckling geometry              0
0                              weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight      -1        ihtf total xsect psn in brd gp tables    3
 igmf number of broad groups               3        ndsf psn g-g or file number              4
 itp  0/10/20/30/40 0/c/e/ac/a             0        nusf table length or max order           6
 ipp  -2/-1/0/n=wgted xsect print         -2        msom extra 1-d x-sect positions          0
 iap  -1/n anisn xsect print              -1
0                            floating point parameters

 eps  overall convergence        1.00000E-04       dy   cyl/pla ht for buckling     .00000E+00
 ptc  point convergence          1.00000E-04       dz   plane depth for buckling  2.00000E+02
 xnf  normalization factor       1.00000E+00       vsc  void streaming correction   .00000E+00
 ev   eigenvalue guess            .00000E+00       pv   ipvt=1/2--k/alpha          1.00000E+00
 evm  eigenvalue modifier         .00000E+00       eql  ev change eps for search   1.00000E-03
 bf   buckling factor=1.420892   1.42089E+00       xnpm new param mod for search   7.50000E-01
      this case will require      2611 locations for mixing
      this case has been allocated 200000 locations
1                    1040 d, second part of sas2h pass to make library
0       13q array has     70 entries.
0       14q array has     70 entries.
0       15q array has     70 entries.
0                              data block 2 (mixing table, etc.)
0     nuclides        cccc                              mixing table                          extra
        on tape     identification                mixture   component   atom density      xsect id's
     1      202                                        3         201   2.09710E-02
     2      203                                        3         202   4.19420E-02
     3      204                                        3         203   3.81515E-06
     4      201                                        3         204   1.54884E-05
     5      205                                        2         205   4.25156E-02
     6      999                                        1       92235   1.20544E-04
     7     1001                                        1       92234   1.41715E-06
     8     5010                                        1       92236   2.03607E-05
     9     5011                                        1       92238   7.20891E-03
    10     8016                                        1        8016   1.50611E-02
    11        6                                        1           6   1.15315E-02
    12    36083                                        1       36083   5.38432E-07
    13    36085                                        1       36085   2.58829E-07
    14    38090                                        1       38090   5.92341E-06
    15    39089                                        1       39089   4.78649E-06
    16    40093                                        1       42095   6.56575E-06
    17    40094                                        1       40093   4.79260E-06
    18    40095                                        1       40094   7.56974E-06
    19    40802                                        1       40095   6.48349E-07
    20    41094                                        1       41094   3.96160E-12
    21    42095                                        1       43099   7.40725E-06
    22    43099                                        1       45103   4.11558E-06
    23    44101                                        1       45105   7.88511E-09
    24    44106                                        1       44101   6.79295E-06
    25    45103                                        1       44106   1.01922E-06
    26    45105                                        1       46105   2.82763E-06
    27    46105                                        1       46108   8.33604E-07
    28    46108                                        1       47109   5.71721E-07
    29    47109                                        1       51124   1.27223E-10
    30    51124                                        1       54131   3.36294E-06
    31    54131                                        1       54132   6.56907E-06
    32    54132                                        1       54135   2.20413E-09
```

33	54135	1	54136	1.29571E-05
34	54136	1	55134	4.23324E-07
35	55133	1	55135	4.11148E-06
36	55134	1	55137	7.98229E-06
37	55135	1	56136	8.81606E-08
38	55137	1	57139	7.89638E-06
39	56136	1	59141	6.89476E-06
40	57139	1	59143	1.20840E-07
41	58144	1	58144	2.27216E-06
42	59141	1	60143	6.04828E-06
43	59143	1	60145	4.50917E-06
44	60143	1	61147	1.42392E-06
45	60145	1	61148	4.24549E-09
46	60147	1	60147	4.27517E-08
47	61147	1	62147	5.95353E-07
48	61148	1	62149	2.94746E-08
49	62147	1	62150	1.65740E-06
50	62149	1	62151	1.43095E-07
51	62150	1	62152	7.81604E-07
52	62151	1	64155	9.37788E-10
53	62152	1	63153	5.06255E-07
54	63153	1	63154	1.18895E-07
55	63154	1	63155	5.54695E-08
56	63155	1	40302	4.42681E-03
57	64155	1	1001	2.30630E-02
58	92234	1	5010	2.09787E-06
59	92235	1	5011	8.51673E-06
60	92236	1	55133	8.12694E-06
61	92238	1	95237	1.55467E-06
62	95237	1	94238	2.67674E-07
63	94238	1	94239	3.86490E-05
64	94239	1	94240	8.49899E-06
65	94240	1	94241	4.88270E-06
66	94241	1	94242	6.64962E-07
67	94242	1	95241	1.70640E-07
68	95241	1	95243	7.44868E-08
69	95243	1	96244	8.67958E-09
70	96244	1	999	3.30753E-21

- elapsed time .00 min.
0 24259 locations will be used
0 35q array has 29 entries.
0 36q array has 28 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 1040 d, second part of sas2h pass to make library

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40969E-01	2.88737E+09	1	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	1	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	1	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.44535E+09	1	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	2	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	2	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	2	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	2	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	2	0	10	1.00000E+00	

11	5.50000E+02	9.80818E+00	2.05946E+07	2	0	11	1.00000E+00
12	1.00000E+02	1.15129E+01	1.01036E+07	2	0	12	1.00000E+00
13	3.00000E+01	1.27169E+01	5.69595E+06	2	0	13	1.00000E+00
14	1.00000E+01	1.38155E+01	3.20957E+06	2	0	14	1.00000E+00
15	3.04999E+00	1.50030E+01	2.10601E+06	2	0	15	1.00000E+00
16	1.77000E+00	1.55471E+01	1.70522E+06	2	0	16	1.00000E+00
17	1.29999E+00	1.58557E+01	1.52545E+06	2	0	17	1.00000E+00
18	1.12999E+00	1.59959E+01	1.42867E+06	2	0	18	1.00000E+00
19	1.00000E+00	1.61181E+01	1.31002E+06	2	0	19	1.00000E+00
20	8.00000E-01	1.63412E+01	9.05898E+05	2	0	20	1.00000E+00
21	4.00000E-01	1.70344E+01	8.17974E+05	3	0	21	1.00000E+00
22	3.25000E-01	1.72420E+01	6.90070E+05	3	0	22	1.00000E+00
23	2.25000E-01	1.76098E+01	4.86953E+05	3	0	23	1.00000E+00
24	9.99999E-02	1.84207E+01	3.57766E+05	3	0	24	1.00000E+00
25	5.00000E-02	1.91138E+01	2.71895E+05	3	0	25	1.00000E+00
26	3.00000E-02	1.96247E+01	1.87283E+05	3	0	26	1.00000E+00
27	1.00000E-02	2.07233E+01	8.88201E+04	3	0	27	1.00000E+00
28	1.00000E-05	2.76310E+01					

1 1040 d, second part of sas2h pass to make library

0

	mixture by zone	order p(l) by zone	activity table matl no.	activity table reaction	quadrature constants weights	quadrature constants directions	quadrature constants refl direc	quadrature constants wt x cos
1	3	3			0	-2.79004E-01	3	0
2	2	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	3	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	1	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28593E-02
7					5.55953E-02	2.31301E-01	6	1.28593E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02
16					0	-9.83032E-01	24	0
17					4.53365E-02	-9.64143E-01	24	-4.37099E-02
18					4.53365E-02	-8.17361E-01	23	-3.70655E-02
19					4.53365E-02	-5.46143E-01	22	-2.47597E-02
20					4.53365E-02	-1.91780E-01	21	-8.69444E-03
21					4.53365E-02	1.91780E-01	20	8.69444E-03
22					4.53365E-02	5.46143E-01	19	2.47597E-02
23					4.53365E-02	8.17361E-01	18	3.70655E-02
24					4.53365E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.85235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.85235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.85235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40830E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01

14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83052E-01	-4.49528E-01	8.36885E-01	5.00708E-01	-7.51006E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20262E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20262E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17236E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17236E-01
22	5.46143E-01	-4.49528E-01	-3.20262E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20262E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int radii mid pts zone no. areas volumes dens fact radius mod spec(int)

1	0	1.97644E-02	1	0	4.90881E-03		0
2	3.95287E-02	5.92931E-02	1	2.48366E-01	1.47264E-02		0
3	7.90575E-02	1.18586E-01	1	4.96733E-01	5.89057E-02		0
4	1.58115E-01	1.97644E-01	1	9.93466E-01	9.81762E-02		0
5	2.37172E-01	2.76701E-01	1	1.49020E+00	1.37447E-01		
6	3.16230E-01	3.55759E-01	1	1.98693E+00	1.76717E-01		
7	3.95288E-01	4.34816E-01	1	2.48366E+00	2.15988E-01		
8	4.74345E-01	5.13874E-01	1	2.98040E+00	2.55258E-01		
9	5.53403E-01	5.73167E-01	1	3.47713E+00	1.42355E-01		
10	5.92931E-01	6.12696E-01	1	3.72550E+00	1.52173E-01		
11	6.32460E-01	6.42620E-01	2	3.97386E+00	8.20460E-02		
12	6.52780E-01	6.62940E-01	2	4.10154E+00	8.46406E-02		
13	6.73100E-01	6.96583E-01	3	4.22921E+00	2.05562E-01		
14	7.20067E-01	7.43550E-01	3	4.52431E+00	2.19422E-01		
15	7.67033E-01	7.90517E-01	3	4.81941E+00	2.33282E-01		
16	8.14000E-01	8.62795E-01	4	5.11451E+00	5.29051E-01		
17	9.11591E-01	9.60386E-01	4	5.72769E+00	5.88891E-01		
18	1.00918E+00	1.10577E+00	4	6.34088E+00	1.35731E+00		
19	1.20436E+00	1.30195E+00	4	7.56724E+00	1.59667E+00		
20	1.39955E+00	1.49714E+00	4	8.79360E+00	1.83603E+00		
21	1.59473E+00	1.69232E+00	4	1.00200E+01	2.07540E+00		
22	1.78991E+00	1.88750E+00	4	1.12463E+01	2.31476E+00		
23	1.98509E+00	2.08268E+00	4	1.24727E+01	2.55412E+00		
24	2.18027E+00	2.27786E+00	4	1.36991E+01	2.79349E+00		
25	2.37545E+00	2.47305E+00	4	1.49254E+01	3.03285E+00		
26	2.57064E+00	2.66823E+00	4	1.61518E+01	3.27221E+00		
27	2.76582E+00	2.81461E+00	4	1.73781E+01	1.72587E+00		
28	2.86341E+00	2.91220E+00	4	1.79913E+01	1.78571E+00		
29	2.96100E+00			1.86045E+01			

- elapsed time .00 min.

1 outer iter | inner iters | 1 - balance | eigenvalue | 1 - source ratio | 1 - scatter ratio | 1 - upscat ratio | search parameter | time (min)

1	158	-1.38670E-05	1.01990E+00	-2.16600E-02	1.00000E+00	-6.74411E-03	.00000E+00	.0000
2	233	-3.84269E-07	1.02189E+00	-5.59663E-04	-2.64721E-03	-1.18196E-03	.00000E+00	.0000
3	290	-1.95462E-06	1.02227E+00	-9.94730E-05	-4.33499E-04	-2.89140E-04	.00000E+00	.0167
4	331	3.72296E-06	1.02230E+00	-2.39066E-05	-1.07205E-04	-6.81095E-05	.00000E+00	.0167

grp to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	17	5.45690E-07	28	1.00000E+00	1
2	1	17	6.50441E-07	28	1.00000E+00	1
3	1	17	6.09149E-07	28	1.00000E+00	1
4	1	17	5.95387E-07	28	1.00000E+00	1
5	1	17	6.33868E-07	28	1.00000E+00	1
6	1	17	4.42394E-07	28	1.00000E+00	1
7	1	24	1.34014E-06	28	9.99999E-01	2
8	1	28	2.25154E-07	28	1.00000E+00	2
9	1	27	1.43450E-05	28	1.00001E+00	3
10	1	26	1.70372E-06	28	9.99999E-01	3

11	11	1	26	3.75121E-06	28	9.99996E-01	3
12	12	1	25	1.61102E-06	28	9.99999E-01	3
13	13	1	26	3.67547E-06	28	1.00000E+00	3
14	14	1	28	2.95231E-07	28	1.00000E+00	3
15	15	1	2	6.39406E-05	28	9.99929E-01	2
16	16	1	2	7.64618E-05	28	9.99938E-01	2
17	17	1	2	9.14770E-05	28	9.99858E-01	3
18	18	2	28	3.36478E-05	28	1.00001E+00	3
19	19	2	2	4.54975E-06	28	1.00000E+00	3
20	20	1	2	6.84650E-05	28	9.99872E-01	3
21	21	2	28	3.42746E-05	28	1.00001E+00	3
22	22	1	6	5.43675E-05	28	9.99950E-01	3
23	23	1	27	7.16428E-06	28	1.00001E+00	4
24	24	1	28	2.38330E-05	9	1.00002E+00	4
25	25	1	26	3.35758E-05	8	1.00001E+00	5
26	26	1	28	1.49048E-05	6	1.00001E+00	6
27	27	1	1	1.15270E-05	5	1.00001E+00	8

5 361 -2.95269E-06 1.02239E+00 -5.86852E-06 -2.53599E-05 -1.54551E-05 .00000E+00 .0167
final monitor
lambda 1.02236E+00 production/absorption 1.03575E+00 angular flux on 16
- elapsed time .02 min.
1 1040 d, second part of sas2h pass to make library
0 int. zone number radius int. midpoint area volume prod density

1	1	.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1	3.95287E-02	5.92931E-02	2.48366E-01	1.47264E-02	.00000E+00
3	1	7.90575E-02	1.18586E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1	1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1	2.37172E-01	2.76701E-01	1.49020E+00	1.37447E-01	.00000E+00
6	1	3.16230E-01	3.55759E-01	1.98693E+00	1.76717E-01	.00000E+00
7	1	3.95288E-01	4.34816E-01	2.48366E+00	2.15988E-01	.00000E+00
8	1	4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1	5.53403E-01	5.73167E-01	3.47713E+00	1.42355E-01	.00000E+00
10	1	5.92931E-01	6.12696E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2	6.32460E-01	6.42620E-01	3.97386E+00	8.20460E-02	.00000E+00
12	2	6.52780E-01	6.62940E-01	4.10154E+00	8.46405E-02	.00000E+00
13	3	6.73100E-01	6.96883E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3	7.20067E-01	7.43550E-01	4.52431E+00	2.19422E-01	.00000E+00
15	3	7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4	8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.33536E-02
17	4	9.11591E-01	9.60386E-01	5.72769E+00	5.88891E-01	2.54094E-02
18	4	1.00918E+00	1.10577E+00	6.34088E+00	1.35731E+00	5.73426E-02
19	4	1.20436E+00	1.30195E+00	7.56724E+00	1.59667E+00	6.60501E-02
20	4	1.39955E+00	1.49714E+00	8.79360E+00	1.83603E+00	7.48427E-02
21	4	1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	8.36843E-02
22	4	1.78991E+00	1.88750E+00	1.12463E+01	2.31476E+00	9.25790E-02
23	4	1.98509E+00	2.08268E+00	1.24727E+01	2.55412E+00	1.01535E-01
24	4	2.18027E+00	2.27786E+00	1.36991E+01	2.79349E+00	1.10567E-01
25	4	2.37545E+00	2.47305E+00	1.49254E+01	3.03285E+00	1.19692E-01
26	4	2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.28942E-01
27	4	2.76582E+00	2.81461E+00	1.73781E+01	1.72587E+00	6.79867E-02
28	4	2.86341E+00	2.91220E+00	1.79913E+01	1.78571E+00	7.03808E-02
29		2.96100E+00		1.86045E+01		

1 1040 d, second part of sas2h pass to make library
0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.30631E-02	9.11126E-02	1.12710E-01	6.90754E-02	1.02785E-01	1.92805E-01	1.95104E-01	1.47033E-01
2	1.30578E-02	9.10612E-02	1.12645E-01	6.90372E-02	1.02733E-01	1.92719E-01	1.95065E-01	1.47028E-01
3	1.30585E-02	9.10743E-02	1.12667E-01	6.90552E-02	1.02767E-01	1.92789E-01	1.95117E-01	1.47039E-01
4	1.30653E-02	9.11553E-02	1.12780E-01	6.91335E-02	1.02897E-01	1.93031E-01	1.95273E-01	1.47068E-01
5	1.30777E-02	9.12977E-02	1.12975E-01	6.92665E-02	1.03113E-01	1.93430E-01	1.95521E-01	1.47112E-01

6	1.30946E-02	9.14936E-02	1.13245E-01	6.94499E-02	1.03410E-01	1.93978E-01	1.93859E-01	1.47168E-01
7	1.31160E-02	9.17443E-02	1.13591E-01	6.96879E-02	1.03798E-01	1.94694E-01	1.94300E-01	1.47238E-01
8	1.31417E-02	9.20575E-02	1.14031E-01	6.99953E-02	1.04303E-01	1.95629E-01	1.94877E-01	1.47321E-01
9	1.31634E-02	9.23330E-02	1.14426E-01	7.02773E-02	1.04771E-01	1.96496E-01	1.95411E-01	1.47391E-01
10	1.31782E-02	9.25489E-02	1.14755E-01	7.05256E-02	1.05192E-01	1.97282E-01	1.95898E-01	1.47439E-01
11	1.31906E-02	9.27279E-02	1.15031E-01	7.07340E-02	1.05545E-01	1.97957E-01	1.96315E-01	1.47484E-01
12	1.32041E-02	9.28611E-02	1.15205E-01	7.08424E-02	1.05715E-01	1.98294E-01	1.96518E-01	1.47528E-01
13	1.32324E-02	9.31088E-02	1.15475E-01	7.09799E-02	1.05904E-01	1.98632E-01	1.96709E-01	1.47596E-01
14	1.32739E-02	9.34906E-02	1.15980E-01	7.12352E-02	1.06278E-01	1.99290E-01	1.97088E-01	1.47688E-01
15	1.33228E-02	9.39882E-02	1.16655E-01	7.16218E-02	1.06874E-01	2.00861E-01	1.97715E-01	1.47790E-01
16	1.33988E-02	9.47851E-02	1.17573E-01	7.22669E-02	1.07888E-01	2.02200E-01	1.98805E-01	1.47960E-01
17	1.34738E-02	9.55779E-02	1.18590E-01	7.29151E-02	1.08917E-01	2.04091E-01	1.99946E-01	1.48157E-01
18	1.35332E-02	9.62197E-02	1.19424E-01	7.34503E-02	1.09782E-01	2.05724E-01	2.00960E-01	1.48361E-01
19	1.35850E-02	9.67892E-02	1.20172E-01	7.39342E-02	1.10571E-01	2.07248E-01	2.01925E-01	1.48573E-01
20	1.36154E-02	9.71309E-02	1.20628E-01	7.42524E-02	1.11064E-01	2.08229E-01	2.02562E-01	1.48728E-01
21	1.36343E-02	9.73608E-02	1.20927E-01	7.44284E-02	1.11392E-01	2.08899E-01	2.03006E-01	1.48844E-01
22	1.36464E-02	9.74933E-02	1.21125E-01	7.45592E-02	1.11613E-01	2.09362E-01	2.03319E-01	1.48931E-01
23	1.36540E-02	9.75851E-02	1.21254E-01	7.46450E-02	1.11780E-01	2.09678E-01	2.03536E-01	1.48993E-01
24	1.36584E-02	9.76397E-02	1.21332E-01	7.46975E-02	1.11851E-01	2.09879E-01	2.03676E-01	1.49035E-01
25	1.36603E-02	9.76647E-02	1.21369E-01	7.47225E-02	1.11895E-01	2.09982E-01	2.03749E-01	1.49056E-01
26	1.36598E-02	9.76614E-02	1.21367E-01	7.47212E-02	1.11895E-01	2.09990E-01	2.03756E-01	1.49057E-01
27	1.36581E-02	9.76412E-02	1.21341E-01	7.47037E-02	1.11866E-01	2.09935E-01	2.03719E-01	1.49043E-01
28	1.36555E-02	9.76115E-02	1.21301E-01	7.46772E-02	1.11822E-01	2.09844E-01	2.03656E-01	1.49023E-01

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.15991E-01	1.07257E-01	1.01085E-01	6.55136E-02	5.59119E-02	5.31478E-02	2.89529E-02	1.59856E-02
2	1.15991E-01	1.07239E-01	1.01085E-01	6.55185E-02	5.59168E-02	5.31550E-02	2.89553E-02	1.59868E-02
3	1.15989E-01	1.07230E-01	1.01019E-01	6.54946E-02	5.58941E-02	5.31213E-02	2.89285E-02	1.59829E-02
4	1.15985E-01	1.07209E-01	1.00970E-01	6.54371E-02	5.58395E-02	5.30402E-02	2.89120E-02	1.59735E-02
5	1.15979E-01	1.07176E-01	1.00895E-01	6.53493E-02	5.57566E-02	5.29168E-02	2.88873E-02	1.59594E-02
6	1.15969E-01	1.07132E-01	1.00793E-01	6.52301E-02	5.56444E-02	5.27494E-02	2.88548E-02	1.59406E-02
7	1.15958E-01	1.07074E-01	1.00668E-01	6.50737E-02	5.54981E-02	5.25305E-02	2.88136E-02	1.59166E-02
8	1.15945E-01	1.06996E-01	1.00480E-01	6.48677E-02	5.53064E-02	5.22426E-02	2.87618E-02	1.58856E-02
9	1.15935E-01	1.06922E-01	1.00313E-01	6.46753E-02	5.51283E-02	5.19744E-02	2.87152E-02	1.58573E-02
10	1.15936E-01	1.06853E-01	1.00158E-01	6.45008E-02	5.49672E-02	5.17308E-02	2.86745E-02	1.58320E-02
11	1.15942E-01	1.06799E-01	1.00066E-01	6.43630E-02	5.48394E-02	5.15385E-02	2.86389E-02	1.58108E-02
12	1.15938E-01	1.06779E-01	9.99898E-02	6.43094E-02	5.47870E-02	5.14616E-02	2.86194E-02	1.58008E-02
13	1.15895E-01	1.06753E-01	9.99274E-02	6.42270E-02	5.47117E-02	5.13468E-02	2.86027E-02	1.57901E-02
14	1.15823E-01	1.06690E-01	9.97850E-02	6.40486E-02	5.45524E-02	5.11008E-02	2.85751E-02	1.57695E-02
15	1.15748E-01	1.06587E-01	9.95517E-02	6.37679E-02	5.43084E-02	5.07145E-02	2.85335E-02	1.57373E-02
16	1.15644E-01	1.06416E-01	9.91649E-02	6.33054E-02	5.38918E-02	5.00737E-02	2.84578E-02	1.56825E-02
17	1.15551E-01	1.06248E-01	9.87784E-02	6.28431E-02	5.34749E-02	4.94296E-02	2.83675E-02	1.56230E-02
18	1.15485E-01	1.06105E-01	9.84479E-02	6.24484E-02	5.31103E-02	4.88787E-02	2.82707E-02	1.55654E-02
19	1.15433E-01	1.05973E-01	9.81396E-02	6.20809E-02	5.27655E-02	4.83651E-02	2.81684E-02	1.55071E-02
20	1.15409E-01	1.05890E-01	9.79403E-02	6.18437E-02	5.25383E-02	4.80528E-02	2.80916E-02	1.54651E-02
21	1.15397E-01	1.05853E-01	9.78018E-02	6.16789E-02	5.23780E-02	4.78013E-02	2.80332E-02	1.54339E-02
22	1.15391E-01	1.05798E-01	9.77051E-02	6.15616E-02	5.22627E-02	4.76362E-02	2.79888E-02	1.54106E-02
23	1.15388E-01	1.05765E-01	9.76331E-02	6.14782E-02	5.21802E-02	4.75187E-02	2.79560E-02	1.53935E-02
24	1.15386E-01	1.05746E-01	9.75854E-02	6.14214E-02	5.21239E-02	4.74387E-02	2.79336E-02	1.53818E-02
25	1.15384E-01	1.05734E-01	9.75569E-02	6.13876E-02	5.20906E-02	4.73912E-02	2.79210E-02	1.53752E-02
26	1.15381E-01	1.05730E-01	9.75478E-02	6.13767E-02	5.20808E-02	4.73765E-02	2.79191E-02	1.53741E-02
27	1.15379E-01	1.05732E-01	9.75531E-02	6.13834E-02	5.20887E-02	4.73867E-02	2.79244E-02	1.53769E-02
28	1.15378E-01	1.05738E-01	9.75685E-02	6.14018E-02	5.21083E-02	4.74137E-02	2.79347E-02	1.53820E-02

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	6.94169E-03	5.15677E-03	1.04522E-02	3.48803E-02	1.07715E-02	2.19647E-02	7.43973E-02	6.11483E-02
2	6.94248E-03	5.15838E-03	1.04537E-02	3.48831E-02	1.07726E-02	2.19666E-02	7.43925E-02	6.11342E-02
3	6.93500E-03	5.14951E-03	1.04471E-02	3.48684E-02	1.07613E-02	2.19809E-02	7.42767E-02	6.10113E-02
4	6.98057E-03	5.12816E-03	1.04314E-02	3.48337E-02	1.07353E-02	2.18498E-02	7.40220E-02	6.07472E-02
5	6.91774E-03	5.09532E-03	1.04077E-02	3.47818E-02	1.06961E-02	2.17278E-02	7.36443E-02	6.03563E-02
6	6.90032E-03	5.05026E-03	1.03756E-02	3.47125E-02	1.06429E-02	2.15630E-02	7.31411E-02	5.98358E-02
7	6.87751E-03	4.99051E-03	1.03339E-02	3.46233E-02	1.05735E-02	2.13482E-02	7.24998E-02	5.91743E-02

8	6.84744E-03	4.91067E-03	1.02795E-02	3.45086E-02	1.04822E-02	2.10676E-02	7.16894E-02	5.83441E-02
9	6.81942E-03	4.83538E-03	1.02291E-02	3.44036E-02	1.03971E-02	2.08076E-02	7.09605E-02	5.76034E-02
10	6.79384E-03	4.76615E-03	1.01835E-02	3.43099E-02	1.03194E-02	2.05725E-02	7.03268E-02	5.69669E-02
11	6.77361E-03	4.71321E-03	1.01471E-02	3.42345E-02	1.02598E-02	2.03954E-02	6.98653E-02	5.65237E-02
12	6.76557E-03	4.69444E-03	1.01321E-02	3.42020E-02	1.02390E-02	2.03362E-02	6.97226E-02	5.64109E-02
13	6.75365E-03	4.66958E-03	1.01120E-02	3.41611E-02	1.02047E-02	2.02276E-02	6.94480E-02	5.61308E-02
14	6.72790E-03	4.58115E-03	1.00696E-02	3.40782E-02	1.01267E-02	1.99813E-02	6.88385E-02	5.54928E-02
15	6.68714E-03	4.45700E-03	1.00032E-02	3.39507E-02	1.00029E-02	1.95979E-02	6.79476E-02	5.45820E-02
16	6.61995E-03	4.23675E-03	9.89262E-03	3.37396E-02	9.79978E-03	1.89639E-02	6.65751E-02	5.32303E-02
17	6.55290E-03	4.01852E-03	9.77843E-03	3.35165E-02	9.59852E-03	1.83353E-02	6.51780E-02	5.18793E-02
18	6.49571E-03	3.85638E-03	9.67505E-03	3.33034E-02	9.42917E-03	1.78142E-02	6.39443E-02	5.05816E-02
19	6.44216E-03	3.71947E-03	9.57562E-03	3.30901E-02	9.27190E-03	1.73356E-02	6.25040E-02	4.92716E-02
20	6.40747E-03	3.64195E-03	9.50892E-03	3.29398E-02	9.17041E-03	1.70803E-02	6.15494E-02	4.83350E-02
21	6.38321E-03	3.59261E-03	9.46147E-03	3.28287E-02	9.09941E-03	1.68178E-02	6.08343E-02	4.76327E-02
22	6.36584E-03	3.55988E-03	9.42710E-03	3.27459E-02	9.04842E-03	1.66657E-02	6.02929E-02	4.71011E-02
23	6.35348E-03	3.53776E-03	9.40240E-03	3.26851E-02	9.01177E-03	1.65563E-02	5.98869E-02	4.67025E-02
24	6.34510E-03	3.52311E-03	9.38544E-03	3.26429E-02	8.98642E-03	1.64800E-02	5.95936E-02	4.64128E-02
25	6.34021E-03	3.51411E-03	9.37535E-03	3.26178E-02	8.97059E-03	1.64315E-02	5.94000E-02	4.62181E-02
26	6.33889E-03	3.51021E-03	9.37219E-03	3.26092E-02	8.96424E-03	1.64095E-02	5.93053E-02	4.61142E-02
27	6.33966E-03	3.51041E-03	9.37432E-03	3.26153E-02	8.96549E-03	1.64098E-02	5.92958E-02	4.60909E-02
28	6.34271E-03	3.51357E-03	9.37994E-03	3.26301E-02	8.97200E-03	1.64256E-02	5.93455E-02	4.61238E-02

0 int. grp. 25 grp. 26 grp. 27

1	2.76841E-02	1.99829E-02	3.79587E-03
2	2.76737E-02	1.99707E-02	3.79306E-03
3	2.76081E-02	1.99133E-02	3.78129E-03
4	2.74687E-02	1.97921E-02	3.75634E-03
5	2.72622E-02	1.96114E-02	3.71861E-03
6	2.69868E-02	1.93684E-02	3.66698E-03
7	2.66370E-02	1.90571E-02	3.59948E-03
8	2.62000E-02	1.86651E-02	3.51247E-03
9	2.58125E-02	1.83160E-02	3.43384E-03
10	2.54844E-02	1.80181E-02	3.36633E-03
11	2.52650E-02	1.78264E-02	3.32550E-03
12	2.52179E-02	1.77973E-02	3.32276E-03
13	2.50619E-02	1.76540E-02	3.28428E-03
14	2.47068E-02	1.73142E-02	3.19161E-03
15	2.42130E-02	1.68350E-02	3.05401E-03
16	2.34987E-02	1.61513E-02	2.86330E-03
17	2.27967E-02	1.55051E-02	2.68047E-03
18	2.21269E-02	1.49207E-02	2.54960E-03
19	2.14546E-02	1.43525E-02	2.43131E-03
20	2.09787E-02	1.39678E-02	2.35915E-03
21	2.06254E-02	1.36921E-02	2.31045E-03
22	2.03608E-02	1.34919E-02	2.27665E-03
23	2.01638E-02	1.33463E-02	2.25264E-03
24	2.00215E-02	1.32429E-02	2.23593E-03
25	1.99253E-02	1.31734E-02	2.22483E-03
26	1.98715E-02	1.31333E-02	2.21844E-03
27	1.98665E-02	1.31191E-02	2.21603E-03
28	1.98661E-02	1.31221E-02	2.21593E-03

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	5.08807E-04	6.73448E-04	5.60754E-05	-7.29488E-04	9.99952E-01
2	.00000E+00	.00000E+00	3.86411E-04	6.18527E-03	8.12940E-03	1.76752E-04	-7.91942E-03	9.99961E-01
3	.00000E+00	.00000E+00	3.86166E-03	5.47456E-03	1.42437E-02	9.29477E-05	-1.04747E-02	9.99978E-01
4	.00000E+00	.00000E+00	5.60190E-03	3.60437E-03	1.23842E-02	4.20627E-05	-6.82427E-03	9.99988E-01
5	.00000E+00	.00000E+00	1.02841E-02	1.15346E-02	2.08972E-02	4.97074E-05	-1.06626E-02	9.99991E-01
6	.00000E+00	.00000E+00	2.15307E-02	3.45064E-02	4.10111E-02	8.43132E-05	-1.95644E-02	9.99998E-01
7	.00000E+00	.00000E+00	4.22615E-02	6.09831E-02	5.41484E-02	6.12344E-05	-1.19475E-02	9.99989E-01

8	.00000E+00	.00000E+00	5.63771E-02	7.83791E-02	5.87701E-02	3.64181E-05	-2.42432E-03	9.99912E-01
9	.00000E+00	.00000E+00	5.78094E-02	7.26623E-02	5.75418E-02	2.92961E-05	2.44917E-04	9.99885E-01
10	.00000E+00	.00000E+00	5.71180E-02	6.92491E-02	5.56520E-02	3.61033E-05	1.43595E-03	9.99875E-01
11	.00000E+00	.00000E+00	5.59294E-02	6.57025E-02	5.26543E-02	5.52482E-05	3.42326E-03	9.99939E-01
12	.00000E+00	.00000E+00	4.54778E-02	3.51525E-02	4.13612E-02	6.05469E-05	4.05705E-03	9.99979E-01
13	.00000E+00	.00000E+00	4.06273E-02	2.85889E-02	3.66633E-02	8.46893E-05	3.88059E-03	9.99968E-01
14	.00000E+00	.00000E+00	3.95045E-02	2.81294E-02	3.36026E-02	1.35753E-04	5.76659E-03	9.99988E-01
15	.00000E+00	.00000E+00	2.16405E-02	1.08173E-02	2.02651E-02	1.12237E-04	1.26324E-03	9.99998E-01
16	.00000E+00	.00000E+00	1.41888E-02	4.54909E-03	1.34020E-02	7.58638E-05	7.10851E-04	1.00000E+00
17	.00000E+00	.00000E+00	7.27320E-03	1.27368E-03	6.62690E-03	3.64605E-05	6.09795E-04	1.00001E+00
18	.00000E+00	.00000E+00	6.43510E-03	8.98264E-04	4.90830E-03	2.81071E-05	1.49873E-03	9.99994E-01
19	.00000E+00	.00000E+00	1.05933E-02	2.83870E-03	9.42141E-03	6.35785E-05	1.10845E-03	9.99990E-01
20	.00000E+00	.00000E+00	2.58651E-02	2.04988E-02	2.31765E-02	2.67345E-04	2.42103E-03	1.00001E+00
21	.00000E+00	.00000E+00	1.23161E-02	4.04375E-03	1.05197E-02	1.01411E-04	1.69514E-03	9.99988E-01
22	.00000E+00	.00000E+00	2.42796E-02	1.22770E-02	1.91057E-02	2.35809E-04	4.95791E-03	1.00001E+00
23	.00000E+00	.00000E+00	6.26124E-02	7.51956E-02	4.95789E-02	1.09158E-03	1.21405E-02	1.00002E+00
24	.00000E+00	.00000E+00	6.67371E-02	7.12650E-02	5.50100E-02	1.29652E-03	1.04293E-02	1.00002E+00
25	.00000E+00	.00000E+00	4.44666E-02	3.02755E-02	3.89495E-02	7.69476E-04	4.74715E-03	1.00001E+00
26	.00000E+00	.00000E+00	3.55385E-02	3.38693E-02	3.12822E-02	7.83284E-04	3.47208E-03	1.00001E+00
27	.00000E+00	.00000E+00	1.20651E-02	7.35278E-03	1.12012E-02	2.79875E-04	5.84006E-04	1.00000E+00
28	.00000E+00	.00000E+00	7.80781E-01	7.75815E-01	7.80781E-01	6.14270E-03	-6.12084E-03	9.99972E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.31853E-02	-7.29488E-04	1.30674E-02	.00000E+00	3.72436E-11	.00000E+00	2.01857E-05	1.64865E-02
2	9.26630E-02	-7.91942E-03	9.11561E-02	.00000E+00	.00000E+00	.00000E+00	8.96523E-05	1.15361E-01
3	1.14955E-01	-1.04747E-02	1.12766E-01	.00000E+00	.00000E+00	.00000E+00	9.25174E-05	1.42855E-01
4	7.06657E-02	-6.82427E-03	6.91094E-02	.00000E+00	.00000E+00	.00000E+00	4.18087E-05	8.76592E-02
5	1.05432E-01	-1.06626E-02	1.02834E-01	.00000E+00	.00000E+00	.00000E+00	4.94142E-05	1.30585E-01
6	1.97731E-01	-1.95646E-02	1.92888E-01	.00000E+00	.00000E+00	.00000E+00	8.34434E-05	2.44938E-01
7	1.96177E-01	-1.19475E-02	1.95146E-01	.00000E+00	.00000E+00	.00000E+00	5.92902E-05	2.44337E-01
8	1.47464E-01	-2.42432E-03	1.47040E-01	.00000E+00	.00000E+00	.00000E+00	3.27367E-05	1.85039E-01
9	1.15939E-01	2.44917E-04	1.15990E-01	.00000E+00	.00000E+00	.00000E+00	2.16887E-05	1.45719E-01
10	1.06813E-01	1.43595E-03	1.07254E-01	.00000E+00	.00000E+00	.00000E+00	1.91827E-05	1.34530E-01
11	1.00069E-01	3.42326E-03	1.01028E-01	.00000E+00	.00000E+00	.00000E+00	1.79574E-05	1.26438E-01
12	6.44000E-02	4.05705E-03	6.55046E-02	.00000E+00	.00000E+00	.00000E+00	1.05291E-05	8.17133E-02
13	5.48750E-02	3.88059E-03	5.59031E-02	.00000E+00	.00000E+00	.00000E+00	8.75085E-06	6.96860E-02
14	5.15911E-02	5.76659E-03	5.31350E-02	.00000E+00	.00000E+00	.00000E+00	8.44713E-06	6.59272E-02
15	2.86524E-02	1.26324E-03	2.89105E-02	.00000E+00	.00000E+00	.00000E+00	4.45646E-06	3.61966E-02
16	1.58179E-02	7.10851E-04	1.59843E-02	.00000E+00	.00000E+00	.00000E+00	2.22619E-06	1.99934E-02
17	6.77923E-03	6.09795E-04	6.94042E-03	.00000E+00	.00000E+00	.00000E+00	8.83672E-07	8.63365E-03
18	4.72622E-03	1.49873E-03	5.15355E-03	.00000E+00	.00000E+00	.00000E+00	6.23650E-07	6.26587E-03
19	1.01572E-02	1.10845E-03	1.04495E-02	.00000E+00	.00000E+00	.00000E+00	1.35716E-06	1.29705E-02
20	3.42582E-02	2.42103E-03	3.48768E-02	.00000E+00	.00000E+00	.00000E+00	5.09612E-06	4.34790E-02
21	1.02744E-02	1.69514E-03	1.07680E-02	.00000E+00	.00000E+00	.00000E+00	1.21584E-06	1.32601E-02
22	2.04379E-02	4.95791E-03	2.19562E-02	.00000E+00	.00000E+00	.00000E+00	2.44508E-06	2.67465E-02
23	6.99665E-02	1.21405E-02	7.43764E-02	.00000E+00	.00000E+00	.00000E+00	7.49844E-06	9.09125E-02
24	5.66064E-02	1.04293E-02	6.11340E-02	.00000E+00	.00000E+00	.00000E+00	4.54638E-06	7.41708E-02
25	2.53000E-02	4.74715E-03	2.76795E-02	.00000E+00	.00000E+00	.00000E+00	1.58049E-06	3.33762E-02
26	1.78504E-02	3.47208E-03	1.99808E-02	.00000E+00	.00000E+00	.00000E+00	8.34278E-07	2.38563E-02
27	3.32835E-03	5.84006E-04	3.79604E-03	.00000E+00	.00000E+00	.00000E+00	9.85233E-08	4.50026E-03
28	1.73609E+00	-6.12038E-03	1.74283E+00	.00000E+00	3.72436E-11	.00000E+00	5.88445E-04	2.18562E+00

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.24988E-04	1.68657E-04	2.53012E-06	-1.65172E-04	1.00001E+00
2	.00000E+00	.00000E+00	2.94556E-05	1.46578E-03	1.05178E-03	1.41177E-05	-1.03644E-03	1.00000E+00
3	.00000E+00	.00000E+00	1.51427E-04	2.77590E-03	8.77709E-04	2.03129E-05	-7.46537E-04	9.99995E-01
4	.00000E+00	.00000E+00	2.88326E-04	2.30800E-03	2.98836E-04	1.31156E-05	-2.35979E-05	9.99996E-01
5	.00000E+00	.00000E+00	6.19828E-04	4.42024E-03	2.79546E-04	1.68779E-05	3.25387E-04	1.00000E+00
6	.00000E+00	.00000E+00	1.02631E-03	1.24084E-02	1.69533E-04	2.70751E-05	8.29713E-04	9.99999E-01
7	.00000E+00	.00000E+00	6.74451E-04	1.25976E-02	6.33222E-05	2.68222E-05	5.84320E-04	9.99999E-01
8	.00000E+00	.00000E+00	1.17649E-04	9.21166E-03	4.43556E-04	2.21210E-05	-3.48074E-04	1.00002E+00

9	.00000E+00	.00000E+00	4.45404E-04	6.36399E-03	5.30509E-05	7.67624E-05	3.15607E-04	9.99976E-01
10	.00000E+00	.00000E+00	5.31162E-05	4.99400E-03	4.95492E-05	5.94114E-05	-5.58461E-05	1.00000E+00
11	.00000E+00	.00000E+00	4.95526E-05	4.46284E-03	5.04012E-05	9.01826E-05	-9.10230E-05	9.99998E-01
12	.00000E+00	.00000E+00	5.04015E-05	2.76630E-03	5.14660E-05	5.68334E-06	-6.75069E-06	1.00000E+00
13	.00000E+00	.00000E+00	5.14661E-05	2.35786E-03	4.80988E-05	6.31783E-06	-2.94857E-06	1.00000E+00
14	.00000E+00	.00000E+00	4.80988E-05	2.22085E-03	4.18529E-05	8.48148E-06	-2.23611E-06	1.00000E+00
15	.00000E+00	.00000E+00	4.44262E-05	1.20907E-03	4.94833E-05	6.26148E-06	-1.12508E-05	9.99948E-01
16	.00000E+00	.00000E+00	5.53666E-05	6.39105E-04	5.53666E-05	3.78787E-06	-3.74473E-06	9.99944E-01
17	.00000E+00	.00000E+00	5.99443E-05	2.38686E-04	5.87533E-05	1.77427E-06	-5.64032E-07	9.99971E-01
18	.00000E+00	.00000E+00	6.16488E-05	1.56226E-04	5.04447E-05	1.30066E-06	9.90450E-06	9.99999E-01
19	.00000E+00	.00000E+00	5.24101E-05	3.88229E-04	5.72797E-05	3.01256E-06	-7.88085E-06	9.99999E-01
20	.00000E+00	.00000E+00	6.98617E-05	1.44216E-03	6.13114E-05	1.23987E-05	-3.75649E-06	9.99963E-01
21	.00000E+00	.00000E+00	8.02968E-05	3.63502E-04	8.68274E-05	4.50589E-06	-1.10328E-05	9.99998E-01
22	.00000E+00	.00000E+00	1.14353E-04	7.89522E-04	1.05490E-04	1.01916E-05	-1.28942E-06	9.99992E-01
23	.00000E+00	.00000E+00	1.63415E-04	2.85667E-03	2.09727E-04	4.66582E-05	-9.29758E-05	1.00000E+00
24	.00000E+00	.00000E+00	2.70704E-04	2.18185E-03	2.99426E-04	5.35567E-05	-8.23066E-05	1.00000E+00
25	.00000E+00	.00000E+00	2.77361E-04	8.81993E-04	2.27013E-04	3.12126E-05	1.91191E-05	1.00000E+00
26	.00000E+00	.00000E+00	1.18124E-04	6.91231E-04	9.13480E-05	3.10508E-05	-4.26173E-06	1.00000E+00
27	.00000E+00	.00000E+00	2.64874E-05	1.45979E-04	7.52139E-08	1.08304E-05	1.55798E-05	1.00000E+00
28	.00000E+00	.00000E+00	4.99988E-03	8.05625E-02	4.99988E-03	6.06334E-04	-6.00056E-04	9.99976E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.32122E-02	-8.94660E-04	1.31853E-02	-7.29488E-04	6.02595E-06	.00000E+00	1.66582E-06	2.19984E-03
2	9.29264E-02	-8.95586E-03	9.26630E-02	-7.91942E-03	.00000E+00	.00000E+00	1.12058E-05	1.54678E-02
3	1.15283E-01	-1.12212E-02	1.14955E-01	-1.04747E-02	.00000E+00	.00000E+00	1.27206E-05	1.91888E-02
4	7.08824E-02	-6.84786E-03	7.06657E-02	-6.82427E-03	.00000E+00	.00000E+00	7.44974E-06	1.17996E-02
5	1.05770E-01	-1.03592E-02	1.05432E-01	-1.06626E-02	.00000E+00	.00000E+00	8.64313E-06	1.76073E-02
6	1.98404E-01	-1.87349E-02	1.97731E-01	-1.95646E-02	.00000E+00	.00000E+00	1.01784E-05	3.30253E-02
7	1.96582E-01	-1.13632E-02	1.96177E-01	-1.19475E-02	.00000E+00	.00000E+00	8.35573E-06	3.27403E-02
8	1.47551E-01	-2.77239E-03	1.47464E-01	-2.42432E-03	.00000E+00	.00000E+00	5.27678E-06	2.45873E-02
9	1.15930E-01	5.60524E-04	1.15939E-01	2.44917E-04	.00000E+00	.00000E+00	4.58694E-06	1.95256E-02
10	1.06774E-01	1.38010E-03	1.06813E-01	1.43595E-03	.00000E+00	.00000E+00	4.91625E-06	1.78002E-02
11	9.99771E-02	3.33223E-03	1.00069E-01	3.42326E-03	.00000E+00	.00000E+00	4.77306E-06	1.66707E-02
12	6.42927E-02	4.05029E-03	6.44000E-02	4.05705E-03	.00000E+00	.00000E+00	3.22043E-06	1.07239E-02
13	5.47702E-02	3.87764E-03	5.48750E-02	3.88059E-03	.00000E+00	.00000E+00	2.73792E-06	9.13656E-03
14	5.14373E-02	5.76435E-03	5.15911E-02	5.76659E-03	.00000E+00	.00000E+00	2.56605E-06	8.58426E-03
15	2.86134E-02	1.25199E-03	2.86524E-02	1.26324E-03	.00000E+00	.00000E+00	1.40600E-06	4.77207E-03
16	1.57978E-02	7.07106E-04	1.58179E-02	7.10851E-04	.00000E+00	.00000E+00	7.76270E-07	2.63460E-03
17	6.76315E-03	6.09231E-04	6.77923E-03	6.09795E-04	.00000E+00	.00000E+00	3.32313E-07	1.12839E-03
18	4.68868E-03	1.50864E-03	4.72622E-03	1.49873E-03	.00000E+00	.00000E+00	2.30829E-07	7.84039E-04
19	1.01271E-02	1.10057E-03	1.01572E-02	1.10845E-03	.00000E+00	.00000E+00	4.97368E-07	1.69012E-03
20	3.41952E-02	2.41728E-03	3.42582E-02	2.42103E-03	.00000E+00	.00000E+00	1.67613E-06	5.70867E-03
21	1.02528E-02	1.68411E-03	1.02744E-02	1.69514E-03	.00000E+00	.00000E+00	5.01216E-07	1.70840E-03
22	2.03196E-02	4.93662E-03	2.04379E-02	4.95791E-03	.00000E+00	.00000E+00	9.94632E-07	3.39463E-03
23	6.98812E-02	1.20478E-02	6.99665E-02	1.21406E-02	.00000E+00	.00000E+00	3.39660E-06	1.16336E-02
24	5.63807E-02	1.03470E-02	5.66064E-02	1.04295E-02	.00000E+00	.00000E+00	2.73136E-06	9.41220E-03
25	2.52058E-02	4.76627E-03	2.53000E-02	4.74715E-03	.00000E+00	.00000E+00	1.21369E-06	4.20734E-03
26	1.77922E-02	3.46782E-03	1.78504E-02	3.47208E-03	.00000E+00	.00000E+00	8.47439E-07	2.96896E-03
27	3.32287E-03	5.99586E-04	3.32885E-03	5.84006E-04	.00000E+00	.00000E+00	1.53309E-07	5.54084E-04
28	1.73691E+00	-6.72040E-03	1.73609E+00	-6.12088E-03	6.02595E-06	.00000E+00	1.08054E-04	2.89449E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.69753E-04	3.57040E-04	2.97259E-05	-3.86751E-04	9.99985E-01
2	.00000E+00	.00000E+00	2.04862E-04	3.30162E-03	4.33957E-03	9.43482E-05	-4.22868E-03	9.99987E-01
3	.00000E+00	.00000E+00	2.06094E-03	2.92649E-03	7.61417E-03	4.96864E-05	-5.60274E-03	9.99991E-01
4	.00000E+00	.00000E+00	2.99555E-03	1.92964E-03	6.63005E-03	2.25188E-05	-3.65894E-03	9.99994E-01
5	.00000E+00	.00000E+00	5.50080E-03	6.18498E-03	1.12053E-02	2.66537E-05	-5.73107E-03	9.99995E-01
6	.00000E+00	.00000E+00	1.15329E-02	1.84974E-02	2.19843E-02	4.51967E-05	-1.04966E-02	9.99999E-01
7	.00000E+00	.00000E+00	2.26490E-02	3.23973E-02	2.87664E-02	3.25309E-05	-6.14985E-03	9.99992E-01
8	.00000E+00	.00000E+00	3.00023E-02	4.11818E-02	3.08789E-02	1.91347E-05	-8.92989E-04	9.99919E-01
9	.00000E+00	.00000E+00	3.04366E-02	3.80164E-02	3.01065E-02	1.53275E-05	3.19259E-04	9.99888E-01

10	.00000E+00	.00000E+00	2.99168E-02	3.61453E-02	2.90481E-02	1.88445E-05	8.52902E-04	9.99900E-01
11	.00000E+00	.00000E+00	2.92117E-02	3.41197E-02	2.72399E-02	2.86907E-05	1.94490E-03	9.99946E-01
12	.00000E+00	.00000E+00	2.36427E-02	1.81249E-02	2.13262E-02	3.12185E-05	2.28573E-03	9.99982E-01
13	.00000E+00	.00000E+00	2.10027E-02	1.47218E-02	1.88797E-02	4.36105E-05	2.08006E-03	9.99973E-01
14	.00000E+00	.00000E+00	2.05710E-02	1.43355E-02	1.71248E-02	6.91833E-05	3.17721E-03	9.99991E-01
15	.00000E+00	.00000E+00	1.10725E-02	5.62012E-03	1.05287E-02	5.83130E-05	4.85421E-04	1.00000E+00
16	.00000E+00	.00000E+00	7.31027E-03	2.36113E-03	6.95609E-03	3.95758E-05	3.14775E-04	1.00000E+00
17	.00000E+00	.00000E+00	3.75166E-03	6.52729E-04	3.39612E-03	1.86851E-05	3.36823E-04	1.00001E+00
18	.00000E+00	.00000E+00	3.31651E-03	4.31850E-04	2.35972E-03	1.35128E-05	9.43299E-04	9.99997E-01
19	.00000E+00	.00000E+00	5.41422E-03	1.44921E-03	4.80975E-03	3.24579E-05	5.72027E-04	9.99992E-01
20	.00000E+00	.00000E+00	1.32184E-02	1.05701E-02	1.19509E-02	1.37856E-04	1.12952E-03	1.00001E+00
21	.00000E+00	.00000E+00	6.28064E-03	2.02895E-03	5.27818E-03	5.08822E-05	9.51661E-04	9.99990E-01
22	.00000E+00	.00000E+00	1.22782E-02	6.01960E-03	9.36780E-03	1.15620E-04	2.79469E-03	1.00000E+00
23	.00000E+00	.00000E+00	3.09776E-02	3.74119E-02	2.45674E-02	5.43090E-04	5.86650E-03	1.00001E+00
24	.00000E+00	.00000E+00	3.27886E-02	3.50198E-02	2.70321E-02	6.37115E-04	5.11886E-03	1.00001E+00
25	.00000E+00	.00000E+00	2.17112E-02	1.47145E-02	1.89302E-02	3.73979E-04	2.40684E-03	1.00001E+00
26	.00000E+00	.00000E+00	1.72806E-02	1.61215E-02	1.48904E-02	3.72836E-04	2.01724E-03	1.00001E+00
27	.00000E+00	.00000E+00	5.85767E-03	3.41129E-03	5.19675E-03	1.29847E-04	5.11274E-04	1.00000E+00
28	.00000E+00	.00000E+00	4.00764E-01	3.97965E-01	4.00764E-01	3.05024E-03	-3.03835E-03	9.99971E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.33503E-02	-1.28141E-03	1.32122E-02	-8.94660E-04	1.97453E-11	.00000E+00	1.07007E-05	8.74062E-03
2	9.42736E-02	-1.31845E-02	9.29294E-02	-8.95586E-03	.00000E+00	.00000E+00	4.78553E-05	6.15782E-02
3	1.16919E-01	-1.68240E-02	1.15283E-01	-1.12212E-02	.00000E+00	.00000E+00	4.94563E-05	7.63650E-02
4	7.18507E-02	-1.05068E-02	7.08824E-02	-6.84786E-03	.00000E+00	.00000E+00	2.23928E-05	4.69294E-02
5	1.07230E-01	-1.60708E-02	1.05770E-01	-1.03392E-02	.00000E+00	.00000E+00	2.64964E-05	7.00213E-02
6	2.01003E-01	-2.92315E-02	1.98404E-01	-1.87349E-02	.00000E+00	.00000E+00	4.47304E-05	1.31301E-01
7	1.98091E-01	-1.75129E-02	1.96582E-01	-1.13632E-02	.00000E+00	.00000E+00	3.14980E-05	1.29804E-01
8	1.47844E-01	-3.66538E-03	1.47551E-01	-2.77239E-03	.00000E+00	.00000E+00	1.72005E-05	9.72229E-02
9	1.15706E-01	8.79825E-04	1.15580E-01	5.60524E-04	.00000E+00	.00000E+00	1.13474E-05	7.62393E-02
10	1.06524E-01	2.23300E-03	1.06774E-01	1.38010E-03	.00000E+00	.00000E+00	1.00126E-05	7.02193E-02
11	9.94111E-02	5.27714E-03	9.99771E-02	3.33223E-03	.00000E+00	.00000E+00	9.31503E-06	6.56599E-02
12	6.35998E-02	6.33602E-03	6.42927E-02	4.05029E-03	.00000E+00	.00000E+00	5.42889E-06	4.21322E-02
13	5.41550E-02	5.95770E-03	5.47702E-02	3.87764E-03	.00000E+00	.00000E+00	4.50622E-06	3.58846E-02
14	5.04836E-02	8.94156E-03	5.14373E-02	5.76435E-03	.00000E+00	.00000E+00	4.30490E-06	3.35983E-02
15	2.85108E-02	1.73741E-03	2.86134E-02	1.25199E-03	.00000E+00	.00000E+00	2.31536E-06	1.88060E-02
16	1.57187E-02	1.02188E-03	1.57978E-02	7.07106E-04	.00000E+00	.00000E+00	1.15547E-06	1.03772E-02
17	6.66279E-03	9.46053E-04	6.76315E-03	6.09231E-04	.00000E+00	.00000E+00	4.52860E-07	4.42453E-03
18	4.38194E-03	2.45193E-03	4.68868E-03	1.50864E-03	.00000E+00	.00000E+00	2.99826E-07	3.00277E-03
19	9.96347E-03	1.67260E-03	1.01271E-02	1.10057E-03	.00000E+00	.00000E+00	6.92853E-07	6.62169E-03
20	3.38777E-02	3.54679E-03	3.41952E-02	2.41728E-03	.00000E+00	.00000E+00	2.62780E-06	2.24198E-02
21	9.92864E-03	2.63577E-03	1.02328E-02	1.68411E-03	.00000E+00	.00000E+00	6.10040E-07	6.65319E-03
22	1.98691E-02	7.73131E-03	2.03196E-02	4.93662E-03	.00000E+00	.00000E+00	1.19886E-06	1.31142E-02
23	6.74292E-02	1.79141E-02	6.96812E-02	1.20476E-02	.00000E+00	.00000E+00	3.73068E-06	4.52315E-02
24	5.40547E-02	1.54658E-02	5.63807E-02	1.03470E-02	.00000E+00	.00000E+00	2.23410E-06	3.64477E-02
25	2.39285E-02	7.17311E-03	2.52058E-02	4.76627E-03	.00000E+00	.00000E+00	7.68146E-07	1.62214E-02
26	1.65561E-02	5.48506E-03	1.77922E-02	3.46782E-03	.00000E+00	.00000E+00	3.97109E-07	1.13554E-02
27	2.97080E-03	1.11086E-03	3.32267E-03	5.99586E-04	.00000E+00	.00000E+00	4.56166E-08	2.08788E-03
28	1.73379E+00	-9.75886E-03	1.73691E+00	-6.72040E-03	1.97453E-11	.00000E+00	3.11764E-04	1.14246E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.34835E-02	.00000E+00	2.17709E-02	2.06866E-02	3.82560E-03	1.28141E-03	9.98905E-01
2	.00000E+00	1.95460E-01	7.16469E-03	2.52450E-01	1.74080E-01	1.55724E-02	1.31845E-02	1.00002E+00
3	.00000E+00	2.16133E-01	7.19728E-02	2.58306E-01	2.55072E-01	1.62136E-02	1.68239E-02	9.99888E-01
4	.00000E+00	1.23637E-01	1.05989E-01	1.77132E-01	2.11393E-01	7.72605E-03	1.05068E-02	9.99993E-01
5	.00000E+00	1.63627E-01	1.92659E-01	4.44990E-01	3.35072E-01	5.14701E-03	1.60702E-02	9.99990E-01
6	.00000E+00	1.76243E-01	3.91730E-01	1.19120E+00	5.30639E-01	8.09498E-03	2.92314E-02	1.00001E+00
7	.00000E+00	8.69766E-02	5.95850E-01	1.56388E+00	6.55306E-01	8.01626E-03	1.75114E-02	9.99991E-01
8	.00000E+00	1.33893E-02	6.89659E-01	1.57564E+00	6.86432E-01	1.30071E-02	3.66520E-03	9.99921E-01
9	.00000E+00	9.71502E-04	6.78514E-01	1.37304E+00	6.58906E-01	2.15359E-02	-8.70875E-04	9.99879E-01
10	.00000E+00	7.21551E-05	6.55899E-01	1.25082E+00	6.25794E-01	3.24757E-02	-2.23998E-03	9.99902E-01

11	.00000E+00	5.67662E-06	6.29784E-01	1.16619E+00	5.81763E-01	5.33410E-02	-5.27941E-03	9.99945E-01
12	.00000E+00	3.98772E-07	5.06664E-01	6.37355E-01	4.54473E-01	5.85405E-02	-6.33669E-03	9.99976E-01
13	.00000E+00	6.33213E-08	4.49136E-01	5.05960E-01	3.99414E-01	5.56927E-02	-5.95657E-03	9.99988E-01
14	.00000E+00	1.25486E-08	4.31362E-01	4.67818E-01	3.59604E-01	8.07050E-02	-8.94152E-03	9.99989E-01
15	.00000E+00	1.41813E-09	2.36346E-01	2.13907E-01	2.29645E-01	8.36333E-03	-1.74555E-03	1.00036E+00
16	.00000E+00	4.16412E-10	1.61205E-01	9.82015E-02	1.55434E-01	6.73931E-03	-1.02677E-03	1.00036E+00
17	.00000E+00	1.34105E-10	8.60151E-02	3.00328E-02	7.77842E-02	9.15592E-03	-9.50470E-04	1.00029E+00
18	.00000E+00	9.60152E-11	7.63121E-02	1.75281E-02	4.97439E-02	2.90143E-02	-2.45152E-03	1.00007E+00
19	.00000E+00	1.35745E-10	1.17873E-01	5.65410E-02	1.07407E-01	1.21168E-02	-1.67242E-03	1.00018E+00
20	.00000E+00	2.20735E-10	2.82360E-01	3.33729E-01	2.57942E-01	2.78825E-02	-3.56150E-03	1.00034E+00
21	.00000E+00	3.23085E-11	1.38148E-01	6.48419E-02	1.14855E-01	2.59073E-02	-2.63464E-03	1.00014E+00
22	.00000E+00	3.74853E-11	2.60617E-01	1.64582E-01	1.92272E-01	7.60364E-02	-7.73609E-03	1.00016E+00
23	.00000E+00	3.58401E-11	6.20191E-01	9.31170E-01	5.00905E-01	1.37039E-01	-1.79119E-02	1.00025E+00
24	.00000E+00	9.75521E-12	6.55841E-01	8.13847E-01	5.42598E-01	1.28184E-01	-1.54664E-02	1.00019E+00
25	.00000E+00	2.85569E-12	4.35719E-01	3.31629E-01	3.72678E-01	7.01614E-02	-7.17637E-03	1.00013E+00
26	.00000E+00	2.00242E-12	3.38241E-01	3.34190E-01	2.80084E-01	6.36089E-02	-5.48519E-03	1.00010E+00
27	.00000E+00	4.77188E-13	1.11844E-01	6.76414E-02	9.47151E-02	1.82348E-02	-1.11083E-03	1.00004E+00
28	.00000E+00	1.00000E+00	8.92510E+00	1.43444E+01	8.92510E+00	9.92138E-01	9.72608E-03	1.00004E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.36540E-02	-4.06352E-09	1.33503E-02	-1.28141E-05	2.28188E-05	2.53618E-05	3.01199E-04	3.47079E-01
2	9.75930E-02	-3.14073E-08	9.42736E-02	-1.31845E-02	1.56948E-05	1.10523E-02	1.60436E-03	2.47821E+00
3	1.21277E-01	-5.16775E-08	1.16919E-01	-1.68240E-02	.00000E+00	1.33044E-02	1.88580E-03	3.07873E+00
4	7.46607E-02	-2.17850E-08	7.18507E-02	-1.05068E-02	.00000E+00	5.69588E-03	8.85991E-04	1.89499E+00
5	1.11794E-01	-5.68470E-08	1.07230E-01	-1.60708E-02	.00000E+00	1.61424E-03	1.05291E-03	2.83638E+00
6	2.09787E-01	-1.08293E-07	2.01003E-01	-2.92515E-02	.00000E+00	1.29656E-03	1.73187E-03	5.32064E+00
7	2.08616E-01	-1.49689E-06	1.98091E-01	-1.75129E-02	.00000E+00	1.20666E-03	1.22692E-03	5.17072E+00
8	1.49010E-01	-1.80777E-07	1.47844E-01	-3.66538E-03	.00000E+00	1.19455E-03	6.98720E-04	3.79087E+00
9	1.15376E-01	8.94787E-06	1.15706E-01	8.79823E-04	.00000E+00	1.56926E-03	4.71727E-04	2.95848E+00
10	1.05742E-01	-9.79025E-07	1.06524E-01	2.23300E-03	.00000E+00	3.35129E-03	4.29036E-04	2.69452E+00
11	9.75792E-02	-2.26843E-06	9.94111E-02	5.27714E-03	.00000E+00	7.29890E-03	3.87307E-04	2.48955E+00
12	6.14143E-02	-6.68124E-07	6.35998E-02	6.33602E-03	.00000E+00	9.76411E-03	2.27668E-04	1.56965E+00
13	5.21211E-02	1.12596E-06	5.41550E-02	5.95770E-03	.00000E+00	1.15766E-02	1.94110E-04	1.33271E+00
14	4.74317E-02	3.77203E-08	5.04836E-02	8.94156E-03	.00000E+00	7.25150E-03	1.72454E-04	1.21592E+00
15	2.79425E-02	-8.13845E-06	2.85108E-02	1.73741E-03	.00000E+00	1.64382E-03	1.10066E-04	7.13204E-01
16	1.53859E-02	-4.88585E-06	1.57187E-02	1.02188E-03	.00000E+00	1.17001E-03	5.65876E-05	3.92712E-01
17	6.34546E-03	-4.41695E-06	6.66279E-03	9.46053E-04	.00000E+00	1.28100E-03	2.04740E-05	1.62403E-01
18	3.51575E-03	4.10572E-07	4.38194E-03	2.45198E-03	.00000E+00	8.31515E-04	7.67636E-06	9.15184E-02
19	9.38344E-03	1.79238E-07	9.96347E-03	1.67260E-03	.00000E+00	2.05257E-03	3.10823E-05	2.40595E-01
20	3.26433E-02	-1.47142E-05	3.38777E-02	3.54679E-03	.00000E+00	1.36368E-02	1.20240E-04	8.34871E-01
21	8.97624E-03	1.12438E-06	9.92844E-03	2.63577E-03	.00000E+00	1.48204E-02	2.47962E-05	2.31261E-01
22	1.64376E-02	-4.77990E-06	1.98691E-02	7.73131E-03	.00000E+00	4.40380E-02	4.15552E-05	4.26944E-01
23	5.98809E-02	2.26603E-06	6.74292E-02	1.79141E-02	.00000E+00	7.51179E-02	1.58562E-04	1.54084E+00
24	4.61492E-02	-6.00261E-07	5.40547E-02	1.54658E-02	.00000E+00	6.82952E-02	9.75683E-05	1.20458E+00
25	1.98757E-02	-3.25380E-06	2.39285E-02	7.17311E-03	.00000E+00	3.88690E-02	3.35964E-05	5.21228E-01
26	1.31258E-02	-1.31666E-07	1.65561E-02	5.48506E-03	.00000E+00	3.57222E-02	1.66405E-05	3.46220E-01
27	2.21605E-03	2.86444E-08	2.97080E-03	1.11086E-03	.00000E+00	1.00907E-02	1.71561E-06	5.86150E-02
28	1.72243E+00	-3.26864E-05	1.73379E+00	-9.75885E-03	2.29757E-03	3.86281E-01	1.19206E-02	4.39235E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.34836E-02	.00000E+00	2.27744E-02	2.18857E-02	3.91394E-03	-4.06352E-09	9.98905E-01
2	.00000E+00	1.95460E-01	7.78542E-03	2.63402E-01	1.87601E-01	1.56577E-02	-3.14073E-08	1.00001E+00
3	.00000E+00	2.16133E-01	7.80468E-02	2.69482E-01	2.77807E-01	1.63765E-02	-5.16775E-08	9.99986E-01
4	.00000E+00	1.23637E-01	1.14872E-01	1.84974E-01	2.30706E-01	7.80574E-03	-2.17850E-08	9.99998E-01
5	.00000E+00	1.63627E-01	2.09064E-01	4.67130E-01	3.67454E-01	5.24025E-03	-5.68470E-08	9.99990E-01
6	.00000E+00	1.76243E-01	4.25820E-01	1.25661E+00	5.93804E-01	8.25152E-03	-1.08293E-07	1.00001E+00
7	.00000E+00	8.69766E-02	6.59435E-01	1.66986E+00	7.38283E-01	8.13685E-03	-1.49689E-06	9.99991E-01
8	.00000E+00	1.33893E-02	7.76156E-01	1.70441E+00	7.76525E-01	1.30848E-02	-1.80777E-07	9.99919E-01
9	.00000E+00	9.71502E-04	7.67208E-01	1.49008E+00	7.46605E-01	2.16573E-02	8.94787E-06	9.99880E-01
10	.00000E+00	7.21551E-05	7.42987E-01	1.36120E+00	7.10544E-01	3.25901E-02	-9.79025E-07	9.99901E-01
11	.00000E+00	5.67662E-06	7.14975E-01	1.27047E+00	6.61507E-01	5.35151E-02	-2.26843E-06	9.99944E-01

12	.00000E+00	3.98772E-07	5.75855E-01	6.93399E-01	5.17212E-01	5.86380E-02	-6.68124E-07	9.99976E-01
13	.00000E+00	6.33213E-08	5.10817E-01	5.51628E-01	4.55005E-01	5.58274E-02	1.12596E-06	9.99967E-01
14	.00000E+00	1.25486E-08	4.91286E-01	5.12504E-01	4.10373E-01	8.09184E-02	3.77203E-08	9.99988E-01
15	.00000E+00	1.41813E-09	2.69104E-01	2.31554E-01	2.60489E-01	8.54015E-03	-8.13845E-06	1.00031E+00
16	.00000E+00	4.16412E-10	1.82759E-01	1.05751E-01	1.75848E-01	6.85833E-03	-4.88585E-06	1.00032E+00
17	.00000E+00	1.34105E-10	9.70999E-02	3.21979E-02	8.78660E-02	9.21284E-03	-4.41695E-06	1.00026E+00
18	.00000E+00	9.60152E-11	8.61253E-02	1.90144E-02	5.70624E-02	2.90572E-02	4.10572E-07	1.00006E+00
19	.00000E+00	1.35745E-10	1.39853E-01	6.12171E-02	1.21695E-01	1.22158E-02	1.79238E-07	1.00016E+00
20	.00000E+00	2.20736E-10	3.21513E-01	3.66239E-01	2.98130E-01	2.83001E-02	-1.47142E-05	1.00030E+00
21	.00000E+00	3.23085E-11	1.56825E-01	7.12781E-02	1.30740E-01	2.60641E-02	1.12438E-06	1.00012E+00
22	.00000E+00	3.74853E-11	2.97289E-01	1.83668E-01	2.20851E-01	7.63980E-02	-4.77990E-06	1.00015E+00
23	.00000E+00	3.58401E-11	7.13944E-01	1.04663E+00	5.75061E-01	1.38720E-01	2.26603E-06	1.00023E+00
24	.00000E+00	9.75521E-12	7.55638E-01	9.22314E-01	6.25338E-01	1.30171E-01	-6.00861E-07	1.00017E+00
25	.00000E+00	2.85568E-12	5.02174E-01	3.77501E-01	4.30784E-01	7.13361E-02	-3.25380E-06	1.00011E+00
26	.00000E+00	2.00242E-12	3.91178E-01	3.84872E-01	3.26348E-01	6.47961E-02	-1.31666E-07	1.00009E+00
27	.00000E+00	4.77188E-13	1.29773E-01	7.85514E-02	1.11113E-01	1.86553E-02	2.86444E-08	1.00004E+00
28	.00000E+00	1.00000E+00	1.01116E+01	1.59987E+01	1.01116E+01	1.00194E+00	-3.26679E-05	1.00004E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dd**2	total flux
1	1.36540E-02	-4.06352E-09	1.30674E-02	.00000E+00	2.28790E-03	2.53618E-03	3.33749E-04	3.74505E-01
2	9.75980E-02	-3.14073E-08	9.11561E-02	.00000E+00	1.56948E-05	1.10523E-02	1.75307E-03	2.67062E+00
3	1.21277E-01	-5.16775E-08	1.12766E-01	.00000E+00	.00000E+00	1.33044E-02	1.99049E-03	3.31714E+00
4	7.46607E-02	-2.17850E-08	6.91094E-02	.00000E+00	.00000E+00	5.69588E-03	9.57632E-04	2.04138E+00
5	1.11794E-01	-5.68470E-08	1.02834E-01	.00000E+00	.00000E+00	1.61424E-03	1.11746E-03	3.05460E+00
6	2.09787E-01	-1.08295E-07	1.92888E-01	.00000E+00	.00000E+00	1.29656E-03	1.87022E-03	5.72991E+00
7	2.03616E-01	-1.49683E-06	1.95144E-01	.00000E+00	.00000E+00	1.20666E-03	1.32606E-03	5.57760E+00
8	1.49010E-01	-1.80777E-07	1.47040E-01	.00000E+00	.00000E+00	1.19455E-03	7.53934E-04	4.09772E+00
9	1.15376E-01	8.94787E-06	1.15990E-01	.00000E+00	.00000E+00	1.56926E-03	5.09350E-04	3.17978E+00
10	1.05742E-01	-9.79025E-07	1.07234E-01	.00000E+00	.00000E+00	3.35129E-03	4.63148E-04	2.91707E+00
11	9.75792E-02	-2.26843E-06	1.01028E-01	.00000E+00	.00000E+00	7.29890E-03	4.19333E-04	2.69852E+00
12	6.14143E-02	-6.68124E-07	6.55046E-02	.00000E+00	.00000E+00	9.76411E-03	2.46847E-04	1.70421E+00
13	5.21211E-02	1.12596E-06	5.59031E-02	.00000E+00	.00000E+00	1.15766E-02	2.10105E-04	1.44742E+00
14	4.74317E-02	3.77208E-08	5.31350E-02	.00000E+00	.00000E+00	7.25150E-03	1.87772E-04	1.32403E+00
15	2.79425E-02	-8.13845E-06	2.89305E-02	.00000E+00	.00000E+00	1.64382E-03	1.18243E-04	7.72978E-01
16	1.53859E-02	-4.88585E-06	1.59843E-02	.00000E+00	.00000E+00	1.17001E-03	6.07455E-05	4.25717E-01
17	6.34546E-03	-4.41695E-06	6.94042E-03	.00000E+00	.00000E+00	1.28100E-03	2.21429E-05	1.76585E-01
18	3.51575E-03	4.10572E-07	5.15355E-03	.00000E+00	.00000E+00	8.31515E-04	8.83067E-06	1.01551E-01
19	9.38344E-03	1.79238E-07	1.04495E-02	.00000E+00	.00000E+00	2.05257E-03	3.36297E-05	2.61876E-01
20	3.26433E-02	-1.47142E-05	3.48768E-02	.00000E+00	.00000E+00	1.36368E-02	1.29640E-04	9.06493E-01
21	8.97624E-03	1.12438E-06	1.07680E-02	.00000E+00	.00000E+00	1.48204E-02	2.71233E-05	2.52883E-01
22	1.64378E-02	-4.77990E-06	2.19562E-02	.00000E+00	.00000E+00	4.40380E-02	4.61938E-05	4.70199E-01
23	5.95809E-02	2.26603E-06	7.43764E-02	.00000E+00	.00000E+00	7.51179E-02	1.73188E-04	1.68862E+00
24	4.61492E-02	-6.00861E-07	6.11340E-02	.00000E+00	.00000E+00	6.82952E-02	1.07080E-04	1.32461E+00
25	1.98757E-02	-3.25380E-06	2.76795E-02	.00000E+00	.00000E+00	3.88690E-02	3.71587E-05	5.75033E-01
26	1.31258E-02	-1.31666E-07	1.99808E-02	.00000E+00	.00000E+00	3.57222E-02	1.87193E-05	3.84401E-01
27	2.21605E-03	2.86444E-08	3.79604E-03	.00000E+00	.00000E+00	1.00907E-02	2.01286E-06	6.57572E-02
28	1.72243E+00	-3.26864E-05	1.74283E+00	.00000E+00	2.30360E-03	3.86281E-01	1.29239E-02	4.75410E+01

- elapsed time .02 min.

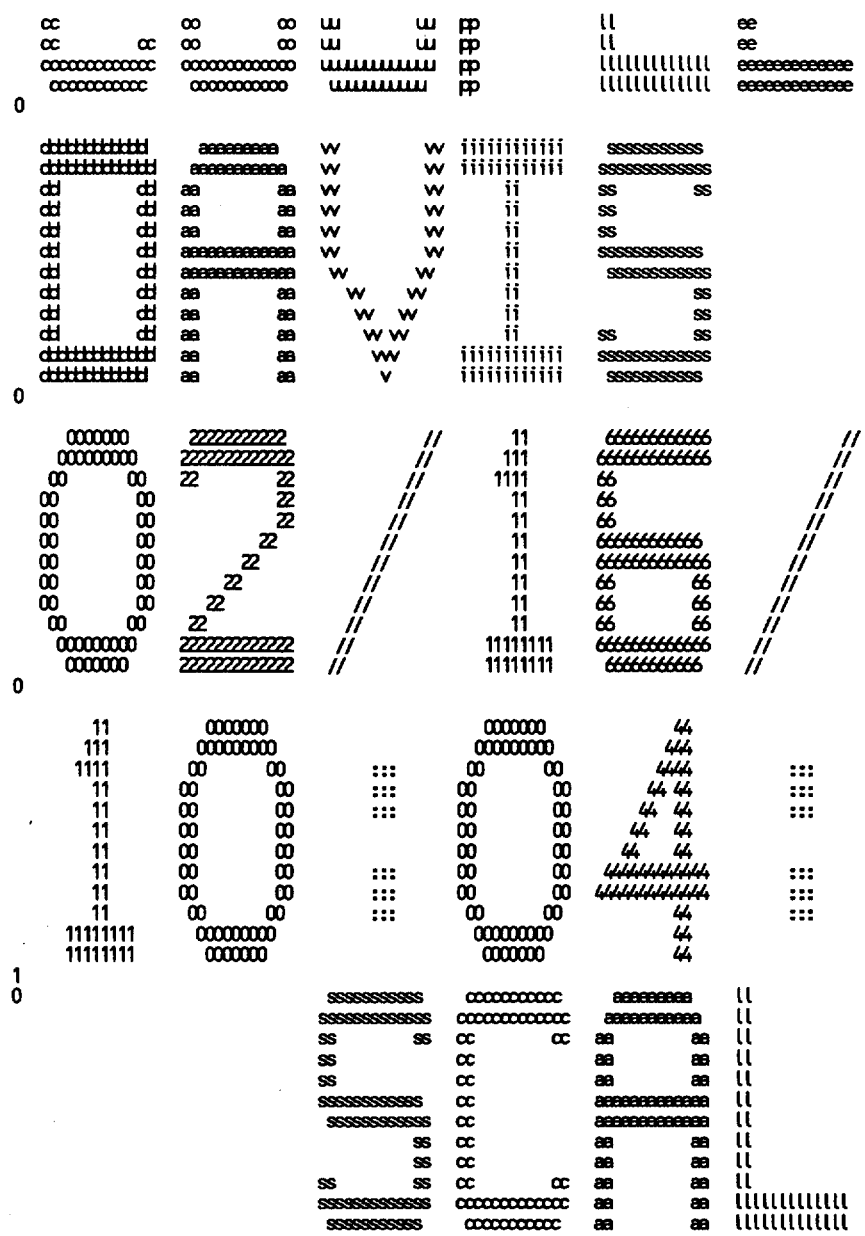
Odirect access unit 9 requires 556 blocks of length 216 for cross section weighting.

1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.16953E-03	5.09070E-03	5.31188E-03	2.51372E-03	3.18427E-03	5.52368E-03	3.71568E-03	1.74438E-03
2	7.12394E-04	5.02709E-03	5.81052E-03	3.44971E-03	4.30069E-03	6.14866E-03	4.33003E-03	2.14950E-03
3	1.19887E-03	5.51743E-03	5.89598E-03	2.91929E-03	3.86183E-03	6.77437E-03	4.37378E-03	1.82495E-03
4	8.23241E-04	4.33250E-03	4.95393E-03	2.39850E-03	2.89036E-03	4.80035E-03	3.32700E-03	1.79975E-03
5	8.47338E-04	4.39962E-03	4.99795E-03	2.41794E-03	2.88005E-03	4.88868E-03	3.37582E-03	1.79998E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.11378E-03	1.01461E-03	1.09316E-03	8.75250E-04	8.00304E-04	1.06257E-03	3.23771E-04	1.70254E-04
2	1.79209E-03	1.95514E-03	2.04391E-03	1.60444E-03	1.43145E-03	1.72953E-03	6.30977E-04	3.50116E-04
3	1.12212E-03	1.05307E-03	1.29135E-03	1.22526E-03	1.13412E-03	1.61667E-03	3.92363E-04	2.16374E-04
4	1.19668E-03	1.09578E-03	1.08083E-03	6.78130E-04	6.01984E-04	6.44863E-04	3.11345E-04	1.61402E-04

```
    5 1.19472E-03 1.09624E-03 1.04603E-03 7.05757E-04 6.28769E-04 6.93699E-04 3.15782E-04 1.64261E-04
0zone  grp. 17     grp. 18     grp. 19     grp. 20     grp. 21     grp. 22     grp. 23     grp. 24
    1 1.12105E-04 2.43536E-04 2.00417E-04 4.96986E-04 2.87952E-04 8.25432E-04 2.10826E-03 1.78616E-03
    2 1.97688E-04 3.77700E-04 3.32593E-04 8.83234E-04 4.56558E-04 1.26564E-03 3.23641E-03 2.75062E-03
    3 1.70829E-04 4.19462E-04 3.02611E-04 6.85905E-04 4.61946E-04 1.34799E-03 3.21262E-03 2.75750E-03
    4 7.30702E-05 8.18574E-05 1.23139E-04 3.84512E-04 1.38982E-04 3.43480E-04 1.04633E-03 8.17017E-04
    5 7.79415E-05 9.90924E-05 1.32221E-04 3.99865E-04 1.55418E-04 3.95056E-04 1.15980E-03 9.19309E-04
0zone  grp. 25     grp. 26     grp. 27     grp. 28
    1 8.03128E-04 5.66114E-04 8.62278E-05 4.22234E-02
    2 1.25379E-03 9.09085E-04 1.56284E-04 5.52854E-02
    3 1.27244E-03 9.49288E-04 1.77223E-04 5.21736E-02
    4 3.39997E-04 2.06277E-04 2.56439E-05 3.45620E-02
    5 3.88940E-04 2.44704E-04 3.28211E-05 3.54578E-02
1broad group parameters
  grp   upper energy   mid energy     velocity    fiss spec
    1    2.0000E+07    2.6627E+06    1.9701E+09    7.2234E-01
    2    9.0000E+05    1.5164E+05    1.0141E+07    2.7766E-01
    3    4.0000E-01    1.2480E-01    3.6435E+05    1.2072E-10
    4    1.0000E-05
1                        1040 d, second part of sas2h pass to make library
0cell averaged fluxes

0zone  grp. 1      grp. 2      grp. 3
    1 3.92269E-01 1.13464E+00 2.12328E-01
    2 3.97532E-01 1.13571E+00 2.03251E-01
    3 4.00499E-01 1.13588E+00 1.99177E-01
    4 4.17691E-01 1.13730E+00 1.70043E-01
    5 4.15998E-01 1.13714E+00 1.72869E-01
0flux disadvantage factors (zone average/cell average-flux)

0zone  grp. 1      grp. 2      grp. 3
    1 9.42959E-01 9.97802E-01 1.22826E+00
    2 9.55611E-01 9.98743E-01 1.17575E+00
    3 9.62742E-01 9.98899E-01 1.15218E+00
    4 1.00407E+00 1.00015E+00 9.83650E-01
    5 1.00000E+00 1.00000E+00 1.00000E+00
0cell averaged currents

0zone  grp. 1      grp. 2      grp. 3
    1 1.72699E-02 1.84903E-02 6.46326E-03
    2 1.93002E-02 2.59569E-02 1.00284E-02
    3 1.93934E-02 2.26012E-02 1.01790E-02
    4 1.53335E-02 1.63107E-02 2.91772E-03
    5 1.55429E-02 1.66189E-02 3.29605E-03
0zone      volume      vol. fraction

    1    1.25665E+00    4.56236E-02
    2    1.66687E-01    6.05165E-03
    3    6.58265E-01    2.38987E-02
    4    2.54624E+01    9.24426E-01
    5    2.75440E+01    1.00000E+00
- elapsed time    .02 min.
1  cccccccccc    cccccccccc    uu        uu  pppppppppp    ll          eeeeeeeeeeee
   cccccccccccc  cccccccccccc  uu        uu  pppppppppppp  ll          eeeeeeeeeeee
   cc        cc  cc        cc  uu        uu  pp        pp  ll          ee
   cc            cc        cc  uu        uu  pp        pp  ll          ee
   cc            cc        cc  uu        uu  pp        pp  ll          ee
   cc            cc        cc  uu        uu  pppppppppppp  ll          eeeeeeeee
   cc            cc        cc  uu        uu  pppppppppppp  ll          eeeeeeeee
   cc            cc        cc  uu        uu  pp            ll          ee
```



```
*********************************************************************
*********************************************************************
*********************************************************************
*****                                                           *****
*****                program verification information            *****
*****                                                           *****
*****                code system:   scale  version:   4.2       *****
*****                                                           *****
*********************************************************************
*********************************************************************
*****                                                           *****
*****                                                           *****
*****             program:  c0c005                              *****
*****                                                           *****
*****          creation date:  04/27/95                         *****
*****                                                           *****
*****             library:  /neutronics/scale/exe               *****
*****                                                           *****
*****                                                           *****
*****    this is not a  scale  configuration controlled code    *****
*****                                                           *****
*****             jobname:  davis                               *****
*****                                                           *****
*****    date of execution:  02/16/96                           *****
*****                                                           *****
*****    time of execution:  10:04:52                           *****
*****                                                           *****
*****                                                           *****
*********************************************************************
*********************************************************************
*********************************************************************
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       2q array has      1 entries.
0        * core allocated to array-data (by -1$$ or default) was   200000 words. *
1         * broad 3-group flux weighting factors *
0
0               therm =    .5126
0               res   =    .4497
0               fast  =   3.4893
0 user requested (see jadi) that only the nuclide transitions presently included in
0 origen library be updated.
1cross sections, available from ampx (normalized to thermal flux), barns

                    10010 to  10020  2.85588E-01
                    10010 tot-cap    2.85588E-01
                    50100 to  40100  2.50160E-02
                    50100 to  10010  2.50160E-02
                    50100 to  40090  3.85350E-03
```

50100	to	10020	3.85350E-03
50100	to	30070	3.28386E+03
50100	to	20040	3.28404E+03
50100	to	10030	9.39563E-02
50100	tot-cap		3.28398E+03
50110	to	50100	1.11152E-05
50110	to	50120	4.34943E-03
50110	to	40110	1.41841E-06
50110	to	10010	1.41841E-06
50110	to	40090	1.26578E-05
50110	to	10030	1.26578E-05
50110	to	30080	1.65242E-04
50110	to	20040	1.65242E-04
50110	tot-cap		4.53987E-03
80160	to	80170	1.52575E-04
80160	to	70160	9.72558E-05
80160	to	10010	9.72558E-05
80160	to	70150	1.83423E-05
80160	to	10020	1.83423E-05
80160	to	60130	2.69575E-02
80160	to	20040	2.69575E-02
80160	to	80161	4.26530E-03
80160	tot-cap		2.72256E-02
360830	to	360820	2.20799E-02
360830	to	360810	2.33108E-09
360830	to	360840	1.55894E+02
360830	to	350830	9.01086E-04
360830	to	10010	9.01086E-04
360830	to	350820	7.29238E-06
360830	to	10020	7.29238E-06
360830	to	350810	2.54882E-06
360830	to	10030	2.54882E-06
360830	to	340810	4.12506E-08
360830	to	20030	4.12506E-08
360830	to	340800	4.84378E-05
360830	to	20040	4.84378E-05
360830	tot-cap		1.55917E+02
360850	to	360860	1.41363E+00
360850	tot-cap		1.41363E+00
380900	to	380910	6.34958E-01
380900	tot-cap		6.34958E-01
390890	to	390900	9.98628E-01
390890	tot-cap		9.98628E-01
400930	to	400940	1.37852E+01
400930	tot-cap		1.37852E+01
400940	to	400950	1.90769E-01
400940	tot-cap		1.90769E-01
400950	to	400960	2.28487E+00
400950	tot-cap		2.28487E+00
410940	to	410950	3.94339E+01
410940	tot-cap		3.94339E+01
420950	to	420960	3.86075E+01
420950	tot-cap		3.86075E+01
430990	to	430980	6.69935E-03
430990	to	431000	9.06188E+01
430990	tot-cap		9.06250E+01
441010	to	441020	2.89488E+01
441010	tot-cap		2.89488E+01
441060	to	441070	8.90233E-01
441060	tot-cap		8.90233E-01

451030 to 451020 2.42626E-03
451030 to 451040 3.50206E+02
451030 tot-cap 3.50209E+02
451050 to 451060 8.21154E+03
451050 tot-cap 8.21154E+03
461050 to 461060 3.46009E+01
461050 tot-cap 3.46009E+01
461080 to 461090 6.99666E+01
461080 tot-cap 6.99666E+01
471090 to 471080 5.64211E-03
471090 to 471100 3.75733E+02
471090 to 461090 3.18502E-04
471090 to 10010 3.18502E-04
471090 to 451060 2.64343E-04
471090 to 20040 2.64343E-04
471090 to 471091 6.56022E-01
471090 tot-cap 3.75740E+02
511240 to 511250 1.23095E+01
511240 tot-cap 1.23095E+01
541310 to 541300 6.84125E-02
541310 to 541290 1.43052E-05
541310 to 541320 2.57092E+02
541310 to 531310 4.09207E-05
541310 to 10010 4.09207E-05
541310 to 531300 5.73707E-07
541310 to 10020 5.73707E-07
541310 to 531290 5.88279E-07
541310 to 10030 5.88279E-07
541310 to 521280 1.91871E-05
541310 to 20040 1.91871E-05
541310 tot-cap 2.57161E+02
541320 to 541310 1.10517E-02
541320 to 541300 2.34399E-05
541320 to 541330 9.44700E-01
541320 to 531320 8.41414E-06
541320 to 10010 8.41414E-06
541320 to 531310 3.56199E-07
541320 to 10020 3.56199E-07
541320 to 531300 4.79622E-08
541320 to 10030 4.79622E-08
541320 to 521290 1.03868E-06
541320 to 20040 1.03868E-06
541320 tot-cap 9.55785E-01
541350 to 541360 1.47549E+06
541350 tot-cap 1.47549E+06
541360 to 541350 1.86047E-02
541360 to 541340 5.77395E-05
541360 to 541370 1.24662E-01
541360 to 531360 3.49083E-07
541360 to 10010 3.49083E-07
541360 to 531350 1.29964E-07
541360 to 10020 1.29964E-07
541360 to 531340 2.93612E-08
541360 to 10030 2.93612E-08
541360 to 521330 2.92831E-07
541360 to 20040 2.92831E-07
541360 tot-cap 1.43626E-01
551330 to 551320 8.85279E-03
551330 to 551340 1.02523E+02
551330 to 541330 9.52659E-04

551330	to 10010	9.52659E-04
551330	to 531300	1.51250E-05
551330	to 20040	1.51250E-05
551330	tot-cap	1.02533E+02
551340	to 551350	1.30526E+02
551340	tot-cap	1.30526E+02
551350	to 551360	2.19227E+01
551350	tot-cap	2.19227E+01
551370	to 551380	2.34914E-01
551370	tot-cap	2.34914E-01
561360	to 561370	9.22416E-01
561360	tot-cap	9.22416E-01
571390	to 571400	8.04501E+00
571390	tot-cap	8.04501E+00
581440	to 581450	1.25978E+00
581440	tot-cap	1.25978E+00
591410	to 591400	6.34364E-03
591410	to 591390	1.82268E-06
591410	to 571370	2.72050E-06
591410	to 20040	5.61475E-05
591410	to 581400	1.93316E-05
591410	to 10010	5.48838E-05
591410	to 591420	1.20027E+01
591410	to 581410	5.17146E-05
591410	to 10020	1.61624E-05
591410	to 581390	1.69499E-06
591410	to 10030	1.69499E-06
591410	to 571390	1.63694E-08
591410	to 20030	1.63694E-08
591410	to 571380	5.34270E-05
591410	tot-cap	1.20091E+01
591430	to 591440	9.95397E+01
591430	tot-cap	9.95397E+01
601430	to 601420	9.70131E-02
601430	to 601410	9.90631E-06
601430	to 581390	2.12389E-05
601430	to 20040	5.94627E-04
601430	to 591420	4.14677E-06
601430	to 10010	4.25411E-05
601430	to 601440	2.00228E+02
601430	to 591430	4.09788E-05
601430	to 10020	2.58648E-06
601430	to 591410	3.72423E-06
601430	to 10030	3.72423E-06
601430	to 581410	1.78934E-08
601430	to 20030	1.78934E-08
601430	to 581400	5.73388E-04
601430	tot-cap	2.00525E+02
601450	to 601440	1.24443E-01
601450	to 601430	1.26481E-04
601450	to 581410	8.90192E-06
601450	to 20040	2.22408E-04
601450	to 591440	2.37587E-06
601450	to 10010	1.54304E-05
601450	to 601460	7.95926E+01
601450	to 591450	1.44827E-05
601450	to 10020	1.42819E-06
601450	to 591430	2.25157E-06
601450	to 10030	2.25157E-06
601450	to 581430	4.58420E-09

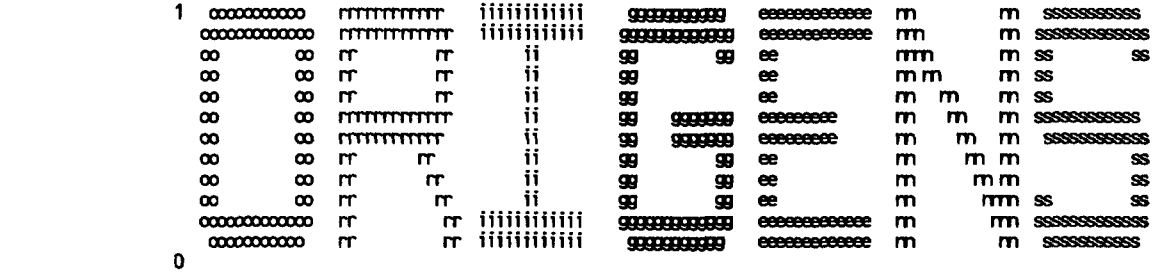
601450 to 20030 4.58420E-09
601450 to 581420 2.13505E-04
601450 tot-cap 7.97175E+01
601470 to 601480 1.93197E+02
601470 tot-cap 1.93197E+02
611470 to 611460 3.40804E-02
611470 to 611450 1.06336E-04
611470 to 591430 9.41178E-06
611470 to 20040 8.70684E-05
611470 to 601460 1.30192E-05
611470 to 10010 2.96031E-05
611470 to 611480 5.90057E+02
611470 to 601470 2.63915E-05
611470 to 10020 9.80754E-06
611470 to 601450 3.70296E-06
611470 to 10030 3.70296E-06
611470 to 591450 5.56751E-09
611470 to 20080 5.56751E-09
611470 to 591440 7.76567E-05
611470 tot-cap 5.90092E+02
611480 to 611490 1.20917E+04
611480 tot-cap 1.20917E+04
621470 to 621460 8.89030E-02
621470 to 621450 8.00533E-03
621470 to 601430 6.87306E-05
621470 to 20040 1.30955E-03
621470 to 611460 1.61345E-04
621470 to 10010 2.29758E-04
621470 to 621480 2.37921E+02
621470 to 611470 2.02560E-04
621470 to 10020 1.34146E-04
621470 to 611450 1.44042E-04
621470 to 10030 1.44042E-04
621470 to 601450 6.62765E-06
621470 to 20030 6.62765E-06
621470 to 601440 1.24082E-03
621470 to 621471 1.71350E+00
621470 tot-cap 2.38020E+02
621490 to 621480 5.03406E-02
621490 to 621470 3.99031E-05
621490 to 621500 4.52520E+04
621490 to 611490 5.10996E-04
621490 to 10010 5.10996E-04
621490 to 601460 5.10996E-04
621490 to 20040 5.10996E-04
621490 tot-cap 4.52520E+04
621500 to 621510 1.35845E+02
621500 tot-cap 1.35845E+02
621510 to 621500 1.67358E-01
621510 to 621490 1.50152E-04
621510 to 601470 1.67820E-05
621510 to 20040 1.30450E-04
621510 to 611500 2.05602E-06
621510 to 10010 1.59581E-05
621510 to 621520 4.98487E+03
621510 to 611510 1.47020E-05
621510 to 10020 7.99870E-07
621510 to 611490 1.45371E-06
621510 to 10030 1.45371E-06
621510 to 601490 1.49760E-09

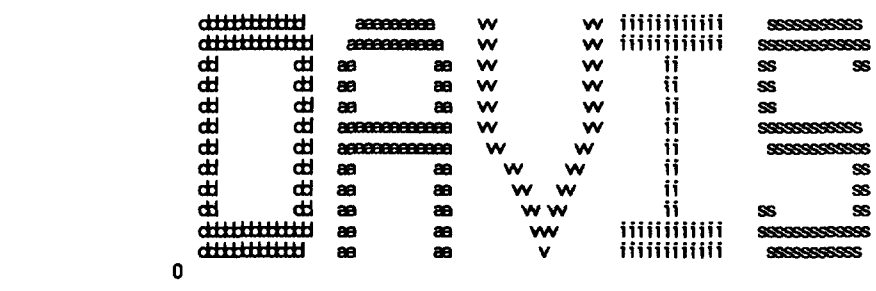
621510 to 20030 1.49760E-09
621510 to 601480 1.13668E-04
621510 tot-cap 4.98503E+03
621520 to 621510 2.01070E-02
621520 to 621500 1.35864E-04
621520 to 601480 3.03558E-06
621520 to 20040 1.26060E-05
621520 to 611510 8.70916E-07
621520 to 10010 2.57005E-06
621520 to 621530 7.34953E+02
621520 to 611520 2.28300E-06
621520 to 10020 5.83865E-07
621520 to 611500 1.51849E-07
621520 to 10030 1.51849E-07
621520 to 601500 4.60190E-10
621520 to 20030 4.60190E-10
621520 to 601490 9.57046E-06
621520 tot-cap 7.34973E+02
631530 to 631520 1.95286E-02
631530 to 631510 2.91623E-05
631530 to 611490 4.53018E-05
631530 to 20040 6.61191E-04
631530 to 621520 8.16303E-06
631530 to 10010 6.84505E-05
631530 to 631540 6.29703E+02
631530 to 621530 6.56649E-05
631530 to 10020 5.37745E-06
631530 to 621510 1.20554E-06
631530 to 10030 1.20554E-06
631530 to 611510 2.75607E-08
631530 to 20030 2.75607E-08
631530 to 611500 6.15889E-04
631530 tot-cap 6.29723E+02
631540 to 631530 3.12189E-02
631540 to 631520 1.12145E-05
631540 to 611500 1.09041E-10
631540 to 20040 7.95581E-04
631540 to 621530 2.45459E-06
631540 to 10010 1.30024E-05
631540 to 631550 1.07871E+03
631540 to 621540 1.30024E-05
631540 to 10020 2.45329E-06
631540 to 621520 4.15495E-06
631540 to 10030 4.15495E-06
631540 to 611520 1.76198E-08
631540 to 20030 1.76198E-08
631540 to 611510 7.95581E-04
631540 tot-cap 1.07874E+03
631550 to 631540 2.56319E-02
631550 to 631530 7.17750E-05
631550 to 611510 1.93124E-06
631550 to 20040 9.50444E-06
631550 to 621540 3.91378E-06
631550 to 10010 8.20598E-06
631550 to 631560 2.56940E+03
631550 to 621550 6.30167E-06
631550 to 10020 2.00945E-06
631550 to 621530 6.65198E-07
631550 to 10030 6.65198E-07
631550 to 611530 1.50770E-10

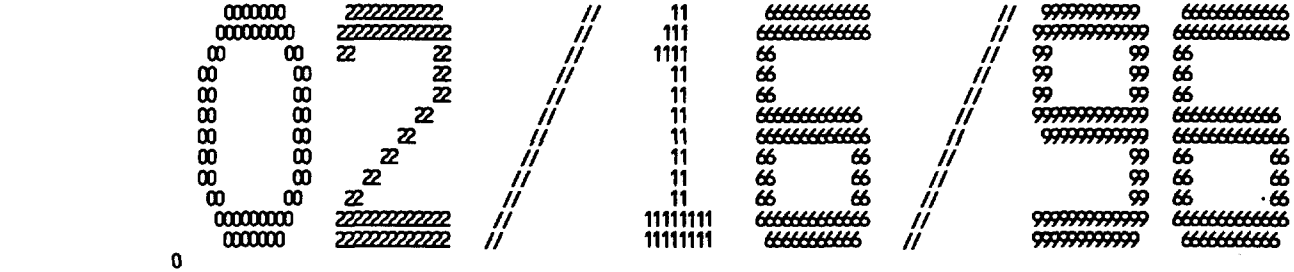
631550	to 20030	1.50770E-10
631550	to 611520	7.57320E-06
631550	tot-cap	2.56943E+03
641550	to 641560	1.71533E+04
641550	tot-cap	1.71533E+04
922340	to 922330	6.71520E-03
922340	fission	4.59102E+00
922340	nu-sigf	1.20723E+01
922340	to 922320	9.73665E-05
922340	to 922350	1.89714E+02
922340	to 922341	3.07043E+00
922340	tot-cap	1.94312E+02
922350	to 922340	3.05974E-02
922350	fission	3.64309E+02
922350	nu-sigf	8.82275E+02
922350	to 922330	2.93301E-05
922350	to 922360	8.71018E+01
922350	to 922351	8.73287E-02
922350	tot-cap	4.51442E+02
922360	to 922350	3.42086E-02
922360	fission	1.97200E+00
922360	nu-sigf	5.41556E+00
922360	to 922340	4.55888E-04
922360	to 922370	7.20735E+01
922360	to 922361	3.35905E+00
922360	tot-cap	7.40802E+01
922380	to 922370	6.83171E-02
922380	fission	9.89546E-01
922380	nu-sigf	2.78747E+00
922380	to 922360	4.41539E-04
922380	to 922390	8.69045E+00
922380	tot-cap	9.74876E+00
932370	to 932360	1.55753E-02
932370	fission	5.32347E+00
932370	nu-sigf	1.60371E+01
932370	to 932350	5.95861E-05
932370	to 932380	3.04246E+02
932370	to 932371	7.87315E-01
932370	tot-cap	3.09585E+02
942380	to 942370	2.50851E-03
942380	fission	2.28012E+01
942380	nu-sigf	6.46745E+01
942380	to 942360	1.40109E-05
942380	to 942390	2.67456E+02
942380	to 942381	3.08822E+00
942380	tot-cap	2.90260E+02
942390	to 942380	1.32440E-02
942390	fission	8.33475E+02
942390	nu-sigf	2.39654E+03
942390	to 942370	2.25568E-05
942390	to 942360	2.23609E-08
942390	to 942400	4.65602E+02
942390	tot-cap	1.29909E+03
942400	to 942390	6.23485E-03
942400	fission	6.00277E+00
942400	nu-sigf	1.88168E+01
942400	to 942380	6.08423E-05
942400	to 942410	1.30940E+03
942400	tot-cap	1.31541E+03
942410	to 942400	7.85761E-02

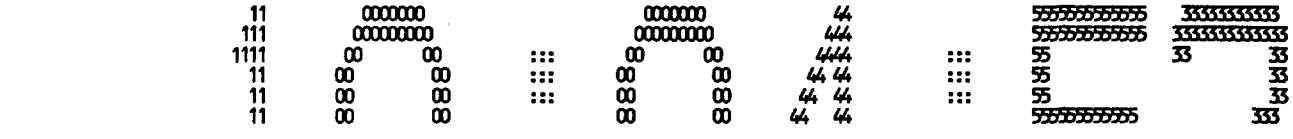
```
                    942410 fission   8.97827E+02
                    942410 nu-sigf   2.63446E+03
                    942410 to 942390 1.30186E-04
                    942410 to 942420 2.92690E+02
                    942410 tot-cap   1.19060E+03
                    942420 to 942410 2.54158E-02
                    942420 fission   4.61698E+00
                    942420 nu-sigf   1.44685E+01
                    942420 to 942400 3.08991E-04
                    942420 to 942430 3.36161E+02
                    942420 tot-cap   3.40804E+02
                    952410 fission   1.26157E+01
                    952410 nu-sigf   4.08103E+01
                    952410 to 952420 1.01243E+03
                    952410 tot-cap   1.02505E+03
                    952430 fission   3.56485E+00
                    952430 nu-sigf   1.19874E+01
                    952430 to 952440 4.26547E+02
                    952430 tot-cap   4.30111E+02
                    962440 to 962430 6.10822E-03
                    962440 fission   1.57846E+01
                    962440 nu-sigf   5.29118E+01
                    962440 to 962420 6.09135E-05
                    962440 to 962450 1.44656E+02
                    962440 to 962441 3.93822E+00
                    962440 tot-cap   1.60446E+02
Othe reaction  50100 to  30070 was not used, because  50100 is not in library., (in subr pool)
                                                  in the search of library number 3
Othe reaction  50100 to  40090 was not used, because  50100 is not in library., (in subr pool)
                                                  in the search of library number 3
Othe reaction  50110 to  40090 was not used, because  50110 is not in library., (in subr pool)
                                                  in the search of library number 3
Othe reaction  50100 to  40100 was not used, because  50100 is not in library., (in subr pool)
                                                  in the search of library number 3
Othe reaction  80160 to  80161 was not used, because  80161 is not in library., (in subr pool)
Othe reaction 621470 to 621471 was not used, because 621471 is not in library., (in subr pool)
Othe fission product transitions for  922340 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction 922340 to 922341 was not used, because 922341 is not in library., (in subr pool)
Othe reaction 922350 to 922351 was not used, because 922351 is not in library., (in subr pool)
Othe fission product transitions for  922360 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction 922360 to 922361 was not used, because 922361 is not in library., (in subr pool)
Othe fission product transitions for  952370 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction 952370 to 952371 was not used, because 952371 is not in library., (in subr pool)
Othe fission product transitions for  942380 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction 942380 to 942381 was not used, because 942381 is not in library., (in subr pool)
Othe fission product transitions for  942400 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe fission product transitions for  942420 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe fission product transitions for  952410 were not used.  library fissile nuclides are
```

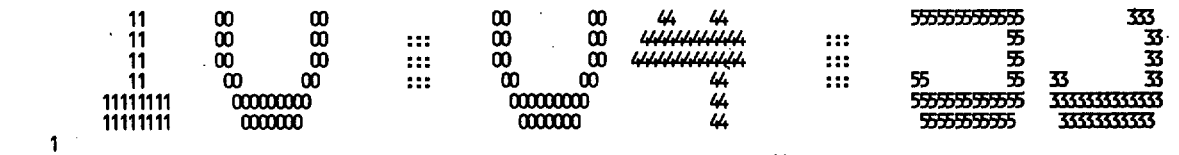
```
   922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952430 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  962440 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  962440 to 962441 was not used, because  962441 is not in library., (in subr pool)
1
0                          case completed.  date,  2/16/1996
0 * normal termination *
```

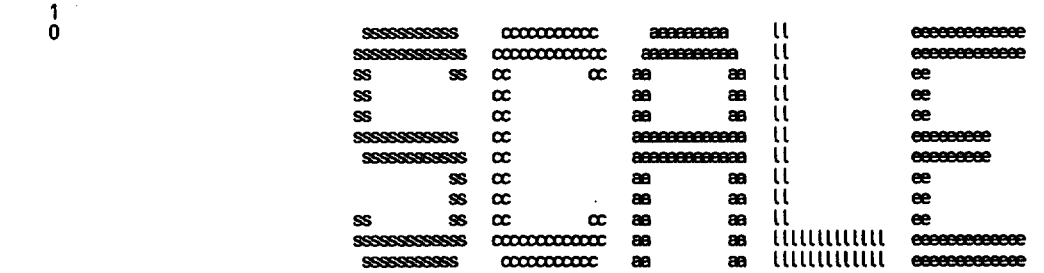


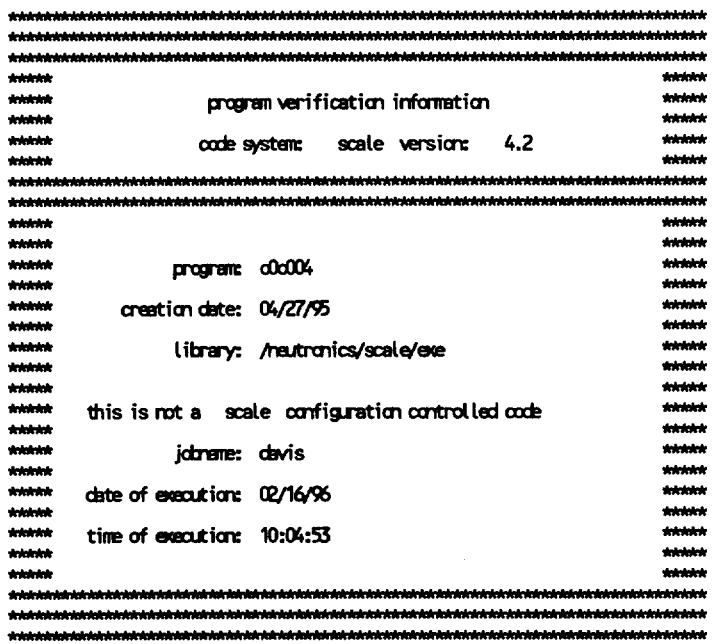













```
1
0     -1q array has     1 entries.
0      0q array has     1 entries.
0      0q array has     1 entries.
0      0q array has     1 entries.
```

```
0       0q array has       1 entries.
0        dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0            short-lived split test fraction, qm =     9.1188E-04
0            half-norm of matrix used, axn =     7.0000E+00
0            4-place-accuracy-retention ratio, ratio4 =     6.4516E-13
0       1q array has      20 entries.
0       3q array has       1 entries.
0       3q array has       1 entries.
0       3q array has       1 entries.
0       4q array has       1 entries.
0      54q array has      12 entries.
1library information...

         cross-section data taken from position number  1 of library on unit 15.

         pass   7
         pass   1
         pass   0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
           pass 0 applies start-up fuel densiities
           pass n applies mid time densities of nth library interval
         first library updated was...
         pass   1
         pass   0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
           pass 0 applies start-up fuel densiities
           pass n applies mid time densities of nth library interval
         first library updated was...
         ********************************************************************************
         *                                                                              *
         *           prelim lwr origen-s binary working library--id = 1143              *
         *         made from modified card-image origen-s libraries of scale 4.2        *
         *       data from the light element, actinide, and fission product libraries   *
         *         decay data, including gamma and total energy, are from endf/b-vi     *
         *                                                                              *
         *       neutron flux spectrum factors and cross sections were produced from    *
         *      the "presas2" case updating all nuclides on the scale "burnup" library  *
         *                                                                              *
         *                    fission product yields are from endf/b-v                  *
         *                                                                              *
         *                photon libraries use an 18-energy-group structure             *
         *               the photon data are from the master photon data base,          *
         *                produced to include bremsstrahlung from uo2 matrix            *
         *                                                                              *
         *         see information above this box (if present) for later updates        *
         *                                                                              *
         ********************************************************************************
         *                                                                              *
0        ********************************************************************************
0                  .other identification and sizes of library.
0                   data set name:  ft15f001
0                 2/16/1996    date library was produced
0                      1697    total number of nuclides in library
                        689    number of light-element nuclides
                        129    number of actinide nuclides
                        879    number of fission product nuclides
0                      7935    number of nonzero off-diagonal matrix elements
0        ********************************************************************************
```

1

sas2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp actinides page 1
power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.62E+13n/cm**2-sec

0 nuclide concentrations, gram atoms
basis = converted to atoms/(barn-cm)

	charge	1000.1 d	1040.1 d	1080.1 d	1120.1 d	1120.2 d	1160.2 d	1200.2 d
he 4	6.33E-08	7.46E-08	8.72E-08	1.01E-07	1.17E-07	1.17E-07	1.34E-07	1.54E-07
u230	1.33E-20	1.51E-20	1.69E-20	1.89E-20	2.09E-20	2.09E-20	2.31E-20	2.55E-20
u231	2.58E-19	2.94E-19	3.27E-19	3.62E-19	3.99E-19	3.96E-19	4.40E-19	4.83E-19
u232	3.37E-12	3.76E-12	4.18E-12	4.63E-12	5.10E-12	5.10E-12	5.61E-12	6.15E-12
u233	4.10E-11	4.22E-11	4.32E-11	4.42E-11	4.52E-11	4.52E-11	4.61E-11	4.70E-11
u234	4.37E-06	4.33E-06	4.28E-06	4.24E-06	4.19E-06	4.19E-06	4.15E-06	4.11E-06
u235	3.83E-04	3.74E-04	3.64E-04	3.55E-04	3.47E-04	3.47E-04	3.38E-04	3.29E-04
u236	5.84E-05	6.00E-05	6.16E-05	6.31E-05	6.45E-05	6.45E-05	6.59E-05	6.73E-05
u237	7.61E-08	7.84E-08	8.01E-08	8.18E-08	8.34E-08	8.30E-08	8.50E-08	8.66E-08
u238	2.18E-02	2.18E-02	2.18E-02	2.18E-02	2.18E-02	2.18E-02	2.17E-02	2.17E-02
u239	1.19E-09	6.19E-09	6.21E-09	6.22E-09	6.23E-09	9.22E-10	6.24E-09	6.26E-09
u240	.00E+00	7.72E-32	1.16E-31	1.72E-31	2.50E-31	2.50E-31	3.60E-31	5.10E-31
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	8.52E-14	9.34E-14	1.02E-13	1.10E-13	1.19E-13	1.19E-13	1.28E-13	1.38E-13
np236m	8.66E-14	9.67E-14	1.02E-13	1.08E-13	1.14E-13	1.10E-13	1.20E-13	1.26E-13
np236	8.79E-12	9.76E-12	1.08E-11	1.19E-11	1.30E-11	1.30E-11	1.42E-11	1.55E-11
np237	4.21E-06	4.45E-06	4.70E-06	4.95E-06	5.20E-06	5.20E-06	5.46E-06	5.71E-06
np238	5.32E-09	5.75E-09	6.08E-09	6.42E-09	6.76E-09	6.66E-09	7.11E-09	7.46E-09
np239	8.77E-07	8.94E-07	8.96E-07	8.98E-07	9.00E-07	8.93E-07	9.01E-07	9.03E-07
np240m	.00E+00	6.59E-34	9.91E-34	1.47E-33	2.14E-33	2.14E-33	3.07E-33	4.35E-33
np240	8.77E-12	1.68E-11	1.68E-11	1.69E-11	1.70E-11	8.24E-12	1.71E-11	1.72E-11
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	9.84E-12	1.09E-11	1.19E-11	1.30E-11	1.42E-11	1.42E-11	1.54E-11	1.66E-11
pu237	3.41E-13	3.65E-13	3.89E-13	4.12E-13	4.35E-13	4.35E-13	4.59E-13	4.84E-13
pu238	6.64E-07	7.35E-07	8.10E-07	8.90E-07	9.74E-07	9.74E-07	1.06E-06	1.16E-06
pu239	1.13E-04	1.15E-04	1.17E-04	1.19E-04	1.21E-04	1.21E-04	1.23E-04	1.24E-04
pu240	2.35E-05	2.47E-05	2.59E-05	2.70E-05	2.81E-05	2.81E-05	2.92E-05	3.03E-05
pu241	1.29E-05	1.37E-05	1.46E-05	1.54E-05	1.63E-05	1.63E-05	1.72E-05	1.81E-05
pu242	1.62E-06	1.81E-06	2.00E-06	2.21E-06	2.43E-06	2.44E-06	2.67E-06	2.91E-06
pu243	1.97E-10	2.52E-10	2.80E-10	3.10E-10	3.42E-10	2.94E-10	3.75E-10	4.11E-10
pu244	2.51E-21	3.84E-21	5.78E-21	8.56E-21	1.25E-20	1.25E-20	1.79E-20	2.54E-20
pu245	1.70E-27	2.77E-27	4.17E-27	6.19E-27	9.05E-27	8.42E-27	1.30E-26	1.85E-26
pu246	7.11E-30	1.10E-29	1.67E-29	2.51E-29	3.69E-29	3.68E-29	5.35E-29	7.66E-29
am239	6.83E-18	8.13E-18	8.96E-18	9.83E-18	1.07E-17	1.01E-17	1.17E-17	1.26E-17
am240	3.08E-15	3.52E-15	3.88E-15	4.26E-15	4.65E-15	4.58E-15	5.06E-15	5.48E-15
am241	4.23E-07	4.68E-07	5.15E-07	5.63E-07	6.13E-07	6.13E-07	6.65E-07	7.18E-07
am242m	9.56E-09	1.07E-08	1.20E-08	1.33E-08	1.47E-08	1.47E-08	1.62E-08	1.77E-08
am242	4.63E-10	5.32E-10	5.86E-10	6.43E-10	7.02E-10	6.70E-10	7.63E-10	8.26E-10
am243	1.66E-07	1.94E-07	2.25E-07	2.60E-07	2.97E-07	2.98E-07	3.39E-07	3.84E-07
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	5.56E-11	6.99E-11	8.13E-11	9.40E-11	1.08E-10	1.00E-10	1.23E-10	1.40E-10
am245	1.52E-25	2.31E-25	3.46E-25	5.09E-25	7.36E-25	7.36E-25	1.05E-24	1.47E-24
am246	.00E+00	2.75E-32	4.18E-32	6.26E-32	9.22E-32	9.21E-32	1.34E-31	1.92E-31
cm241	8.64E-18	1.05E-17	1.25E-17	1.47E-17	1.71E-17	1.71E-17	1.98E-17	2.28E-17
cm242	5.40E-08	6.13E-08	6.90E-08	7.73E-08	8.61E-08	8.61E-08	9.53E-08	1.05E-07
cm243	9.35E-10	1.11E-09	1.30E-09	1.51E-09	1.74E-09	1.74E-09	2.00E-09	2.27E-09
cm244	1.76E-08	2.16E-08	2.63E-08	3.17E-08	3.79E-08	3.79E-08	4.50E-08	5.30E-08
cm245	4.09E-10	5.22E-10	6.58E-10	8.21E-10	1.01E-09	1.01E-09	1.24E-09	1.51E-09
cm246	1.90E-11	2.53E-11	3.34E-11	4.36E-11	5.63E-11	5.63E-11	7.19E-11	9.10E-11
cm247	1.49E-13	2.09E-13	2.88E-13	3.91E-13	5.24E-13	5.24E-13	6.94E-13	9.10E-13

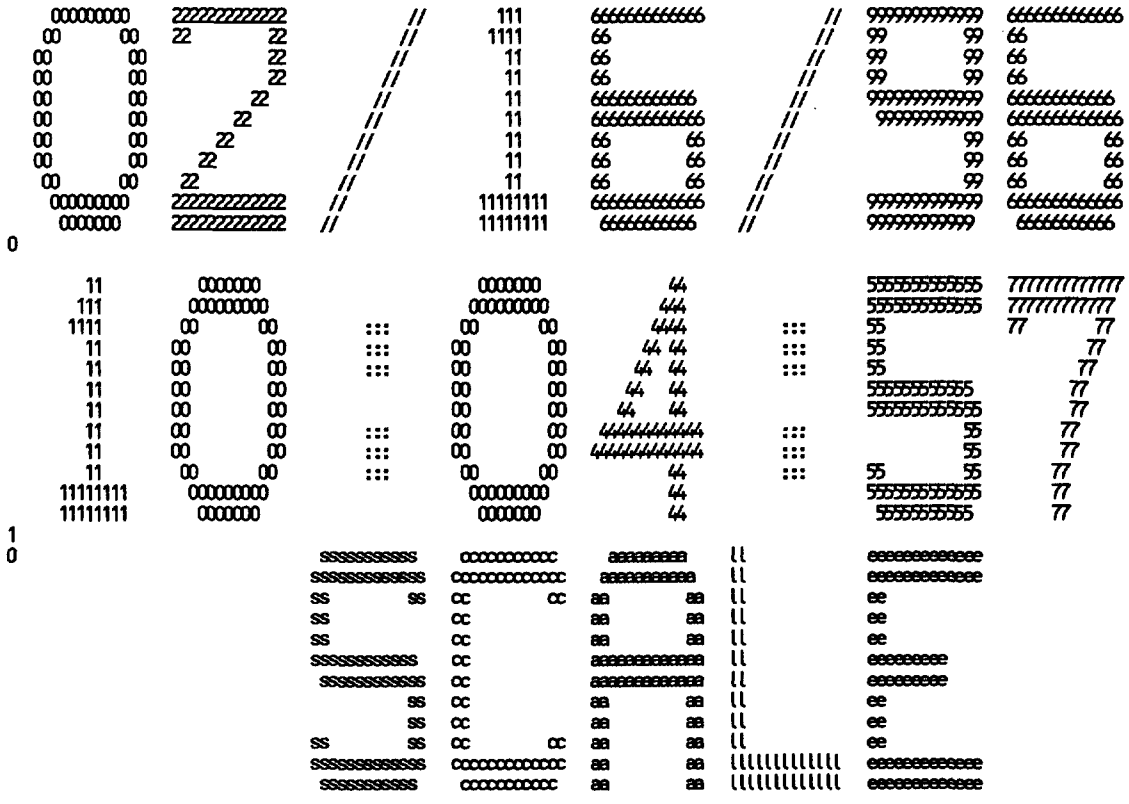
1

sas2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp actinides page 2
power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.62E+13n/cm**2-sec

0 nuclide concentrations, gram atoms

```
                                        basis = converted to atoms/(barn-cm)
            charge  1000.1 d  1040.1 d  1080.1 d  1120.1 d  1120.2 d  1160.2 d  1200.2 d
    cm248  5.32E-15  7.82E-15  1.13E-14  1.60E-14  2.25E-14  2.25E-14  3.11E-14  4.24E-14
    cm249  2.02E-20  5.47E-20  7.92E-20  1.13E-19  1.59E-19  7.88E-20  2.20E-19  3.01E-19
    cm250  6.68E-24  1.03E-23  1.56E-23  2.33E-23  3.41E-23  3.41E-23  4.92E-23  7.02E-23
    cm251   .00E+00  2.47E-31  3.76E-31  5.61E-31  8.25E-31  5.72E-32  1.19E-30  1.71E-30
  totals   2.24E-02  2.24E-02  2.24E-02  2.24E-02  2.23E-02  2.23E-02  2.23E-02  2.23E-02
0   flux             1.61E+13  1.61E+13  1.62E+13  1.62E+13   .00E+00  1.63E+13  1.63E+13
0  .results on logical unit no. 71, position  1, for time step  7, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  2, for time step  5, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0  .results on logical unit no. 71, position  3, for time step  4, subcase 1. (run position 1, case position 1)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0    .terminated logical unit no. 71 with zero flag record.
1  * normal termination of execution *
0                                  table of contents for material tables
0                                    case or subcase printed      page

                                                1                 1
0ndset          33
          15          4          1         27          6          0          0          0          0          0
           0          0          0          0          0          0         -1       1698        690        130
         880       7935          0          5         99          2         16         96         18         18
          18          0         71
0      56q array has      2 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      56q array has      1 entries.
0      57q array has      3 entries.
0       1q array has     20 entries.
0       1q array has     10 entries.
    l90   97376
    l116  60826
    l32   33663 nudata (library) storage size
    l44   33734
    l103  75953
0      58q array has      4 entries.
0      60q array has      7 entries.
0      58q array has      7 entries.
0      66q array has      1 entries.
0      73q array has   1697 entries.
0      74q array has   1697 entries.
0      75q array has   1697 entries.
    l140  66991
    used   101044 in size   200000
0jopt           12
           0          0          0          0          0          0          0          0          0          0
           0          0
0therm           4
  5.125936E-01 4.497346E-01 3.489329E+00 1.000000E-31
0non            5
        7935         20          6         18       1697
0mm             19
           7          7          0          0          1          1          0          0          0          0
          21        100       1697          4          3         74          4          1          0
0tconst         5
```

```
  8.640000E+04 9.601346E+02  .000000E+00  .000000E+00 1.000000E-08
0mzero          4
           0        689        129        879
0pow            3
   .000000E+00  .000000E+00  .000000E+00
0 lirp          9
           6          0         51         26          2       3000       1000       1697         94
 n-gamma, fission and total mev/fission =          7.4172E+00     1.9683E+02     2.0425E+02
 start of interval flux =        1.60782E+13
 n-gamma, fission and total mev/fission =          7.4945E+00     1.9691E+02     2.0440E+02
 start of interval flux =        1.61169E+13
 n-gamma, fission and total mev/fission =          7.5889E+00     1.9698E+02     2.0457E+02
 start of interval flux =        1.61552E+13
 n-gamma, fission and total mev/fission =          7.6825E+00     1.9705E+02     2.0473E+02
 start of interval flux =        1.61953E+13
 start of interval flux =         .00000E+00
 n-gamma, fission and total mev/fission =          7.7959E+00     1.9712E+02     2.0492E+02
 start of interval flux =        1.62348E+13
 n-gamma, fission and total mev/fission =          7.8675E+00     1.9719E+02     2.0506E+02
 start of interval flux =        1.62804E+13
0 case or subcase    1  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       56q array has     20 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has     20 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has     20 entries.
0       56q array has     20 entries.
0requested parm=halt8,skipcellwt,skipshipdata
  pass= 8, exec halts after pass   8
1 ttttttttttttb    ooooooooooo   nn        nn                aaaaaaaaa    nnn        nnn iiiiiiiiiiii    22222222222
  ttttttttttttb   ooooooooooooo  nnn       nn               aaaaaaaaaaa   nnnn      nnnn iiiiiiiiiiii   222222222222
  bb        bb   oo        oo   nnnn      nn              aa        aa  nnnnn     nnnnn      ii        22        22
  bb        bb   oo        oo   nn nn     nn              aa        aa  nnn nnn   nnn nnn      ii                  22
  bb        bb   oo        oo   nn  nn    nn              aa        aa  nnn  nnn nnn  nnn      ii                  22
  ttttttttttttb   oo        oo   nn   nn   nn ------------ aaaaaaaaaaaaa nnn   nnnn  nnn      ii                22
  ttttttttttttb   oo        oo   nn    nn  nn ------------ aaaaaaaaaaaaa nnn    n    nnn      ii              22
  bb        bb   oo        oo   nn     nn nn              aa        aa  nnn         nnn      ii            22
  bb        bb   oo        oo   nn      nn nn              aa        aa  nnn         nnn      ii          22
  bb        bb   oo        oo   nn       nnn              aa        aa  nnn         nnn      ii        22
  ttttttttttttb   ooooooooooooo  nn        nnn              aa        aa  nnn         nnn iiiiiiiiiiii   222222222222
  ttttttttttttb    ooooooooooo   nn         nn              aa        aa  nnn         nnn iiiiiiiiiiii   222222222222
0

  dttttttttttd     aaaaaaaaa    w         w iiiiiiiiiiii    sssssssssss
  dttttttttttd    aaaaaaaaaaa   w         w iiiiiiiiiiii   sssssssssssss
  dd        dd   aa        aa   w         w      ii        ss        ss
  dd        dd   aa        aa   w         w      ii        ss
  dd        dd   aa        aa   w         w      ii        ss
  dd        dd   aaaaaaaaaaaaa  w         w      ii        sssssssssssss
  dd        dd   aaaaaaaaaaaaa   w       w       ii         sssssssssssss
  dd        dd   aa        aa     w     w        ii                  ss
  dd        dd   aa        aa      w   w         ii                  ss
  dd        dd   aa        aa       w w          ii        ss        ss
  dttttttttttd   aa        aa        ww      iiiiiiiiiiii   sssssssssssss
  dttttttttttd   aa        aa         v      iiiiiiiiiiii    sssssssssss
0

     0000000     22222222222            //       11       666666666666            //  99999999999   666666666666
```



```
**********************************************************************
**********************************************************************
**********************************************************************
******                                                          ******
******                program verification information          ******
******                                                          ******
******                code system:   scale  version:   4.2      ******
******                                                          ******
**********************************************************************
**********************************************************************
******                                                          ******
******                                                          ******
******          program:  c0c008                                ******
******                                                          ******
******     creation date:  04/27/95                             ******
******                                                          ******
******          library:  /nautronics/scale/exe                 ******
```

```
                    *****                                                                  *****
                    *****                                                                  *****
                    *****   this is not a   scale  configuration controlled code           *****
                    *****                                                                  *****
                    *****             jobname:  davis                                      *****
                    *****                                                                  *****
                    *****   date of execution:  02/16/96                                   *****
                    *****                                                                  *****
                    *****   time of execution:  10:04:57                                   *****
                    *****                                                                  *****
                    *****                                                                  *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has      6 entries.
0        2q array has      2 entries.
1logical assignments
0master library   12
 working library   0
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere                2
0izm--number of zones or material regions                       4
0ms--mixing table length                                       66
0ibl--shielded cross section edit option (0/1--no/yes)          0
0ibr--bondarenko factor edit option (0/1--no/yes)               0
0issopt--dancoff factor option                                  0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0        3q array has     66 entries.
0        4q array has     66 entries.
0        5q array has     66 entries.
0        6q array has      4 entries.
0        7q array has      4 entries.
0        8q array has      4 entries.
0        9q array has      4 entries.
0       10q array has     66 entries.
0       11q array has      4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope  number density  new identifier
   1       1       92235    3.29451E-04          92235
   2       1       92234    4.10648E-06          92234
   3       1       92236    6.72906E-05          92236
   4       1       92238    2.17324E-02          92238
   5       1        8016    4.55359E-02           8016
   6       3        8016    2.09710E-02              6
   7       1       36083    1.81372E-06          36083
   8       1       36085    8.71779E-07          36085
   9       1       38090    2.00600E-05          38090
  10       1       39089    1.64607E-05          39089
  11       1       42095    2.30516E-05          42095
  12       1       40093    1.64590E-05          40093
  13       1       40094    2.61240E-05          40094
  14       1       40095    1.92652E-06          40095
  15       1       41094    1.43208E-11          41094
  16       1       43099    2.55495E-05          43099
```

17	1	45103	1.43117E-05	45103
18	1	45105	2.51927E-08	45105
19	1	44101	2.36761E-05	44101
20	1	44106	3.50872E-06	44106
21	1	46105	1.03319E-05	46105
22	1	46108	3.17250E-06	46108
23	1	47109	2.13200E-06	47109
24	1	51124	4.69372E-10	51124
25	1	54131	1.14853E-05	54131
26	1	54132	2.33195E-05	54132
27	1	54135	6.64007E-09	54135
28	1	54136	4.51578E-05	54136
29	1	55134	1.63057E-06	55134
30	1	55135	1.43530E-05	55135
31	1	55137	2.77063E-05	55137
32	1	56136	3.51878E-07	56136
33	1	57139	2.73886E-05	57139
34	1	59141	2.40560E-05	59141
35	1	59143	3.60032E-07	59143
36	1	58144	6.94065E-06	58144
37	1	60143	2.05000E-05	60143
38	1	60145	1.54707E-05	60145
39	1	61147	4.51202E-06	61147
40	1	61148	1.36887E-08	61148
41	1	60147	1.28677E-07	60147
42	1	62147	2.20336E-06	62147
43	1	62149	9.06657E-08	62149
44	1	62150	5.84210E-06	62150
45	1	62151	4.61651E-07	62151
46	1	62152	2.70673E-06	62152
47	1	64155	3.60027E-09	64155
48	1	63153	1.87279E-06	63153
49	1	63154	4.84438E-07	63154
50	1	63155	2.11219E-07	63155
51	2	40802	4.25156E-02	40802
52	3	1001	4.19420E-02	1001
53	3	5010	3.81515E-06	5010
54	3	5011	1.54884E-05	5011
55	1	55133	2.80248E-05	55133
56	1	95237	5.71129E-06	95237
57	1	94238	1.15608E-06	94238
58	1	94239	1.24276E-04	94239
59	1	94240	3.02952E-05	94240
60	1	94241	1.81183E-05	94241
61	1	94242	2.91035E-06	94242
62	1	95241	7.18357E-07	95241
63	1	95243	3.83515E-07	95243
64	1	96244	5.30179E-08	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Ogeometry and material description

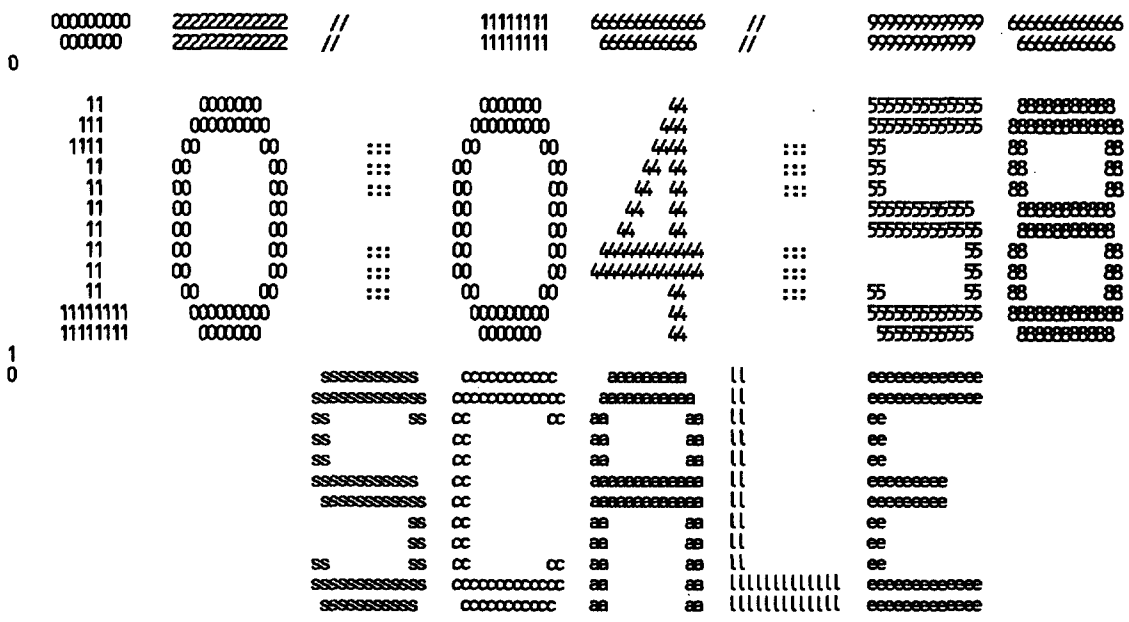
Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05844E-01	0
2	4	4.78790E-01	2.93000E+02	5.49010E-01	0
3	2	5.46100E-01	6.50000E+02	.00000E+00	0
4	3	8.13968E-01	6.07600E+02	.00000E+00	0

7711 locations of 200000 available are required to make a new master containing the self-shielded values
Ono nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1
Ocopy 999 1/v cross sectio from log 12 to log 18 bondarenko trigger 0
Ocopy 999 1/v cross sectio from log 18 to log 1 bondarenko trigger 0

```
0copy      999  1/v cross sectio from lag 18 to lag  1   bondarenko trigger 0
0copy     1001   hydrogen        from lag 12 to lag  1   bondarenko trigger 0
0copy     5010  b-10 1273 218mp  from lag 12 to lag  1   bondarenko trigger 0
0copy     5011   boron-11        from lag 12 to lag  1   bondarenko trigger 0
0copy     8016   oxygen-16       from lag 12 to lag 18   bondarenko trigger 0
0copy     8016   oxygen-16       from lag 18 to lag  1   bondarenko trigger 0
0copy     8016   oxygen-16       from lag 18 to lag  1   bondarenko trigger 0
0copy    36083   kr-83           from lag 12 to lag  1   bondarenko trigger 0
0copy    36085   kr-85           from lag 12 to lag  1   bondarenko trigger 0
0copy    38090   sr-90           from lag 12 to lag  1   bondarenko trigger 0
0copy    39089    y-89           from lag 12 to lag  1   bondarenko trigger 0
0copy    40093   zr-93           from lag 12 to lag  1   bondarenko trigger 0
0copy    40094   zr-94           from lag 12 to lag  1   bondarenko trigger 0
0copy    40095   zr-95           from lag 12 to lag  1   bondarenko trigger 0
0copy    40302   zircalloy       from lag 12 to lag  1   bondarenko trigger 0
0copy    41094   nb-94           from lag 12 to lag  1   bondarenko trigger 0
0copy    42095   mo-95           from lag 12 to lag  1   bondarenko trigger 0
0copy    43099   tc-99           from lag 12 to lag  1   bondarenko trigger 0
0copy    44101   ru-101          from lag 12 to lag  1   bondarenko trigger 0
0copy    44106   ru-106          from lag 12 to lag  1   bondarenko trigger 0
0copy    45103   rh-103          from lag 12 to lag  1   bondarenko trigger 0
0copy    45105   rh-105          from lag 12 to lag  1   bondarenko trigger 0
0copy    46105   pd-105          from lag 12 to lag  1   bondarenko trigger 0
0copy    46108   pd-108          from lag 12 to lag  1   bondarenko trigger 0
0copy    47109   silver-109      from lag 12 to lag  1   bondarenko trigger 0
0copy    51124   sb-124          from lag 12 to lag  1   bondarenko trigger 0
0copy    54131   xe-131          from lag 12 to lag  1   bondarenko trigger 0
0copy    54132   xe-132          from lag 12 to lag  1   bondarenko trigger 0
0copy    54135   xenon-135       from lag 12 to lag  1   bondarenko trigger 0
0copy    54136   xe-136          from lag 12 to lag  1   bondarenko trigger 0
0copy    55133   cesium-133      from lag 12 to lag  1   bondarenko trigger 0
0copy    55134   cs-134          from lag 12 to lag  1   bondarenko trigger 0
0copy    55135   cs-135          from lag 12 to lag  1   bondarenko trigger 0
0copy    55137   cs-137          from lag 12 to lag  1   bondarenko trigger 0
0copy    56136   ba-136          from lag 12 to lag  1   bondarenko trigger 0
0copy    57139   la-139          from lag 12 to lag  1   bondarenko trigger 0
0copy    58144   ce-144          from lag 12 to lag  1   bondarenko trigger 0
0copy    59141   pr-141          from lag 12 to lag  1   bondarenko trigger 0
0copy    59143   pr-143          from lag 12 to lag  1   bondarenko trigger 0
0copy    60143   nd-143          from lag 12 to lag  1   bondarenko trigger 0
0copy    60145   nd-145          from lag 12 to lag  1   bondarenko trigger 0
0copy    60147   nd-147          from lag 12 to lag  1   bondarenko trigger 0
0copy    61147   pm-147          from lag 12 to lag  1   bondarenko trigger 0
0copy    61148   pm-148          from lag 12 to lag  1   bondarenko trigger 0
0copy    62147   sm-147          from lag 12 to lag  1   bondarenko trigger 0
0copy    62149   sm-149          from lag 12 to lag  1   bondarenko trigger 0
0copy    62150   sm-150          from lag 12 to lag  1   bondarenko trigger 0
0copy    62151   sm-151          from lag 12 to lag  1   bondarenko trigger 0
0copy    62152   sm-152          from lag 12 to lag  1   bondarenko trigger 0
0copy    63153   eu-153          from lag 12 to lag  1   bondarenko trigger 0
0copy    63154   eu-154          from lag 12 to lag  1   bondarenko trigger 0
0copy    63155   eu-155          from lag 12 to lag  1   bondarenko trigger 0
0copy    64155   gd-155          from lag 12 to lag  1   bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from lag 12 to lag  1   bondarenko trigger 0
0copy    92235   uranium-235     from lag 12 to lag  1   bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from lag 12 to lag  1   bondarenko trigger 0
0copy    92238   uranium-238     from lag 12 to lag  1   bondarenko trigger 0
0copy    93237   neptunium-237   from lag 12 to lag  1   bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from lag 12 to lag  1   bondarenko trigger 0
0copy    94239   plutonium-239   from lag 12 to lag  1   bondarenko trigger 0
```

```
0copy    94240  plutonium-240   from log 12 to log  1    bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1    bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1    bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1    bondarenko trigger 0
0copy    95243  am-243 1057 218  from log 12 to log  1    bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1    bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc     1/27/89
             last updated      9/16/93
               l.m.petrie   -   ornl
        tape id                          4321        number of nuclides                  66
        number of neutron groups           27        number of gamma groups               0
        first thermal group                15        logical unit                         1
                                 table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id     999
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id      66
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89              id    1001
       b-10 1273 218ngp 042375 p-3 293k                                           id    5010
        boron-11       endf/b-iv mat 1160            updated 10/13/89              id    5011
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id    8016
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89              id       6
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89              id   36083
        kr-85            mt=  102                                                  id   36085
        sr-90          mt=102                        updated 10/13/89              id   38090
         y-89          mt=102                        updated 10/13/89              id   39089
        zr-93            mt=  102                                                  id   40093
        zr-94          mt=102                        updated 10/13/89              id   40094
        zr-95          mt=102                        updated 10/13/89              id   40095
        zircalloy      endf/b-iv mat 1284            updated 10/13/89              id   40302
        nb-94          mt=102                        updated 10/13/89              id   41094
        mo-95          mt=102                        updated 10/13/89              id   42095
        tc-99          mt=102                        updated 10/13/89              id   43099
        ru-101         mt=102                        updated 10/13/89              id   44101
        ru-106         mt=102                        updated 10/13/89              id   44106
        rh-103         mt=102                        updated 10/13/89              id   45103
        rh-105           mt=  102                                                  id   45105
        pd-105         mt=102                        updated 10/13/89              id   46105
        pd-108         mt=102                        updated 10/13/89              id   46108
        silver-109     endf/b-iv mat 1139            updated 10/13/89              id   47109
        sb-124         mt=102                        updated 10/13/89              id   51124
        xe-131         mt=102,103,104,105,106        updated 10/13/89              id   54131
        xe-132         mt=102,103,104,105,106        updated 10/13/89              id   54132
        xenon-135      endf/b-iv mat 1294            updated 10/13/89              id   54135
        xe-136           mt=  102, 103, 104, 105, 107                             id   54136
        cesium-133     endf/b-iv mat 1141            updated 10/13/89              id   55133
        cs-134         mt=102                        updated 10/13/89              id   55134
        cs-135           mt=  102                                                  id   55135
        cs-137         mt=102                        updated 10/13/89              id   55137
        ba-136         mt=102                        updated 10/13/89              id   56136
        la-139         mt=102                        updated 10/13/89              id   57139
        ce-144           mt=  102                                                  id   58144
        pr-141         mt=102,103,104,105,106,107    updated 10/13/89              id   59141
        pr-143         mt=102                        updated 10/13/89              id   59143
        nd-143         mt=102                        updated 10/13/89              id   60143
        nd-145         mt=102                        updated 10/13/89              id   60145
        nd-147         mt=102                        updated 10/13/89              id   60147
        pm-147         mt=102                        updated 10/13/89              id   61147
        pm-148           mt=  102                                                  id   61148
        sm-147         endf/b-v fission product      updated 10/13/89              id   62147
```

```
      sm-149        mt=102,103,107                 updated 10/13/89              id    62149
      sm-150        mt=102                         updated 10/13/89              id    62150
      sm-151        mt=102,103,104,105,106,107     updated 10/13/89              id    62151
      sm-152        mt=102,103,104,105,106,107     updated 10/13/89              id    62152
      eu-153        mt=102,103,104,105,106,107     updated 10/13/89              id    63153
      eu-154        mt=102,103,104,105,106,107     updated 10/13/89              id    63154
      eu-155        mt=102,103,104,105,106,107     updated 10/13/89              id    63155
      gd-155        mt=102                         updated 10/13/89              id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                        id    92234
      uranium-235   endf/b-iv mat 1261             updated 10/13/89              id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                        id    92236
      uranium-238   endf/b-iv mat 1262             updated 10/13/89              id    92238
      neptunium-237 endf/b-iv mat 1263             updated 10/13/89              id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    94238
      plutonium-239 endf/b-iv mat 1264             updated 10/13/89              id    94239
      plutonium-240 endf/b-iv mat 1265             updated 10/13/89              id    94240
      plutonium-241 endf/b-iv mat 1266             updated 10/13/89              id    94241
      plutonium-242 endf/b-iv mat 1161             updated 10/13/89              id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                              id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                               id    95243
      curium-244    endf/b-iv mat 1162             updated 10/13/89              id    96244
0      tape copy used     0 i/o's, and took     .00 seconds
1              rn        rn iiiiiiiiiiii   tttttttttttt    aaaaaaaaa    ww        ww  ll
               rnn       rn iiiiiiiiiiii   tttttttttttt    aaaaaaaaaa   ww        ww  ll
               rnnn      rn      ii            tt       aa        aa  ww        ww  ll
               rn rn     rn      ii            tt       aa        aa  ww        ww  ll
               rn  rn    rn      ii            tt       aa        aa  ww        ww  ll
               rn   rn   rn      ii            tt       aaaaaaaaaaaa  ww    w   ww  ll
               rn    rn  rn      ii            tt       aaaaaaaaaaaa  ww   www  ww  ll
               rn     rn rn      ii            tt       aa        aa  ww  ww ww ww  ll
               rn      rn rn     ii            tt       aa        aa  ww ww   ww ww  ll
               rn       rnn      ii            tt       aa        aa  wwww     wwww  ll
               rn        rnn iiiiiiiiiiii     tt       aa        aa  www      www  llllllllllll
               rn         rn iiiiiiiiiiii     tt       aa        aa  ww        ww  llllllllllll
0

  ddddddddddd    aaaaaaaaa   w        w iiiiiiiiiiii   sssssssssss
  ddddddddddd   aaaaaaaaaa   w        w iiiiiiiiiiii   sssssssssssss
  dd       dd  aa       aa  w        w      ii        ss       ss
  dd       dd  aa       aa  w        w      ii        ss
  dd       dd  aa       aa  w        w      ii        ss
  dd       dd  aaaaaaaaaaaa  w        w      ii        sssssssssssss
  dd       dd  aaaaaaaaaaaa   w      w      ii         sssssssssssss
  dd       dd  aa       aa    w    w        ii                  ss
  dd       dd  aa       aa     w  w         ii                  ss
  dd       dd  aa       aa      w w         ii        ss       ss
  ddddddddddd  aa       aa       ww     iiiiiiiiiiii   sssssssssssss
  ddddddddddd  aa       aa        v     iiiiiiiiiiii    sssssssssss
0

    0000000     22222222222          //      11      666666666666          //  99999999999   666666666666
   000000000    22222222222          //     111      666666666666          //  99999999999   666666666666
  00      00   22       22            //    1111      66                    //  99       99   66
 00       00            22           //      11      66                    //  99       99   66
 00       00            22           //      11      66                    //  99       99   66
 00       00          22            //      11      666666666666          //  99999999999   666666666666
 00       00        22             //      11      666666666666          //   99999999999   666666666666
 00       00      22              //      11      66       66          //              99   66       66
 00       00    22               //      11      66       66          //              99   66       66
  00      00   22               //      11      66       66          //              99   66       66
```




```
**********************************************************************
**********************************************************************
**********************************************************************
******                                                          ******
******                program verification information          ******
******                                                          ******
******                code system:   scale  version:   4.2      ******
******                                                          ******
**********************************************************************
**********************************************************************
******                                                          ******
******                                                          ******
******           program:  c0c002                               ******
******                                                          ******
******      creation date:  04/27/95                            ******
******                                                          ******
******           library:  /neutronics/scale/exe                ******
******                                                          ******
******                                                          ******
******  this is not a  scale  configuration controlled code     ******
******                                                          ******
******           jobname:  davis                                ******
******                                                          ******
******  date of execution:  02/16/96                            ******
******                                                          ******
******  time of execution:  10:04:58                            ******
```

```
                    *****                                                                  *****
                    *****                                                                  *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      9 entries.
0        1q array has     12 entries.
0select 65 nuclides from the master  library on logical  1
         0 nuclides from the working library on logical  2
         0 nuclides from the working library on logical  3
           to create the new working library on logical  4

        61 resonance calculations have been requested
         0 output option for ampx formatted cross section data.
0the storage allocated for this case is 200000 words
0        2q array has     65 entries.
0        3q array has    915 entries.
0        4q array has     65 entries.
0 general information concerning cross section library
    tape identification number                4321
    number of nuclides on tape                  66
    number of neutron energy groups             27
    first thermal neutron energy group          15
    number of gamma energy groups                0
0   direct access unit number  9 requires 117 blocks of length  1484 words
- xsdrn tape   4321
                    scale 4.2 - 27 group neutron burnup library
                       based on endf-b version 4 data with endf-b version 5 fission products
                          compiled for nrc      1/27/89
                             last updated      9/16/93
                                l.m.petrie   -   ornl
0 nuclides from xsdrn tape
    1    1/v cross sections normalized to 1.0 at 0.0253 ev                                  999
    2     hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89                  1001
    3    b-10 1273 218ngp 042375 p-3 293k                                                   5010
    4     boron-11       endf/b-iv mat 1160             updated 10/13/89                  5011
    5     oxygen-16      endf/b-iv mat 1276             updated 10/13/89                  8016
    6     oxygen-16      endf/b-iv mat 1276             updated 10/13/89                     6
    7     kr-83          mt=102,103,103,105,106,107     updated 10/13/89                 36083
    8     kr-85            mt=  102                                                       36085
    9     sr-90          mt=102                         updated 10/13/89                 38090
   10      y-89          mt=102                         updated 10/13/89                 39089
   11     zr-93            mt=  102                                                       40093
   12     zr-94          mt=102                         updated 10/13/89                 40094
   13     zr-95          mt=102                         updated 10/13/89                 40095
   14     zircalloy      endf/b-iv mat 1284             updated 10/13/89                 40302
   15     nb-94          mt=102                         updated 10/13/89                 41094
   16     mo-95          mt=102                         updated 10/13/89                 42095
   17     tc-99          mt=102                         updated 10/13/89                 43099
   18     ru-101         mt=102                         updated 10/13/89                 44101
   19     ru-106         mt=102                         updated 10/13/89                 44106
   20     rh-103         mt=102                         updated 10/13/89                 45103
   21     rh-105           mt=  102                                                       45105
   22     pd-105         mt=102                         updated 10/13/89                 46105
   23     pd-108         mt=102                         updated 10/13/89                 46108
   24     silver-109     endf/b-iv mat 1139             updated 10/13/89                 47109
   25     sb-124         mt=102                         updated 10/13/89                 51124
   26     xe-131         mt=102,103,104,105,106         updated 10/13/89                 54131
```

```
    27    xe-132          mt=102,103,104,105,106          updated 10/13/89          54132
    28    xenon-135       endf/b-iv mat 1294              updated 10/13/89          54135
    29    xe-136            mt=  102,  103,  104,  105,  107                        54136
    30    cesium-133      endf/b-iv mat 1141              updated 10/13/89          55133
    31    cs-134          mt=102                          updated 10/13/89          55134
    32    cs-135            mt=  102                                                55135
    33    cs-137          mt=102                          updated 10/13/89          55137
    34    ba-136          mt=102                          updated 10/13/89          56136
    35    la-139          mt=102                          updated 10/13/89          57139
    36    ce-144            mt=  102                                                58144
    37    pr-141          mt=102,103,104,105,106,107      updated 10/13/89          59141
    38    pr-143          mt=102                          updated 10/13/89          59143
    39    nd-143          mt=102                          updated 10/13/89          60143
    40    nd-145          mt=102                          updated 10/13/89          60145
    41    nd-147          mt=102                          updated 10/13/89          60147
    42    pm-147          mt=102                          updated 10/13/89          61147
    43    pm-148            mt=  102                                                61148
    44    sm-147          endf/b-v fission product        updated 10/13/89          62147
    45    sm-149          mt=102,103,107                  updated 10/13/89          62149
    46    sm-150          mt=102                          updated 10/13/89          62150
    47    sm-151          mt=102,103,104,105,106,107      updated 10/13/89          62151
    48    sm-152          mt=102,103,104,105,106,107      updated 10/13/89          62152
    49    eu-153          mt=102,103,104,105,106,107      updated 10/13/89          63153
    50    eu-154          mt=102,103,104,105,106,107      updated 10/13/89          63154
    51    eu-155          mt=102,103,104,105,106,107      updated 10/13/89          63155
    52    gd-155          mt=102                          updated 10/13/89          64155
    53   u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                          92234
    54    uranium-235     endf/b-iv mat 1261              updated 10/13/89          92235
    55   u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                          92236
    56    uranium-238     endf/b-iv mat 1262              updated 10/13/89          92238
    57    neptunium-237   endf/b-iv mat 1263              updated 10/13/89          93237
    58   pu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                         94238
    59    plutonium-239   endf/b-iv mat 1264              updated 10/13/89          94239
    60    plutonium-240   endf/b-iv mat 1265              updated 10/13/89          94240
    61    plutonium-241   endf/b-iv mat 1266              updated 10/13/89          94241
    62    plutonium-242   endf/b-iv mat 1161              updated 10/13/89          94242
    63   am-241 1056 sigo=5+4 newklacs 218ngp p-3 293k                                95241
    64   am-243 1057 218 gp wt f-1/e-m 050576 p3 293k                                 95243
    65    curium-244      endf/b-iv mat 1162              updated 10/13/89          96244
01/v cross sections normalized to 1.0 at 0.0253 ev                          999     temperature=   975.00
0 hydrogen        endf/b-iv mat 1269/thrm1002    updated 10/13/89           1001    temperature=   607.60
                            thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                          5010    temperature=   607.60
                            thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 boron-11        endf/b-iv mat 1160             updated 10/13/89           5011    temperature=   607.60
                            thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 oxygen-16       endf/b-iv mat 1276             updated 10/13/89           8016    temperature=   975.00
0 oxygen-16       endf/b-iv mat 1276             updated 10/13/89              6    temperature=   607.60
0 kr-83           mt=102,103,103,105,106,107     updated 10/13/89          36083    temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   82.202              temperature(kelvin)      =  975.000
0potential scatter sigma  =    7.004              lumped nuclear density   = 1.8137241E-06
0spin factor (g)          = 4988.190              lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995                sigma(per absorber atom)= 9.4148664E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.953                sigma(per absorber atom)= 1.0504055E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
```

```
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11      -2.726823E-03     .000000E+00    -3.444124E-03
  12       2.164301E-02     .000000E+00     9.884226E-03
  13      -5.916534E-01     .000000E+00    -1.766241E-01
  14       4.783685E-05     .000000E+00    -1.724147E-05
0excess resonance integrals
0                  resolved
0absorption       1.44590E+02
 fission           .00000E+00
- elapsed time     .00 min.
0 kr-85            mt=  102                                          36085     temperature=   975.00
0 sr-90          mt=102                    updated 10/13/89          38090     temperature=   975.00
0  y-89          mt=102                    updated 10/13/89          39089     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    88.142          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.644          lumped nuclear density   = 1.6460750E-05
0spin factor (g)          =    78.664          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.0373749E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 1.1573869E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9      -4.946415E-06     .000000E+00    -4.070307E-04
  10      -1.010821E-04     .000000E+00    -2.851098E-04
0excess resonance integrals
0                  resolved
0absorption       1.46353E-01
 fission           .00000E+00
- elapsed time     .00 min.
0 zr-93            mt=  102                                          40093     temperature=   975.00
0 zr-94          mt=102                    updated 10/13/89          40094     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    93.100          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.779          lumped nuclear density   = 2.6124020E-05
0spin factor (g)          =   180.853          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 6.5365015E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 7.2926973E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   8      -1.715812E-06     .000000E+00    -1.603045E-03
   9      -5.114553E-05     .000000E+00    -4.521406E-03
0excess resonance integrals
0                  resolved
0absorption       3.43462E-02
 fission           .00000E+00
- elapsed time     .00 min.
0 zr-95          mt=102                    updated 10/13/89          40095     temperature=   975.00
0 zircalloy      endf/b-iv mat 1284        updated 10/13/89          40302     temperature=   650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)      =   650.000
```

```
0potential scatter sigma  =     6.385              lumped nuclear density    = 4.2515602E-02
0spin factor (g)          =     1.079              lump dimension (a-bar)    = 5.4610002E-01
0inner radius             = 4.7878999E-01          dancoff correction (c)    = 5.0364637E-01
0the absorber will be treated by the norcheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   8      -1.780596E-03     .000000E+00   -1.286907E+00
   9      -5.893373E-02     .000000E+00   -2.695297E+00
  10      -6.959935E-02     .000000E+00   -1.601321E+00
  11      -1.883937E-01     .000000E+00   -7.920912E-01
0excess resonance integrals
0                  resolved
0absorption       2.28539E-01
 fission           .00000E+00
- elapsed time     .02 min.
0 nb-94          mt=102                    updated 10/13/89          41094     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    93.101              temperature(kelvin)       =   975.000
0potential scatter sigma  =     3.779              lumped nuclear density    = 1.4320781E-11
0spin factor (g)          = 43808.801              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the norcheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.1923910E+10
0moderator-1 will be treated by the norcheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 1.3303366E+10
0moderator-2 will be treated by the norcheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  13       1.043053E-02     .000000E+00    9.253249E-04
  14       9.836727E-03     .000000E+00   -4.064839E-04
0excess resonance integrals
0                  resolved
0absorption       9.15001E+01
 fission           .00000E+00
- elapsed time     .02 min.
0 mo-95          mt=102                    updated 10/13/89          42095     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    94.091              temperature(kelvin)       =   975.000
0potential scatter sigma  =     3.806              lumped nuclear density    = 2.3051618E-05
0spin factor (g)          =   607.724              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the norcheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 7.4077100E+03
0moderator-1 will be treated by the norcheim integral method.
0mass of moderator-2    =   237.933              sigma(per absorber atom)= 8.2646943E+03
0moderator-2 will be treated by the norcheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  10      -4.875015E-03     .000000E+00   -2.926810E-02
  11      -9.137521E-03     .000000E+00   -1.501381E-02
  12      -6.205746E+00     .000000E+00   -7.138883E+00
  13       1.560822E-04     .000000E+00   -1.886280E-05
0excess resonance integrals
0                  resolved
0absorption       9.55450E+01
 fission           .00000E+00
- elapsed time     .03 min.
```

```
0 tc-99          mt=102                        updated 10/13/89          43099     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =    98.150          temperature(kelvin)       =   975.000
0potential scatter sigma  =     6.000          lumped nuclear density    = 2.5549456E-05
0spin factor (g)          =  4527.940          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 6.6834966E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 7.4566982E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11      -3.297395E-02    .000000E+00   -1.552925E-02
  12      -8.767703E-03    .000000E+00   -3.101468E-04
  13      -5.338035E-01    .000000E+00   -2.808330E-02
  14      -1.126903E+01    .000000E+00   -3.591854E-01
  15       1.069416E-02    .000000E+00   -5.378884E-04
  16       4.835891E-03    .000000E+00   -2.801828E-04
  17       2.074195E-04    .000000E+00   -1.191841E-05
0excess resonance integrals
0                  resolved
0absorption       3.19699E+02
 fission           .00000E+00
-  elapsed time    .03 min.
0 ru-101         mt=102                        updated 10/13/89          44101     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   100.039          temperature(kelvin)       =   975.000
0potential scatter sigma  =     3.965          lumped nuclear density    = 2.3676123E-05
0spin factor (g)          =  8785.290          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 7.2123169E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 8.0466968E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11      -3.694152E-02    .000000E+00   -3.706604E-03
  12      -2.101600E-01    .000000E+00   -5.001156E-02
  13      -6.353251E-01    .000000E+00   -1.710328E-02
  14       2.367621E-04    .000000E+00   -4.135463E-05
0excess resonance integrals
0                  resolved
0absorption       7.89550E+01
 fission           .00000E+00
-  elapsed time    .03 min.
0 ru-106         mt=102                        updated 10/13/89          44106     temperature=   975.00
0 rh-103         mt=102                        updated 10/13/89          45103     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   102.021          temperature(kelvin)       =   975.000
0potential scatter sigma  =     5.408          lumped nuclear density    = 1.4311722E-05
0spin factor (g)          =      .500          lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.1931457E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 1.3311786E+04
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0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  9       1.204389E-03     .000000E+00     1.788869E-03
 10      -5.018506E-03     .000000E+00    -6.849820E-03
 11      -2.882715E-02     .000000E+00    -2.528439E-02
 12      -4.875087E-04     .000000E+00    -2.801735E-05
 13        .000000E+00     .000000E+00      .000000E+00
 14        .000000E+00     .000000E+00      .000000E+00
 15       2.245639E-01     .000000E+00     3.170446E-03
 16       2.830610E+01     .000000E+00    -8.509585E-02
 17      -1.880581E+02     .000000E+00    -1.769714E-01
 18       8.646072E+01     .000000E+00     2.602341E-01
 19       1.139143E+01     .000000E+00    -1.224586E-03
 20       1.079305E+00     .000000E+00    -2.404856E-03
 21       2.165706E-01     .000000E+00     1.925355E-03
 22       2.583927E-01     .000000E+00     2.928545E-03
 23      -9.878527E-02     .000000E+00     1.798742E-03
0excess resonance integrals
0                  resolved
0absorption       1.13329E+03
 fission           .00000E+00
- elapsed time    .07 min.
0 rh-105           mt= 102                                          45105     temperature=   975.00
0 pd-105        mt=102                    updated 10/13/89           46105     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   104.004          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.069          lumped nuclear density   = 1.0331927E-05
0spin factor (g)          = 15210.000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.6527381E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 1.8439402E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
 12      -6.809954E-02     .000000E+00    -2.334454E-03
 13      -7.993243E-02     .000000E+00    -1.860649E-03
 14       7.754399E-04     .000000E+00    -8.104906E-05
0excess resonance integrals
0                  resolved
0absorption       6.11507E+01
 fission           .00000E+00
- elapsed time    .07 min.
0 pd-108        mt=102                    updated 10/13/89           46108     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   106.977          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.146          lumped nuclear density   = 3.1724992E-06
0spin factor (g)          = 21175.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 5.3824973E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 6.0051887E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
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0group       res abs         res fiss        res scat
  11      1.169765E-04     .000000E+00    3.530660E-04
  12     -2.857494E+00     .000000E+00   -2.103978E+00
  13      6.680858E-03     .000000E+00    1.885999E-03
  14      8.560859E-02     .000000E+00   -3.210489E-05
  15     -1.841547E-01     .000000E+00    8.083373E-05
  16      2.946991E-04     .000000E+00   -9.255674E-06
0excess resonance integrals
0                resolved
0absorption      2.10595E+02
 fission          .00000E+00
- elapsed time    .07 min.
0 silver-109    endf/b-iv mat 1139          updated 10/13/89          47109    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   107.969          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.988          lumped nuclear density   = 2.1320018E-06
0spin factor (g)          =  1441.870          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995            sigma(per absorber atom)= 8.0093602E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933            sigma(per absorber atom)= 8.9559484E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  10     -2.564913E-04     .000000E+00   -2.992681E-04
  11     -9.993934E-03     .000000E+00   -7.288188E-03
  12     -7.463377E-01     .000000E+00   -3.687714E-02
  13      7.666948E-01     .000000E+00    3.380718E-02
  14     -2.031872E+01     .000000E+00   -1.884823E+00
0excess resonance integrals
0                resolved
0absorption      1.37614E+03
 fission          .00000E+00
- elapsed time    .08 min.
0 sb-124        mt=102                      updated 10/13/89          51124    temperature=  975.00
0 xe-131        mt=102,103,104,105,106      updated 10/13/89          54131    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   129.781          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.301          lumped nuclear density   = 1.1485292E-05
0spin factor (g)          =   246.825          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995            sigma(per absorber atom)= 1.4867684E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933            sigma(per absorber atom)= 1.6587699E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9     -3.839524E-06     .000000E+00   -3.538854E-05
  10     -2.589499E-04     .000000E+00   -2.257703E-04
  11     -3.124803E-03     .000000E+00   -2.320908E-03
  12     -5.929664E-02     .000000E+00   -5.519651E-03
  13     -8.836818E+01     .000000E+00   -2.070617E+02
  14      1.039511E-02     .000000E+00    1.456956E-02
0excess resonance integrals
0                resolved
0absorption      7.37500E+02
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 fission          .00000E+00
- elapsed time    .08 min.
0 xe-132        mt=102,103,104,105,106        updated 10/13/89          54132    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   130.771          temperature(kelvin)      =  975.000
0potential scatter sigma  =     4.301          lumped nuclear density   = 2.3319530E-05
0spin factor (g)          =   675.899          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 7.3226045E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 8.1697432E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9     -3.613185E-05     .000000E+00   -1.677534E-04
  10     -1.091632E-02     .000000E+00   -1.389546E-01
  11      3.338928E-08     .000000E+00   -9.226723E-07
0excess resonance integrals
0                resolved
0absorption     9.65781E-01
 fission          .00000E+00
- elapsed time    .08 min.
0 xenon-135     endf/b-iv mat 1294          updated 10/13/89          54135    temperature=  975.00
0 xe-136          mt=  102, 103, 104, 105, 107                        54136    temperature=  975.00
0 cesium-133    endf/b-iv mat 1141          updated 10/13/89          55133    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   131.764          temperature(kelvin)      =  975.000
0potential scatter sigma  =     7.100          lumped nuclear density   = 2.8024819E-05
0spin factor (g)          =   374.437          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 6.0931592E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.051          sigma(per absorber atom)= 6.5357119E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9     -7.628979E-05     .000000E+00   -5.370495E-04
  10     -3.880106E-03     .000000E+00   -7.411718E-03
  11     -1.434303E-01     .000000E+00   -2.506073E-01
  12     -2.228179E-01     .000000E+00   -3.098573E-02
  13     -3.706751E-01     .000000E+00   -2.016849E-02
  14     -1.585101E+01     .000000E+00   -6.935894E-01
  15      5.617684E-03     .000000E+00   -4.040337E-04
  16      2.777807E-03     .000000E+00   -2.215017E-04
  17      2.352259E-03     .000000E+00   -1.830746E-04
  18      2.215079E-03     .000000E+00   -1.679363E-04
  19      1.317512E-03     .000000E+00   -9.681352E-05
0excess resonance integrals
0                resolved
0absorption     3.46055E+02
 fission          .00000E+00
- elapsed time    .10 min.
0 cs-134        mt=102                      updated 10/13/89          55134    temperature=  975.00
0 cs-135          mt=  102                                            55135    temperature=  975.00
0 cs-137        mt=102                      updated 10/13/89          55137    temperature=  975.00
0 ba-136        mt=102                      updated 10/13/89          56136    temperature=  975.00
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0resonance data for this nuclide
0mass number (a)          =   134.737          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.835          lumped nuclear density   = 3.5187762E-07
0spin factor (g)          =  1247.690          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 4.8528150E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 5.4142288E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  10      8.530733E-07     .000000E+00    3.484196E-07
  11     -4.364408E-05     .000000E+00   -3.643748E-05
0excess resonance integrals
0                  resolved
0absorption       1.38465E+00
 fission           .00000E+00
- elapsed time     .12 min.
0 la-139        mt=102                    updated 10/13/89          57139     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   137.713          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.906          lumped nuclear density   = 2.7388562E-05
0spin factor (g)          =   145.855          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 6.2347080E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 6.9559902E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
   9     -3.693308E-05     .000000E+00   -3.093299E-03
  10     -5.133480E-04     .000000E+00   -2.743127E-02
  11       .000000E+00     .000000E+00     .000000E+00
  12     -9.349354E-02     .000000E+00   -5.643091E-02
0excess resonance integrals
0                  resolved
0absorption       8.03619E+00
 fission           .00000E+00
- elapsed time     .12 min.
0 ce-144          mt=  102                                            58144     temperature=   975.00
0 pr-141        mt=102,103,104,105,106,107  updated 10/13/89          59141     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   139.697          temperature(kelvin)      =   975.000
0potential scatter sigma  =     4.953          lumped nuclear density   = 2.4055988E-05
0spin factor (g)          =  1026.500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 7.0984277E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 7.9196323E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  10     -9.366466E-03     .000000E+00   -3.182227E-01
  11     -1.521154E-01     .000000E+00   -2.022333E+00
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  12      -3.555179E-03     .000000E+00   -3.483960E-04
0excess resonance integrals
0                  resolved
0absorption       1.20251E+01
 fission           .00000E+00
- elapsed time    .12 min.
0 pr-143         mt=102                    updated 10/13/89          59143     temperature=   975.00
0 nd-143         mt=102                    updated 10/13/89          60143     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   141.682          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.000          lumped nuclear density   = 2.0499998E-05
0spin factor (g)          =  1964.860          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 8.3297422E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 9.2933945E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  10      -2.012659E-04     .000000E+00   -1.244567E-04
  11      -4.714201E-01     .000000E+00   -5.472325E+00
  12      -3.134185E-01     .000000E+00   -1.541217E-01
0excess resonance integrals
0                  resolved
0absorption       5.05055E+01
 fission           .00000E+00
- elapsed time    .12 min.
0 nd-145         mt=102                    updated 10/13/89          60145     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   143.668          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.047          lumped nuclear density   = 1.5470734E-05
0spin factor (g)          =  1007.250          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.1037595E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 1.2314515E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  10      -6.324348E-03     .000000E+00   -9.915684E-02
  11      -9.467698E-02     .000000E+00   -2.868854E-01
  12      -2.238582E+00     .000000E+00   -1.408134E+01
  13       9.550272E-05     .000000E+00    2.048740E-04
  14      -2.098093E+00     .000000E+00   -5.512056E-02
  15       5.892251E-03     .000000E+00   -4.599468E-04
  16       1.326648E-03     .000000E+00   -1.451205E-04
  17       9.642470E-04     .000000E+00   -1.063907E-04
  18       8.539751E-04     .000000E+00   -9.313989E-05
  19       7.634095E-04     .000000E+00   -8.069685E-05
  20       2.839469E-05     .000000E+00   -2.920642E-06
0excess resonance integrals
0                  resolved
0absorption       2.04663E+02
 fission           .00000E+00
- elapsed time    .13 min.
0 nd-147         mt=102                    updated 10/13/89          60147     temperature=   975.00
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0 pm-147        mt=102                          updated 10/13/89            61147     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   145.653             temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093             lumped nuclear density   = 4.5120155E-06
0spin factor (g)          = 21589.500             lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995             sigma(per absorber atom)= 3.7845547E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933             sigma(per absorber atom)= 4.2223832E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  12      -2.273065E-01     .000000E+00   -7.274823E-02
  13      -5.826789E-02     .000000E+00   -3.273887E-03
  14      -1.005808E+02     .000000E+00   -4.320737E+01
  15       4.125411E-02     .000000E+00    6.973337E-03
  16       1.697908E-02     .000000E+00    1.746665E-03
  17       1.369737E-02     .000000E+00    1.150451E-03
  18       1.253792E-02     .000000E+00    9.649521E-04
  19       6.998683E-04     .000000E+00    5.069563E-05
0excess resonance integrals
0                resolved
0absorption      1.99190E+03
 fission         .00000E+00
- elapsed time    .13 min.
0 pm-148         mt=  102                                                  61148     temperature=   975.00
0 sm-147        endf/b-v fission product        updated 10/13/89            62147     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   145.653             temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093             lumped nuclear density   = 2.2033623E-06
0spin factor (g)          =      .000             lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00          dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995             sigma(per absorber atom)= 7.7499602E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933             sigma(per absorber atom)= 8.6465391E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11       2.531995E-01     .000000E+00    1.026770E+00
  12       6.925951E-01     .000000E+00   -1.801583E+00
  13      -5.105210E+00     .000000E+00   -3.361143E+00
  14      -6.485435E-01     .000000E+00   -9.227741E-03
  15       3.108576E-01     .000000E+00   -1.889360E-03
  16       7.287601E-03     .000000E+00   -3.739430E-04
  17       4.281461E-03     .000000E+00   -2.401654E-04
  18       3.510383E-03     .000000E+00   -1.997177E-04
  19       2.910569E-03     .000000E+00   -1.649473E-04
  20       8.434785E-04     .000000E+00   -4.626470E-05
0excess resonance integrals
0                resolved
0absorption      7.19832E+02
 fission         .00000E+00
- elapsed time    .15 min.
                          thermal scattering matrix number  3 at a temperature of    900.03 was selected.
0 sm-149        mt=102,103,107                  updated 10/13/89            62149     temperature=   975.00
0resonance data for this nuclide
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0mass number (a)          =   147.638          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.260          lumped nuclear density   = 9.0665708E-08
0spin factor (g)          = 10407.900          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 1.8833989E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 2.1012860E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  11      8.546572E-03    .000000E+00    3.071153E-02
  12     -5.606520E-02    .000000E+00   -1.834105E-01
  13      2.252520E-02    .000000E+00    2.740474E-03
  14     -1.121898E-03    .000000E+00   -8.399253E-03
0excess resonance integrals
0                 resolved
0absorption      8.04326E+02
 fission          .00000E+00
- elapsed time    .15 min.
0 sm-150        mt=102                    updated 10/13/89          62150     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   148.629          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.162          lumped nuclear density   = 5.8421019E-06
0spin factor (g)          =  4376.420          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 2.9229152E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 3.2610619E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  10     -1.916888E-03    .000000E+00   -1.862840E-02
  11     -4.404323E-02    .000000E+00   -4.970627E-01
  12     -1.437634E-01    .000000E+00   -4.344102E-02
  13     -9.971263E+00    .000000E+00   -7.845757E+00
  14      1.064415E-04    .000000E+00   -6.365839E-05
0excess resonance integrals
0                 resolved
0absorption      2.83489E+02
 fission          .00000E+00
- elapsed time    .15 min.
0 sm-151        mt=102,103,104,105,106,107   updated 10/13/89          62151     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   149.623          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.185          lumped nuclear density   = 4.6165064E-07
0spin factor (g)          = 75574.703          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 3.6988944E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.933          sigma(per absorber atom)= 4.1268128E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss        res scat
  14     -2.664968E-01    .000000E+00   -2.407252E-02
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  15      1.482324E+01     .000000E+00    7.495161E-02
  16     -2.184584E+01     .000000E+00   -6.215366E-02
  17      1.734203E+02     .000000E+00    8.254912E-01
  18     -3.208668E+02     .000000E+00   -1.785959E+00
  19      6.252787E+01     .000000E+00    3.867234E-01
  20      1.141006E+00     .000000E+00   -1.381543E-04
  21     -7.117630E-02     .000000E+00    1.244101E-02
  22      6.952575E-02     .000000E+00    3.838917E-03
  23     -1.091929E-02     .000000E+00    3.374082E-04
0excess resonance integrals
0                resolved
0absorption     2.05581E+03
 fission          .0000E+00
- elapsed time    .17 min.
0 sm-152       mt=102,103,104,105,106,107    updated 10/13/89          62152    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   150.615          temperature(kelvin)     =   975.000
0potential scatter sigma  =     5.208          lumped nuclear density  = 2.7067281E-06
0spin factor (g)          =   863.594          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =    15.995             sigma(per absorber atom)= 6.3087125E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =   237.933             sigma(per absorber atom)= 7.0385563E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9     2.402534E-06     .000000E+00    1.158422E-04
  10    -2.209686E-03     .000000E+00   -3.404345E-02
  11    -3.158748E-02     .000000E+00   -1.201679E-01
  12    -2.107241E-01     .000000E+00   -6.678880E-01
  13     4.146078E-02     .000000E+00    1.007926E-01
  14    -1.800018E+02     .000000E+00   -3.473057E+02
0excess resonance integrals
0                resolved
0absorption     2.67894E+03
 fission          .0000E+00
- elapsed time    .17 min.
0 eu-153       mt=102,103,104,105,106,107    updated 10/13/89          63153    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   151.607          temperature(kelvin)     =   975.000
0potential scatter sigma  =     9.731          lumped nuclear density  = 1.8727959E-06
0spin factor (g)          = 12265.900          lump dimension (a-bar)  = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =    15.995             sigma(per absorber atom)= 9.1179117E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =   237.933             sigma(per absorber atom)= 1.0172746E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12    -3.151911E-01     .000000E+00   -6.169670E-02
  13    -2.597048E-01     .000000E+00   -1.150879E-02
  14    -1.181352E+00     .000000E+00   -6.071259E-03
  15    -4.179145E-02     .000000E+00   -6.054394E-02
  16    -3.307578E+00     .000000E+00    8.152518E-03
  17     1.505559E-01     .000000E+00   -3.437564E-03
  18     7.726792E-02     .000000E+00   -2.231180E-03
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  19      5.055416E-02     .000000E+00   -1.541084E-03
  20     -1.253808E-01     .000000E+00   -1.274912E-03
0excess resonance integrals
0                resolved
0absorption      1.35238E+03
 fission          .00000E+00
- elapsed time    .18 min.
0 eu-154        mt=102,103,104,105,106,107     updated 10/13/89              63154     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   152.601              temperature(kelvin)      =   975.000
0potential scatter sigma  =     9.731              lumped nuclear density   = 4.843843E-07
0spin factor (g)          = 19135.801              lump dimension (a-bar)   = 4.681220IE-01
0inner radius             = .0000000E+00           dancoff correction (c)   = 3.426926IE-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 3.524899IE+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   257.933              sigma(per absorber atom)= 3.952689IE+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
  12     -4.021110E-01     .000000E+00   -6.263666E-02
  13     -3.529810E-01     .000000E+00   -2.641435E-02
  14      2.707021E-01     .000000E+00    1.353824E-02
  15      2.154105E-02     .000000E+00    2.040740E-02
  16      7.004523E+00     .000000E+00    9.140816E-02
  17     -1.450002E+02     .000000E+00   -1.900830E+00
  18      1.130468E+02     .000000E+00    1.854371E+00
  19     -1.014953E+02     .000000E+00    1.187526E+00
0excess resonance integrals
0                resolved
0absorption      2.13529E+03
 fission          .00000E+00
- elapsed time    .18 min.
0 eu-155        mt=102,103,104,105,106,107     updated 10/13/89              63155     temperature=   975.00
0 gd-155        mt=102                         updated 10/13/89              64155     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   153.592              temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.277              lumped nuclear density   = 3.600273E-09
0spin factor (g)          = 12700.100              lump dimension (a-bar)   = 4.681220IE-01
0inner radius             = .0000000E+00           dancoff correction (c)   = 3.426926IE-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995              sigma(per absorber atom)= 4.742964E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   257.933              sigma(per absorber atom)= 5.291669E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss         res scat
  12     -1.439572E+00     .000000E+00   -1.839546E-01
  13      1.540814E+00     .000000E+00    1.984648E-01
  14      2.186907E-01     .000000E+00    9.800664E-03
  15     -3.396920E-01     .000000E+00   -2.257280E-04
  16      1.477357E+00     .000000E+00   -4.148852E-03
  17      1.568659E-01     .000000E+00   -1.479108E-03
  18      9.605182E-02     .000000E+00   -1.078052E-03
  19      6.295395E-02     .000000E+00   -8.026944E-04
  20      1.670401E-02     .000000E+00    1.626967E-04
  21       .000000E+00     .000000E+00     .000000E+00
  22       .000000E+00     .000000E+00     .000000E+00
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  23       .000000E+00     .000000E+00     .000000E+00
  24       .000000E+00     .000000E+00     .000000E+00
  25      -2.128025E+03    .000000E+00    -1.622201E+00
  26      -5.205858E+03    .000000E+00     1.961556E+00
  27      -1.660053E+03    .000000E+00     7.392990E-01
0excess resonance integrals
0                  resolved
0absorption       3.96996E+04
 fission           .00000E+00
-  elapsed time    .20 min.
0u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                    92234     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   232.029          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.021          lumped nuclear density   = 4.1064836E-06
0spin factor (g)          =  6948.450          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 4.1582949E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.985          sigma(per absorber atom)= 4.6379398E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
  11      -1.961208E-02     .000000E+00    -5.722908E-02
  12      -1.601150E-01     .000000E+00    -6.698953E-02
  13       7.760650E-04     .000000E+00    -6.473847E-04
  14      -1.579266E+01     .000000E+00    -2.586926E+00
0excess resonance integrals
0                  resolved
0absorption       5.85330E+02
 fission           .00000E+00
-  elapsed time    .20 min.
0 uranium-235    endf/b-iv mat 1261          updated 10/13/89          92235     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   233.025          temperature(kelvin)      =   975.000
0potential scatter sigma  =    11.500          lumped nuclear density   = 3.2945091E-04
0spin factor (g)          = 15171.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 5.1831604E+02
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   238.049          sigma(per absorber atom)= 5.5623993E+02
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs          res fiss        res scat
  12      -1.406618E+00    -8.762659E-01    -3.299534E-02
  13      -5.052756E+00    -2.519020E+00    -1.097110E-01
  14      -4.070006E+00    -2.511537E+00    -2.790143E-02
0excess resonance integrals
0                  resolved
0absorption       2.15877E+02
 fission          1.28395E+02
-  elapsed time    .22 min.
0u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                    92236     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   234.017          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.995          lumped nuclear density   = 6.7290581E-05
0spin factor (g)          =  6328.490          lump dimension (a-bar)   = 4.6812201E-01
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0inner radius              =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 2.5376465E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.934              sigma(per absorber atom)= 2.8307280E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11      -3.205253E-01     .000000E+00   -8.065267E-01
  12      -1.740610E+00     .000000E+00   -1.175568E+00
  13      -7.067173E-02     .000000E+00   -3.588744E-03
  14      -5.391120E+01     .000000E+00   -4.716531E+00
0excess resonance integrals
0                  resolved
0absorption       2.64049E+02
 fission           .00000E+00
-  elapsed time    .22 min.
0 uranium-238    endf/b-iv mat 1262          updated 10/13/89            92238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.006              temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.599              lumped nuclear density    = 2.1732399E-02
0spin factor (g)          =   656.527              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 7.8573785E+00
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   235.041              sigma(per absorber atom)= 3.3831647E-01
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9      -3.922767E-02     .000000E+00   -4.031110E-01
  10      -1.023260E+00   -1.739109E-05   -6.468191E+00
  11      -9.700805E+00     .000000E+00   -2.688294E+01
  12      -4.303446E+01     .000000E+00   -4.997449E+01
  13      -5.400053E+01     .000000E+00   -1.768741E+01
  14      -1.044746E+02     .000000E+00   -6.058397E+00
0excess resonance integrals
0                  resolved
0absorption       1.80867E+01
 fission          5.04166E-04
-  elapsed time    .25 min.
0 neptunium-237  endf/b-iv mat 1263          updated 10/13/89            93237     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   235.012              temperature(kelvin)       =   975.000
0potential scatter sigma  =    10.500              lumped nuclear density    = 5.7112925E-06
0spin factor (g)          = 10100.800              lump dimension (a-bar)    = 4.6812201E-01
0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 2.9898605E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 3.2070176E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11      -6.415946E-02   -2.341952E-06   -7.461254E-03
  12       2.260366E-03   -1.367187E-04    4.616411E-03
  13      -1.053958E-01    8.240357E-05   -4.853373E-03
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  14      -1.720739E-01   -2.041332E-05   -2.414718E-03
0excess resonance integrals
0                resolved
0absorption      2.92790E+02
 fission         1.38500E-01
- elapsed time    .27 min.
0pu-238 1050 sigo=5+4 newklacs p-3 295k f-1/e-m(1.+5)                    9238     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.167          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.890          lumped nuclear density   = 1.1560305E-06
0spin factor (g)          = 13130.600          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995           sigma(per absorber atom)= 1.4771209E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  238.051           sigma(per absorber atom)= 1.5844058E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -7.587170E-03   -1.185391E-03   -7.182622E-03
  12      -5.238791E-03   -5.998517E-04   -2.438190E-03
  13       3.658336E-01    7.361796E-02   -1.347240E-02
  14      -3.832955E-01   -7.007144E-02    8.539291E-03
0excess resonance integrals
0                resolved
0absorption      8.24762E+01
 fission         9.08013E+00
- elapsed time    .27 min.
0 plutonium-239  endf/b-iv mat 1264          updated 10/13/89         9239     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   236.999          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.200          lumped nuclear density   = 1.2427598E-04
0spin factor (g)          =  6435.710          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995           sigma(per absorber atom)= 1.3740361E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  238.051           sigma(per absorber atom)= 1.4738339E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -2.584350E-01   -1.041815E-01   -7.897274E-02
  12      -2.277330E+00   -8.551598E-01   -2.991308E-01
  13      -7.430213E+00   -4.370307E+00   -1.138121E-01
  14      -2.367054E+00   -1.260186E+00   -2.088675E-02
0excess resonance integrals
0                resolved
0absorption      3.04900E+02
 fission         1.71368E+02
- elapsed time    .28 min.
0 plutonium-240  endf/b-iv mat 1265          updated 10/13/89         9240     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   237.992          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.599          lumped nuclear density   = 3.0295155E-05
0spin factor (g)          =   669.244          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995           sigma(per absorber atom)= 5.6369063E+03
```
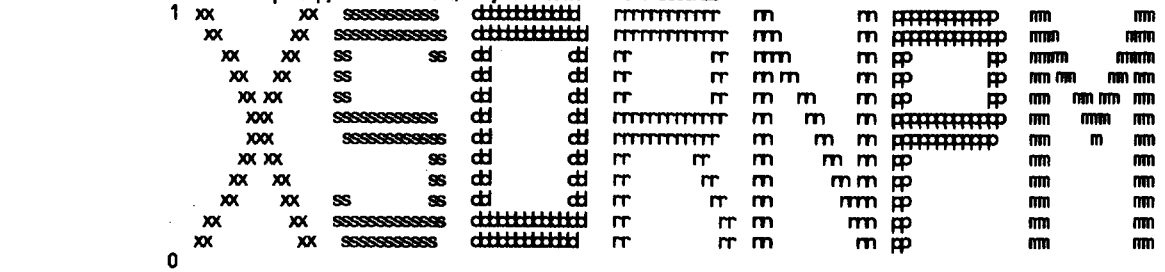
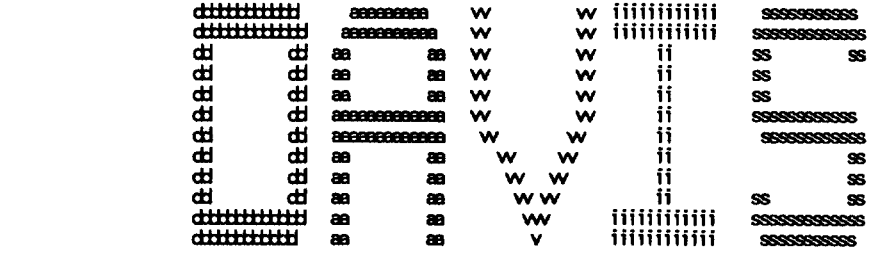

```
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 6.046321E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9      -7.751930E-05   -2.527774E-06   -3.998371E-04
  10      -7.247898E-03   -4.475637E-04   -3.306840E-02
  11      -2.280458E-01   -1.319958E-03   -3.029641E-01
  12      -3.118656E+00   -1.702781E-02   -2.983013E+00
  13      -3.913366E-01   -2.399544E-03   -2.851979E-02
  14       .000000E+00     .000000E+00     .000000E+00
  15       1.719924E-02    3.282550E-06    3.363419E-03
  16       2.579595E+00    4.925270E-04    3.156881E-01
  17       3.784549E+02    7.222978E-02    3.331969E+01
  18      -9.504828E+03   -1.814088E+00   -7.485503E+02
  19       4.425319E+02    8.445916E-02    3.632726E+01
  20      -9.435818E+01   -1.800868E-02    1.798456E+00
0excess resonance integrals
0              resolved
0absorption    3.82386E+03
 fission       1.73142E+00
- elapsed time    .30 min.
0 plutonium-241  endf/b-iv mat 1266          updated 10/13/89          94241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)        =   238.978          temperature(kelvin)     =   975.000
0potential scatter sigma =    10.939         lumped nuclear density  = 1.8118280E-05
0spin factor (g)        = 16402.100          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           =  .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 9.4247178E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 1.0109246E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -1.407894E-02   -1.332771E-02    5.022025E-04
  13      -1.183183E+00   -9.034095E-01   -3.408006E-02
  14      -1.202047E+00   -8.511612E-01   -3.674328E-03
  15       1.777249E-02    1.592212E-02   -4.605964E-04
0excess resonance integrals
0              resolved
0absorption    5.06252E+02
 fission       4.24597E+02
- elapsed time    .32 min.
0 plutonium-242  endf/b-iv mat 1161          updated 10/13/89          94242     temperature=   975.00
0resonance data for this nuclide
0mass number (a)        =   240.145          temperature(kelvin)     =   975.000
0potential scatter sigma =    10.694         lumped nuclear density  = 2.9103480E-06
0spin factor (g)        =  6606.710          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           =  .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995          sigma(per absorber atom)= 5.8673289E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051          sigma(per absorber atom)= 6.2934793E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
```

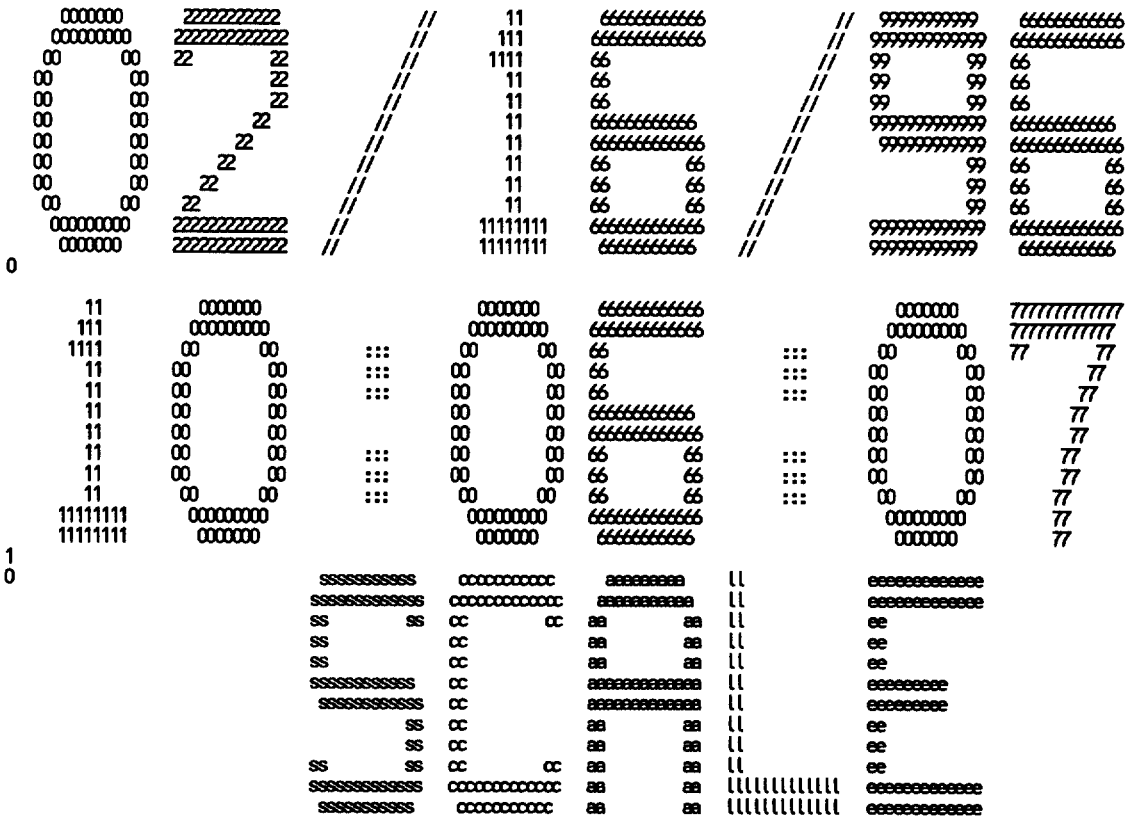
```
  11     -7.952340E-03     .000000E+00   -2.154490E-02
  12     -1.658367E-01     .000000E+00   -3.208174E-01
  13     -4.553379E-04     .000000E+00   -8.138200E-07
  14      8.100781E-02     .000000E+00    1.510768E-02
  15     -5.724017E+01     .000000E+00   -4.603442E+00
  16      4.024002E-02     .000000E+00   -3.439860E-03
  17      1.550333E-02     .000000E+00   -1.848019E-03
  18      1.112551E-02     .000000E+00   -1.430582E-03
0excess resonance integrals
0                resolved
0absorption      1.07474E+03
 fission          .0000E+00
-  elapsed time    .32 min.
0am-241 1056 sigp-5+4 newxlacs 218ngp p-3 293k                          95241     temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =   238.950          temperature(kelvin)      =   975.000
0potential scatter sigma =     9.511          lumped nuclear density   = 7.1835694E-07
0spin factor (g)         = 82058.203          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995          sigma(per absorber atom)= 2.3770869E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   238.051          sigma(per absorber atom)= 2.5497373E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  13      4.803471E-01    1.205702E-02    4.248833E-03
  14     -4.924113E-01   -1.156366E-02   -5.801683E-03
0excess resonance integrals
0                resolved
0absorption      1.95383E+02
 fission         1.0754E+00
-  elapsed time    .32 min.
0am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           95243     temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =   240.940          temperature(kelvin)      =   975.000
0potential scatter sigma =     9.511          lumped nuclear density   = 3.8351467E-07
0spin factor (g)         = 82052.602          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1     =    15.995          sigma(per absorber atom)= 4.4524938E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2     =   238.051          sigma(per absorber atom)= 4.7758834E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  13     -1.088286E-02     .000000E+00    3.156997E-04
  14      1.681003E-03     .000000E+00   -7.395986E-05
0excess resonance integrals
0                resolved
0absorption      1.60121E+02
 fission          .0000E+00
-  elapsed time    .32 min.
0 curium-244     endf/b-iv mat 1162          updated 10/13/89            96244     temperature=   975.00
0resonance data for this nuclide
0mass number (a)         =   242.133          temperature(kelvin)      =   975.000
0potential scatter sigma =    10.320          lumped nuclear density   = 5.3017931E-08
0spin factor (g)         =  5251.150          lump dimension (a-bar)   = 4.6812201E-01
```

```
0inner radius            =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 3.2207913E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 3.4547208E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11       9.779739E-05     2.721715E-06     8.773984E-05
  12       1.565525E-04     1.130185E-05    -4.530439E-05
  13       1.849926E-03     9.752654E-05     6.787102E-04
  14      -1.728596E-01    -1.034203E-02    -5.648884E-02
0excess resonance integrals
0                  resolved
0absorption       6.13582E+02
 fission          3.54030E+01
-  elapsed time    .33 min.
-  elapsed time    .33 min.
1     this xsdrn working tape was created 02/16/96 at 10:04:59
      the title of the parent case is as follows
      scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc      1/27/89
         tape id                          4321        number of nuclides                  65
         number of neutron groups           27        number of gamma groups               0
         first thermal group                15        logical unit                         4
                                    table of contents
       1/v cross sections normalized to 1.0 at 0.0253 ev                          id      999
        hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89             id     1001
       b-10 1273 218ngp 042375 p-3 293k                                           id     5010
        boron-11       endf/b-iv mat 1160            updated 10/13/89             id     5011
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id     8016
        oxygen-16      endf/b-iv mat 1276            updated 10/13/89             id        6
        kr-83          mt=102,103,103,105,106,107    updated 10/13/89             id    36083
        kr-85            mt=  102                                                  id    36085
        sr-90          mt=102                        updated 10/13/89             id    38090
         y-89          mt=102                        updated 10/13/89             id    39089
        zr-93            mt=  102                                                  id    40093
        zr-94          mt=102                        updated 10/13/89             id    40094
        zr-95          mt=102                        updated 10/13/89             id    40095
        zircalloy      endf/b-iv mat 1284            updated 10/13/89             id    40302
        nb-94          mt=102                        updated 10/13/89             id    41094
        mo-95          mt=102                        updated 10/13/89             id    42095
        tc-99          mt=102                        updated 10/13/89             id    43099
        ru-101         mt=102                        updated 10/13/89             id    44101
        ru-106         mt=102                        updated 10/13/89             id    44106
        rh-103         mt=102                        updated 10/13/89             id    45103
        rh-105           mt=  102                                                  id    45105
        pd-105         mt=102                        updated 10/13/89             id    46105
        pd-108         mt=102                        updated 10/13/89             id    46108
        silver-109     endf/b-iv mat 1139            updated 10/13/89             id    47109
        sb-124         mt=102                        updated 10/13/89             id    51124
        xe-131         mt=102,103,104,105,106        updated 10/13/89             id    54131
        xe-132         mt=102,103,104,105,106        updated 10/13/89             id    54132
        xenon-135      endf/b-iv mat 1294            updated 10/13/89             id    54135
        xe-136           mt=  102, 103, 104, 105, 107                             id    54136
        cesium-133     endf/b-iv mat 1141            updated 10/13/89             id    55133
        cs-134         mt=102                        updated 10/13/89             id    55134
        cs-135           mt=  102                                                  id    55135
```

```
      cs-137        mt=102                        updated 10/13/89          id    55137
      ba-136        mt=102                        updated 10/13/89          id    56136
      la-139        mt=102                        updated 10/13/89          id    57139
      ce-144          mt=  102                                              id    58144
      pr-141        mt=102,103,104,105,106,107    updated 10/13/89          id    59141
      pr-143        mt=102                        updated 10/13/89          id    59143
      nd-143        mt=102                        updated 10/13/89          id    60143
      nd-145        mt=102                        updated 10/13/89          id    60145
      nd-147        mt=102                        updated 10/13/89          id    60147
      pm-147        mt=102                        updated 10/13/89          id    61147
      pm-148          mt=  102                                              id    61148
      sm-147        endf/b-v fission product      updated 10/13/89          id    62147
      sm-149        mt=102,103,107                updated 10/13/89          id    62149
      sm-150        mt=102                        updated 10/13/89          id    62150
      sm-151        mt=102,103,104,105,106,107    updated 10/13/89          id    62151
      sm-152        mt=102,103,104,105,106,107    updated 10/13/89          id    62152
      eu-153        mt=102,103,104,105,106,107    updated 10/13/89          id    63153
      eu-154        mt=102,103,104,105,106,107    updated 10/13/89          id    63154
      eu-155        mt=102,103,104,105,106,107    updated 10/13/89          id    63155
      gd-155        mt=102                        updated 10/13/89          id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92234
      uranium-235   endf/b-iv mat 1261            updated 10/13/89          id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    92236
      uranium-238   endf/b-iv mat 1262            updated 10/13/89          id    92238
      neptunium-237 endf/b-iv mat 1263            updated 10/13/89          id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id    94238
      plutonium-239 endf/b-iv mat 1264            updated 10/13/89          id    94239
      plutonium-240 endf/b-iv mat 1265            updated 10/13/89          id    94240
      plutonium-241 endf/b-iv mat 1266            updated 10/13/89          id    94241
      plutonium-242 endf/b-iv mat 1161            updated 10/13/89          id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                          id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                           id    95243
      curium-244    endf/b-iv mat 1162            updated 10/13/89          id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
1 xx        xx  sssssssssss  ddddddddddd  rrrrrrrrrrrr  rrn       rrn  pppppppppp  mm        mm
   xx      xx  sssssssssssss ddddddddddd  rrrrrrrrrrrr  rrn       rrn  pppppppppp  mmm      mmm
    xx    xx   ss       ss  dd       dd  rr       rr  rrrn      rrn  pp       pp  mmmm    mmmm
     xx  xx    ss           dd       dd  rr       rr  rrn rn    rrn  pp       pp  mm mm   mm mm
      xx xx    ss           dd       dd  rr       rr  rrn  rrn  rrn  pp       pp  mm  mm mm  mm
       xxx     sssssssssssss dd       dd  rrrrrrrrrrrr  rrn   rrn rrn  pppppppppp  mm   mmm  mm
       xxx      sssssssssssss dd       dd  rrrrrrrrrrrr  rrn    rrn rrn  pppppppppp  mm    m   mm
      xx xx              ss  dd       dd  rr      rr  rrn     rrn rrn  pp          mm        mm
     xx  xx              ss  dd       dd  rr      rr  rrn      rrn rrn  pp          mm        mm
    xx    xx   ss       ss  dd       dd  rr       rr  rrn       rrrn  pp          mm        mm
   xx      xx  sssssssssssss ddddddddddd  rr        rr  rrn       rrrn  pp          mm        mm
  xx        xx  sssssssssss  ddddddddddd  rr        rr  rrn        rrn  pp          mm        mm
0

  dddddddddd     aaaaaaaaa   w         w  iiiiiiiiiiii    sssssssssss
  dddddddddd    aaaaaaaaaaa  w         w  iiiiiiiiiiii   sssssssssssss
  dd       dd  aa       aa  w         w      ii        ss       ss
  dd       dd  aa       aa  w         w      ii        ss
  dd       dd  aa       aa  w         w      ii        ss
  dd       dd  aaaaaaaaaaaaa w         w      ii        sssssssssssss
  dd       dd  aaaaaaaaaaaaa  w       w      ii         sssssssssssss
  dd       dd  aa       aa    w     w       ii                   ss
  dd       dd  aa       aa     w   w        ii                   ss
  dd       dd  aa       aa      w w         ii        ss       ss
  dddddddddd   aa       aa       ww     iiiiiiiiiiii   sssssssssssss
  dddddddddd   aa       aa        v     iiiiiiiiiiii    sssssssssss
```







program verification information

code system: scale version: 4.2

program: d0c001

```
*****        creation date:  04/27/95                                    *****
*****                                                                    *****
*****              library:  /neutronics/scale/exe                       *****
*****                                                                    *****
*****                                                                    *****
*****    this is not a   scale  configuration controlled code            *****
*****                                                                    *****
*****              jobname:  davis                                       *****
*****                                                                    *****
*****    date of execution:  02/16/96                                    *****
*****                                                                    *****
*****    time of execution:  10:06:07                                    *****
*****                                                                    *****
*****                                                                    *****
************************************************************************
************************************************************************
************************************************************************
1
                    1200 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       -1q array has      1 entries.
0        1q array has     15 entries.
0        2q array has     10 entries.
0        3q array has     12 entries.
0        4q array has      9 entries.
0        5q array has     12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                    1200 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0general problem description data block
0                              general problem data

 ige  1/2/3 = plane/cylinder/sphere      2       isn  quadrature order                  8
 izm  number of zones                    4       isct order of scattering               3
 im   number of special intervals       24       ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1       iim  inner iteration maximum          20
 ibr  right boundary condition           3       iom  outer iteration maximum          25
 mxx  number of mixtures                 3       iclc -1/0/n--flat res/sn/opt           0
 ms   mixing table length               65       ith  0/1 = forward/adjoint             0
 igm  number of energy groups           27       iflu not used(always wgtd)             0
 nng  number of neutron groups          27       iprt -2/-1/0/n=mixture xsec print     -2
 ngg  number of gamma groups             0       id1  0/1/2/3=no/prt nd/pch n/both     53
 iftg number of first thermal group     15       ipbt -1/0/1=none/fine/all bal. prt     0
0                              special options

 ifg  0/1 = none/weighting calculation   1       ipn  0/1/2 diff. coef. param           0
 iqm  volumetric sources (0/n=no/yes)    0       idfm 0/1 = none/density factors 38*    1
 ipm  boundary sources (0/n=no/yes)      0       iaz  0/n = none/n activities by zone   0
 ifn  0/1/2 = input 33*/34*/use last    53       iai  0/1=none/activities by interval   0
 itmx maximum time (minutes)            10       ifct 0/1=no/yes upscatter scaling      0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0       ipvt 0/1/2=no/k/alpha parametric srch  0
 isx  broad group fluxes                 0       isen outer iteration acceleration      0
 ibln activity data unit                 0       nbnd band rebaln parameter             0
 jbkl 0/1/2 buckling geometry            0
0                              weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1       ihtf total xsect psn in brd gp tables  3
 igmf number of broad groups            27       ndsf psn g-g or file number            4
 itp  0/10/20/30/40 0/c/e/ac/a           0       nusf table length or max order         4
 ipp  -2/-1/0/n=wgted xsect print       -2       mscm extra 1-d x-sect positions        0
 iap  -1/n anisn xsect print            -1
0                              floating point parameters
```

eps	overall convergence	1.00000E-04	dy	cyl/pla ht for buckling	.00000E+00
ptc	point convergence	1.00000E-04	dz	plane depth for buckling	.00000E+00
xnf	normalization factor	1.00000E+00	vsc	void streaming correction	.00000E+00
ev	eigenvalue guess	.00000E+00	pv	ipvt=1/2--k/alpha	1.00000E+00
evm	eigenvalue modifier	.00000E+00	eql	ev change eps for search	1.00000E-03
bf	buckling factor=1.420892	1.42089E+00	xrpm	new param mod for search	7.50000E-01

this case will require 2535 locations for mixing
this case has been allocated 200000 locations

1 1200 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 13q array has 65 entries.
0 14q array has 65 entries.
0 15q array has 65 entries.
0 data block 2 (mixing table, etc.)

	nuclides on tape	cccc identification	mixing table mixture	component	atom density	extra xsect id's
1	999		1	92235	3.29451E-04	
2	1001		1	92234	4.10648E-06	
3	5010		1	92236	6.72905E-05	
4	5011		1	92238	2.17324E-02	
5	8016		1	8016	4.55359E-02	
6	6		3	6	2.09710E-02	
7	36083		1	36083	1.81372E-06	
8	36085		1	36085	8.71779E-07	
9	38090		1	38090	2.00600E-05	
10	39089		1	39089	1.64607E-05	
11	40093		1	42095	2.30516E-05	
12	40094		1	40093	1.64590E-05	
13	40095		1	40094	2.61240E-05	
14	40802		1	40095	1.92652E-06	
15	41094		1	41094	1.43208E-11	
16	42095		1	43099	2.55495E-05	
17	43099		1	45103	1.43117E-05	
18	44101		1	45105	2.51927E-08	
19	44106		1	44101	2.36761E-05	
20	45103		1	44106	3.50872E-06	
21	45105		1	46105	1.03319E-05	
22	46105		1	46108	3.17250E-06	
23	46108		1	47109	2.13200E-06	
24	47109		1	51124	4.69572E-10	
25	51124		1	54131	1.14853E-05	
26	54131		1	54132	2.33195E-05	
27	54132		1	54135	6.64007E-09	
28	54135		1	54136	4.51576E-05	
29	54136		1	55134	1.63057E-06	
30	55133		1	55135	1.43530E-05	
31	55134		1	55137	2.77063E-05	
32	55135		1	56136	3.51878E-07	
33	55137		1	57139	2.73886E-05	
34	56136		1	59141	2.40560E-05	
35	57139		1	59143	3.60032E-07	
36	58144		1	58144	6.94065E-06	
37	59141		1	60143	2.05000E-05	
38	59143		1	60145	1.54707E-05	
39	60143		1	61147	4.51202E-06	
40	60145		1	61148	1.36887E-08	
41	60147		1	60147	1.28677E-07	
42	61147		1	62147	2.20336E-06	
43	61148		1	62149	9.06657E-08	
44	62147		1	62150	5.84210E-06	

45	62149	1	62151	4.61651E-07
46	62150	1	62152	2.70673E-06
47	62151	1	64155	3.60027E-09
48	62152	1	63153	1.87279E-06
49	63153	1	63154	4.84438E-07
50	63154	1	63155	2.11219E-07
51	63155	2	40302	4.25156E-02
52	64155	3	1001	4.19420E-02
53	92234	3	5010	3.81515E-06
54	92235	3	5011	1.54884E-05
55	92236	1	55133	2.80248E-05
56	92238	1	95237	5.71129E-06
57	95237	1	94238	1.15603E-06
58	94238	1	94239	1.24276E-04
59	94239	1	94240	3.02952E-05
60	94240	1	94241	1.81183E-05
61	94241	1	94242	2.91035E-06
62	94242	1	95241	7.18357E-07
63	95241	1	95243	3.83515E-07
64	95243	1	96244	5.30179E-08
65	96244	1	999	1.00000E-20

- elapsed time .00 min.
0 21649 locations will be used
0 35q array has 25 entries.
0 36q array has 24 entries.
0 38q array has 24 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 1200 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 neutron group parameters

gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	2	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	3	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	4	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	5	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	6	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	7	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	8	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	9	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	10	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	11	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01036E+07	12	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	13	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	14	0	14	1.00000E+00	
15	3.04999E+00	1.50030E+01	2.10601E+06	15	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	16	0	16	1.00000E+00	
17	1.29999E+00	1.58657E+01	1.52545E+06	17	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	18	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	19	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	20	0	20	1.00000E+00	
21	4.00000E-01	1.70344E+01	8.17974E+05	21	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	22	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86953E+05	23	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	24	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	25	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	26	0	26	1.00000E+00	

27	1.00000E-02	2.07233E+01	8.88201E+04	27	0	27	1.00000E+00
28	1.00000E-05	2.76310E+01					

1 1200 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0

	mixture by zone	order p(l) by zone	activity table matl no.	activity table reaction	quadrature constants weights	quadrature constants directions	quadrature constants refl direc	quadrature constants wt x cos
1	1	3			0	-2.79004E-01	3	0
2	1	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	2	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	3	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28593E-02
7					5.55953E-02	2.31301E-01	6	1.28593E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02
16					0	-9.83052E-01	24	0
17					4.53355E-02	-9.64143E-01	24	-4.37099E-02
18					4.53355E-02	-8.17361E-01	23	-3.70655E-02
19					4.53355E-02	-5.46143E-01	22	-2.47597E-02
20					4.53355E-02	-1.91780E-01	21	-8.69444E-03
21					4.53355E-02	1.91780E-01	20	8.69444E-03
22					4.53355E-02	5.46143E-01	19	2.47597E-02
23					4.53355E-02	8.17361E-01	18	3.70655E-02
24					4.53355E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83052E-01	-4.49528E-01	8.36885E-01	5.00708E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.26438E-01
18	-8.17361E-01	-4.49528E-01	3.20862E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20862E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17256E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17256E-01
22	5.46143E-01	-4.49528E-01	-3.20862E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20862E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.26438E-01

1

int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.29551E-02	1	0	2.10906E-03	1.00000E+00	0	
2	2.59102E-02	4.33406E-02	1	1.62798E-01	9.49318E-03	1.00000E+00	0	
3	6.07710E-02	8.75100E-02	1	3.81835E-01	2.94045E-02	1.00000E+00	0	
4	1.14249E-01	1.74155E-01	1	7.17848E-01	1.31104E-01	1.00000E+00	0	

5	2.34061E-01	2.93967E-01	1	1.47065E+00	2.21299E-01	1.00000E+00
6	3.53873E-01	3.80612E-01	1	2.22345E+00	1.27890E-01	1.00000E+00
7	4.07351E-01	4.24781E-01	1	2.55946E+00	9.30429E-02	1.00000E+00
8	4.42212E-01	4.55167E-01	1	2.77850E+00	7.41004E-02	1.00000E+00
9	4.68122E-01	4.68814E-01	2	2.94130E+00	4.07946E-03	0
10	4.69507E-01	4.71481E-01	2	2.95000E+00	1.16988E-02	0
11	4.73456E-01	4.75431E-01	2	2.97481E+00	1.17968E-02	0
12	4.77405E-01	4.78098E-01	2	2.99962E+00	4.16023E-03	0
13	4.78790E-01	4.83159E-01	3	3.00833E+00	2.65268E-02	1.00000E+00
14	4.87528E-01	4.99987E-01	3	3.06323E+00	7.82768E-02	1.00000E+00
15	5.12445E-01	5.24903E-01	3	3.21979E+00	8.21777E-02	1.00000E+00
16	5.37362E-01	5.41731E-01	3	3.37634E+00	2.97427E-02	1.00000E+00
17	5.46100E-01	5.53513E-01	4	3.43125E+00	5.15631E-02	1.00000E+00
18	5.60926E-01	5.70900E-01	4	3.52440E+00	7.15548E-02	1.00000E+00
19	5.80874E-01	5.96175E-01	4	3.64974E+00	1.14628E-01	1.00000E+00
20	6.11475E-01	6.45755E-01	4	3.84201E+00	2.78169E-01	1.00000E+00
21	6.80034E-01	7.14313E-01	4	4.27278E+00	3.07702E-01	1.00000E+00
22	7.48592E-01	7.63878E-01	4	4.70354E+00	1.46875E-01	1.00000E+00
23	7.79193E-01	7.89167E-01	4	4.89582E+00	9.89116E-02	1.00000E+00
24	7.99141E-01	8.06554E-01	4	5.02115E+00	7.51357E-02	1.00000E+00
25	8.13968E-01			5.11431E+00		

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	101	1.11787E-05	9.98993E-01	6.49892E-03	1.00000E+00	2.52158E-03	.00000E+00	.0000
2	149	-8.33695E-06	9.98406E-01	2.43131E-04	7.98053E-04	2.45349E-04	.00000E+00	.0000
3	181	1.44078E-05	9.98092E-01	2.80463E-05	6.79948E-05	4.57289E-05	.00000E+00	.0000

grp to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	1	5.73095E-08	24	1.00000E+00	1
2	1	2	5.51458E-08	24	1.00000E+00	1
3	1	1	6.01701E-08	24	1.00000E+00	1
4	1	1	6.08779E-08	24	1.00000E+00	1
5	1	1	6.98855E-08	24	1.00000E+00	1
6	1	1	4.77424E-08	24	1.00000E+00	1
7	1	24	1.37317E-07	24	1.00000E+00	1
8	1	24	1.62673E-08	24	1.00000E+00	1
9	1	24	4.18811E-08	24	1.00000E+00	1
10	1	24	4.67403E-08	24	1.00000E+00	1
11	1	24	5.11897E-08	24	1.00000E+00	1
12	1	24	9.35846E-08	24	1.00000E+00	1
13	1	24	1.00540E-07	24	1.00000E+00	1
14	1	24	7.25213E-08	24	1.00000E+00	1
15	1	24	5.27113E-05	24	1.00003E+00	1
16	1	24	6.67454E-05	24	1.00002E+00	1
17	1	18	2.26954E-05	24	1.00005E+00	1
18	1	19	4.83348E-05	24	1.00004E+00	2
19	1	18	2.16966E-05	24	1.00006E+00	1
20	1	24	5.35083E-05	24	1.00004E+00	1
21	1	18	2.70142E-05	24	1.00006E+00	1
22	1	24	3.62316E-05	24	1.00002E+00	1
23	1	24	7.42565E-06	24	9.99996E-01	1
24	1	24	1.55458E-05	24	9.99990E-01	1
25	1	24	2.10491E-05	24	9.99994E-01	1
26	1	21	1.97174E-05	24	9.99963E-01	2
27	1	2	6.17690E-06	24	9.99994E-01	2

4	208	4.57026E-07	9.95225E-01	4.67737E-06	1.25755E-05	1.06706E-05	.00000E+00	.0000

final monitor
lambda 9.95227E-01 production/absorption 9.95230E-01 angular flux on 16

- elapsed time .00 min.

1 1200 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 int. zone number radius int. midpoint area volume prod density

1	1	.00000E+00	1.29551E-02	.00000E+00	2.10906E-03	2.89726E-03
2	1	2.59102E-02	4.33406E-02	1.62798E-01	9.49518E-03	1.30351E-02
3	1	6.07710E-02	8.75100E-02	3.81835E-01	2.94045E-02	4.04558E-02
4	1	1.14249E-01	1.74155E-01	7.17848E-01	1.31104E-01	1.82221E-01
5	1	2.34061E-01	2.93967E-01	1.47065E+00	2.21299E-01	3.15358E-01
6	1	3.53873E-01	3.80612E-01	2.22345E+00	1.27890E-01	1.87310E-01
7	1	4.07351E-01	4.24781E-01	2.55946E+00	9.30429E-02	1.39080E-01
8	1	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02	1.12871E-01
9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07944E-03	.00000E+00
10	2	4.69507E-01	4.71481E-01	2.95000E+00	1.16988E-02	.00000E+00
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	2	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.65268E-02	.00000E+00
14	3	4.87528E-01	4.99387E-01	3.06323E+00	7.82768E-02	.00000E+00
15	3	5.12445E-01	5.24903E-01	3.21979E+00	8.21777E-02	.00000E+00
16	3	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02	.00000E+00
17	4	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02	.00000E+00
18	4	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	4	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01	.00000E+00
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01	.00000E+00
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	4	7.48592E-01	7.63893E-01	4.70354E+00	1.46875E-01	.00000E+00
23	4	7.79193E-01	7.89167E-01	4.89582E+00	9.89114E-02	.00000E+00
24	4	7.99141E-01	8.06554E-01	5.02115E+00	7.51357E-02	.00000E+00
25		8.13968E-01		5.11431E+00		

1 1200 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.85788E-01	1.34704E+00	1.69091E+00	1.04528E+00	1.57842E+00	3.05225E+00	2.90647E+00	2.08282E+00
2	1.85854E-01	1.34768E+00	1.69174E+00	1.04578E+00	1.57912E+00	3.05355E+00	2.90713E+00	2.08289E+00
3	1.85797E-01	1.34706E+00	1.69098E+00	1.04531E+00	1.57854E+00	3.05195E+00	2.90611E+00	2.08269E+00
4	1.85389E-01	1.34279E+00	1.68555E+00	1.04202E+00	1.57311E+00	3.02153E+00	2.89984E+00	2.08163E+00
5	1.82330E-01	1.33178E+00	1.67175E+00	1.03368E+00	1.55994E+00	2.99570E+00	2.88438E+00	2.07901E+00
6	1.81105E-01	1.31920E+00	1.65618E+00	1.02435E+00	1.54530E+00	2.96738E+00	2.86753E+00	2.07611E+00
7	1.80125E-01	1.30952E+00	1.64414E+00	1.01722E+00	1.53425E+00	2.94646E+00	2.85518E+00	2.07395E+00
8	1.79149E-01	1.29966E+00	1.63256E+00	1.01047E+00	1.52395E+00	2.92734E+00	2.84400E+00	2.07187E+00
9	1.78614E-01	1.29443E+00	1.62634E+00	1.00688E+00	1.51853E+00	2.91738E+00	2.83822E+00	2.07078E+00
10	1.78603E-01	1.29357E+00	1.62510E+00	1.00619E+00	1.51753E+00	2.91559E+00	2.83724E+00	2.07058E+00
11	1.78340E-01	1.29184E+00	1.62330E+00	1.00520E+00	1.51612E+00	2.91306E+00	2.83585E+00	2.07029E+00
12	1.78253E-01	1.29089E+00	1.62213E+00	1.00455E+00	1.51520E+00	2.91144E+00	2.83498E+00	2.07011E+00
13	1.78052E-01	1.28896E+00	1.61990E+00	1.00331E+00	1.51339E+00	2.90801E+00	2.83308E+00	2.06972E+00
14	1.77487E-01	1.28363E+00	1.61335E+00	9.99475E-01	1.50760E+00	2.89677E+00	2.82663E+00	2.06857E+00
15	1.76876E-01	1.27718E+00	1.60493E+00	9.94153E-01	1.49921E+00	2.88017E+00	2.81707E+00	2.06753E+00
16	1.76578E-01	1.27361E+00	1.59989E+00	9.90679E-01	1.49349E+00	2.86864E+00	2.81057E+00	2.06700E+00
17	1.76434E-01	1.27157E+00	1.59677E+00	9.88846E-01	1.48952E+00	2.86069E+00	2.80571E+00	2.06686E+00
18	1.76264E-01	1.26892E+00	1.59276E+00	9.85371E-01	1.48446E+00	2.85073E+00	2.79986E+00	2.06671E+00
19	1.76010E-01	1.26577E+00	1.58812E+00	9.82005E-01	1.47878E+00	2.83960E+00	2.79330E+00	2.06646E+00
20	1.75695E-01	1.26170E+00	1.58222E+00	9.77783E-01	1.47171E+00	2.82577E+00	2.78518E+00	2.06612E+00
21	1.75479E-01	1.25886E+00	1.57807E+00	9.74795E-01	1.46669E+00	2.81597E+00	2.77950E+00	2.06602E+00
22	1.75480E-01	1.25873E+00	1.57777E+00	9.74512E-01	1.46617E+00	2.81498E+00	2.77905E+00	2.06624E+00
23	1.75560E-01	1.25960E+00	1.57890E+00	9.75241E-01	1.46734E+00	2.81725E+00	2.78053E+00	2.06652E+00
24	1.75651E-01	1.26062E+00	1.58026E+00	9.76139E-01	1.46879E+00	2.82009E+00	2.78232E+00	2.06680E+00

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58987E+00	1.45035E+00	1.31088E+00	7.97791E-01	6.69819E-01	5.76649E-01	3.64426E-01	1.98572E-01
2	1.58980E+00	1.45025E+00	1.31018E+00	7.97560E-01	6.69607E-01	5.76358E-01	3.64389E-01	1.98542E-01
3	1.58998E+00	1.45046E+00	1.31064E+00	7.98113E-01	6.70081E-01	5.77100E-01	3.64477E-01	1.98600E-01
4	1.59100E+00	1.45165E+00	1.31325E+00	8.01214E-01	6.72771E-01	5.81215E-01	3.64954E-01	1.98938E-01
5	1.59354E+00	1.45457E+00	1.31968E+00	8.08869E-01	6.79413E-01	5.91429E-01	3.66140E-01	1.99769E-01

6	1.59637E+00	1.45775E+00	1.32671E+00	8.17298E-01	6.86718E-01	6.02749E-01	3.67410E-01	2.00675E-01
7	1.59852E+00	1.46009E+00	1.33189E+00	8.23548E-01	6.92128E-01	6.11210E-01	3.68325E-01	2.01341E-01
8	1.60055E+00	1.46221E+00	1.33661E+00	8.29287E-01	6.97091E-01	6.19021E-01	3.69144E-01	2.01947E-01
9	1.60163E+00	1.46330E+00	1.33905E+00	8.32269E-01	6.99669E-01	6.23082E-01	3.69564E-01	2.02262E-01
10	1.60183E+00	1.46348E+00	1.33944E+00	8.32747E-01	7.00088E-01	6.23725E-01	3.69635E-01	2.02315E-01
11	1.60211E+00	1.46373E+00	1.34000E+00	8.33431E-01	7.00688E-01	6.24645E-01	3.69757E-01	2.02392E-01
12	1.60229E+00	1.46389E+00	1.34036E+00	8.33874E-01	7.01076E-01	6.25240E-01	3.69802E-01	2.02441E-01
13	1.60266E+00	1.46423E+00	1.34110E+00	8.34776E-01	7.01868E-01	6.26456E-01	3.69957E-01	2.02543E-01
14	1.60367E+00	1.46531E+00	1.34344E+00	8.37599E-01	7.04348E-01	6.30259E-01	3.70368E-01	2.02861E-01
15	1.60478E+00	1.46684E+00	1.34679E+00	8.41494E-01	7.07769E-01	6.35498E-01	3.70978E-01	2.03301E-01
16	1.60530E+00	1.46787E+00	1.34899E+00	8.44006E-01	7.09973E-01	6.38869E-01	3.71381E-01	2.03585E-01
17	1.60558E+00	1.46864E+00	1.35063E+00	8.45854E-01	7.11562E-01	6.41326E-01	3.71607E-01	2.03773E-01
18	1.60600E+00	1.46967E+00	1.35286E+00	8.48380E-01	7.13715E-01	6.44677E-01	3.71853E-01	2.04019E-01
19	1.60653E+00	1.47086E+00	1.35542E+00	8.51287E-01	7.16198E-01	6.48537E-01	3.72163E-01	2.04305E-01
20	1.60727E+00	1.47235E+00	1.35864E+00	8.54990E-01	7.19362E-01	6.53455E-01	3.72552E-01	2.04665E-01
21	1.60782E+00	1.47342E+00	1.36098E+00	8.57631E-01	7.21588E-01	6.56938E-01	3.72726E-01	2.04898E-01
22	1.60788E+00	1.47352E+00	1.36120E+00	8.57864E-01	7.21737E-01	6.57208E-01	3.72637E-01	2.04883E-01
23	1.60773E+00	1.47326E+00	1.36052E+00	8.57178E-01	7.21110E-01	6.56269E-01	3.72475E-01	2.04786E-01
24	1.60754E+00	1.47295E+00	1.35990E+00	8.56332E-01	7.20560E-01	6.55121E-01	3.72308E-01	2.04678E-01

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.64320E-02	2.34091E-02	1.10648E-01	4.04673E-01	9.67856E-02	1.51708E-01	6.18489E-01	4.66905E-01
2	7.63974E-02	2.34339E-02	1.10591E-01	4.04565E-01	9.67183E-02	1.51609E-01	6.18075E-01	4.66587E-01
3	7.64755E-02	2.37291E-02	1.10728E-01	4.04784E-01	9.69350E-02	1.52291E-01	6.19124E-01	4.67464E-01
4	7.69180E-02	2.50190E-02	1.11490E-01	4.06045E-01	9.80879E-02	1.55648E-01	6.24811E-01	4.72273E-01
5	7.80191E-02	2.84204E-02	1.13359E-01	4.09140E-01	1.00978E-01	1.64143E-01	6.38920E-01	4.84224E-01
6	7.98408E-02	3.25764E-02	1.15402E-01	4.12519E-01	1.04219E-01	1.73864E-01	6.54551E-01	4.97501E-01
7	8.01553E-02	3.61208E-02	1.16900E-01	4.14997E-01	1.06681E-01	1.81413E-01	6.66226E-01	5.07454E-01
8	8.10014E-02	3.97955E-02	1.18259E-01	4.17252E-01	1.08984E-01	1.88618E-01	6.77004E-01	5.16683E-01
9	8.14424E-02	4.17918E-02	1.18953E-01	4.18420E-01	1.10187E-01	1.92414E-01	6.82603E-01	5.21488E-01
10	8.15133E-02	4.20092E-02	1.19063E-01	4.18614E-01	1.10367E-01	1.92953E-01	6.83461E-01	5.22211E-01
11	8.16146E-02	4.23210E-02	1.19222E-01	4.18889E-01	1.10625E-01	1.93677E-01	6.84684E-01	5.23239E-01
12	8.16802E-02	4.25237E-02	1.19324E-01	4.19068E-01	1.10791E-01	1.94158E-01	6.85473E-01	5.23901E-01
13	8.18142E-02	4.29348E-02	1.19534E-01	4.19439E-01	1.11131E-01	1.95138E-01	6.87087E-01	5.25254E-01
14	8.22328E-02	4.41991E-02	1.20201E-01	4.20575E-01	1.12192E-01	1.98176E-01	6.92105E-01	5.29426E-01
15	8.28073E-02	4.58904E-02	1.21134E-01	4.22146E-01	1.13643E-01	2.02291E-01	6.98914E-01	5.35005E-01
16	8.31757E-02	4.69454E-02	1.21745E-01	4.23153E-01	1.14570E-01	2.04888E-01	7.03206E-01	5.38457E-01
17	8.34476E-02	4.77336E-02	1.22185E-01	4.23849E-01	1.15282E-01	2.06906E-01	7.06733E-01	5.41617E-01
18	8.38213E-02	4.88290E-02	1.22780E-01	4.24781E-01	1.16284E-01	2.09784E-01	7.11982E-01	5.46600E-01
19	8.42518E-02	5.00861E-02	1.23466E-01	4.25873E-01	1.17444E-01	2.13130E-01	7.18246E-01	5.52619E-01
20	8.48003E-02	5.16798E-02	1.24339E-01	4.27269E-01	1.18951E-01	2.17434E-01	7.26569E-01	5.60751E-01
21	8.51914E-02	5.28138E-02	1.24953E-01	4.28221E-01	1.20002E-01	2.20543E-01	7.32841E-01	5.67098E-01
22	8.52267E-02	5.29215E-02	1.24994E-01	4.28229E-01	1.20111E-01	2.20872E-01	7.33757E-01	5.68304E-01
23	8.51267E-02	5.26404E-02	1.24821E-01	4.27902E-01	1.19869E-01	2.20122E-01	7.32480E-01	5.67296E-01
24	8.50084E-02	5.22905E-02	1.24611E-01	4.27523E-01	1.19521E-01	2.19178E-01	7.30801E-01	5.65862E-01

0 int.	grp. 25	grp. 26	grp. 27
1	1.95803E-01	1.20105E-01	1.60443E-02
2	1.95669E-01	1.20022E-01	1.60428E-02
3	1.96123E-01	1.20458E-01	1.61783E-02
4	1.98536E-01	1.22664E-01	1.67972E-02
5	2.04537E-01	1.28173E-01	1.83664E-02
6	2.11232E-01	1.34381E-01	2.01924E-02
7	2.16279E-01	1.39123E-01	2.16530E-02
8	2.20989E-01	1.43604E-01	2.30958E-02
9	2.23448E-01	1.45956E-01	2.38661E-02
10	2.23807E-01	1.46278E-01	2.39564E-02
11	2.24318E-01	1.46734E-01	2.40848E-02
12	2.24648E-01	1.47028E-01	2.41675E-02
13	2.25318E-01	1.47626E-01	2.43363E-02
14	2.27352E-01	1.49425E-01	2.48316E-02
15	2.30000E-01	1.51731E-01	2.54465E-02

16	2.31583E-01	1.53082E-01	2.57881E-02
17	2.33174E-01	1.54698E-01	2.65213E-02
18	2.35811E-01	1.57524E-01	2.72960E-02
19	2.39033E-01	1.60961E-01	2.84387E-02
20	2.43438E-01	1.65651E-01	2.99428E-02
21	2.46957E-01	1.69483E-01	3.11799E-02
22	2.47727E-01	1.70464E-01	3.15478E-02
23	2.47271E-01	1.70129E-01	3.15054E-02
24	2.46568E-01	1.69513E-01	3.13679E-02

- elapsed time .00 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.33589E-02	.00000E+00	1.30809E-02	1.09077E-02	3.30003E-03	1.15058E-02	9.98841E-01
2	.00000E+00	1.95084E-01	2.41777E-03	1.68673E-01	6.72845E-02	1.36905E-02	1.16535E-01	1.00004E+00
3	.00000E+00	2.16067E-01	2.66656E-02	1.61736E-01	8.16111E-02	1.54936E-02	1.45627E-01	1.00000E+00
4	.00000E+00	1.23684E-01	3.98836E-02	1.05769E-01	6.79578E-02	7.36486E-03	8.76426E-02	1.00001E+00
5	.00000E+00	1.63760E-01	6.83491E-02	2.60142E-01	9.47464E-02	4.36292E-03	1.33002E-01	9.99992E-01
6	.00000E+00	1.76465E-01	1.35112E-01	6.53798E-01	5.43600E-02	6.80647E-03	2.50401E-01	1.00003E+00
7	.00000E+00	8.71164E-02	9.85425E-02	7.44150E-01	3.63364E-02	7.27131E-03	1.42050E-01	1.00001E+00
8	.00000E+00	1.34131E-02	4.25864E-02	6.30310E-01	2.15264E-02	1.35652E-02	2.09053E-02	1.00004E+00
9	.00000E+00	9.73270E-04	2.17502E-02	5.36035E-01	2.07341E-02	2.25980E-02	-2.06082E-02	9.99991E-01
10	.00000E+00	7.22868E-05	2.07561E-02	4.63791E-01	1.07478E-02	3.50686E-02	-2.49887E-02	1.00001E+00
11	.00000E+00	5.68697E-06	1.07488E-02	4.26688E-01	8.18658E-03	5.75793E-02	-5.50120E-02	1.00001E+00
12	.00000E+00	3.99500E-07	8.18663E-03	2.41694E-01	9.40173E-03	6.42909E-02	-6.55026E-02	9.99959E-01
13	.00000E+00	6.34369E-08	9.40174E-03	1.81043E-01	6.15307E-03	6.05272E-02	-5.72788E-02	1.00000E+00
14	.00000E+00	1.25715E-08	6.15308E-03	1.52074E-01	7.30064E-03	8.68506E-02	-8.79983E-02	1.00000E+00
15	.00000E+00	1.42072E-09	7.38525E-03	8.33912E-02	8.76155E-03	8.05705E-03	-9.53961E-03	1.00632E+00
16	.00000E+00	4.17172E-10	8.91006E-03	4.16468E-02	9.35774E-03	6.78972E-03	-7.31179E-03	1.00461E+00
17	.00000E+00	1.34350E-10	7.43423E-03	1.36579E-02	6.95405E-03	1.01912E-02	-9.71775E-03	1.00156E+00
18	.00000E+00	9.61905E-11	6.73231E-03	7.16929E-03	3.12093E-03	3.16056E-02	-2.80013E-02	1.00020E+00
19	.00000E+00	1.35998E-10	5.40004E-03	2.18239E-02	7.97073E-03	1.30210E-02	-1.56190E-02	1.00130E+00
20	.00000E+00	2.21138E-10	8.97591E-03	9.65570E-02	9.15287E-03	2.64602E-02	-2.67453E-02	1.00304E+00
21	.00000E+00	3.23675E-11	8.47705E-03	1.90448E-02	7.43011E-03	2.60782E-02	-2.50569E-02	1.00076E+00
22	.00000E+00	3.75537E-11	1.08786E-02	3.55168E-02	8.02540E-03	7.44615E-02	-7.16532E-02	1.00054E+00
23	.00000E+00	3.59055E-11	1.28780E-02	1.50450E-01	1.65811E-02	1.19930E-01	-1.23805E-01	1.00126E+00
24	.00000E+00	9.77301E-12	2.04524E-02	1.06694E-01	2.07018E-02	1.05716E-01	-1.06097E-01	1.00104E+00
25	.00000E+00	2.86090E-12	1.77658E-02	4.06994E-02	1.35049E-02	5.70012E-02	-5.27962E-02	1.00079E+00
26	.00000E+00	2.00608E-12	8.80172E-03	2.85425E-02	6.11118E-03	5.11556E-02	-4.85021E-02	1.00065E+00
27	.00000E+00	4.78059E-13	1.91637E-03	4.31134E-03	1.05471E-03	1.43858E-02	-1.35259E-02	1.00037E+00
28	.00000E+00	1.00000E+00	6.15961E-01	5.38849E+00	6.15961E-01	9.43622E-01	5.79055E-02	1.00050E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.78643E-01	1.15058E-02	1.85726E-01	.00000E+00	2.32484E-03	2.69862E-03	.00000E+00	1.25126E-01
2	1.29471E+00	1.16535E-01	1.34641E+00	.00000E+00	1.68249E-05	1.19016E-02	.00000E+00	9.12852E-01
3	1.62667E+00	1.45627E-01	1.69009E+00	.00000E+00	.00000E+00	1.44679E-02	.00000E+00	1.14605E+00
4	1.00706E+00	8.76426E-02	1.04479E+00	.00000E+00	.00000E+00	6.22017E-03	.00000E+00	7.08760E-01
5	1.51879E+00	1.33002E-01	1.57771E+00	.00000E+00	.00000E+00	1.76665E-03	.00000E+00	1.06946E+00
6	2.91786E+00	2.50401E-01	3.03090E+00	.00000E+00	.00000E+00	1.42756E-03	.00000E+00	2.05399E+00
7	2.83849E+00	1.42050E-01	2.90573E+00	.00000E+00	.00000E+00	1.31395E-03	.00000E+00	1.98080E+00
8	2.07083E+00	2.09053E-02	2.08273E+00	.00000E+00	.00000E+00	1.29080E-03	.00000E+00	1.43040E+00
9	1.60158E+00	-2.06082E-02	1.58997E+00	.00000E+00	.00000E+00	1.68168E-03	.00000E+00	1.09792E+00
10	1.46325E+00	-2.49887E-02	1.45046E+00	.00000E+00	.00000E+00	3.58150E-03	.00000E+00	1.00232E+00
11	1.33894E+00	-5.50120E-02	1.31063E+00	.00000E+00	.00000E+00	7.79913E-03	.00000E+00	9.10596E-01
12	8.32142E-01	-6.55026E-02	7.98086E-01	.00000E+00	.00000E+00	1.03512E-02	.00000E+00	5.59566E-01
13	6.99558E-01	-5.72788E-02	6.70082E-01	.00000E+00	.00000E+00	1.25294E-02	.00000E+00	4.69906E-01
14	6.22912E-01	-8.79983E-02	5.77028E-01	.00000E+00	.00000E+00	7.72475E-03	.00000E+00	4.10563E-01
15	3.69541E-01	-9.53961E-03	3.64468E-01	.00000E+00	.00000E+00	1.69067E-03	.00000E+00	2.52432E-01
16	2.02246E-01	-7.31179E-03	1.98607E-01	.00000E+00	.00000E+00	1.21258E-03	.00000E+00	1.37796E-01
17	8.14204E-02	-9.71775E-03	7.64719E-02	.00000E+00	.00000E+00	1.25535E-03	.00000E+00	5.40792E-02
18	4.17338E-02	-2.80013E-02	2.34500E-02	.00000E+00	.00000E+00	7.33272E-04	.00000E+00	2.10149E-02
19	1.18918E-01	-1.56190E-02	1.10714E-01	.00000E+00	.00000E+00	2.00413E-03	.00000E+00	7.86402E-02

20	4.18359E-01	-2.67453E-02	4.04792E-01	.00000E+00	.00000E+00	1.39996E-02	.00000E+00	2.82661E-01
21	1.10135E-01	-2.50569E-02	9.68741E-02	.00000E+00	.00000E+00	1.54127E-02	.00000E+00	7.05084E-02
22	1.92276E-01	-7.16532E-02	1.51921E-01	.00000E+00	.00000E+00	4.42529E-02	.00000E+00	1.16059E-01
23	6.82388E-01	-1.23805E-01	6.19016E-01	.00000E+00	.00000E+00	7.05656E-02	.00000E+00	4.44549E-01
24	5.21309E-01	-1.06097E-01	4.67341E-01	.00000E+00	.00000E+00	6.12938E-02	.00000E+00	3.37362E-01
25	2.23357E-01	-5.27962E-02	1.96003E-01	.00000E+00	.00000E+00	3.45226E-02	.00000E+00	1.42843E-01
26	1.45875E-01	-4.85021E-02	1.20267E-01	.00000E+00	.00000E+00	3.16494E-02	.00000E+00	9.01527E-02
27	2.38426E-02	-1.35299E-02	1.60728E-02	.00000E+00	.00000E+00	8.98464E-03	.00000E+00	1.32570E-02
28	2.31429E+01	5.79064E-02	2.31043E+01	.00000E+00	2.34167E-03	3.72332E-01	.00000E+00	1.59195E+01

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-08	9.99999E-01
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.19209E-07	9.99999E-01
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.79397E-08	9.99999E-01
9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.21541E-08	9.99997E-01
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	6.89179E-08	9.99997E-01
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-08	1.00000E+00
14	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-3.72529E-08	1.00000E+00
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.04891E-08	9.99998E-01
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86265E-09	1.00000E+00
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86265E-09	1.00000E+00
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.86265E-09	1.00000E+00
19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-08	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
22	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
23	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.23517E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-08	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	9.31323E-10	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.95229E-07	1.00001E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.78205E-01	1.15058E-02	1.78643E-01	1.15058E-02	.00000E+00	.00000E+00	.00000E+00	5.66224E-03
2	1.29058E+00	1.16535E-01	1.29471E+00	1.16535E-01	.00000E+00	.00000E+00	.00000E+00	4.10212E-02
3	1.62183E+00	1.45627E-01	1.62667E+00	1.45627E-01	.00000E+00	.00000E+00	.00000E+00	5.15445E-02
4	1.00439E+00	8.76426E-02	1.00706E+00	8.76426E-02	.00000E+00	.00000E+00	.00000E+00	3.19159E-02
5	1.51498E+00	1.33002E-01	1.51879E+00	1.33002E-01	.00000E+00	.00000E+00	.00000E+00	4.81369E-02
6	2.91103E+00	2.50401E-01	2.91786E+00	2.50401E-01	.00000E+00	.00000E+00	.00000E+00	9.24872E-02
7	2.83474E+00	1.42050E-01	2.83849E+00	1.42050E-01	.00000E+00	.00000E+00	.00000E+00	9.00185E-02
8	2.07006E+00	2.09053E-02	2.07083E+00	2.09053E-02	.00000E+00	.00000E+00	.00000E+00	6.57058E-02
9	1.60234E+00	-2.06081E-02	1.60158E+00	-2.06082E-02	.00000E+00	.00000E+00	.00000E+00	5.08588E-02
10	1.46394E+00	-2.49886E-02	1.46325E+00	-2.49887E-02	.00000E+00	.00000E+00	.00000E+00	4.64478E-02
11	1.34045E+00	-5.50120E-02	1.33894E+00	-5.50120E-02	.00000E+00	.00000E+00	.00000E+00	4.25163E-02
12	8.33984E-01	-6.55026E-02	8.32142E-01	-6.55026E-02	.00000E+00	.00000E+00	.00000E+00	2.64382E-02
13	7.01173E-01	-5.72788E-02	6.99558E-01	-5.72788E-02	.00000E+00	.00000E+00	.00000E+00	2.22269E-02
14	6.25389E-01	-8.79984E-02	6.22912E-01	-8.79983E-02	.00000E+00	.00000E+00	.00000E+00	1.98086E-02
15	3.69814E-01	-9.53959E-03	3.69541E-01	-9.53961E-03	.00000E+00	.00000E+00	.00000E+00	1.17521E-02
16	2.02453E-01	-7.31179E-03	2.02246E-01	-7.31179E-03	.00000E+00	.00000E+00	.00000E+00	6.42173E-03
17	8.16954E-02	-9.71775E-03	8.14204E-02	-9.71775E-03	.00000E+00	.00000E+00	.00000E+00	2.58844E-03
18	4.25738E-02	-2.80013E-02	4.17338E-02	-2.80013E-02	.00000E+00	.00000E+00	.00000E+00	1.33810E-03
19	1.19344E-01	-1.56190E-02	1.18918E-01	-1.56190E-02	.00000E+00	.00000E+00	.00000E+00	3.78101E-03
20	4.19102E-01	-2.67453E-02	4.18359E-01	-2.67453E-02	.00000E+00	.00000E+00	.00000E+00	1.32892E-02

21	1.10828E-01	-2.50569E-02	1.10135E-01	-2.50569E-02	.00000E+00	.00000E+00	.00000E+00	3.50659E-03
22	1.94278E-01	-7.16532E-02	1.92276E-01	-7.16532E-02	.00000E+00	.00000E+00	.00000E+00	6.13453E-03
23	6.85683E-01	-1.23805E-01	6.82388E-01	-1.23805E-01	.00000E+00	.00000E+00	.00000E+00	2.17091E-02
24	5.24079E-01	-1.06097E-01	5.21309E-01	-1.06097E-01	.00000E+00	.00000E+00	.00000E+00	1.65887E-02
25	2.24735E-01	-5.27962E-02	2.23567E-01	-5.27962E-02	.00000E+00	.00000E+00	.00000E+00	7.11054E-03
26	1.47106E-01	-4.85021E-02	1.45875E-01	-4.85021E-02	.00000E+00	.00000E+00	.00000E+00	4.64936E-03
27	2.41885E-02	-1.35299E-02	2.38426E-02	-1.35299E-02	.00000E+00	.00000E+00	.00000E+00	7.62287E-04
28	2.31390E+01	5.79058E-02	2.31429E+01	5.79064E-02	.00000E+00	.00000E+00	.00000E+00	7.34381E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	3.92766E-03	2.94428E-03	1.50882E-05	-2.85434E-03	1.00001E+00
2	.00000E+00	.00000E+00	5.14212E-04	2.62972E-02	1.88695E-02	5.22437E-05	-1.84078E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.69852E-03	5.04487E-02	1.59513E-02	1.37981E-04	-1.33897E-02	9.99995E-01
4	.00000E+00	.00000E+00	5.19375E-03	4.22522E-02	5.47074E-03	1.03724E-04	-3.80322E-04	9.99996E-01
5	.00000E+00	.00000E+00	1.11840E-02	8.17850E-02	5.17228E-03	1.52364E-04	5.85908E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.85328E-02	2.35164E-01	3.21300E-03	3.20227E-04	1.50998E-02	1.00000E+00
7	.00000E+00	.00000E+00	1.23767E-02	2.35290E-01	1.18269E-03	3.44904E-04	1.08473E-02	9.99999E-01
8	.00000E+00	.00000E+00	2.16903E-03	1.58719E-01	7.64257E-03	2.95174E-04	-5.76928E-03	1.00002E+00
9	.00000E+00	.00000E+00	7.67613E-03	1.05369E-01	8.78370E-04	1.11110E-03	5.68689E-03	9.99990E-01
10	.00000E+00	.00000E+00	8.79557E-04	8.58097E-02	8.51381E-04	8.37983E-04	-8.09861E-04	1.00000E+00
11	.00000E+00	.00000E+00	8.51443E-04	7.73469E-02	8.73519E-04	1.34209E-03	-1.36416E-03	1.00000E+00
12	.00000E+00	.00000E+00	8.73525E-04	4.69386E-02	8.73277E-04	4.17908E-05	-4.15519E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.73278E-04	3.94928E-02	8.05625E-04	5.99614E-05	7.74115E-06	9.99999E-01
14	.00000E+00	.00000E+00	8.05629E-04	3.54901E-02	6.68816E-04	9.45295E-05	4.23193E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.11807E-04	2.03544E-02	8.33088E-04	8.17407E-05	-2.03708E-04	1.00007E+00
16	.00000E+00	.00000E+00	9.26294E-04	1.05770E-02	9.24964E-04	5.03123E-05	-4.94584E-05	1.00006E+00
17	.00000E+00	.00000E+00	9.70918E-04	3.78339E-03	9.31292E-04	2.28563E-05	1.67396E-05	1.00000E+00
18	.00000E+00	.00000E+00	9.73845E-04	1.94598E-03	6.28349E-04	1.33260E-05	3.32095E-04	1.00000E+00
19	.00000E+00	.00000E+00	6.85313E-04	6.00804E-03	8.86432E-04	3.89239E-05	-2.40121E-04	1.00000E+00
20	.00000E+00	.00000E+00	1.05638E-03	2.30911E-02	9.81685E-04	1.71684E-04	-9.77423E-05	1.00008E+00
21	.00000E+00	.00000E+00	1.19553E-03	5.20795E-03	1.24399E-03	5.73756E-05	-1.05906E-04	1.00000E+00
22	.00000E+00	.00000E+00	1.57133E-03	1.00930E-02	1.34889E-03	1.17601E-04	1.04651E-04	1.00000E+00
23	.00000E+00	.00000E+00	2.04398E-03	3.70180E-02	2.71774E-03	5.60603E-04	-1.23431E-03	1.00000E+00
24	.00000E+00	.00000E+00	3.37802E-03	2.67407E-02	3.66976E-03	6.22915E-04	-9.14447E-04	9.99998E-01
25	.00000E+00	.00000E+00	3.31770E-03	1.03898E-02	2.67419E-03	3.53384E-04	2.90211E-04	9.99998E-01
26	.00000E+00	.00000E+00	1.39170E-03	7.59797E-03	1.00409E-03	3.31774E-04	5.57713E-05	1.00000E+00
27	.00000E+00	.00000E+00	2.91152E-04	1.43516E-03	7.39446E-07	1.04969E-04	1.85450E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.32426E-02	1.38867E+00	8.32426E-02	7.43662E-03	-7.33284E-03	1.00001E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.76518E-01	8.65149E-03	1.78205E-01	1.15058E-02	1.05196E-04	.00000E+00	.00000E+00	3.84029E-02
2	1.27280E+00	9.81276E-02	1.29058E+00	1.16535E-01	.00000E+00	.00000E+00	.00000E+00	2.77507E-01
3	1.59866E+00	1.32257E-01	1.62183E+00	1.45627E-01	.00000E+00	.00000E+00	.00000E+00	3.48733E-01
4	9.89769E-01	8.72623E-02	1.00439E+00	8.76426E-02	.00000E+00	.00000E+00	.00000E+00	2.16013E-01
5	1.49195E+00	1.38861E-01	1.51498E+00	1.33002E-01	.00000E+00	.00000E+00	.00000E+00	3.25778E-01
6	2.86549E+00	2.65500E-01	2.91103E+00	2.50401E-01	.00000E+00	.00000E+00	.00000E+00	6.25897E-01
7	2.80853E+00	1.52899E-01	2.83474E+00	1.42050E-01	.00000E+00	.00000E+00	.00000E+00	6.11500E-01
8	2.06691E+00	1.51360E-02	2.07006E+00	2.09053E-02	.00000E+00	.00000E+00	.00000E+00	4.48215E-01
9	1.60540E+00	-1.49212E-02	1.60234E+00	-2.06081E-02	.00000E+00	.00000E+00	.00000E+00	3.47666E-01
10	1.46814E+00	-2.57984E-02	1.46394E+00	-2.49886E-02	.00000E+00	.00000E+00	.00000E+00	3.17741E-01
11	1.34956E+00	-5.63761E-02	1.34045E+00	-5.50120E-02	.00000E+00	.00000E+00	.00000E+00	2.91536E-01
12	8.44656E-01	-6.55441E-02	8.39384E-01	-6.55026E-02	.00000E+00	.00000E+00	.00000E+00	1.81964E-01
13	7.10543E-01	-5.72711E-02	7.01173E-01	-5.72788E-02	.00000E+00	.00000E+00	.00000E+00	1.53052E-01
14	6.39738E-01	-8.79560E-02	6.25389E-01	-8.79984E-02	.00000E+00	.00000E+00	.00000E+00	1.37178E-01
15	3.71482E-01	-9.74330E-03	3.69814E-01	-9.53959E-03	.00000E+00	.00000E+00	.00000E+00	8.03365E-02
16	2.03657E-01	-7.36125E-03	2.02453E-01	-7.31179E-03	.00000E+00	.00000E+00	.00000E+00	4.40141E-02
17	8.32672E-02	-9.70101E-03	8.16934E-02	-9.71775E-03	.00000E+00	.00000E+00	.00000E+00	1.78860E-02
18	4.72122E-02	-2.76692E-02	4.25738E-02	-2.80013E-02	.00000E+00	.00000E+00	.00000E+00	9.76614E-03
19	1.21898E-01	-1.58591E-02	1.19344E-01	-1.56190E-02	.00000E+00	.00000E+00	.00000E+00	2.61554E-02
20	4.23401E-01	-2.68431E-02	4.19102E-01	-2.67453E-02	.00000E+00	.00000E+00	.00000E+00	9.13242E-02
21	1.14803E-01	-2.51628E-02	1.10828E-01	-2.50569E-02	.00000E+00	.00000E+00	.00000E+00	2.44765E-02

22	2.05548E-01	-7.15485E-02	1.94278E-01	-7.16532E-02	.00000E+00	.00000E+00	.00000E+00	4.34067E-02
23	7.04305E-01	-1.25039E-01	6.85683E-01	-1.23805E-01	.00000E+00	.00000E+00	.00000E+00	1.50752E-01
24	5.39529E-01	-1.07011E-01	5.24079E-01	-1.06097E-01	.00000E+00	.00000E+00	.00000E+00	1.15356E-01
25	2.31970E-01	-5.25060E-02	2.24735E-01	-5.27962E-02	.00000E+00	.00000E+00	.00000E+00	4.95621E-02
26	1.53406E-01	-4.84463E-02	1.47106E-01	-4.85021E-02	.00000E+00	.00000E+00	.00000E+00	3.26346E-02
27	2.58662E-02	-1.33444E-02	2.41885E-02	-1.35299E-02	.00000E+00	.00000E+00	.00000E+00	5.44733E-03
28	2.31148E+01	5.05727E-02	2.31390E+01	5.79058E-02	1.05196E-04	.00000E+00	.00000E+00	5.01228E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	6.20599E-03	8.21414E-03	4.37777E-04	-8.65148E-03	9.99950E-01
2	.00000E+00	.00000E+00	4.71311E-03	7.74201E-02	1.01755E-01	1.09022E-03	-9.81276E-02	9.99961E-01
3	.00000E+00	.00000E+00	4.89033E-02	6.93901E-02	1.80539E-01	5.45397E-06	-1.32257E-01	9.99977E-01
4	.00000E+00	.00000E+00	7.08152E-02	4.60072E-02	1.58078E-01	3.24178E-06	-8.72622E-02	9.99987E-01
5	.00000E+00	.00000E+00	1.30636E-01	1.48753E-01	2.69495E-01	3.78163E-06	-1.38861E-01	9.99991E-01
6	.00000E+00	.00000E+00	2.75911E-01	4.55531E-01	5.41401E-01	1.14830E-05	-2.65500E-01	9.99998E-01
7	.00000E+00	.00000E+00	5.53502E-01	7.95545E-01	7.06385E-01	2.53633E-05	-1.52899E-01	9.99988E-01
8	.00000E+00	.00000E+00	7.35977E-01	1.00175E+00	7.51132E-01	4.70509E-05	-1.51360E-02	9.99912E-01
9	.00000E+00	.00000E+00	7.41376E-01	9.17331E-01	7.26441E-01	9.60399E-05	1.49212E-02	9.99889E-01
10	.00000E+00	.00000E+00	7.23083E-01	8.67478E-01	6.97147E-01	2.11964E-04	2.57985E-02	9.99896E-01
11	.00000E+00	.00000E+00	7.01994E-01	8.08156E-01	6.45201E-01	4.58931E-04	5.63762E-02	9.99940E-01
12	.00000E+00	.00000E+00	5.61551E-01	4.21052E-01	4.95420E-01	5.99108E-04	6.55442E-02	9.99979E-01
13	.00000E+00	.00000E+00	4.91388E-01	3.37825E-01	4.33265E-01	8.97333E-04	5.72711E-02	9.99970E-01
14	.00000E+00	.00000E+00	4.70704E-01	3.19200E-01	3.81308E-01	1.44461E-03	8.79561E-02	9.99989E-01
15	.00000E+00	.00000E+00	2.49677E-01	1.27396E-01	2.38665E-01	1.26985E-03	9.74157E-03	1.00000E+00
16	.00000E+00	.00000E+00	1.65232E-01	5.32943E-02	1.57010E-01	8.62694E-04	7.35957E-03	9.99997E-01
17	.00000E+00	.00000E+00	8.46211E-02	1.43225E-02	7.45192E-02	4.00062E-04	9.70544E-03	9.99957E-01
18	.00000E+00	.00000E+00	7.44775E-02	8.51852E-03	4.65469E-02	2.60634E-04	2.76712E-02	9.99983E-01
19	.00000E+00	.00000E+00	1.19986E-01	3.11525E-02	1.05393E-01	6.82831E-04	1.58665E-02	9.99956E-01
20	.00000E+00	.00000E+00	2.90467E-01	2.30557E-01	2.60676E-01	2.94963E-03	2.68416E-02	9.99999E-01
21	.00000E+00	.00000E+00	1.34254E-01	4.15384E-02	1.08061E-01	1.02923E-03	2.51695E-02	9.99960E-01
22	.00000E+00	.00000E+00	2.51685E-01	1.14357E-01	1.77965E-01	2.17372E-03	7.15489E-02	9.99993E-01
23	.00000E+00	.00000E+00	5.87104E-01	6.88541E-01	4.52146E-01	9.92654E-03	1.25086E-01	9.99992E-01
24	.00000E+00	.00000E+00	5.95071E-01	6.17774E-01	4.76865E-01	1.11998E-02	1.07012E-01	9.99990E-01
25	.00000E+00	.00000E+00	3.84954E-01	2.53418E-01	3.26022E-01	6.42757E-03	5.25071E-02	9.99991E-01
26	.00000E+00	.00000E+00	3.04534E-01	2.70498E-01	2.49841E-01	6.24905E-03	4.84376E-02	1.00002E+00
27	.00000E+00	.00000E+00	1.01616E-01	5.65318E-02	8.61203E-02	2.15106E-03	1.33442E-02	1.00000E+00
28	.00000E+00	.00000E+00	8.85358E+00	8.77954E+00	8.85358E+00	5.09145E-02	-5.05678E-02	9.99961E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*dv**2	total flux
1	1.75698E-01	2.03183E-09	1.76518E-01	8.65149E-03	4.54265E-10	.00000E+00	.00000E+00	2.01089E-01
2	1.26115E+00	-1.47898E-08	1.27280E+00	9.81276E-02	.00000E+00	.00000E+00	.00000E+00	1.44396E+00
3	1.58097E+00	9.30596E-08	1.59866E+00	1.32257E-01	.00000E+00	.00000E+00	.00000E+00	1.81069E+00
4	9.76608E-01	9.58997E-08	9.89769E-01	8.72623E-02	.00000E+00	.00000E+00	.00000E+00	1.11891E+00
5	1.46956E+00	-1.75408E-08	1.49195E+00	1.38861E-01	.00000E+00	.00000E+00	.00000E+00	1.68406E+00
6	2.82158E+00	1.74066E-07	2.86549E+00	2.65500E-01	.00000E+00	.00000E+00	.00000E+00	3.23350E+00
7	2.78326E+00	9.98467E-09	2.80853E+00	1.52899E-01	.00000E+00	.00000E+00	.00000E+00	3.18746E+00
8	2.06693E+00	3.20919E-08	2.06691E+00	1.51360E-02	.00000E+00	.00000E+00	.00000E+00	2.36495E+00
9	1.60744E+00	3.34927E-09	1.60540E+00	-1.49212E-02	.00000E+00	.00000E+00	.00000E+00	1.83964E+00
10	1.47275E+00	3.21656E-08	1.46814E+00	-2.57984E-02	.00000E+00	.00000E+00	.00000E+00	1.68524E+00
11	1.35952E+00	4.98413E-08	1.34956E+00	-5.63761E-02	.00000E+00	.00000E+00	.00000E+00	1.55521E+00
12	8.55889E-01	4.67275E-08	8.44656E-01	-6.55441E-02	.00000E+00	.00000E+00	.00000E+00	9.78753E-01
13	7.19954E-01	5.61550E-09	7.10543E-01	-5.72711E-02	.00000E+00	.00000E+00	.00000E+00	8.23450E-01
14	6.54521E-01	5.24308E-08	6.39738E-01	-8.79560E-02	.00000E+00	.00000E+00	.00000E+00	7.48114E-01
15	3.72221E-01	-1.72885E-06	3.71482E-01	-9.74330E-03	.00000E+00	.00000E+00	.00000E+00	4.26298E-01
16	2.04622E-01	-1.68595E-06	2.03657E-01	-7.36125E-03	.00000E+00	.00000E+00	.00000E+00	2.34230E-01
17	8.49354E-02	4.43419E-06	8.32672E-02	-9.70101E-03	.00000E+00	.00000E+00	.00000E+00	9.70851E-02
18	5.21055E-02	1.97887E-06	4.72122E-02	-2.76692E-02	.00000E+00	.00000E+00	.00000E+00	5.92316E-02
19	1.24498E-01	6.41674E-06	1.21898E-01	-1.58591E-02	.00000E+00	.00000E+00	.00000E+00	1.42342E-01
20	4.27318E-01	-1.51288E-06	4.23401E-01	-2.68431E-02	.00000E+00	.00000E+00	.00000E+00	4.89027E-01
21	1.19343E-01	6.70112E-06	1.14803E-01	-2.51628E-02	.00000E+00	.00000E+00	.00000E+00	1.36211E-01
22	2.18680E-01	4.33475E-07	2.05548E-01	-7.15485E-02	.00000E+00	.00000E+00	.00000E+00	2.49137E-01

23	7.29924E-01	-3.22225E-06	7.04305E-01	-1.25039E-01	.00000E+00	.00000E+00	.00000E+00	8.32454E-01
24	5.65102E-01	9.46293E-07	5.39529E-01	-1.07011E-01	.00000E+00	.00000E+00	.00000E+00	6.42964E-01
25	2.46187E-01	1.11305E-06	2.31970E-01	-5.25060E-02	.00000E+00	.00000E+00	.00000E+00	2.79572E-01
26	1.69172E-01	-8.74975E-06	1.53406E-01	-4.84463E-02	.00000E+00	.00000E+00	.00000E+00	1.90525E-01
27	3.12850E-02	-2.91616E-07	2.58662E-02	-1.33444E-02	.00000E+00	.00000E+00	.00000E+00	3.46002E-02
28	2.31512E+01	5.21995E-06	2.31148E+01	5.05727E-02	4.54265E-10	.00000E+00	.00000E+00	2.64885E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.33589E-02	.00000E+00	2.32146E-02	2.20661E-02	3.75289E-03	2.03183E-09	9.98836E-01
2	.00000E+00	1.95084E-01	7.64510E-03	2.72390E-01	1.87909E-01	1.48330E-02	-1.47898E-08	1.00002E+00
3	.00000E+00	2.16067E-01	7.76674E-02	2.81575E-01	2.78102E-01	1.56370E-02	9.30359E-08	9.99985E-01
4	.00000E+00	1.23684E-01	1.15292E-01	1.94029E-01	2.31505E-01	7.47182E-03	9.58997E-08	1.00000E+00
5	.00000E+00	1.63780E-01	2.10169E-01	4.90681E-01	3.69414E-01	4.51906E-03	-1.75408E-08	9.99989E-01
6	.00000E+00	1.76465E-01	4.29656E-01	1.34449E+00	5.98974E-01	7.13818E-03	1.74066E-07	1.00001E+00
7	.00000E+00	8.71164E-02	6.64422E-01	1.77499E+00	7.43904E-01	7.64158E-03	9.98467E-09	9.99990E-01
8	.00000E+00	1.34131E-02	7.80732E-01	1.79078E+00	7.80301E-01	1.39074E-02	3.20919E-08	9.99920E-01
9	.00000E+00	9.73270E-04	7.70802E-01	1.55874E+00	7.48053E-01	2.38051E-02	3.34927E-09	9.99895E-01
10	.00000E+00	7.22868E-05	7.44718E-01	1.41708E+00	7.08744E-01	3.61186E-02	3.21656E-08	9.99900E-01
11	.00000E+00	5.68699E-06	7.13594E-01	1.31219E+00	6.54261E-01	5.95804E-02	4.98413E-08	9.99942E-01
12	.00000E+00	3.99500E-07	5.70611E-01	7.09686E-01	5.05695E-01	6.49318E-02	4.67275E-08	9.99974E-01
13	.00000E+00	6.34369E-08	5.01663E-01	5.58358E-01	4.40194E-01	6.14845E-02	5.61550E-09	9.99971E-01
14	.00000E+00	1.25715E-08	4.77663E-01	5.06764E-01	3.89278E-01	8.83898E-02	5.24309E-08	9.99989E-01
15	.00000E+00	1.42072E-09	2.57774E-01	2.31142E-01	2.48259E-01	9.40814E-03	-1.72885E-06	1.00042E+00
16	.00000E+00	4.17172E-10	1.75068E-01	1.05618E-01	1.67293E-01	7.70273E-03	-1.68695E-06	1.00042E+00
17	.00000E+00	1.34350E-10	9.30263E-02	3.17637E-02	8.25846E-02	1.06141E-02	4.43419E-06	1.00025E+00
18	.00000E+00	9.61905E-11	8.21837E-02	1.76338E-02	5.02962E-02	3.18795E-02	1.97887E-06	1.00007E+00
19	.00000E+00	1.35992E-10	1.26021E-01	5.89845E-02	1.12250E-01	1.37428E-02	6.41674E-06	1.00018E+00
20	.00000E+00	2.21138E-10	3.00499E-01	3.50205E-01	2.70810E-01	2.95815E-02	-1.51288E-06	1.00036E+00
21	.00000E+00	3.23675E-11	1.43927E-01	6.57911E-02	1.16735E-01	2.71648E-02	6.70112E-06	1.00014E+00
22	.00000E+00	3.75537E-11	2.64135E-01	1.59967E-01	1.87339E-01	7.67529E-02	4.33475E-07	1.00016E+00
23	.00000E+00	3.59055E-11	6.02026E-01	8.76009E-01	4.71445E-01	1.30417E-01	-3.22225E-06	1.00028E+00
24	.00000E+00	9.77301E-12	6.18901E-01	7.51209E-01	5.01237E-01	1.17538E-01	9.46293E-07	1.00020E+00
25	.00000E+00	2.86090E-12	4.06037E-01	3.04507E-01	3.42102E-01	6.37821E-02	1.11305E-06	1.00013E+00
26	.00000E+00	2.00608E-12	3.14728E-01	3.06639E-01	2.56956E-01	5.77364E-02	-8.74975E-06	1.00014E+00
27	.00000E+00	4.78059E-13	1.03823E-01	6.22788E-02	8.71758E-02	1.66419E-02	-2.91616E-07	1.00005E+00
28	.00000E+00	1.00000E+00	9.55279E+00	1.55567E+01	9.55278E+00	1.00197E+00	5.39736E-06	1.00004E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rxn rate	fiss rate	flux*dv**2	total flux
1	1.75698E-01	2.03183E-09	1.85726E-01	.00000E+00	2.43004E-03	2.69862E-03	.00000E+00	3.70280E-01
2	1.26115E+00	-1.47898E-08	1.34641E+00	.00000E+00	1.68249E-02	1.19016E-02	.00000E+00	2.67534E+00
3	1.58097E+00	9.30359E-08	1.69009E+00	.00000E+00	.00000E+00	1.44679E-02	.00000E+00	3.35701E+00
4	9.76608E-01	9.58997E-08	1.04479E+00	.00000E+00	.00000E+00	6.22017E-03	.00000E+00	2.07560E+00
5	1.46956E+00	-1.75408E-08	1.57771E+00	.00000E+00	.00000E+00	1.76645E-03	.00000E+00	3.12746E+00
6	2.82158E+00	1.74066E-07	3.03090E+00	.00000E+00	.00000E+00	1.42756E-03	.00000E+00	6.00588E+00
7	2.78326E+00	9.98467E-09	2.90573E+00	.00000E+00	.00000E+00	1.31395E-03	.00000E+00	5.86978E+00
8	2.06693E+00	3.20919E-08	2.08273E+00	.00000E+00	.00000E+00	1.29080E-03	.00000E+00	4.30928E+00
9	1.60744E+00	3.34927E-09	1.58997E+00	.00000E+00	.00000E+00	1.68168E-03	.00000E+00	3.33607E+00
10	1.47275E+00	3.21656E-08	1.45046E+00	.00000E+00	.00000E+00	3.58150E-03	.00000E+00	3.05175E+00
11	1.35952E+00	4.98413E-08	1.31063E+00	.00000E+00	.00000E+00	7.79913E-03	.00000E+00	2.79986E+00
12	8.55889E-01	4.67275E-08	7.98086E-01	.00000E+00	.00000E+00	1.03512E-02	.00000E+00	1.74652E+00
13	7.19954E-01	5.61550E-09	6.70082E-01	.00000E+00	.00000E+00	1.25294E-02	.00000E+00	1.46861E+00
14	6.54521E-01	5.24308E-08	5.77028E-01	.00000E+00	.00000E+00	7.72475E-03	.00000E+00	1.31566E+00
15	3.72221E-01	-1.72885E-06	3.64468E-01	.00000E+00	.00000E+00	1.69067E-03	.00000E+00	7.70792E-01
16	2.04622E-01	-1.68695E-06	1.98607E-01	.00000E+00	.00000E+00	1.21258E-03	.00000E+00	4.22462E-01
17	8.49354E-02	4.43419E-06	7.64719E-02	.00000E+00	.00000E+00	1.25535E-03	.00000E+00	1.71639E-01
18	5.21055E-02	1.97887E-06	2.34500E-02	.00000E+00	.00000E+00	7.33272E-04	.00000E+00	9.13507E-02
19	1.24498E-01	6.41674E-06	1.10714E-01	.00000E+00	.00000E+00	2.00413E-03	.00000E+00	2.50918E-01
20	4.27318E-01	-1.51288E-06	4.04792E-01	.00000E+00	.00000E+00	1.39996E-02	.00000E+00	8.76302E-01
21	1.19343E-01	6.70112E-06	9.68741E-02	.00000E+00	.00000E+00	1.54127E-02	.00000E+00	2.34708E-01
22	2.18680E-01	4.33475E-07	1.51921E-01	.00000E+00	.00000E+00	4.42529E-02	.00000E+00	4.14757E-01
23	7.29924E-01	-3.22225E-06	6.19016E-01	.00000E+00	.00000E+00	7.05656E-02	.00000E+00	1.44946E+00

24	5.65102E-01	9.46298E-07	4.67341E-01	.00000E+00	.00000E+00	6.12938E-02	.00000E+00	1.11227E+00
25	2.46187E-01	1.11305E-06	1.96003E-01	.00000E+00	.00000E+00	3.45226E-02	.00000E+00	4.78887E-01
26	1.69172E-01	-8.74975E-06	1.20267E-01	.00000E+00	.00000E+00	3.16494E-02	.00000E+00	3.17966E-01
27	3.12850E-02	-2.91616E-07	1.60728E-02	.00000E+00	.00000E+00	8.98464E-03	.00000E+00	5.40468E-02
28	2.31512E+01	5.21995E-06	2.31043E+01	.00000E+00	2.44686E-03	3.72332E-01	.00000E+00	4.81547E+01

- elapsed time .00 min.
0direct access unit 9 requires 516 blocks of length 1456 for cross section weighting.
1 transport cross section weighting function

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.45899E-03	2.51122E-02	3.15610E-02	1.90388E-02	2.90346E-02	5.55033E-02	3.15969E-02	4.66847E-03
2	3.86780E-03	3.91746E-02	4.89541E-02	2.94619E-02	4.47099E-02	8.41748E-02	4.77516E-02	7.02753E-03
3	3.14281E-03	3.34202E-02	4.32200E-02	2.71747E-02	4.22143E-02	8.00934E-02	4.57827E-02	5.62349E-03
4	1.08486E-03	1.22971E-02	1.65667E-02	1.09273E-02	1.73834E-02	3.32406E-02	1.92173E-02	2.02157E-03
5	1.79607E-03	1.91449E-02	2.47951E-02	1.55844E-02	2.42392E-02	4.62590E-02	2.65130E-02	3.34840E-03

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.61227E-03	5.59994E-03	1.22953E-02	1.45827E-02	1.27543E-02	1.94613E-02	2.15574E-03	1.63485E-03
2	6.92764E-03	8.40018E-03	1.84928E-02	2.20194E-02	1.92549E-02	2.95815E-02	3.20688E-03	2.45795E-03
3	5.54296E-03	7.88691E-03	1.72994E-02	2.08592E-02	1.77966E-02	2.73365E-02	2.99527E-03	2.27942E-03
4	1.83450E-03	3.21098E-03	7.02679E-03	8.17550E-03	7.18124E-03	1.09888E-02	1.29434E-03	9.42618E-04
5	3.21719E-03	4.56712E-03	1.00138E-02	1.17744E-02	1.03139E-02	1.57767E-02	1.78652E-03	1.33387E-03

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	2.14701E-03	5.47367E-03	3.51060E-03	5.99072E-03	5.46607E-03	1.53156E-02	2.73227E-02	2.33268E-02
2	3.26685E-03	9.41307E-03	5.25072E-03	8.99094E-03	8.42348E-03	2.40870E-02	4.16175E-02	3.56646E-02
3	3.01702E-03	8.64944E-03	4.89065E-03	8.32569E-03	7.80167E-03	2.22477E-02	3.86547E-02	3.31035E-02
4	1.20694E-03	3.41263E-03	1.99330E-03	3.42387E-03	3.13115E-03	8.90294E-03	1.58649E-02	1.35687E-02
5	1.73774E-03	4.73108E-03	2.84648E-03	4.86813E-03	4.47043E-03	1.26449E-02	2.24202E-02	1.91671E-02

0zone	grp. 25	grp. 26	grp. 27	grp. 28
1	1.15586E-02	1.04798E-02	2.79811E-03	3.85460E-01
2	1.77476E-02	1.63040E-02	4.54813E-03	5.90777E-01
3	1.63609E-02	1.50615E-02	4.17603E-03	5.44456E-01
4	6.64134E-03	6.01781E-03	1.53064E-03	2.19088E-01
5	9.44909E-03	8.59193E-03	2.27131E-03	3.13661E-01

1 1200 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0cell averaged fluxes

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.81752E-01	1.32597E+00	1.66469E+00	1.02951E+00	1.55349E+00	2.98353E+00	2.87721E+00	2.07774E+00
2	1.78421E-01	1.29261E+00	1.62420E+00	1.00569E+00	1.51683E+00	2.91434E+00	2.83655E+00	2.07044E+00
3	1.77197E-01	1.28046E+00	1.60911E+00	9.96720E-01	1.50319E+00	2.88799E+00	2.82156E+00	2.06814E+00
4	1.75694E-01	1.26160E+00	1.58203E+00	9.77606E-01	1.47139E+00	2.82516E+00	2.78493E+00	2.06629E+00
5	1.77898E-01	1.28533E+00	1.61283E+00	9.97192E-01	1.50255E+00	2.88544E+00	2.82005E+00	2.07033E+00

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59479E+00	1.45592E+00	1.32269E+00	8.12509E-01	6.82563E-01	5.96366E-01	3.66670E-01	2.00156E-01
2	1.60197E+00	1.46360E+00	1.33972E+00	8.33088E-01	7.00387E-01	6.24183E-01	3.69686E-01	2.02353E-01
3	1.60419E+00	1.46611E+00	1.34519E+00	8.39610E-01	7.06114E-01	6.32962E-01	3.70686E-01	2.03088E-01
4	1.60752E+00	1.47242E+00	1.35881E+00	8.55150E-01	7.19460E-01	6.53638E-01	3.72458E-01	2.04650E-01
5	1.60277E+00	1.46617E+00	1.34515E+00	8.39092E-01	7.05576E-01	6.32095E-01	3.70317E-01	2.02966E-01

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.85529E-02	3.05252E-02	1.14229E-01	4.10580E-01	1.02417E-01	1.68582E-01	6.45731E-01	4.90036E-01
2	8.15637E-02	4.21644E-02	1.19142E-01	4.18751E-01	1.10495E-01	1.95304E-01	6.84069E-01	5.22722E-01
3	8.25288E-02	4.50625E-02	1.20685E-01	4.21385E-01	1.12939E-01	2.00286E-01	6.95596E-01	5.32270E-01
4	8.48246E-02	5.17515E-02	1.24366E-01	4.27270E-01	1.19010E-01	2.17674E-01	7.27527E-01	5.61766E-01
5	8.24615E-02	4.38882E-02	1.20550E-01	4.21007E-01	1.12760E-01	1.99255E-01	6.96375E-01	5.34375E-01

0zone	grp. 25	grp. 26	grp. 27
1	2.07487E-01	1.30952E-01	1.92274E-02
2	2.24061E-01	1.46505E-01	2.40202E-02
3	2.28688E-01	1.50581E-01	2.51349E-02
4	2.44091E-01	1.66468E-01	3.02307E-02
5	2.30075E-01	1.52762E-01	2.59661E-02

0flux disadvantage factors (zone average/cell average-flux)

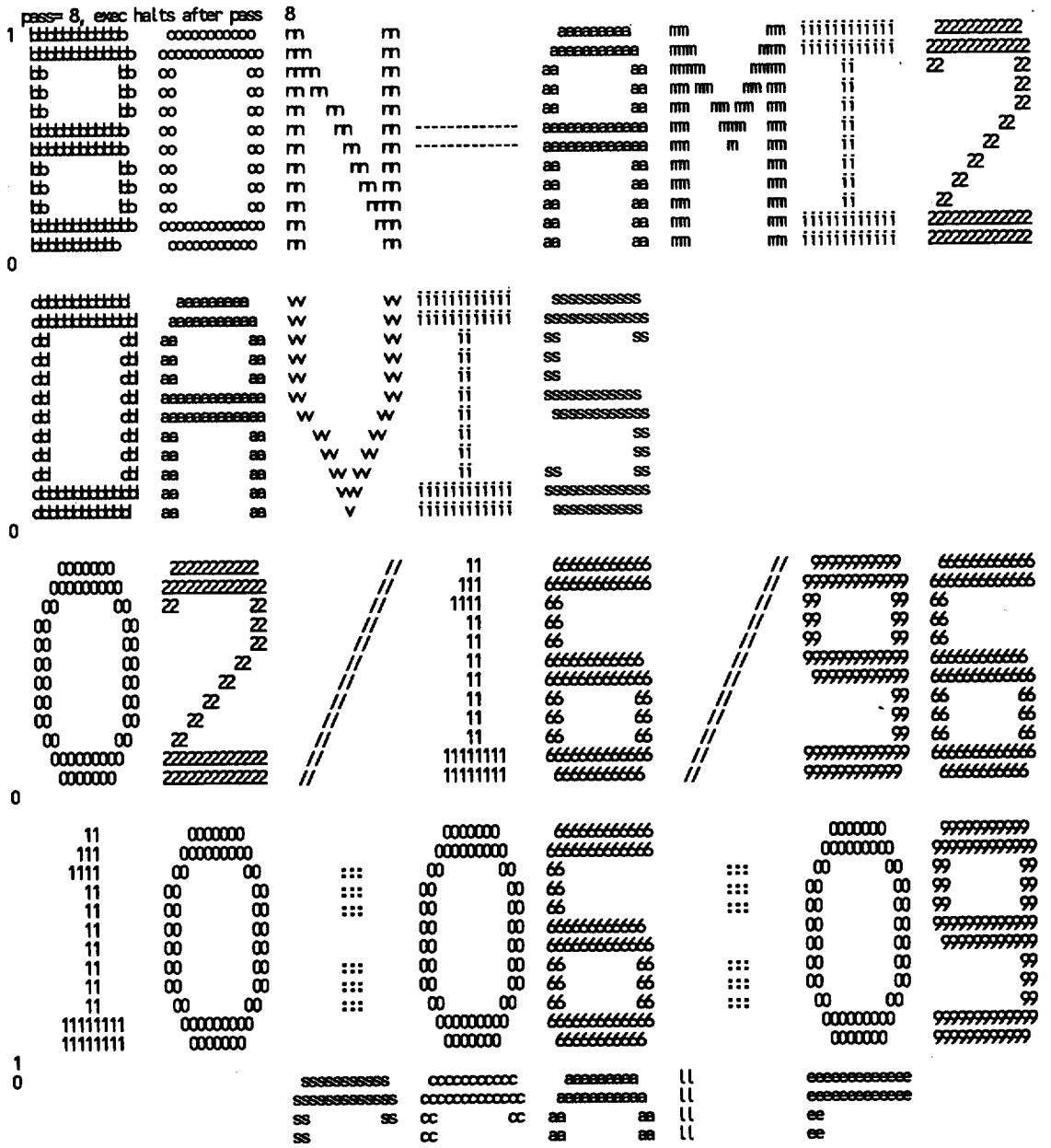
Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.02168E+00	1.03162E+00	1.03216E+00	1.03241E+00	1.03390E+00	1.03399E+00	1.02027E+00	1.00358E+00
2	1.00295E+00	1.00566E+00	1.00705E+00	1.00853E+00	1.00951E+00	1.01002E+00	1.00585E+00	1.00005E+00
3	9.96074E-01	9.96214E-01	9.97894E-01	9.99526E-01	1.00043E+00	1.00088E+00	1.00053E+00	9.98939E-01
4	9.87624E-01	9.81542E-01	9.80899E-01	9.80858E-01	9.79862E-01	9.79108E-01	9.87545E-01	9.98048E-01
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	9.95022E-01	9.93010E-01	9.85259E-01	9.68520E-01	9.67385E-01	9.43477E-01	9.90153E-01	9.86154E-01
2	9.99498E-01	9.98247E-01	9.95959E-01	9.92844E-01	9.92646E-01	9.87487E-01	9.98296E-01	9.96982E-01
3	1.00089E+00	9.99957E-01	1.00003E+00	1.00062E+00	1.00078E+00	1.00137E+00	1.00100E+00	1.00060E+00
4	1.00284E+00	1.00426E+00	1.01015E+00	1.01914E+00	1.01968E+00	1.03409E+00	1.00578E+00	1.00830E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.52602E-01	6.95522E-01	9.47565E-01	9.75233E-01	9.08278E-01	8.46065E-01	9.27274E-01	9.17026E-01
2	9.89113E-01	9.60728E-01	9.88321E-01	9.94640E-01	9.79918E-01	9.70132E-01	9.82328E-01	9.78195E-01
3	1.00082E+00	1.02676E+00	1.00112E+00	1.00090E+00	1.00159E+00	1.00617E+00	9.98881E-01	9.96062E-01
4	1.02866E+00	1.17917E+00	1.03165E+00	1.01488E+00	1.05543E+00	1.09244E+00	1.04445E+00	1.05126E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 25	grp. 26	grp. 27					
1	9.01825E-01	8.57224E-01	7.40483E-01					
2	9.73862E-01	9.59036E-01	9.25062E-01					
3	9.99771E-01	9.85722E-01	9.67991E-01					
4	1.06092E+00	1.08972E+00	1.16424E+00					
5	1.00000E+00	1.00000E+00	1.00000E+00					

Ocell averaged currents

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.45899E-03	2.51122E-02	3.15610E-02	1.90883E-02	2.90346E-02	5.55033E-02	3.15969E-02	4.66847E-03
2	3.86780E-03	3.91746E-02	4.89541E-02	2.94619E-02	4.47099E-02	8.41748E-02	4.77516E-02	7.02753E-03
3	3.14281E-03	3.34202E-02	4.32200E-02	2.71747E-02	4.22143E-02	8.00934E-02	4.57827E-02	5.62349E-03
4	1.08488E-03	1.22971E-02	1.65667E-02	1.09273E-02	1.73834E-02	3.32406E-02	1.92173E-02	2.02157E-03
5	1.79607E-03	1.91449E-02	2.47951E-02	1.55844E-02	2.42392E-02	4.62590E-02	2.65130E-02	3.34840E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.61272E-03	5.59994E-03	1.22953E-02	1.45827E-02	1.27543E-02	1.94613E-02	2.15574E-03	1.63485E-03
2	6.92764E-03	8.40018E-03	1.84928E-02	2.20194E-02	1.92549E-02	2.95815E-02	3.20688E-03	2.45795E-03
3	5.54296E-03	7.88691E-03	1.72994E-02	2.03592E-02	1.77966E-02	2.73365E-02	2.99527E-03	2.27942E-03
4	1.83450E-03	3.21098E-03	7.02679E-03	8.17550E-03	7.18124E-03	1.09888E-02	1.29434E-03	9.42618E-04
5	3.21719E-03	4.56712E-03	1.00138E-02	1.17744E-02	1.03139E-02	1.57767E-02	1.78652E-03	1.33387E-03
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	2.14701E-03	5.47367E-03	3.51060E-03	5.99072E-03	5.46607E-03	1.53156E-02	2.73227E-02	2.33268E-02
2	3.26685E-03	9.41307E-03	5.25072E-03	8.99094E-03	8.42348E-03	2.40870E-02	4.16175E-02	3.56646E-02
3	3.01702E-03	8.64944E-03	4.89055E-03	8.32569E-03	7.80167E-03	2.22477E-02	3.86547E-02	3.31035E-02
4	1.20694E-03	3.41263E-03	1.99330E-03	3.42387E-03	3.13115E-03	8.90294E-03	1.58649E-02	1.35687E-02
5	1.75774E-03	4.73108E-03	2.84648E-03	4.86813E-03	4.47043E-03	1.26449E-02	2.24202E-02	1.91671E-02
Ozone	grp. 25	grp. 26	grp. 27					
1	1.15586E-02	1.04793E-02	2.79811E-03					
2	1.77476E-02	1.63040E-02	4.54813E-03					
3	1.63609E-02	1.50615E-02	4.17603E-03					
4	6.64134E-03	6.01781E-03	1.53064E-03					
5	9.44909E-03	8.59198E-03	2.27131E-03					

Ozone	volume	vol. fraction
1	6.88443E-01	3.30753E-01
2	3.17352E-02	1.52468E-02
3	2.16724E-01	1.04122E-01
4	1.14454E+00	5.49878E-01
5	2.08144E+00	1.00000E+00

- elapsed time .02 min.
Orequested panmhalt8,skipcellwt,skipshipdata


pass= 8, exec halts after pass 8

```
ss          cc          aa      aa  ll          ee
ssssssssssss cc         aaaaaaaaaaaa ll         eeeeeeeee
 ssssssssssss cc        aaaaaaaaaaaa ll         eeeeeeeee
         ss  cc         aa      aa  ll          ee
         ss  cc         aa      aa  ll          ee
ss       ss  cc      cc aa      aa  ll          ee
ssssssssssss cccccccccccc aa      aa  llllllllllll eeeeeeeeeeeee
 ssssssssss   cccccccccc  aa      aa  llllllllllll eeeeeeeeeeeee
```

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****              program verification information                      *****
*****                                                                   *****
*****              code system:   scale  version:   4.2                 *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****            program:  c0c008                                       *****
*****                                                                   *****
*****       creation date:  04/27/95                                    *****
*****                                                                   *****
*****            library:  /neutronics/scale/exe                        *****
*****                                                                   *****
*****                                                                   *****
*****   this is not a   scale  configuration controlled code            *****
*****                                                                   *****
*****            jobname:  davis                                        *****
*****                                                                   *****
*****   date of execution:  02/16/96                                    *****
*****                                                                   *****
*****   time of execution:  10:06:09                                    *****
*****                                                                   *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****************************************************************************
```

```
1
0      -1q array has     1 entries.
0       0q array has     4 entries.
0       1q array has     6 entries.
0       2q array has     2 entries.
1logical assignments
0master library   12
 working library  17
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere          2
0izm--number of zones or material regions                 4
0ms--mixing table length                                 70
0ibl--shielded cross section edit option (0/1--no/yes)    0
0ibr--bondarenko factor edit option (0/1--no/yes)         0
```

```
0issopt--dancoff factor option                                    0
0convergence criterion   1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0       3q array has     70 entries.
0       4q array has     70 entries.
0       5q array has     70 entries.
0       6q array has      4 entries.
0       7q array has      4 entries.
0       8q array has      4 entries.
0       9q array has      4 entries.
0      10q array has     70 entries.
0      11q array has      4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope  number density  new identifier
    1        3     8016   2.09710E-02             201
    2        3     1001   4.19420E-02             202
    3        3     5010   3.81515E-06             203
    4        3     5011   1.54884E-05             204
    5        2    40302   4.25156E-02             205
    6        1    92235   1.08967E-04          200006
    7        1    92234   1.35829E-06          200007
    8        1    92236   2.22565E-05          200008
    9        1    92238   7.18805E-03          200009
   10        1     8016   1.50611E-02          200010
   11        1     8016   1.15315E-02          200011
   12        1    36083   5.99894E-07          200012
   13        1    36085   2.88343E-07          200013
   14        1    38090   6.63490E-06          200014
   15        1    39089   5.44444E-06          200015
   16        1    42095   7.62439E-06          200016
   17        1    40093   5.44388E-06          200017
   18        1    40094   8.64059E-06          200018
   19        1    40095   6.37208E-07          200019
   20        1    41094   4.73664E-12          200020
   21        1    43099   8.45055E-06          200021
   22        1    45103   4.73364E-06          200022
   23        1    45105   8.33256E-09          200023
   24        1    44101   7.83094E-06          200024
   25        1    44106   1.16052E-06          200025
   26        1    46105   3.41731E-06          200026
   27        1    46108   1.04931E-06          200027
   28        1    47109   7.05166E-07          200028
   29        1    51124   1.55246E-10          200029
   30        1    54131   3.79879E-06          200030
   31        1    54132   7.71300E-06          200031
   32        1    54135   2.19622E-09          200032
   33        1    54136   1.49360E-05          200033
   34        1    55134   5.39516E-07          200034
   35        1    55135   4.74731E-06          200035
   36        1    55137   9.16393E-06          200036
   37        1    56136   1.16385E-07          200037
   38        1    57139   9.05884E-06          200038
   39        1    59141   7.95659E-06          200039
   40        1    59143   1.19082E-07          200040
   41        1    58144   2.29564E-06          200041
   42        1    60143   6.78043E-06          200042
   43        1    60145   5.11699E-06          200043
   44        1    61147   1.49236E-06          200044
   45        1    61148   4.52757E-09          200045
   46        1    60147   4.25602E-08          200046
```

47	1	62147	7.28768E-07	200047
48	1	62149	2.99879E-08	200048
49	1	62150	1.95229E-06	200049
50	1	62151	1.52692E-07	200050
51	1	62152	8.95258E-07	200051
52	1	64155	1.19080E-09	200052
53	1	63153	6.19432E-07	200053
54	1	63154	1.60229E-07	200054
55	1	63155	6.98613E-08	200055
56	1	40302	4.42681E-03	200056
57	1	1001	2.30630E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	9.26929E-06	200060
61	1	95237	1.88903E-06	200061
62	1	94238	3.82360E-07	200062
63	1	94239	4.11046E-05	200063
64	1	94240	1.00195E-05	200064
65	1	94241	5.99267E-06	200065
66	1	94242	9.62606E-07	200066
67	1	95241	2.37599E-07	200067
68	1	95243	1.26849E-07	200068
69	1	96244	1.75358E-08	200069
70	1	999	3.30753E-21	200070

Ogeometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.32460E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.23052E+01	0
3	3	8.14000E-01	6.07600E+02	3.54852E+00	0
4	1	2.96100E+00	9.75000E+02	2.32883E-01	0

8067 locations of 200000 available are required to make a new master containing the self-shielded values

Ono nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

Ocopy 999 1/v cross sectio from log 12 to log 1 bondarenko trigger 0
Ocopy 1001 hydrogen from log 12 to log 18 bondarenko trigger 0
Ocopy 1001 hydrogen from log 18 to log 1 bondarenko trigger 0
Ocopy 1001 hydrogen from log 18 to log 1 bondarenko trigger 0
Ocopy 5010 b-10 1273 218ngp from log 12 to log 18 bondarenko trigger 0
Ocopy 5010 b-10 1273 218ngp from log 18 to log 1 bondarenko trigger 0
Ocopy 5010 b-10 1273 218ngp from log 18 to log 1 bondarenko trigger 0
Ocopy 5011 boron-11 from log 12 to log 18 bondarenko trigger 0
Ocopy 5011 boron-11 from log 18 to log 1 bondarenko trigger 0
Ocopy 5011 boron-11 from log 18 to log 1 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 12 to log 18 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0
Ocopy 36083 kr-83 from log 12 to log 1 bondarenko trigger 0
Ocopy 36085 kr-85 from log 12 to log 1 bondarenko trigger 0
Ocopy 38090 sr-90 from log 12 to log 1 bondarenko trigger 0
Ocopy 39089 y-89 from log 12 to log 1 bondarenko trigger 0
Ocopy 40093 zr-93 from log 12 to log 1 bondarenko trigger 0
Ocopy 40094 zr-94 from log 12 to log 1 bondarenko trigger 0
Ocopy 40095 zr-95 from log 12 to log 1 bondarenko trigger 0
Ocopy 40302 zircalloy from log 12 to log 18 bondarenko trigger 0
Ocopy 40302 zircalloy from log 18 to log 1 bondarenko trigger 0
Ocopy 40302 zircalloy from log 18 to log 1 bondarenko trigger 0
Ocopy 41094 nb-94 from log 12 to log 1 bondarenko trigger 0
Ocopy 42095 mo-95 from log 12 to log 1 bondarenko trigger 0
Ocopy 43099 tc-99 from log 12 to log 1 bondarenko trigger 0
Ocopy 44101 ru-101 from log 12 to log 1 bondarenko trigger 0

```
0copy    44106  ru-106          from log 12 to log  1    bondarenko trigger 0
0copy    45103  rh-103          from log 12 to log  1    bondarenko trigger 0
0copy    45105  rh-105          from log 12 to log  1    bondarenko trigger 0
0copy    46105  pd-105          from log 12 to log  1    bondarenko trigger 0
0copy    46108  pd-108          from log 12 to log  1    bondarenko trigger 0
0copy    47109  silver-109      from log 12 to log  1    bondarenko trigger 0
0copy    51124  sb-124          from log 12 to log  1    bondarenko trigger 0
0copy    54131  xe-131          from log 12 to log  1    bondarenko trigger 0
0copy    54132  xe-132          from log 12 to log  1    bondarenko trigger 0
0copy    54135  xenon-135       from log 12 to log  1    bondarenko trigger 0
0copy    54136  xe-136          from log 12 to log  1    bondarenko trigger 0
0copy    55133  cesium-133      from log 12 to log  1    bondarenko trigger 0
0copy    55134  cs-134          from log 12 to log  1    bondarenko trigger 0
0copy    55135  cs-135          from log 12 to log  1    bondarenko trigger 0
0copy    55137  cs-137          from log 12 to log  1    bondarenko trigger 0
0copy    56136  ba-136          from log 12 to log  1    bondarenko trigger 0
0copy    57139  la-139          from log 12 to log  1    bondarenko trigger 0
0copy    58144  ce-144          from log 12 to log  1    bondarenko trigger 0
0copy    59141  pr-141          from log 12 to log  1    bondarenko trigger 0
0copy    59143  pr-143          from log 12 to log  1    bondarenko trigger 0
0copy    60143  nd-143          from log 12 to log  1    bondarenko trigger 0
0copy    60145  nd-145          from log 12 to log  1    bondarenko trigger 0
0copy    60147  nd-147          from log 12 to log  1    bondarenko trigger 0
0copy    61147  pm-147          from log 12 to log  1    bondarenko trigger 0
0copy    61148  pm-148          from log 12 to log  1    bondarenko trigger 0
0copy    62147  sm-147          from log 12 to log  1    bondarenko trigger 0
0copy    62149  sm-149          from log 12 to log  1    bondarenko trigger 0
0copy    62150  sm-150          from log 12 to log  1    bondarenko trigger 0
0copy    62151  sm-151          from log 12 to log  1    bondarenko trigger 0
0copy    62152  sm-152          from log 12 to log  1    bondarenko trigger 0
0copy    63153  eu-153          from log 12 to log  1    bondarenko trigger 0
0copy    63154  eu-154          from log 12 to log  1    bondarenko trigger 0
0copy    63155  eu-155          from log 12 to log  1    bondarenko trigger 0
0copy    64155  gd-155          from log 12 to log  1    bondarenko trigger 0
0copy    92234  u-234 1043 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92235  uranium-235     from log 12 to log  1    bondarenko trigger 0
0copy    92236  u-236 1163 sigo= from log 12 to log  1    bondarenko trigger 0
0copy    92238  uranium-238     from log 12 to log  1    bondarenko trigger 0
0copy    93237  neptunium-237   from log 12 to log  1    bondarenko trigger 0
0copy    94238  pu-238 1050 sigo from log 12 to log  1    bondarenko trigger 0
0copy    94239  plutonium-239   from log 12 to log  1    bondarenko trigger 0
0copy    94240  plutonium-240   from log 12 to log  1    bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1    bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1    bondarenko trigger 0
0copy    95241  am-241 1056 sigp from log 12 to log  1    bondarenko trigger 0
0copy    95243  am-243 1057 218 from log 12 to log  1    bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1    bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
          compiled for nrc      1/27/89
            last updated      9/16/93
              l.m.petrie   -   ornl
        tape id                          4321        number of nuclides                  70
        number of neutron groups           27        number of gamma groups               0
        first thermal group                15        logical unit                         1
                                  table of contents
      1/v cross sections normalized to 1.0 at 0.0253 ev                          id   200070
      hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89              id      202
      hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89              id   200057
      b-10 1273 218ngp 042375 p-3 293k                                           id      203
```

```
b-10 1273 218ngp 042375 p-3 293k                                        id   200058
 boron-11       endf/b-iv mat 1160              updated 10/13/89        id      204
 boron-11       endf/b-iv mat 1160              updated 10/13/89        id   200059
 oxygen-16      endf/b-iv mat 1276              updated 10/13/89        id      201
 oxygen-16      endf/b-iv mat 1276              updated 10/13/89        id   200010
 oxygen-16      endf/b-iv mat 1276              updated 10/13/89        id   200011
 kr-83          mt=102,103,103,105,106,107      updated 10/13/89        id   200012
 kr-85            mt=  102                                              id   200013
 sr-90          mt=102                          updated 10/13/89        id   200014
  y-89          mt=102                          updated 10/13/89        id   200015
 zr-93            mt=  102                                              id   200017
 zr-94          mt=102                          updated 10/13/89        id   200018
 zr-95          mt=102                          updated 10/13/89        id   200019
 zircalloy      endf/b-iv mat 1284              updated 10/13/89        id      205
 zircalloy      endf/b-iv mat 1284              updated 10/13/89        id   200056
 nb-94          mt=102                          updated 10/13/89        id   200020
 mo-95          mt=102                          updated 10/13/89        id   200016
 tc-99          mt=102                          updated 10/13/89        id   200021
 ru-101         mt=102                          updated 10/13/89        id   200024
 ru-106         mt=102                          updated 10/13/89        id   200025
 rh-103         mt=102                          updated 10/13/89        id   200022
 rh-105           mt=  102                                              id   200023
 pd-105         mt=102                          updated 10/13/89        id   200026
 pd-108         mt=102                          updated 10/13/89        id   200027
 silver-109     endf/b-iv mat 1139              updated 10/13/89        id   200028
 sb-124         mt=102                          updated 10/13/89        id   200029
 xe-131         mt=102,103,104,105,106          updated 10/13/89        id   200030
 xe-132         mt=102,103,104,105,106          updated 10/13/89        id   200031
 xenon-135      endf/b-iv mat 1294              updated 10/13/89        id   200032
 xe-136           mt=  102, 103, 104, 105, 107                          id   200033
 cesium-133     endf/b-iv mat 1141              updated 10/13/89        id   200060
 cs-134         mt=102                          updated 10/13/89        id   200034
 cs-135           mt=  102                                              id   200035
 cs-137         mt=102                          updated 10/13/89        id   200036
 ba-136         mt=102                          updated 10/13/89        id   200037
 la-139         mt=102                          updated 10/13/89        id   200038
 ce-144           mt=  102                                              id   200041
 pr-141         mt=102,103,104,105,106,107      updated 10/13/89        id   200039
 pr-143         mt=102                          updated 10/13/89        id   200040
 nd-143         mt=102                          updated 10/13/89        id   200042
 nd-145         mt=102                          updated 10/13/89        id   200043
 nd-147         mt=102                          updated 10/13/89        id   200046
 pm-147         mt=102                          updated 10/13/89        id   200044
 pm-148           mt=  102                                              id   200045
 sm-147         endf/b-v fission product        updated 10/13/89        id   200047
 sm-149         mt=102,103,107                  updated 10/13/89        id   200048
 sm-150         mt=102                          updated 10/13/89        id   200049
 sm-151         mt=102,103,104,105,106,107      updated 10/13/89        id   200050
 sm-152         mt=102,103,104,105,106,107      updated 10/13/89        id   200051
 eu-153         mt=102,103,104,105,106,107      updated 10/13/89        id   200053
 eu-154         mt=102,103,104,105,106,107      updated 10/13/89        id   200054
 eu-155         mt=102,103,104,105,106,107      updated 10/13/89        id   200055
 gd-155         mt=102                          updated 10/13/89        id   200052
u-234 1043 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                      id   200007
 uranium-235    endf/b-iv mat 1261              updated 10/13/89        id   200006
u-236 1163 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                      id   200008
 uranium-238    endf/b-iv mat 1262              updated 10/13/89        id   200009
 neptunium-237  endf/b-iv mat 1263              updated 10/13/89        id   200061
pu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-m(1.+5)                     id   200062
 plutonium-239  endf/b-iv mat 1264              updated 10/13/89        id   200063
```

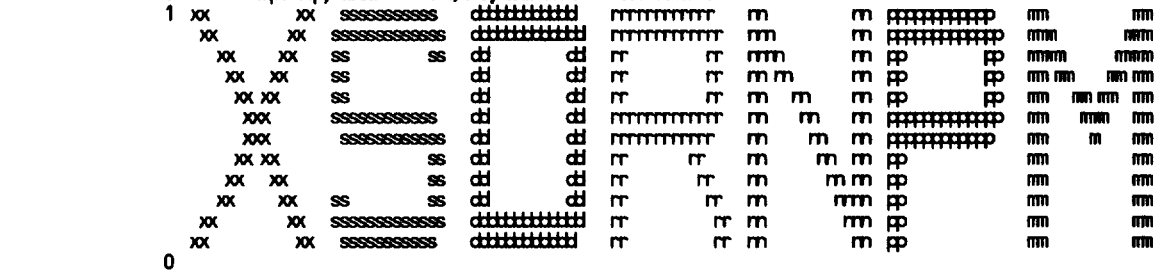
```
      plutonium-240  endf/b-iv mat 1265          updated 10/13/89          id   200064
      plutonium-241  endf/b-iv mat 1266          updated 10/13/89          id   200065
      plutonium-242  endf/b-iv mat 1161          updated 10/13/89          id   200066
     am-241 1056 sigp=5+4 newxlacs 218ngp p-3 293k                         id   200067
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                          id   200068
      curium-244     endf/b-iv mat 1162          updated 10/13/89          id   200069
0      tape copy used      0 i/o's, and took     .00 seconds
1              mm        mm iiiiiiiiiiii   tttttttttttt    aaaaaaaaa   ww        ww ll
               mm        mm iiiiiiiiiiii   tttttttttttt    aaaaaaaaaa  ww        ww ll
               mmm       mm      ii            tt        aa        aa  ww        ww ll
               mm mm     mm      ii            tt        aa        aa  ww        ww ll
               mm  mm    mm      ii            tt        aa        aa  ww        ww ll
               mm   mm   mm      ii            tt        aaaaaaaaaaaaa ww    w   ww ll
               mm    mm  mm      ii            tt        aaaaaaaaaaaaa ww   www  ww ll
               mm     mm mm      ii            tt        aa        aa  ww  ww ww ww ll
               mm      mm mm     ii            tt        aa        aa  ww ww   ww ww ll
               mm       mmm      ii            tt        aa        aa  wwww     wwww ll
               mm        mm iiiiiiiiiiii       tt        aa        aa  www       www llllllllllll
               mm        mm iiiiiiiiiiii       tt        aa        aa  ww        ww llllllllllll
0

  dddddddddd     aaaaaaaaa   w        w iiiiiiiiiiii   sssssssssss
  dddddddddd    aaaaaaaaaaa  w        w iiiiiiiiiiii  sssssssssssss
  dd       dd  aa        aa  w        w      ii       ss        ss
  dd       dd  aa        aa  w        w      ii       ss
  dd       dd  aa        aa  w        w      ii       ss
  dd       dd  aaaaaaaaaaaaa w        w      ii       sssssssssssss
  dd       dd  aaaaaaaaaaaaa  w      w      ii        sssssssssssss
  dd       dd  aa        aa    w    w       ii                 ss
  dd       dd  aa        aa     w  w        ii                 ss
  dd       dd  aa        aa      w w        ii       ss        ss
  dddddddddd   aa        aa       ww    iiiiiiiiiiii  sssssssssssss
  dddddddddd   aa        aa        v    iiiiiiiiiiii   sssssssssss
0

    0000000     2222222222          //      11      666666666666          //  9999999999   666666666666
   000000000    2222222222222       //     111      666666666666          //  999999999999 666666666666
  00      00   22        22         //    1111      66                    //  99        99 66
 00        00            22        //      11      66                    //  99        99 66
 00        00            22        //      11      66                    //  99        99 66
 00        00          22         //       11      666666666666          //  999999999999 666666666666
 00        00        22           //       11      666666666666          //   99999999999 666666666666
 00        00      22             //       11      66        66          //            99 66        66
 00        00    22               //       11      66        66          //            99 66        66
  00      00   22                //        11      66        66          //            99 66        66
   000000000   2222222222222    //      11111111   666666666666          //  999999999999 666666666666
    0000000    2222222222222    //      11111111    66666666666          //  99999999999   66666666666
0

      11        0000000                  0000000    666666666666                  11        0000000
     111       000000000                000000000   666666666666                 111       000000000
    1111      00      00      :::      00      00  66                  :::       1111      00      00
      11      00      00      :::      00      00  66                  :::         11      00      00
      11      00      00      :::      00      00  66                  :::         11      00      00
      11      00      00               00      00  666666666666                  11      00      00
      11      00      00               00      00  666666666666                  11      00      00
      11      00      00      :::      00      00  66        66          :::         11      00      00
      11      00      00      :::      00      00  66        66          :::         11      00      00
      11      00      00      :::      00      00  66        66          :::         11      00      00
  11111111    000000000                000000000   666666666666                11111111    000000000
```

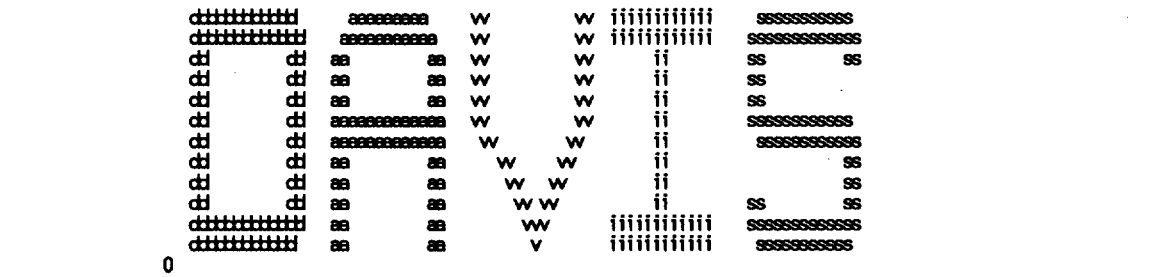
```
     11111111        0000000                    0000000      66666666666                    11111111        0000000
1
0                                 sssssssssss    cccccccccc     aaaaaaaaa    ll            eeeeeeeeeeeee
                                 sssssssssssss  cccccccccccc   aaaaaaaaaaa   ll            eeeeeeeeeeeee
                                 ss        ss  cc        cc  aa        aa  ll            ee
                                 ss            cc            aa        aa  ll            ee
                                 ss            cc            aa        aa  ll            ee
                                 sssssssssssss  cc            aaaaaaaaaaaaa  ll            eeeeeeeee
                                  sssssssssssss  cc            aaaaaaaaaaaaa  ll            eeeeeeeee
                                           ss  cc            aa        aa  ll            ee
                                           ss  cc            aa        aa  ll            ee
                                 ss        ss  cc        cc  aa        aa  ll            ee
                                 sssssssssssss  cccccccccccc   aa        aa  lllllllllllll  eeeeeeeeeeeee
                                  sssssssssss    cccccccccc    aa        aa  lllllllllllll  eeeeeeeeeeeee


                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
                    *****                                                                *****
                    *****                 program verification information                *****
                    *****                                                                *****
                    *****                code system:    scale  version:    4.2           *****
                    *****                                                                *****
                    ************************************************************************
                    ************************************************************************
                    *****                                                                *****
                    *****                                                                *****
                    *****             program:  c0c002                                   *****
                    *****                                                                *****
                    *****        creation date:  04/27/95                                *****
                    *****                                                                *****
                    *****             library:  /neutronics/scale/exe                    *****
                    *****                                                                *****
                    *****                                                                *****
                    *****    this is not a   scale  configuration controlled code        *****
                    *****                                                                *****
                    *****             jobname:  davis                                    *****
                    *****                                                                *****
                    *****    date of execution:  02/16/96                                *****
                    *****                                                                *****
                    *****    time of execution:  10:06:10                                *****
                    *****                                                                *****
                    *****                                                                *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
0       -1q array has      1 entries.
0        0q array has      4 entries.
0        1q array has     12 entries.
0select  5 nuclides from the master  library on logical  1
        65 nuclides from the working library on logical  3
         0 nuclides from the working library on logical  0
           to create the new working library on logical  4

         1 resonance calculations have been requested
```

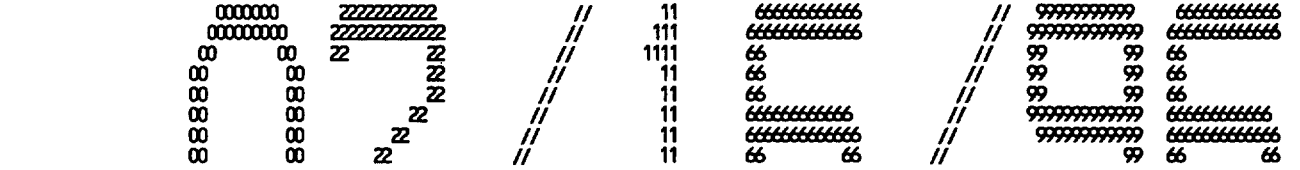
```
        0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0       2q array has     70 entries.
0       3q array has     15 entries.
0       4q array has      5 entries.
0 general information concerning cross section library
    tape identification number                4349
    number of nuclides on tape                  66
    number of neutron energy groups             27
    first thermal neutron energy group          15
    number of gamma energy groups                0
0  direct access unit number  9 requires  72 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron burnup library
                           based on endf-b version 4 data with endf-b version 5 fission products
                              compiled for nrc      1/27/89
                                 last updated       9/16/93
                                    l.m.petrie   -   ornl
-  work tape   4349

 xsdrn weighted tape--parent case entitled-- 1200 d, sas2h: babcock wilcox 15x15,
  3.00wt%, 20gwd/mtu burn high temp



0 nuclides from xsdrn tape
     1     hydrogen        endf/b-iv mat 1269/thrm1002    updated 10/13/89          202
     2    b-10 1273 218ngp 042375 p-3 293k                                           203
     3     boron-11        endf/b-iv mat 1160             updated 10/13/89          204
     4     oxygen-16       endf/b-iv mat 1276             updated 10/13/89          201
     5     zircalloy       endf/b-iv mat 1284             updated 10/13/89          205
0 nuclides from  work tape
     6    1/v cross sections normalized to 1.0 at 0.0253 ev                           999
     7     hydrogen        endf/b-iv mat 1269/thrm1002    updated 10/13/89         1001
     8    b-10 1273 218ngp 042375 p-3 293k                                          5010
     9     boron-11        endf/b-iv mat 1160             updated 10/13/89         5011
    10     oxygen-16       endf/b-iv mat 1276             updated 10/13/89         8016
    11     oxygen-16       endf/b-iv mat 1276             updated 10/13/89            6
    12     kr-83           mt=102,103,103,105,106,107     updated 10/13/89        36083
    13     kr-85             mt=  102                                              36085
    14     sr-90           mt=102                         updated 10/13/89        38090
    15      y-89           mt=102                         updated 10/13/89        39089
    16     zr-93             mt=  102                                              40093
    17     zr-94           mt=102                         updated 10/13/89        40094
    18     zr-95           mt=102                         updated 10/13/89        40095
    19     zircalloy       endf/b-iv mat 1284             updated 10/13/89        40302
    20     rb-94           mt=102                         updated 10/13/89        41094
    21     mo-95           mt=102                         updated 10/13/89        42095
    22     tc-99           mt=102                         updated 10/13/89        43099
    23     ru-101          mt=102                         updated 10/13/89        44101
    24     ru-106          mt=102                         updated 10/13/89        44106
    25     rh-103          mt=102                         updated 10/13/89        45103
    26     rh-105            mt=  102                                              45105
    27     pd-105          mt=102                         updated 10/13/89        46105
    28     pd-108          mt=102                         updated 10/13/89        46108
    29     silver-109      endf/b-iv mat 1139             updated 10/13/89        47109
    30     sb-124          mt=102                         updated 10/13/89        51124
    31     xe-131          mt=102,103,104,105,106         updated 10/13/89        54131
    32     xe-132          mt=102,103,104,105,106         updated 10/13/89        54132
    33     xenon-135       endf/b-iv mat 1294             updated 10/13/89        54135
```

```
   34    xe-136          mt=  102, 103, 104, 105, 107                                54136
   35    cesium-133    endf/b-iv mat 1141          updated 10/13/89                  55133
   36    cs-134        mt=102                      updated 10/13/89                  55134
   37    cs-135          mt=  102                                                    55135
   38    cs-137        mt=102                      updated 10/13/89                  55137
   39    ba-136        mt=102                      updated 10/13/89                  56136
   40    la-139        mt=102                      updated 10/13/89                  57139
   41    ce-144          mt=  102                                                    58144
   42    pr-141        mt=102,103,104,105,106,107  updated 10/13/89                  59141
   43    pr-143        mt=102                      updated 10/13/89                  59143
   44    nd-143        mt=102                      updated 10/13/89                  60143
   45    nd-145        mt=102                      updated 10/13/89                  60145
   46    nd-147        mt=102                      updated 10/13/89                  60147
   47    pm-147        mt=102                      updated 10/13/89                  61147
   48    pm-148          mt=  102                                                    61148
   49    sm-147        endf/b-v fission product    updated 10/13/89                  62147
   50    sm-149        mt=102,103,107              updated 10/13/89                  62149
   51    sm-150        mt=102                      updated 10/13/89                  62150
   52    sm-151        mt=102,103,104,105,106,107  updated 10/13/89                  62151
   53    sm-152        mt=102,103,104,105,106,107  updated 10/13/89                  62152
   54    eu-153        mt=102,103,104,105,106,107  updated 10/13/89                  63153
   55    eu-154        mt=102,103,104,105,106,107  updated 10/13/89                  63154
   56    eu-155        mt=102,103,104,105,106,107  updated 10/13/89                  63155
   57    gd-155        mt=102                      updated 10/13/89                  64155
   58    u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                         92234
   59    uranium-235   endf/b-iv mat 1261          updated 10/13/89                  92235
   60    u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                         92236
   61    uranium-238   endf/b-iv mat 1262          updated 10/13/89                  92238
   62    neptunium-237 endf/b-iv mat 1263          updated 10/13/89                  93237
   63    pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                        94238
   64    plutonium-239 endf/b-iv mat 1264          updated 10/13/89                  94239
   65    plutonium-240 endf/b-iv mat 1265          updated 10/13/89                  94240
   66    plutonium-241 endf/b-iv mat 1266          updated 10/13/89                  94241
   67    plutonium-242 endf/b-iv mat 1161          updated 10/13/89                  94242
   68    am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                               95241
   69    am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                                95243
   70    curium-244    endf/b-iv mat 1162          updated 10/13/89                  96244
0 hydrogen       endf/b-iv mat 1269/thnm1002   updated 10/13/89          202    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                         203    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160            updated 10/13/89          204    temperature=   607.60
                          thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276            updated 10/13/89          201    temperature=   607.60
0 zircalloy      endf/b-iv mat 1284            updated 10/13/89          205    temperature=   650.00
0resonance data for this nuclide
0mass number (a)          =    90.436          temperature(kelvin)      =   650.000
0potential scatter sigma  =     6.385          lumped nuclear density   = 4.2515602E-02
0spin factor (g)          =     1.079          lump dimension (a-bar)   = 6.7309999E-01
0inner radius             = 6.3246000E-01      dancoff correction (c)   = 1.6805907E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   8      -1.156752E-03    .000000E+00   -7.806033E-01
   9      -4.625978E-02    .000000E+00   -2.073270E+00
  10      -5.962230E-02    .000000E+00   -1.351984E+00
  11      -1.761672E-01    .000000E+00   -7.350731E-01
0excess resonance integrals
0                resolved
```

```
0absorption      2.92402E-01
 fission         .00000E+00
-  elapsed time   .00 min.
-  elapsed time   .02 min.
1     this xsdrn working tape was created 02/16/96 at 10:06:11
      the title of the parent case is as follows
      xsdrn weighted tape--parent case entitled-- 1200 d, sas2h: babcock wilcox 15x15,
       3.00wt%, 20gwd/mtu burn high temp

        tape id                          8670        number of nuclides              70
        number of neutron groups           27        number of gamma groups           0
        first thermal group                15        logical unit                     4
                                  table of contents
       hydrogen       endf/b-iv mat 1269/thrmf1002   updated 10/13/89          id   202
      b-10 1273 218ngp 042375 p-3 293k                                          id   203
       boron-11       endf/b-iv mat 1160             updated 10/13/89          id   204
       oxygen-16      endf/b-iv mat 1276             updated 10/13/89          id   201
       zircalloy      endf/b-iv mat 1284             updated 10/13/89          id   205
      1/v cross sections normalized to 1.0 at 0.0253 ev                         id   999
       hydrogen       endf/b-iv mat 1269/thrmf1002   updated 10/13/89          id  1001
      b-10 1273 218ngp 042375 p-3 293k                                          id  5010
       boron-11       endf/b-iv mat 1160             updated 10/13/89          id  5011
       oxygen-16      endf/b-iv mat 1276             updated 10/13/89          id  8016
       oxygen-16      endf/b-iv mat 1276             updated 10/13/89          id     6
       kr-83          mt=102,103,103,105,106,107     updated 10/13/89          id 36083
       kr-85            mt=  102                                                id 36085
       sr-90          mt=102                         updated 10/13/89          id 38090
        y-89          mt=102                         updated 10/13/89          id 39089
       zr-93            mt=  102                                                id 40093
       zr-94          mt=102                         updated 10/13/89          id 40094
       zr-95          mt=102                         updated 10/13/89          id 40095
       zircalloy      endf/b-iv mat 1284             updated 10/13/89          id 40302
       nb-94          mt=102                         updated 10/13/89          id 41094
       mo-95          mt=102                         updated 10/13/89          id 42095
       tc-99          mt=102                         updated 10/13/89          id 43099
       ru-101         mt=102                         updated 10/13/89          id 44101
       ru-106         mt=102                         updated 10/13/89          id 44106
       rh-103         mt=102                         updated 10/13/89          id 45103
       rh-105           mt=  102                                                id 45105
       pd-105         mt=102                         updated 10/13/89          id 46105
       pd-108         mt=102                         updated 10/13/89          id 46108
       silver-109     endf/b-iv mat 1139             updated 10/13/89          id 47109
       sb-124         mt=102                         updated 10/13/89          id 51124
       xe-131         mt=102,103,104,105,106         updated 10/13/89          id 54131
       xe-132         mt=102,103,104,105,106         updated 10/13/89          id 54132
       xenon-135      endf/b-iv mat 1294             updated 10/13/89          id 54135
       xe-136           mt=  102,  103,  104,  105,  107                       id 54136
       cesium-133     endf/b-iv mat 1141             updated 10/13/89          id 55133
       cs-134         mt=102                         updated 10/13/89          id 55134
       cs-135           mt=  102                                                id 55135
       cs-137         mt=102                         updated 10/13/89          id 55137
       ba-136         mt=102                         updated 10/13/89          id 56136
       la-139         mt=102                         updated 10/13/89          id 57139
       ce-144           mt=  102                                                id 58144
       pr-141         mt=102,103,104,105,106,107     updated 10/13/89          id 59141
       pr-143         mt=102                         updated 10/13/89          id 59143
       nd-143         mt=102                         updated 10/13/89          id 60143
       nd-145         mt=102                         updated 10/13/89          id 60145
       nd-147         mt=102                         updated 10/13/89          id 60147
       pm-147         mt=102                         updated 10/13/89          id 61147
```

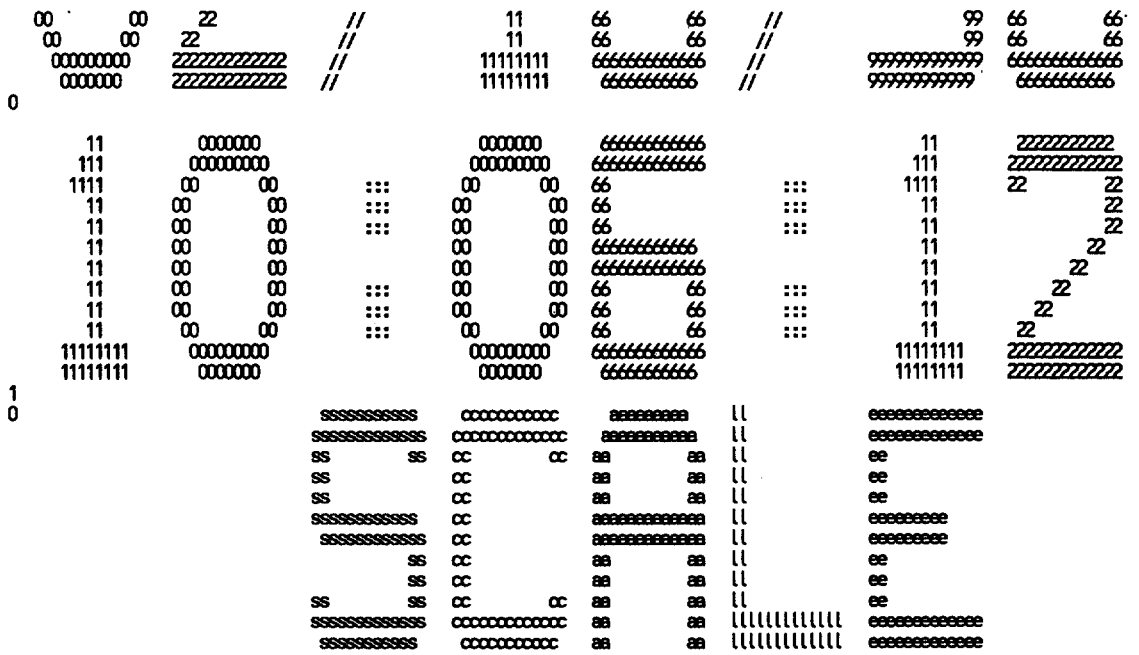






```
      pm-148          mt=  102                                                  id    61148
      sm-147        endf/b-v fission product      updated 10/13/89              id    62147
      sm-149        mt=102,103,107                updated 10/13/89              id    62149
      sm-150        mt=102                        updated 10/13/89              id    62150
      sm-151        mt=102,103,104,105,106,107    updated 10/13/89              id    62151
      sm-152        mt=102,103,104,105,106,107    updated 10/13/89              id    62152
      eu-153        mt=102,103,104,105,106,107    updated 10/13/89              id    63153
      eu-154        mt=102,103,104,105,106,107    updated 10/13/89              id    63154
      eu-155        mt=102,103,104,105,106,107    updated 10/13/89              id    63155
      gd-155        mt=102                        updated 10/13/89              id    64155
     u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                        id    92234
      uranium-235   endf/b-iv mat 1261            updated 10/13/89              id    92235
     u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                        id    92236
      uranium-238   endf/b-iv mat 1262            updated 10/13/89              id    92238
      neptunium-237 endf/b-iv mat 1263            updated 10/13/89              id    93237
     pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                       id    94238
      plutonium-239 endf/b-iv mat 1264            updated 10/13/89              id    94239
      plutonium-240 endf/b-iv mat 1265            updated 10/13/89              id    94240
      plutonium-241 endf/b-iv mat 1266            updated 10/13/89              id    94241
      plutonium-242 endf/b-iv mat 1161            updated 10/13/89              id    94242
     am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                              id    95241
     am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                               id    95243
      curium-244    endf/b-iv mat 1162            updated 10/13/89              id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
1 xx        xx  sssssssssss  ddddddddddd  rrrrrrrrrrr  rn        rn  pppppppppppp  mm        mm
   xx      xx  sssssssssssss  ddddddddddd  rrrrrrrrrrrr  rnn       rn  pppppppppppp  mmm      mmm
     xx    xx  ss        ss  dd        dd  rr        rr  rnnn      rn  pp        pp  mmmm    mmmm
      xx  xx   ss            dd        dd  rr        rr  rn rn     rn  pp        pp  mm mm  mm mm
       xx xx   ss            dd        dd  rr        rr  rn  rn    rn  pp        pp  mm  mm mm  mm
        xxx    sssssssssssss  dd        dd  rrrrrrrrrrrr  rn   rn   rn  pppppppppppp  mm   mmm  mm
        xxx     sssssssssssss  dd        dd  rrrrrrrrrrr  rn    rn  rn  pppppppppppp  mm    m   mm
       xx xx              ss  dd        dd  rr      rr   rn     rn rn  pp            mm        mm
      xx  xx              ss  dd        dd  rr       rr  rn      rn rn  pp            mm        mm
     xx    xx  ss        ss  dd        dd  rr        rr  rn       rnn  pp            mm        mm
   xx      xx  sssssssssssss  ddddddddddd  rr        rr  rn        rn  pp            mm        mm
  xx        xx  sssssssssss  ddddddddddd  rr        rr  rn        rn  pp            mm        mm
0

  ddddddddddd    aaaaaaaaa   w         w  iiiiiiiiiiii   sssssssssss
  ddddddddddd   aaaaaaaaaaa  w         w  iiiiiiiiiiii   sssssssssssss
  dd        dd  aa        aa  w         w      ii        ss        ss
  dd        dd  aa        aa  w         w      ii        ss
  dd        dd  aa        aa  w         w      ii        ss
  dd        dd  aaaaaaaaaaaa  w         w      ii        sssssssssssss
  dd        dd  aaaaaaaaaaaa   w       w      ii         sssssssssssss
  dd        dd  aa        aa    w    w        ii                  ss
  dd        dd  aa        aa     w  w         ii                  ss
  dd        dd  aa        aa      w w         ii        ss        ss
  ddddddddddd  aa        aa       ww     iiiiiiiiiiii   sssssssssssss
  ddddddddddd  aa        aa        v     iiiiiiiiiiii    sssssssssss
0

    0000000     22222222222          //       11      666666666666          //  99999999999   666666666666
   000000000    2222222222222        //      111      6666666666666         //  9999999999999  6666666666666
  00       00  22        22          //     1111      66                    //  99        99  66
 00        00            22         //        11      66                   //   99        99  66
 00        00            22        //         11      66                  //    99        99  66
 00        00          22         //          11      666666666666       //     9999999999999  666666666666
 00        00        22          //           11      6666666666666     //      999999999999  6666666666666
 00        00      22           //            11      66        66     //                99  66        66
```

```
  00       00    22          //          11      66       66     //              99  66       66
   00     00    22           //          11      66       66     //              99  66       66
    000000000   2222222222222  //        11111111   6666666666666  //        9999999999999  6666666666666
     0000000    2222222222222  //        11111111    66666666666   //        999999999999    66666666666
0

       11        0000000                  0000000    666666666666                  11       22222222222
      111       000000000                000000000   6666666666666                111      2222222222222
     1111      00      00      :::      00      00  66              :::          1111      22        22
       11     00       00      :::     00       00  66              :::            11                22
       11     00       00      :::     00       00  66              :::            11                22
       11     00       00              00       00  666666666666                 11               22
       11     00       00              00       00  6666666666666                11              22
       11     00       00      :::     00       00  66       66     :::            11             22
       11     00       00      :::     00       00  66       66     :::            11           22
       11      00      00      :::      00      00  66       66     :::            11         22
    11111111    000000000                000000000   6666666666666              11111111   2222222222222
    11111111     0000000                  0000000    66666666666               11111111   2222222222222
1
0                          sssssssssss    cccccccccc    aaaaaaaaa   ll          eeeeeeeeeeeee
                          ssssssssssss   cccccccccccc   aaaaaaaaaa  ll          eeeeeeeeeeeee
                          ss        ss   cc        cc   aa       aa  ll          ee
                          ss             cc             aa       aa  ll          ee
                          ss             cc             aa       aa  ll          ee
                          ssssssssssss   cc             aaaaaaaaaaaa ll          eeeeeeeee
                           ssssssssssss  cc             aaaaaaaaaaaa ll          eeeeeeeee
                                   ss    cc             aa       aa  ll          ee
                                   ss    cc             aa       aa  ll          ee
                          ss        ss   cc        cc   aa       aa  ll          ee
                          ssssssssssss   cccccccccccc   aa       aa  llllllllllll eeeeeeeeeeeee
                           ssssssssss    cccccccccc    aa       aa  llllllllllll eeeeeeeeeeeee
```



```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                code system:    scale  version:    4.2              *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****             program:  c0c001                                      *****
*****                                                                   *****
*****        creation date:  04/27/95                                   *****
*****                                                                   *****
*****             library:  /neutronics/scale/exe                       *****
*****                                                                   *****
*****                                                                   *****
*****    this is not a   scale  configuration controlled code           *****
*****                                                                   *****
*****             jobname:  davis                                       *****
*****                                                                   *****
*****    date of execution:  02/16/96                                   *****
```

```
                    *****                                                    *****
                    *****   time of execution:  10:06:12                     *****
                    *****                                                    *****
                    *****                                                    *****
                    ************************************************************
                    ************************************************************
                    ************************************************************
1
                    1200 cl, second part of sas2h pass to make library
0       -1q array has      1 entries.
0        0q array has     11 entries.
0        1q array has     15 entries.
0        2q array has     10 entries.
0        3q array has     12 entries.
0        4q array has      9 entries.
0        5q array has     12 entries.
0direct access unit   9 requires     12 blocks of length  704 for cross section mixing.
1                     1200 cl, second part of sas2h pass to make library
0general problem description data block
0                              general problem data

 ige  1/2/3 = plane/cylinder/sphere      2      isn  quadrature order                  8
 izm  number of zones                    4      isct order of scattering               3
 im   number of special intervals       28      ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1      iim  inner iteration maximum         20
 ibr  right boundary condition           3      iom  outer iteration maximum         25
 mxx  number of mixtures                 3      iclc -1/0/n--flat res/sn/cpt           0
 ms   mixing table length               70      ith  0/1 = forward/adjoint            0
 igm  number of energy groups           27      iflu not used(always wgtd)             0
 nng  number of neutron groups          27      iprt -2/-1/0/n=mixture xsec print     -2
 ngg  number of gamma groups             0      idl  0/1/2/3=no/prt nd/pch n/both    14
 iftg number of first thermal group     15      ipbt -1/0/1=none/fine/all bal. prt     0
0                            special options

 ifg  0/1 = none/weighting calculation   1      ipn  0/1/2 diff. coef. param          0
 iqm  volumetric sources (0/n=no/yes)    0      idfm 0/1 = none/density factors 38*   0
 ipm  boundary sources (0/n=no/yes)      0      iaz  0/n = none/n activities by zone   0
 ifn  0/1/2 = input 33*/34*/use last    14      iai  0/1=none/activities by interval  0
 itmx maximum time (minutes)            10      ifct 0/1=no/yes upscatter scaling     0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0      ipvt 0/1/2=no/k/alpha parametric srch 0
 isx  broad group fluxes                 0      isen outer iteration acceleration     0
 ibln activity data unit                 0      nbnd band rebaln parameter            0
 jbkl 0/1/2 buckling geometry            0
0                          weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1      ihtf total xsect psn in brd gp tables 3
 igmf number of broad groups             3      ndsf psn g-g or file number           4
 itp  0/10/20/30/40 0/c/e/ac/a           0      nusf table length or max order        6
 ipp  -2/-1/0/n=wgted xsect print       -2      msm  extra 1-d x-sect positions      0
 iap  -1/n anisn xsect print            -1
0                          floating point parameters

 eps  overall convergence       1.00000E-04     dy   cyl/pla ht for buckling    .00000E+00
 ptc  point convergence         1.00000E-04     dz   plane depth for buckling 2.00000E+02
 xnf  normalization factor      1.00000E+00     vsc  void streaming correction .00000E+00
 ev   eigenvalue guess           .00000E+00     pv   ipvt=1/2--k/alpha         1.00000E+00
 evm  eigenvalue modifier        .00000E+00     eql  ev change eps for search 1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00     xrpm new param mod for search 7.50000E-01
     this case will require       2611 locations for mixing
     this case has been allocated 200000 locations
```

1 1200 d, second part of sas2h pass to make library
0 13q array has 70 entries.
0 14q array has 70 entries.
0 15q array has 70 entries.
0 data block 2 (mixing table, etc.)

0	nuclides on tape	cccc identification	mixture	mixing table component	atom density	extra xsect id's
1	202		3	201	2.09710E-02	
2	203		3	202	4.19420E-02	
3	204		3	203	3.81515E-06	
4	201		3	204	1.54884E-05	
5	205		2	205	4.25156E-02	
6	999		1	92235	1.08967E-04	
7	1001		1	92234	1.35823E-06	
8	5010		1	92236	2.22565E-05	
9	5011		1	92238	7.18805E-03	
10	8016		1	8016	1.50611E-02	
11	6		1	6	1.15315E-02	
12	36083		1	36083	5.99894E-07	
13	36085		1	36085	2.88343E-07	
14	38090		1	38090	6.63490E-06	
15	39089		1	39089	5.44444E-06	
16	40093		1	42095	7.62639E-06	
17	40094		1	40093	5.44388E-06	
18	40095		1	40094	8.64059E-06	
19	40302		1	40095	6.37208E-07	
20	41094		1	41094	4.73664E-12	
21	42095		1	43099	8.45055E-06	
22	43099		1	45103	4.73364E-06	
23	44101		1	45105	8.33256E-09	
24	44106		1	44101	7.83094E-06	
25	45103		1	44106	1.16052E-06	
26	45105		1	46105	3.41731E-06	
27	46105		1	46108	1.04931E-06	
28	46108		1	47109	7.05166E-07	
29	47109		1	51124	1.55246E-10	
30	51124		1	54131	3.79879E-06	
31	54131		1	54132	7.71300E-06	
32	54132		1	54135	2.19622E-09	
33	54135		1	54136	1.49360E-05	
34	54136		1	55134	5.39316E-07	
35	55133		1	55135	4.74731E-06	
36	55134		1	55137	9.16393E-06	
37	55135		1	56136	1.16385E-07	
38	55137		1	57139	9.05884E-06	
39	56136		1	59141	7.95659E-06	
40	57139		1	59143	1.19082E-07	
41	58144		1	58144	2.29564E-06	
42	59141		1	60143	6.78043E-06	
43	59143		1	60145	5.11699E-06	
44	60143		1	61147	1.49236E-06	
45	60145		1	61148	4.52757E-09	
46	60147		1	60147	4.25602E-08	
47	61147		1	62147	7.28768E-07	
48	61148		1	62149	2.99879E-08	
49	62147		1	62150	1.95229E-06	
50	62149		1	62151	1.52692E-07	
51	62150		1	62152	8.95258E-07	
52	62151		1	64155	1.19080E-09	
53	62152		1	63153	6.19432E-07	

54	63153	1	63154	1.60229E-07
55	63154	1	63155	6.98613E-08
56	63155	1	40302	4.42681E-03
57	64155	1	1001	2.30630E-02
58	92234	1	5010	2.09787E-06
59	92235	1	5011	8.51673E-06
60	92236	1	55133	9.26929E-06
61	92238	1	95237	1.88903E-06
62	95237	1	94238	3.82360E-07
63	94238	1	94239	4.11046E-05
64	94239	1	94240	1.00195E-05
65	94240	1	94241	5.99267E-06
66	94241	1	94242	9.62606E-07
67	94242	1	95241	2.37599E-07
68	95241	1	95243	1.26849E-07
69	95243	1	96244	1.75358E-08
70	96244	1	999	3.30753E-21

- elapsed time .00 min.
0 24259 locations will be used
0 35q array has 29 entries.
0 36q array has 28 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 1200 d, second part of sas2h pass to make library

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	1	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	1	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	1	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	1	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	2	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	2	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	2	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	2	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	2	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	2	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01036E+07	2	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	2	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	2	0	14	1.00000E+00	
15	3.04999E+00	1.50030E+01	2.10601E+06	2	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	2	0	16	1.00000E+00	
17	1.29999E+00	1.58657E+01	1.52545E+06	2	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	2	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	2	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	2	0	20	1.00000E+00	
21	4.00000E-01	1.70844E+01	8.17974E+05	3	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	3	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86953E+05	3	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	3	0	24	1.00000E+00	
25	5.00000E-02	1.91139E+01	2.71895E+05	3	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	3	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	3	0	27	1.00000E+00	
28	1.00000E-05	2.76310E+01						

1 1200 d, second part of sas2h pass to make library

0	mixture by zone	order p(l) by zone	activity table matl no.	reaction	weights	quadrature constants directions	refl direc	wt x cos

1	3	3	0	-2.79004E-01	3	0	
2	2	3	5.06143E-02	-1.97286E-01	3	-9.98548E-03	
3	3	3	5.06143E-02	1.97286E-01	2	9.98548E-03	
4	1	3	0	-6.04419E-01	8	0	
5			5.59953E-02	-5.58410E-01	8	-3.10450E-02	
6			5.59953E-02	-2.31301E-01	7	-1.28595E-02	
7			5.59953E-02	2.31301E-01	6	1.28595E-02	
8			5.59953E-02	5.58410E-01	5	3.10450E-02	
9			0	-8.50774E-01	15	0	
10			5.22844E-02	-8.21784E-01	15	-4.29666E-02	
11			5.22844E-02	-6.01588E-01	14	-3.14537E-02	
12			5.22844E-02	-2.20196E-01	13	-1.15128E-02	
13			5.22844E-02	2.20196E-01	12	1.15128E-02	
14			5.22844E-02	6.01588E-01	11	3.14537E-02	
15			5.22844E-02	8.21784E-01	10	4.29666E-02	
16			0	-9.83032E-01	24	0	
17			4.53355E-02	-9.64143E-01	24	-4.37099E-02	
18			4.53355E-02	-8.17361E-01	23	-3.70555E-02	
19			4.53355E-02	-5.46143E-01	22	-2.47597E-02	
20			4.53355E-02	-1.91780E-01	21	-8.69444E-03	
21			4.53355E-02	1.91780E-01	20	8.69444E-03	
22			4.53355E-02	5.46143E-01	19	2.47597E-02	
23			4.53355E-02	8.17361E-01	18	3.70555E-02	
24			4.53355E-02	9.64143E-01	17	4.37099E-02	

0constants for p(3) scattering

0argl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83235E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83235E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83235E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83032E-01	-4.49528E-01	8.36885E-01	5.00708E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20262E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20262E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17234E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17234E-01
22	5.46143E-01	-4.49528E-01	-3.20262E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20262E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.97644E-02	1	0	4.90881E-03		0	
2	3.95287E-02	5.92931E-02	1	2.48366E-01	1.47264E-02		0	
3	7.90575E-02	1.18586E-01	1	4.96733E-01	5.89057E-02		0	
4	1.58115E-01	1.97644E-01	1	9.93466E-01	9.81762E-02		0	
5	2.37172E-01	2.76701E-01	1	1.49020E+00	1.37447E-01			
6	3.16230E-01	3.55759E-01	1	1.98693E+00	1.76717E-01			
7	3.95288E-01	4.34816E-01	1	2.48366E+00	2.15988E-01			
8	4.74345E-01	5.13874E-01	1	2.98040E+00	2.55258E-01			
9	5.53403E-01	5.73167E-01	1	3.47713E+00	1.42355E-01			

10	5.92931E-01	6.12696E-01	1	3.72550E+00	1.52173E-01
11	6.32460E-01	6.42620E-01	2	3.97386E+00	8.20460E-02
12	6.52780E-01	6.62940E-01	2	4.10154E+00	8.46405E-02
13	6.73100E-01	6.96583E-01	3	4.22921E+00	2.05562E-01
14	7.20067E-01	7.43550E-01	3	4.52431E+00	2.19422E-01
15	7.67033E-01	7.90517E-01	3	4.81941E+00	2.33282E-01
16	8.14000E-01	8.62795E-01	4	5.11451E+00	5.29061E-01
17	9.11591E-01	9.60386E-01	4	5.72769E+00	5.88891E-01
18	1.00918E+00	1.10677E+00	4	6.34088E+00	1.35731E+00
19	1.20436E+00	1.30195E+00	4	7.56724E+00	1.59667E+00
20	1.39955E+00	1.49714E+00	4	8.79360E+00	1.83603E+00
21	1.59473E+00	1.69232E+00	4	1.00200E+01	2.07540E+00
22	1.78991E+00	1.88750E+00	4	1.12463E+01	2.31478E+00
23	1.98509E+00	2.08268E+00	4	1.24727E+01	2.55412E+00
24	2.18027E+00	2.27786E+00	4	1.36991E+01	2.79349E+00
25	2.37545E+00	2.47305E+00	4	1.49254E+01	3.03285E+00
26	2.57064E+00	2.66823E+00	4	1.61518E+01	3.27221E+00
27	2.76582E+00	2.81461E+00	4	1.73781E+01	1.72587E+00
28	2.86341E+00	2.91220E+00	4	1.79913E+01	1.78571E+00
29	2.96100E+00			1.86045E+01	

- elapsed time .00 min.

outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	125	8.00497E-06	1.00276E+00	-3.08108E-03	1.00000E+00	-8.34411E-04	.00000E+00	.0000
2	178	-1.07835E-05	1.00317E+00	-4.80255E-05	-2.79825E-04	-2.92346E-04	.00000E+00	.0000
3	219	6.02662E-06	1.00306E+00	-2.19952E-05	-1.05387E-04	-7.97182E-05	.00000E+00	.0000

grp to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	17	8.28958E-07	28	1.00000E+00	1
2	1	17	9.68108E-07	28	1.00000E+00	1
3	1	17	8.26446E-07	28	1.00000E+00	1
4	1	17	7.39969E-07	28	1.00000E+00	1
5	1	17	4.78289E-07	28	1.00000E+00	1
6	1	28	1.74231E-07	28	1.00000E+00	1
7	1	24	4.55098E-06	28	9.99996E-01	2
8	1	28	4.53025E-07	28	1.00000E+00	2
9	1	27	1.50841E-05	28	1.00001E+00	3
10	1	26	4.82669E-06	28	9.99996E-01	3
11	1	26	6.86737E-06	28	9.99993E-01	3
12	1	25	4.01992E-06	28	9.99997E-01	3
13	1	26	5.41574E-06	28	1.00000E+00	3
14	1	28	2.00883E-06	28	9.99999E-01	3
15	1	2	7.39044E-05	28	9.99918E-01	2
16	1	2	8.80606E-05	28	9.99928E-01	2
17	2	26	6.60470E-05	28	1.00007E+00	3
18	2	28	3.57694E-05	28	1.00001E+00	3
19	2	25	3.91572E-05	28	1.00004E+00	3
20	1	2	7.77912E-05	28	9.99861E-01	3
21	2	28	3.98852E-05	28	1.00001E+00	3
22	1	1	8.78960E-05	28	9.99956E-01	3
23	1	1	2.32202E-05	14	9.99990E-01	4
24	1	28	3.36975E-05	28	1.00008E+00	4
25	1	23	2.30561E-05	28	1.00004E+00	5
26	1	28	2.92714E-05	28	1.00001E+00	6
27	1	28	2.22264E-05	28	1.00001E+00	8

4	250	-2.66281E-06	1.00318E+00	-7.01149E-06	-2.88134E-05	-1.87275E-05	.00000E+00	.0167

final monitor lambda 1.00316E+00 production/absorption 1.01629E+00 angular flux on 16

- elapsed time .02 min.

1 1200 d, second part of ses2h pass to make library

0 int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1	3.95287E-02	5.92931E-02	2.48366E-01	1.47264E-02	.00000E+00
3	1	7.90575E-02	1.18586E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1	1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1	2.37172E-01	2.76701E-01	1.49020E+00	1.37447E-01	.00000E+00
6	1	3.16230E-01	3.55759E-01	1.98693E+00	1.76717E-01	.00000E+00
7	1	3.95288E-01	4.34816E-01	2.48366E+00	2.15988E-01	.00000E+00
8	1	4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1	5.53408E-01	5.73167E-01	3.47713E+00	1.42355E-01	.00000E+00
10	1	5.92931E-01	6.12698E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2	6.32460E-01	6.42620E-01	3.97386E+00	8.20460E-02	.00000E+00
12	2	6.52780E-01	6.62940E-01	4.10154E+00	8.46405E-02	.00000E+00
13	3	6.73100E-01	6.96583E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3	7.20067E-01	7.43550E-01	4.52431E+00	2.19422E-01	.00000E+00
15	3	7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4	8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.29262E-02
17	4	9.11591E-01	9.60386E-01	5.72769E+00	5.88891E-01	2.49412E-02
18	4	1.00918E+00	1.10677E+00	6.34088E+00	1.35731E+00	5.62798E-02
19	4	1.20436E+00	1.30195E+00	7.56724E+00	1.59667E+00	6.48191E-02
20	4	1.39955E+00	1.49714E+00	8.79360E+00	1.83603E+00	7.34425E-02
21	4	1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	8.21141E-02
22	4	1.78991E+00	1.88750E+00	1.12463E+01	2.31476E+00	9.08579E-02
23	4	1.98509E+00	2.08268E+00	1.24727E+01	2.55412E+00	9.96221E-02
24	4	2.18027E+00	2.27786E+00	1.36991E+01	2.79349E+00	1.08481E-01
25	4	2.37545E+00	2.47305E+00	1.49254E+01	3.03285E+00	1.17432E-01
26	4	2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.26507E-01
27	4	2.76582E+00	2.81461E+00	1.73781E+01	1.72587E+00	6.67052E-02
28	4	2.86341E+00	2.91220E+00	1.79913E+01	1.78571E+00	6.90526E-02
29		2.96100E+00		1.86045E+01		

1 1200 d, second part of sas2h pass to make library

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.31613E-02	9.13913E-02	1.12872E-01	6.91366E-02	1.02836E-01	1.92842E-01	1.95131E-01	1.47062E-01
2	1.31560E-02	9.13397E-02	1.12808E-01	6.90984E-02	1.02784E-01	1.92755E-01	1.95092E-01	1.47057E-01
3	1.31567E-02	9.13529E-02	1.12829E-01	6.91164E-02	1.02818E-01	1.92825E-01	1.95145E-01	1.47068E-01
4	1.31636E-02	9.14341E-02	1.12942E-01	6.91948E-02	1.02948E-01	1.93067E-01	1.95301E-01	1.47097E-01
5	1.31781E-02	9.15770E-02	1.13138E-01	6.93279E-02	1.03164E-01	1.93466E-01	1.95548E-01	1.47140E-01
6	1.31981E-02	9.17735E-02	1.13408E-01	6.95112E-02	1.03461E-01	1.94014E-01	1.95887E-01	1.47197E-01
7	1.32146E-02	9.20250E-02	1.13755E-01	6.97495E-02	1.03864E-01	1.94729E-01	1.96327E-01	1.47267E-01
8	1.32406E-02	9.23991E-02	1.14195E-01	7.00568E-02	1.04354E-01	1.95664E-01	1.96903E-01	1.47350E-01
9	1.32624E-02	9.26154E-02	1.14590E-01	7.03389E-02	1.04821E-01	1.96531E-01	1.97438E-01	1.47420E-01
10	1.32774E-02	9.28320E-02	1.14919E-01	7.05872E-02	1.05242E-01	1.97316E-01	1.97924E-01	1.47469E-01
11	1.32899E-02	9.30115E-02	1.15195E-01	7.07957E-02	1.05596E-01	1.97991E-01	1.98341E-01	1.47513E-01
12	1.33034E-02	9.31451E-02	1.15396E-01	7.09042E-02	1.05765E-01	1.98328E-01	1.98543E-01	1.47557E-01
13	1.33319E-02	9.33886E-02	1.15640E-01	7.10417E-02	1.05954E-01	1.98666E-01	1.98734E-01	1.47626E-01
14	1.33738E-02	9.37765E-02	1.16095E-01	7.12970E-02	1.06328E-01	1.99523E-01	1.99112E-01	1.47718E-01
15	1.34231E-02	9.42757E-02	1.16721E-01	7.16857E-02	1.06984E-01	2.00894E-01	1.99739E-01	1.47819E-01
16	1.34997E-02	9.50750E-02	1.17741E-01	7.23290E-02	1.07988E-01	2.02231E-01	1.98829E-01	1.47990E-01
17	1.35752E-02	9.58701E-02	1.18758E-01	7.29772E-02	1.08967E-01	2.04121E-01	1.99968E-01	1.48187E-01
18	1.36351E-02	9.65136E-02	1.19592E-01	7.35123E-02	1.09830E-01	2.05753E-01	2.00982E-01	1.48391E-01
19	1.36872E-02	9.70841E-02	1.20340E-01	7.39959E-02	1.10619E-01	2.07276E-01	2.01946E-01	1.48603E-01
20	1.37177E-02	9.74264E-02	1.20797E-01	7.42939E-02	1.11112E-01	2.08256E-01	2.02582E-01	1.48758E-01
21	1.37368E-02	9.76460E-02	1.21095E-01	7.44897E-02	1.11439E-01	2.08925E-01	2.03025E-01	1.48874E-01
22	1.37489E-02	9.77890E-02	1.21293E-01	7.46208E-02	1.11660E-01	2.09387E-01	2.03338E-01	1.48961E-01
23	1.37569E-02	9.78808E-02	1.21422E-01	7.47060E-02	1.11806E-01	2.09708E-01	2.03665E-01	1.49029E-01
24	1.37609E-02	9.79854E-02	1.21500E-01	7.47588E-02	1.11897E-01	2.09908E-01	2.03695E-01	1.49065E-01
25	1.37628E-02	9.79803E-02	1.21537E-01	7.47832E-02	1.11941E-01	2.10006E-01	2.03768E-01	1.49086E-01
26	1.37624E-02	9.79570E-02	1.21539E-01	7.47819E-02	1.11940E-01	2.10014E-01	2.03774E-01	1.49088E-01
27	1.37606E-02	9.79367E-02	1.21508E-01	7.47644E-02	1.11912E-01	2.09959E-01	2.03737E-01	1.49073E-01

28	1.37580E-02	9.79069E-02	1.21469E-01	7.47380E-02	1.11868E-01	2.09868E-01	2.08674E-01	1.49053E-01
0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.16023E-01	1.07284E-01	1.01096E-01	6.55511E-02	5.59258E-02	5.30857E-02	2.88673E-02	1.59289E-02
2	1.16023E-01	1.07286E-01	1.01101E-01	6.55560E-02	5.59287E-02	5.30909E-02	2.88697E-02	1.59300E-02
3	1.16022E-01	1.07277E-01	1.01080E-01	6.55321E-02	5.59069E-02	5.30569E-02	2.88628E-02	1.59260E-02
4	1.16018E-01	1.07256E-01	1.01031E-01	6.54745E-02	5.58511E-02	5.29750E-02	2.88458E-02	1.59162E-02
5	1.16011E-01	1.07224E-01	1.00956E-01	6.53867E-02	5.57678E-02	5.28503E-02	2.88204E-02	1.59014E-02
6	1.16002E-01	1.07180E-01	1.00855E-01	6.52673E-02	5.56551E-02	5.26812E-02	2.87870E-02	1.58818E-02
7	1.15991E-01	1.07122E-01	1.00721E-01	6.51109E-02	5.55081E-02	5.24599E-02	2.87447E-02	1.58566E-02
8	1.15978E-01	1.07044E-01	1.00543E-01	6.49046E-02	5.53155E-02	5.21690E-02	2.86913E-02	1.58242E-02
9	1.15969E-01	1.06971E-01	1.00376E-01	6.47121E-02	5.51366E-02	5.18980E-02	2.86432E-02	1.57946E-02
10	1.15970E-01	1.06902E-01	1.00221E-01	6.45370E-02	5.49747E-02	5.16517E-02	2.86012E-02	1.57680E-02
11	1.15976E-01	1.06848E-01	1.00099E-01	6.43995E-02	5.48463E-02	5.14575E-02	2.85664E-02	1.57459E-02
12	1.15971E-01	1.06829E-01	1.00054E-01	6.43459E-02	5.47957E-02	5.13798E-02	2.85544E-02	1.57355E-02
13	1.15927E-01	1.06803E-01	9.99914E-02	6.42635E-02	5.47180E-02	5.12637E-02	2.85273E-02	1.57241E-02
14	1.15857E-01	1.06741E-01	9.98494E-02	6.40849E-02	5.45579E-02	5.10150E-02	2.84984E-02	1.57022E-02
15	1.15783E-01	1.06638E-01	9.96166E-02	6.38038E-02	5.43076E-02	5.06243E-02	2.84548E-02	1.56680E-02
16	1.15680E-01	1.06468E-01	9.92308E-02	6.33408E-02	5.38957E-02	4.99760E-02	2.83756E-02	1.56097E-02
17	1.15587E-01	1.06301E-01	9.88452E-02	6.28779E-02	5.34745E-02	4.93243E-02	2.82820E-02	1.55471E-02
18	1.15521E-01	1.06159E-01	9.85156E-02	6.24828E-02	5.31081E-02	4.87672E-02	2.81823E-02	1.54867E-02
19	1.15470E-01	1.06028E-01	9.82080E-02	6.21150E-02	5.27616E-02	4.82481E-02	2.80772E-02	1.54258E-02
20	1.15446E-01	1.05945E-01	9.80093E-02	6.18778E-02	5.25333E-02	4.79124E-02	2.79984E-02	1.53821E-02
21	1.15434E-01	1.05889E-01	9.78711E-02	6.17126E-02	5.23724E-02	4.76786E-02	2.79387E-02	1.53498E-02
22	1.15429E-01	1.05846E-01	9.77727E-02	6.15952E-02	5.22565E-02	4.75119E-02	2.78953E-02	1.53256E-02
23	1.15426E-01	1.05821E-01	9.77029E-02	6.15118E-02	5.21736E-02	4.73933E-02	2.78699E-02	1.53079E-02
24	1.15424E-01	1.05802E-01	9.76553E-02	6.14550E-02	5.21171E-02	4.73126E-02	2.78370E-02	1.52959E-02
25	1.15421E-01	1.05791E-01	9.76269E-02	6.14211E-02	5.20836E-02	4.72646E-02	2.78042E-02	1.52891E-02
26	1.15419E-01	1.05787E-01	9.76178E-02	6.14101E-02	5.20737E-02	4.72497E-02	2.78221E-02	1.52879E-02
27	1.15416E-01	1.05789E-01	9.76230E-02	6.14168E-02	5.20817E-02	4.72599E-02	2.78278E-02	1.52907E-02
28	1.15416E-01	1.05794E-01	9.76384E-02	6.14353E-02	5.21013E-02	4.72870E-02	2.78381E-02	1.52960E-02
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	6.88639E-03	5.06897E-03	1.03301E-02	3.45541E-02	1.06307E-02	2.16097E-02	7.33210E-02	6.03480E-02
2	6.88723E-03	5.07066E-03	1.03316E-02	3.45569E-02	1.06319E-02	2.16116E-02	7.33162E-02	6.03340E-02
3	6.88350E-03	5.06135E-03	1.03247E-02	3.45419E-02	1.06204E-02	2.15755E-02	7.32009E-02	6.02128E-02
4	6.87450E-03	5.03893E-03	1.03081E-02	3.45066E-02	1.05940E-02	2.14934E-02	7.29474E-02	5.99522E-02
5	6.86076E-03	5.00445E-03	1.02830E-02	3.44536E-02	1.05541E-02	2.13700E-02	7.25713E-02	5.95665E-02
6	6.84211E-03	4.95714E-03	1.02490E-02	3.43829E-02	1.05001E-02	2.12052E-02	7.20703E-02	5.90530E-02
7	6.81767E-03	4.89439E-03	1.02048E-02	3.42920E-02	1.04296E-02	2.09868E-02	7.14319E-02	5.84006E-02
8	6.78545E-03	4.81055E-03	1.01471E-02	3.41752E-02	1.03369E-02	2.07018E-02	7.06250E-02	5.75820E-02
9	6.75536E-03	4.73147E-03	1.00957E-02	3.40683E-02	1.02505E-02	2.04385E-02	6.98993E-02	5.68518E-02
10	6.72789E-03	4.65878E-03	1.00454E-02	3.39730E-02	1.01716E-02	2.02004E-02	6.92682E-02	5.62250E-02
11	6.70622E-03	4.60319E-03	1.00068E-02	3.38962E-02	1.01111E-02	2.00211E-02	6.88086E-02	5.57884E-02
12	6.69766E-03	4.58346E-03	9.99090E-03	3.38630E-02	1.00889E-02	1.99612E-02	6.86664E-02	5.56771E-02
13	6.68479E-03	4.56484E-03	9.96951E-03	3.38215E-02	1.00551E-02	1.98511E-02	6.83980E-02	5.54012E-02
14	6.65693E-03	4.46438E-03	9.92434E-03	3.37378E-02	9.97584E-03	1.96015E-02	6.77860E-02	5.47732E-02
15	6.61282E-03	4.33388E-03	9.85351E-03	3.36089E-02	9.85020E-03	1.92128E-02	6.68990E-02	5.38771E-02
16	6.54006E-03	4.09981E-03	9.73561E-03	3.33954E-02	9.64370E-03	1.85685E-02	6.55310E-02	5.25478E-02
17	6.46757E-03	3.86727E-03	9.61391E-03	3.31691E-02	9.43901E-03	1.79293E-02	6.41383E-02	5.12183E-02
18	6.40607E-03	3.69618E-03	9.50407E-03	3.29520E-02	9.26664E-03	1.74007E-02	6.28091E-02	4.99395E-02
19	6.34892E-03	3.55276E-03	9.39875E-03	3.27340E-02	9.10672E-03	1.69161E-02	6.14735E-02	4.86469E-02
20	6.31196E-03	3.47233E-03	9.32831E-03	3.25802E-02	9.00357E-03	1.66076E-02	6.05225E-02	4.77222E-02
21	6.28619E-03	3.42148E-03	9.27833E-03	3.24664E-02	8.93143E-03	1.63953E-02	5.98103E-02	4.70277E-02
22	6.26779E-03	3.38796E-03	9.24220E-03	3.23814E-02	8.87965E-03	1.62401E-02	5.92713E-02	4.65018E-02
23	6.25469E-03	3.36541E-03	9.21625E-03	3.23190E-02	8.84243E-03	1.61300E-02	5.88669E-02	4.61070E-02
24	6.24579E-03	3.35053E-03	9.19846E-03	3.22757E-02	8.81670E-03	1.60533E-02	5.85748E-02	4.58208E-02
25	6.24053E-03	3.34139E-03	9.18778E-03	3.22499E-02	8.80062E-03	1.60045E-02	5.83821E-02	4.56277E-02
26	6.23895E-03	3.33757E-03	9.18461E-03	3.22411E-02	8.79414E-03	1.59823E-02	5.82878E-02	4.55247E-02
27	6.24049E-03	3.33747E-03	9.18670E-03	3.22474E-02	8.79538E-03	1.59825E-02	5.82784E-02	4.55014E-02
28	6.24350E-03	3.34055E-03	9.19248E-03	3.22625E-02	8.80196E-03	1.59983E-02	5.83274E-02	4.55341E-02
0 int.	grp. 25	grp. 26	grp. 27					

1	2.73358E-02	1.97348E-02	3.74869E-03
2	2.73254E-02	1.97234E-02	3.74592E-03
3	2.72609E-02	1.96669E-02	3.73435E-03
4	2.71236E-02	1.95477E-02	3.70980E-03
5	2.69204E-02	1.93700E-02	3.67270E-03
6	2.66494E-02	1.91311E-02	3.62194E-03
7	2.63053E-02	1.88253E-02	3.55958E-03
8	2.58754E-02	1.84401E-02	3.47009E-03
9	2.54946E-02	1.80971E-02	3.39286E-03
10	2.51721E-02	1.78047E-02	3.32660E-03
11	2.49566E-02	1.76165E-02	3.28653E-03
12	2.49102E-02	1.75879E-02	3.28384E-03
13	2.47570E-02	1.74473E-02	3.24605E-03
14	2.44083E-02	1.71140E-02	3.15512E-03
15	2.39238E-02	1.66443E-02	3.02025E-03
16	2.32257E-02	1.59751E-02	2.82372E-03
17	2.25352E-02	1.53421E-02	2.65440E-03
18	2.18768E-02	1.47682E-02	2.52580E-03
19	2.12153E-02	1.42094E-02	2.40957E-03
20	2.07461E-02	1.38304E-02	2.33815E-03
21	2.03974E-02	1.35589E-02	2.28999E-03
22	2.01360E-02	1.33604E-02	2.25651E-03
23	1.99414E-02	1.32164E-02	2.23271E-03
24	1.98006E-02	1.31139E-02	2.21612E-03
25	1.97052E-02	1.30450E-02	2.20510E-03
26	1.96519E-02	1.30053E-02	2.19875E-03
27	1.96365E-02	1.29913E-02	2.19635E-03
28	1.96467E-02	1.29943E-02	2.19625E-03

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	5.12634E-04	6.78513E-04	5.64972E-05	-7.34974E-04	9.99950E-01
2	.00000E+00	.00000E+00	3.89318E-04	6.20419E-03	8.15427E-03	1.77259E-04	-7.94192E-03	9.99961E-01
3	.00000E+00	.00000E+00	3.87393E-03	5.48243E-03	1.42642E-02	9.30813E-05	-1.04830E-02	9.99977E-01
4	.00000E+00	.00000E+00	5.61194E-03	3.60754E-03	1.23952E-02	4.20998E-05	-6.82516E-03	9.99987E-01
5	.00000E+00	.00000E+00	1.02980E-02	1.15402E-02	2.09074E-02	4.97317E-05	-1.06589E-02	9.99990E-01
6	.00000E+00	.00000E+00	2.15495E-02	3.45127E-02	4.10188E-02	8.43286E-05	-1.95534E-02	9.99998E-01
7	.00000E+00	.00000E+00	4.22775E-02	6.09915E-02	5.41559E-02	6.12428E-05	-1.19391E-02	9.99990E-01
8	.00000E+00	.00000E+00	5.63876E-02	7.83945E-02	5.87817E-02	3.64252E-05	-2.42535E-03	9.99912E-01
9	.00000E+00	.00000E+00	5.78207E-02	7.26830E-02	5.75582E-02	2.93045E-05	2.39825E-04	9.99885E-01
10	.00000E+00	.00000E+00	5.71334E-02	6.92801E-02	5.56769E-02	3.61195E-05	1.42638E-03	9.99896E-01
11	.00000E+00	.00000E+00	5.59526E-02	6.57431E-02	5.24857E-02	5.52823E-05	3.41398E-03	9.99940E-01
12	.00000E+00	.00000E+00	4.55042E-02	3.51725E-02	4.13848E-02	6.05815E-05	4.05977E-03	9.99978E-01
13	.00000E+00	.00000E+00	4.05606E-02	2.85939E-02	3.66698E-02	8.47043E-05	3.89740E-03	9.99969E-01
14	.00000E+00	.00000E+00	3.95170E-02	2.80911E-02	3.35570E-02	1.35568E-04	5.82491E-03	9.99988E-01
15	.00000E+00	.00000E+00	2.16231E-02	1.07912E-02	2.02163E-02	1.11967E-04	1.29488E-03	9.99998E-01
16	.00000E+00	.00000E+00	1.41666E-02	4.53187E-03	1.33513E-02	7.55767E-05	7.39689E-04	1.00000E+00
17	.00000E+00	.00000E+00	7.25527E-03	1.26248E-03	6.56865E-03	3.61401E-05	6.50624E-04	9.99980E-01
18	.00000E+00	.00000E+00	6.41239E-03	8.80709E-04	4.81237E-03	2.75577E-05	1.57250E-03	9.99994E-01
19	.00000E+00	.00000E+00	1.05371E-02	2.80299E-03	9.30287E-03	6.27786E-05	1.17162E-03	9.99986E-01
20	.00000E+00	.00000E+00	2.56905E-02	2.03021E-02	2.29543E-02	2.64782E-04	2.47121E-03	1.00001E+00
21	.00000E+00	.00000E+00	1.21985E-02	3.98849E-03	1.05759E-02	1.00025E-04	1.72275E-03	9.99981E-01
22	.00000E+00	.00000E+00	2.40127E-02	1.20675E-02	1.87796E-02	2.31784E-04	5.00151E-03	9.99991E-01
23	.00000E+00	.00000E+00	6.18254E-02	7.40863E-02	4.86505E-02	1.07547E-03	1.21000E-02	9.99992E-01
24	.00000E+00	.00000E+00	6.58498E-02	7.03337E-02	5.42912E-02	1.27958E-03	1.02796E-02	9.99992E-01
25	.00000E+00	.00000E+00	4.38875E-02	2.98990E-02	3.84652E-02	7.59907E-04	4.66466E-03	9.99994E-01
26	.00000E+00	.00000E+00	3.50840E-02	3.34582E-02	3.09031E-02	7.73774E-04	3.40732E-03	9.99994E-01
27	.00000E+00	.00000E+00	1.19145E-02	7.26339E-03	1.10650E-02	2.76473E-04	5.73019E-04	9.99999E-01
28	.00000E+00	.00000E+00	7.77425E-01	7.72478E-01	7.77425E-01	6.07808E-03	-6.05021E-03	9.99965E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux

1	1.32845E-02	-7.34974E-04	1.31657E-02	.00000E+00	3.75237E-11	.00000E+00	2.05365E-05	1.66106E-02
2	9.29464E-02	-7.94192E-03	9.14349E-02	.00000E+00	.00000E+00	.00000E+00	8.99265E-05	1.15714E-01
3	1.15100E-01	-1.04830E-02	1.12928E-01	.00000E+00	.00000E+00	.00000E+00	9.26504E-05	1.43060E-01
4	7.07274E-02	-6.82516E-03	6.91706E-02	.00000E+00	.00000E+00	.00000E+00	4.18456E-05	8.77364E-02
5	1.05483E-01	-1.06568E-02	1.02885E-01	.00000E+00	.00000E+00	.00000E+00	4.94384E-05	1.30649E-01
6	1.97766E-01	-1.95534E-02	1.92925E-01	.00000E+00	.00000E+00	.00000E+00	8.34586E-05	2.44982E-01
7	1.96203E-01	-1.19391E-02	1.93174E-01	.00000E+00	.00000E+00	.00000E+00	5.92983E-05	2.44371E-01
8	1.47493E-01	-2.42536E-03	1.47069E-01	.00000E+00	.00000E+00	.00000E+00	3.27431E-05	1.85075E-01
9	1.15973E-01	2.39825E-04	1.16022E-01	.00000E+00	.00000E+00	.00000E+00	2.16945E-05	1.45761E-01
10	1.06863E-01	1.42638E-03	1.07281E-01	.00000E+00	.00000E+00	.00000E+00	1.91913E-05	1.34590E-01
11	1.00132E-01	3.41398E-03	1.01089E-01	.00000E+00	.00000E+00	.00000E+00	1.79485E-05	1.26516E-01
12	6.44365E-02	4.05977E-03	6.55422E-02	.00000E+00	.00000E+00	.00000E+00	1.05351E-05	8.17599E-02
13	5.48821E-02	3.89740E-03	5.59150E-02	.00000E+00	.00000E+00	.00000E+00	8.75295E-06	6.96983E-02
14	5.15106E-02	5.82491E-03	5.30708E-02	.00000E+00	.00000E+00	.00000E+00	8.43566E-06	6.58576E-02
15	2.85786E-02	1.29488E-03	2.88649E-02	.00000E+00	.00000E+00	.00000E+00	4.44573E-06	3.61095E-02
16	1.57533E-02	7.39689E-04	1.59275E-02	.00000E+00	.00000E+00	.00000E+00	2.21776E-06	1.99177E-02
17	6.71186E-03	6.50624E-04	6.88469E-03	.00000E+00	.00000E+00	.00000E+00	8.75906E-07	8.55776E-03
18	4.61683E-03	1.57250E-03	5.06558E-03	.00000E+00	.00000E+00	.00000E+00	6.11462E-07	6.12381E-03
19	1.00173E-02	1.17162E-03	1.08272E-02	.00000E+00	.00000E+00	.00000E+00	1.34008E-06	1.28073E-02
20	3.39206E-02	2.47121E-03	3.45506E-02	.00000E+00	.00000E+00	.00000E+00	5.04726E-06	4.30622E-02
21	1.01259E-02	1.72275E-03	1.06271E-02	.00000E+00	.00000E+00	.00000E+00	1.19923E-06	1.30789E-02
22	2.00643E-02	5.00151E-03	2.16013E-02	.00000E+00	.00000E+00	.00000E+00	2.40335E-06	2.62900E-02
23	6.89102E-02	1.21000E-02	7.33008E-02	.00000E+00	.00000E+00	.00000E+00	7.38782E-06	8.95713E-02
24	5.58696E-02	1.02796E-02	6.08340E-02	.00000E+00	.00000E+00	.00000E+00	4.48697E-06	7.32015E-02
25	2.49909E-02	4.66466E-03	2.73313E-02	.00000E+00	.00000E+00	.00000E+00	1.56083E-06	3.29612E-02
26	1.76401E-02	3.40732E-03	1.97334E-02	.00000E+00	.00000E+00	.00000E+00	8.24149E-07	2.35667E-02
27	3.28934E-03	5.73019E-04	3.74895E-03	.00000E+00	.00000E+00	.00000E+00	9.71280E-08	4.44555E-03
28	1.73329E+00	-6.05016E-03	1.73997E+00	.00000E+00	3.75237E-11	.00000E+00	5.88752E-04	2.18205E+00

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.26681E-04	1.69926E-04	2.54915E-06	-1.66415E-04	1.00001E+00
2	.00000E+00	.00000E+00	2.96772E-05	1.47025E-03	1.05497E-03	1.41609E-05	-1.03947E-03	1.00000E+00
3	.00000E+00	.00000E+00	1.52059E-04	2.77987E-03	8.78965E-04	2.03420E-05	-7.47189E-04	9.99995E-01
4	.00000E+00	.00000E+00	2.89087E-04	2.31001E-03	2.99096E-04	1.31270E-05	-2.31168E-05	9.99997E-01
5	.00000E+00	.00000E+00	6.21348E-04	4.42235E-03	2.79680E-04	1.68860E-05	3.24773E-04	1.00000E+00
6	.00000E+00	.00000E+00	1.02825E-03	1.24105E-02	1.69562E-04	2.70798E-05	8.31595E-04	1.00000E+00
7	.00000E+00	.00000E+00	6.75439E-04	1.25993E-02	6.33305E-05	2.68257E-05	5.85293E-04	9.99999E-01
8	.00000E+00	.00000E+00	1.17756E-04	9.21348E-03	4.43664E-04	2.21254E-05	-3.48044E-04	1.00001E+00
9	.00000E+00	.00000E+00	4.45495E-04	6.36585E-03	5.30664E-05	7.67849E-05	3.15659E-04	9.99978E-01
10	.00000E+00	.00000E+00	5.31318E-05	4.99632E-03	4.95722E-05	5.94391E-05	-5.58849E-05	1.00000E+00
11	.00000E+00	.00000E+00	4.95755E-05	4.46568E-03	5.04333E-05	9.02401E-05	-9.10966E-05	1.00000E+00
12	.00000E+00	.00000E+00	5.04336E-05	2.76787E-03	5.14952E-05	5.68657E-06	-6.75488E-06	1.00000E+00
13	.00000E+00	.00000E+00	5.14953E-05	2.35816E-03	4.81048E-05	6.31862E-06	-2.92598E-06	1.00000E+00
14	.00000E+00	.00000E+00	4.81048E-05	2.21738E-03	4.17867E-05	8.46807E-06	-2.14998E-06	1.00000E+00
15	.00000E+00	.00000E+00	4.43495E-05	1.20592E-03	4.98544E-05	6.26518E-06	-1.11695E-05	9.99940E-01
16	.00000E+00	.00000E+00	5.51786E-05	6.36471E-04	5.51385E-05	3.77227E-06	-3.68326E-06	9.99939E-01
17	.00000E+00	.00000E+00	5.95582E-05	2.36301E-04	5.81661E-05	1.75654E-06	-3.61819E-07	9.99998E-01
18	.00000E+00	.00000E+00	6.09980E-05	1.52556E-04	4.92578E-05	1.27010E-06	1.04690E-05	9.99999E-01
19	.00000E+00	.00000E+00	5.13033E-05	3.82839E-04	5.64845E-05	2.97074E-06	-8.14872E-06	9.99997E-01
20	.00000E+00	.00000E+00	6.88780E-05	1.42789E-03	6.07046E-05	1.22760E-05	-3.99747E-06	9.99959E-01
21	.00000E+00	.00000E+00	7.92644E-05	3.58223E-04	8.55664E-05	4.44045E-06	-1.07377E-05	9.99997E-01
22	.00000E+00	.00000E+00	1.12663E-04	7.74799E-04	1.08549E-04	1.00041E-05	-8.30274E-07	9.99988E-01
23	.00000E+00	.00000E+00	1.60871E-04	2.81343E-03	2.06553E-04	4.59520E-05	-9.16002E-05	9.99997E-01
24	.00000E+00	.00000E+00	2.66925E-04	2.15347E-03	2.95531E-04	5.28600E-05	-8.14330E-05	9.99997E-01
25	.00000E+00	.00000E+00	2.73833E-04	8.71228E-04	2.24243E-04	3.08316E-05	1.87564E-05	1.00000E+00
26	.00000E+00	.00000E+00	1.16681E-04	6.83096E-04	9.02729E-05	3.06656E-05	-4.25688E-06	1.00000E+00
27	.00000E+00	.00000E+00	2.61757E-05	1.44269E-04	7.43328E-08	1.07085E-05	1.53984E-05	9.99999E-01
28	.00000E+00	.00000E+00	4.98853E-03	8.04442E-02	4.98853E-03	6.05781E-04	-5.97326E-04	9.99971E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.33116E-02	-9.01389E-04	1.32845E-02	-7.34974E-04	6.07129E-06	.00000E+00	1.67885E-06	2.21639E-03

2	9.32134E-02	-8.98139E-03	9.29464E-02	-7.94192E-03	.00000E+00	.00000E+00	1.12400E-05	1.55151E-02
3	1.15448E-01	-1.12302E-02	1.15100E-01	-1.04830E-02	.00000E+00	.00000E+00	1.27388E-05	1.92162E-02
4	7.09442E-02	-6.84828E-03	7.07274E-02	-6.82516E-03	.00000E+00	.00000E+00	7.45623E-06	1.18099E-02
5	1.05821E-01	-1.03341E-02	1.05483E-01	-1.06589E-02	.00000E+00	.00000E+00	8.64728E-06	1.76158E-02
6	1.98439E-01	-1.87218E-02	1.97765E-01	-1.95534E-02	.00000E+00	.00000E+00	1.01802E-05	3.30310E-02
7	1.96608E-01	-1.13538E-02	1.96203E-01	-1.19391E-02	.00000E+00	.00000E+00	8.35682E-06	3.27445E-02
8	1.47581E-01	-2.77340E-03	1.47493E-01	-2.42536E-03	.00000E+00	.00000E+00	5.27783E-06	2.45922E-02
9	1.15964E-01	5.55484E-04	1.15973E-01	2.39825E-04	.00000E+00	.00000E+00	4.58828E-06	1.93313E-02
10	1.06824E-01	1.37050E-03	1.06863E-01	1.42638E-03	.00000E+00	.00000E+00	4.91853E-06	1.78065E-02
11	1.00041E-01	3.32288E-03	1.00132E-01	3.41398E-03	.00000E+00	.00000E+00	4.77610E-06	1.66813E-02
12	6.43292E-02	4.05302E-03	6.44365E-02	4.05977E-03	.00000E+00	.00000E+00	3.22225E-06	1.07300E-02
13	5.47769E-02	3.89447E-03	5.48821E-02	3.89740E-03	.00000E+00	.00000E+00	2.73826E-06	9.13769E-03
14	5.13553E-02	5.82276E-03	5.15106E-02	5.82491E-03	.00000E+00	.00000E+00	2.56199E-06	8.57069E-03
15	2.85386E-02	1.28571E-03	2.85785E-02	1.29488E-03	.00000E+00	.00000E+00	1.40254E-06	4.75964E-03
16	1.57324E-02	7.36006E-04	1.57533E-02	7.39689E-04	.00000E+00	.00000E+00	7.73072E-07	2.62375E-03
17	6.69474E-03	6.50262E-04	6.71186E-03	6.50624E-04	.00000E+00	.00000E+00	3.28992E-07	1.11711E-03
18	4.57743E-03	1.58297E-03	4.61683E-03	1.57250E-03	.00000E+00	.00000E+00	2.25407E-07	7.65622E-04
19	9.98557E-03	1.16348E-03	1.00173E-02	1.17162E-03	.00000E+00	.00000E+00	4.90463E-07	1.66665E-03
20	3.38541E-02	2.46722E-03	3.39206E-02	2.47121E-03	.00000E+00	.00000E+00	1.65954E-06	5.64723E-03
21	1.00836E-02	1.71201E-03	1.01259E-02	1.72275E-03	.00000E+00	.00000E+00	4.98956E-07	1.68859E-03
22	1.99445E-02	5.00068E-03	2.00643E-02	5.00151E-03	.00000E+00	.00000E+00	9.76332E-07	3.33217E-03
23	6.86258E-02	1.20084E-02	6.89102E-02	1.21000E-02	.00000E+00	.00000E+00	3.34519E-06	1.14574E-02
24	5.56471E-02	1.01981E-02	5.58696E-02	1.02796E-02	.00000E+00	.00000E+00	2.69583E-06	9.28975E-03
25	2.48983E-02	4.68341E-03	2.49909E-02	4.66466E-03	.00000E+00	.00000E+00	1.19888E-06	4.15599E-03
26	1.75830E-02	3.40807E-03	1.76401E-02	3.40732E-03	.00000E+00	.00000E+00	8.37464E-07	2.93401E-03
27	3.28395E-03	5.88417E-04	3.28954E-03	5.73019E-04	.00000E+00	.00000E+00	1.51513E-07	5.47593E-04
28	1.73410E+00	-6.64754E-03	1.73329E+00	-6.05016E-03	6.07129E-06	.00000E+00	1.02960E-04	2.88981E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.71782E-04	3.59727E-04	2.99531E-05	-3.89661E-04	9.99985E-01
2	.00000E+00	.00000E+00	2.06404E-04	3.31172E-03	4.35264E-03	9.46367E-05	-4.24070E-03	9.99987E-01
3	.00000E+00	.00000E+00	2.05748E-03	2.93067E-03	7.62504E-03	4.97573E-05	-5.60713E-03	9.99990E-01
4	.00000E+00	.00000E+00	2.99885E-03	1.93131E-03	6.63580E-03	2.25383E-05	-3.66957E-03	9.99994E-01
5	.00000E+00	.00000E+00	5.50818E-03	6.18790E-03	1.12106E-02	2.66663E-05	-5.72899E-03	9.99995E-01
6	.00000E+00	.00000E+00	1.15427E-02	1.85005E-02	2.98795E-02	4.52042E-05	-1.04904E-02	9.99999E-01
7	.00000E+00	.00000E+00	2.26572E-02	3.24014E-02	2.87701E-02	3.25350E-05	-6.14510E-03	9.99998E-01
8	.00000E+00	.00000E+00	3.00076E-02	4.11900E-02	3.08851E-02	1.91385E-05	-8.98900E-04	9.99919E-01
9	.00000E+00	.00000E+00	3.04426E-02	3.80277E-02	3.01144E-02	1.53321E-05	3.16313E-04	9.99888E-01
10	.00000E+00	.00000E+00	2.99251E-02	3.61624E-02	2.90619E-02	1.88534E-05	8.47524E-04	9.99900E-01
11	.00000E+00	.00000E+00	2.92265E-02	3.41418E-02	2.72575E-02	2.87093E-05	1.94002E-03	9.99946E-01
12	.00000E+00	.00000E+00	2.36570E-02	1.81352E-02	2.13383E-02	3.12362E-05	2.28797E-03	9.99982E-01
13	.00000E+00	.00000E+00	2.10148E-02	1.47232E-02	1.88815E-02	4.36148E-05	2.09037E-03	9.99974E-01
14	.00000E+00	.00000E+00	2.05764E-02	1.43112E-02	1.70958E-02	6.90660E-05	3.21178E-03	9.99991E-01
15	.00000E+00	.00000E+00	1.10610E-02	5.60497E-03	1.05004E-02	5.81558E-05	5.02442E-04	1.00000E+00
16	.00000E+00	.00000E+00	7.29684E-03	2.35101E-03	6.98625E-03	3.92071E-05	3.31318E-04	1.00000E+00
17	.00000E+00	.00000E+00	3.74085E-03	6.45785E-04	3.35999E-03	1.84864E-05	3.62488E-04	9.99983E-01
18	.00000E+00	.00000E+00	3.30274E-03	4.20702E-04	2.29880E-03	1.31639E-05	9.90793E-04	9.99997E-01
19	.00000E+00	.00000E+00	5.37951E-03	1.42818E-03	4.74001E-03	3.19870E-05	6.07600E-04	9.99988E-01
20	.00000E+00	.00000E+00	1.31138E-02	1.04643E-02	1.18313E-02	1.36477E-04	1.14592E-03	1.00001E+00
21	.00000E+00	.00000E+00	6.21557E-03	1.99869E-03	5.19927E-03	5.01215E-05	9.66288E-04	9.99985E-01
22	.00000E+00	.00000E+00	1.21350E-02	5.90458E-03	9.18880E-03	1.13411E-04	2.83278E-03	9.99998E-01
23	.00000E+00	.00000E+00	3.05736E-02	3.68392E-02	2.41913E-02	5.34778E-04	5.84755E-03	1.00000E+00
24	.00000E+00	.00000E+00	3.23455E-02	3.45659E-02	2.66817E-02	6.28858E-04	5.03530E-03	9.99992E-01
25	.00000E+00	.00000E+00	2.14304E-02	1.45370E-02	1.87019E-02	3.69468E-04	2.35918E-03	9.99998E-01
26	.00000E+00	.00000E+00	1.70620E-02	1.59857E-02	1.47187E-02	3.68538E-04	1.97464E-03	1.00000E+00
27	.00000E+00	.00000E+00	5.76661E-03	3.37250E-03	5.13766E-03	1.28570E-04	5.00587E-04	1.00000E+00
28	.00000E+00	.00000E+00	3.99052E-01	3.96295E-01	3.99052E-01	3.01826E-03	-3.00434E-03	9.99966E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.34508E-02	-1.29105E-03	1.33114E-02	-9.01389E-04	1.98939E-11	.00000E+00	1.07812E-05	8.80639E-03
2	9.45620E-02	-1.32221E-02	9.32134E-02	-8.98139E-03	.00000E+00	.00000E+00	4.80016E-05	6.17666E-02

3	1.17086E-01	-1.68573E-02	1.15448E-01	-1.12502E-02	.00000E+00	.00000E+00	4.95270E-05	7.64740E-02
4	7.19126E-02	-1.05076E-02	7.09442E-02	-6.84828E-03	.00000E+00	.00000E+00	2.24022E-05	4.69701E-02
5	1.07280E-01	-1.60631E-02	1.05821E-01	-1.03341E-02	.00000E+00	.00000E+00	2.65090E-05	7.00543E-02
6	2.01035E-01	-2.92121E-02	1.98438E-01	-1.87218E-02	.00000E+00	.00000E+00	4.47378E-05	1.31322E-01
7	1.98115E-01	-1.74989E-02	1.96608E-01	-1.13538E-02	.00000E+00	.00000E+00	3.15020E-05	1.29821E-01
8	1.47874E-01	-3.66730E-03	1.47581E-01	-2.77340E-03	.00000E+00	.00000E+00	1.72039E-05	9.72422E-02
9	1.15741E-01	8.71797E-04	1.15964E-01	5.55484E-04	.00000E+00	.00000E+00	1.13508E-05	7.62619E-02
10	1.06576E-01	2.21802E-03	1.06824E-01	1.37050E-03	.00000E+00	.00000E+00	1.00173E-05	7.02524E-02
11	9.94764E-02	5.26291E-03	1.00041E-01	3.32288E-03	.00000E+00	.00000E+00	9.32104E-06	6.57025E-02
12	6.36356E-02	6.34099E-03	6.43292E-02	4.05302E-03	.00000E+00	.00000E+00	5.43196E-06	4.21560E-02
13	5.41584E-02	5.98484E-03	5.47769E-02	3.89447E-03	.00000E+00	.00000E+00	4.50666E-06	3.58881E-02
14	5.03908E-02	9.03455E-03	5.13553E-02	5.82276E-03	.00000E+00	.00000E+00	4.29760E-06	3.35414E-02
15	2.84310E-02	1.78615E-03	2.85386E-02	1.28371E-03	.00000E+00	.00000E+00	2.30912E-06	1.87553E-02
16	1.56483E-02	1.06732E-03	1.57324E-02	7.36006E-04	.00000E+00	.00000E+00	1.15051E-06	1.03328E-02
17	6.58612E-03	1.01275E-03	6.69474E-03	6.50262E-04	.00000E+00	.00000E+00	4.48043E-07	4.37746E-03
18	4.25496E-03	2.57376E-03	4.57743E-03	1.58297E-03	.00000E+00	.00000E+00	2.92086E-07	2.92526E-03
19	9.81114E-03	1.77107E-03	9.98557E-03	1.16348E-03	.00000E+00	.00000E+00	6.82800E-07	6.52561E-03
20	3.35353E-02	3.61313E-03	3.38541E-02	2.46722E-03	.00000E+00	.00000E+00	2.60151E-06	2.21955E-02
21	9.77459E-03	2.67830E-03	1.00836E-02	1.71201E-03	.00000E+00	.00000E+00	6.00920E-07	6.55372E-03
22	1.89810E-02	7.83344E-03	1.99445E-02	5.00068E-03	.00000E+00	.00000E+00	1.17995E-06	1.28636E-02
23	6.63828E-02	1.78659E-02	6.86258E-02	1.20084E-02	.00000E+00	.00000E+00	3.67357E-06	4.45390E-02
24	5.33583E-02	1.52334E-02	5.56471E-02	1.01981E-02	.00000E+00	.00000E+00	2.20515E-06	3.59753E-02
25	2.36448E-02	7.04260E-03	2.48983E-02	4.68341E-03	.00000E+00	.00000E+00	7.58881E-07	1.60258E-02
26	1.63712E-02	5.37770E-03	1.75830E-02	3.40507E-03	.00000E+00	.00000E+00	3.92531E-07	1.12245E-02
27	2.95822E-03	1.08900E-03	3.28395E-03	5.88417E-04	.00000E+00	.00000E+00	4.50979E-08	2.06414E-03
28	1.73101E+00	-9.65188E-03	1.73410E+00	-6.64754E-03	1.98939E-11	.00000E+00	3.11926E-04	1.14062E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.36542E-02	.00000E+00	2.19234E-02	2.08388E-02	3.84762E-03	1.29105E-03	9.98908E-01
2	.00000E+00	1.95973E-01	7.21990E-03	2.53086E-01	1.74591E-01	1.53910E-02	1.32221E-02	1.00002E+00
3	.00000E+00	2.16224E-01	7.22109E-02	2.58592E-01	2.55402E-01	1.61990E-02	1.68374E-02	9.99987E-01
4	.00000E+00	1.23574E-01	1.06181E-01	1.77291E-01	2.11534E-01	7.71395E-03	1.05077E-02	1.00000E+00
5	.00000E+00	1.63447E-01	1.92918E-01	4.45198E-01	3.35172E-01	5.13346E-03	1.60532E-02	9.99990E-01
6	.00000E+00	1.75940E-01	3.92035E-01	1.19124E+00	5.30699E-01	8.05661E-03	2.92123E-02	1.00001E+00
7	.00000E+00	8.67841E-02	5.94038E-01	1.56374E+00	6.55371E-01	7.95952E-03	1.74943E-02	9.99998E-01
8	.00000E+00	1.33562E-02	6.89761E-01	1.57566E+00	6.86569E-01	1.29858E-02	3.66698E-03	9.99922E-01
9	.00000E+00	9.69036E-04	6.78647E-01	1.37341E+00	6.59114E-01	2.14467E-02	-8.62380E-04	9.99880E-01
10	.00000E+00	7.19709E-05	6.56094E-01	1.25186E+00	6.26113E-01	3.23367E-02	-2.22100E-03	9.99905E-01
11	.00000E+00	5.66212E-06	6.30081E-01	1.16759E+00	5.82162E-01	5.32241E-02	-5.26709E-03	9.99949E-01
12	.00000E+00	3.97753E-07	5.06991E-01	6.38162E-01	4.54730E-01	5.86155E-02	-6.34265E-03	9.99978E-01
13	.00000E+00	6.31594E-08	4.49400E-01	5.06634E-01	3.99416E-01	5.59826E-02	-5.98324E-03	9.99967E-01
14	.00000E+00	1.25165E-08	4.31462E-01	4.67141E-01	3.58841E-01	8.16502E-02	-9.08492E-03	9.99990E-01
15	.00000E+00	1.41450E-09	2.36019E-01	2.13149E-01	2.28834E-01	8.78631E-03	-1.79545E-03	1.00040E+00
16	.00000E+00	4.15347E-10	1.60834E-01	9.76436E-02	1.54662E-01	7.17729E-03	-1.07294E-03	1.00042E+00
17	.00000E+00	1.33762E-10	8.56851E-02	2.99366E-02	7.67639E-02	9.90987E-03	-1.00995E-03	1.00025E+00
18	.00000E+00	9.57698E-11	7.58718E-02	1.68306E-02	4.80052E-02	3.04344E-02	-2.57336E-03	1.00007E+00
19	.00000E+00	1.35398E-10	1.16745E-01	5.54589E-02	1.05540E-01	1.29515E-02	-1.76842E-03	1.00019E+00
20	.00000E+00	2.20171E-10	2.79622E-01	3.29955E-01	2.55151E-01	2.79898E-02	-3.62822E-03	1.00039E+00
21	.00000E+00	3.22259E-11	1.36533E-01	6.36280E-02	1.12895E-01	2.62950E-02	-2.67702E-03	1.00016E+00
22	.00000E+00	3.73894E-11	2.57241E-01	1.60511E-01	1.87976E-01	7.70540E-02	-7.85945E-03	1.00019E+00
23	.00000E+00	3.57484E-11	6.11482E-01	9.15499E-01	4.92698E-01	1.36451E-01	-1.78695E-02	1.00031E+00
24	.00000E+00	9.73027E-12	6.46601E-01	8.03187E-01	5.35919E-01	1.25768E-01	-1.52525E-02	1.00022E+00
25	.00000E+00	2.84838E-12	4.30028E-01	3.27752E-01	3.68325E-01	6.86843E-02	-7.05787E-03	1.00013E+00
26	.00000E+00	1.99730E-12	3.33961E-01	3.30600E-01	2.77086E-01	6.22645E-02	-5.37779E-03	1.00012E+00
27	.00000E+00	4.75968E-13	1.10502E-01	6.69367E-02	9.36965E-02	1.78884E-02	-1.08693E-03	1.00006E+00
28	.00000E+00	1.00000E+00	8.88815E+00	1.43023E+01	8.88815E+00	9.92146E-01	9.62244E-03	1.00006E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.37564E-02	2.68880E-09	1.34508E-02	-1.29105E-03	2.29488E-03	2.54853E-03	3.03452E-04	3.49686E-01
2	9.78884E-02	4.62509E-08	9.45620E-02	-1.32221E-02	1.56325E-05	1.10581E-02	1.60928E-03	2.48573E+00
3	1.21444E-01	5.63894E-08	1.17086E-01	-1.68573E-02	.00000E+00	1.32870E-02	1.89836E-03	3.08300E+00

4	7.47215E-02	4.07060E-08	7.19126E-02	-1.05076E-02	.00000E+00	5.68358E-03	8.86693E-04	1.89654E+00
5	1.11840E-01	1.13271E-07	1.07280E-01	-1.60631E-02	.00000E+00	1.60271E-03	1.03329E-03	2.83757E+00
6	2.09812E-01	1.71846E-07	2.01035E-01	-2.92121E-02	.00000E+00	1.26484E-03	1.75209E-03	5.32128E+00
7	2.03636E-01	-4.58645E-06	1.98115E-01	-1.74989E-02	.00000E+00	1.15758E-03	1.22718E-03	5.17121E+00
8	1.49040E-01	-3.20550E-07	1.47874E-01	-3.66730E-03	.00000E+00	1.13574E-03	6.99004E-04	3.79163E+00
9	1.15413E-01	9.41713E-06	1.15741E-01	8.71797E-04	.00000E+00	1.48174E-03	4.71953E-04	2.93943E+00
10	1.05799E-01	-2.97725E-06	1.06576E-01	2.21802E-03	.00000E+00	3.16392E-03	4.29193E-04	2.69595E+00
11	9.76494E-02	-4.18098E-06	9.94764E-02	5.26291E-03	.00000E+00	6.93966E-03	3.87460E-04	2.49132E+00
12	6.14479E-02	-1.66196E-06	6.36356E-02	6.34099E-03	.00000E+00	9.30799E-03	2.27664E-04	1.57050E+00
13	5.21141E-02	1.60048E-06	5.41584E-02	5.98484E-03	.00000E+00	1.13687E-02	1.95820E-04	1.33257E+00
14	4.73053E-02	-3.76107E-07	5.03908E-02	9.03455E-03	.00000E+00	7.12078E-03	1.71585E-04	1.21279E+00
15	2.78461E-02	-9.29524E-06	2.84310E-02	1.78615E-03	.00000E+00	1.55906E-03	1.09558E-04	7.10790E-01
16	1.53000E-02	-5.61701E-06	1.56483E-02	1.06732E-03	.00000E+00	1.12102E-03	5.61468E-05	3.90564E-01
17	6.24486E-03	2.81560E-06	6.58612E-03	1.01275E-03	.00000E+00	1.14970E-03	1.99596E-05	1.59929E-01
18	3.34268E-03	4.09098E-07	4.25496E-03	2.57376E-03	.00000E+00	6.99870E-04	7.02970E-06	8.71896E-02
19	9.19575E-03	2.65518E-06	9.81114E-03	1.77107E-03	.00000E+00	1.88434E-03	3.02256E-05	2.35920E-01
20	3.22761E-02	-1.50844E-06	3.35353E-02	3.61313E-03	.00000E+00	1.31901E-02	1.18810E-04	8.25631E-01
21	8.80620E-03	1.27856E-06	9.77459E-03	2.67830E-03	.00000E+00	1.49055E-02	2.42019E-05	2.26979E-01
22	1.60104E-02	-5.98316E-06	1.89810E-02	7.83546E-03	.00000E+00	4.44033E-02	4.01212E-05	4.16148E-01
23	5.83634E-02	-3.58308E-06	6.63826E-02	1.78559E-02	.00000E+00	7.37467E-02	1.55643E-04	1.51481E+00
24	4.55585E-02	9.12368E-07	5.33583E-02	1.52334E-02	.00000E+00	6.55348E-02	9.64147E-05	1.18923E+00
25	1.96549E-02	4.73044E-06	2.36448E-02	7.04260E-03	.00000E+00	3.71580E-02	3.32758E-05	5.15445E-01
26	1.29978E-02	-8.85605E-08	1.63712E-02	5.37770E-03	.00000E+00	3.41225E-02	1.65107E-05	3.42812E-01
27	2.19635E-03	7.05898E-08	2.95822E-03	1.08900E-03	.00000E+00	9.65668E-03	1.70463E-06	5.80895E-02
28	1.71966E+00	-2.94197E-05	1.73101E+00	-9.65188E-03	2.31051E-03	3.76272E-01	1.19206E-02	4.38527E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.36542E-02	.00000E+00	2.29345E-02	2.20470E-02	3.93662E-03	2.68880E-09	9.98905E-01
2	.00000E+00	1.95973E-01	7.84530E-03	2.64072E-01	1.88153E-01	1.56771E-02	4.62509E-08	1.00002E+00
3	.00000E+00	2.16224E-01	7.83043E-02	2.69785E-01	2.78170E-01	1.63622E-02	5.63894E-08	9.99986E-01
4	.00000E+00	1.23574E-01	1.15081E-01	1.85140E-01	2.30864E-01	7.79172E-03	4.07060E-08	9.99999E-01
5	.00000E+00	1.63447E-01	2.09346E-01	4.67349E-01	3.67570E-01	5.22675E-03	1.13271E-07	9.99989E-01
6	.00000E+00	1.75940E-01	4.26155E-01	1.25666E+00	5.98875E-01	8.21322E-03	1.71846E-07	1.00001E+00
7	.00000E+00	8.67841E-02	6.59648E-01	1.66973E+00	7.38361E-01	8.07992E-03	-4.58645E-06	9.99995E-01
8	.00000E+00	1.33562E-02	7.76274E-01	1.70446E+00	7.76679E-01	1.30135E-02	-3.20550E-07	9.99921E-01
9	.00000E+00	9.69036E-04	7.67356E-01	1.49049E+00	7.46859E-01	2.15681E-02	9.41713E-06	9.99880E-01
10	.00000E+00	7.19709E-05	7.43206E-01	1.36230E+00	7.10902E-01	3.24511E-02	-2.97725E-06	9.99935E-01
11	.00000E+00	5.66212E-06	7.15307E-01	1.27194E+00	6.61956E-01	5.33983E-02	-4.18098E-06	9.99947E-01
12	.00000E+00	3.97753E-07	5.76203E-01	6.94237E-01	5.17506E-01	5.87130E-02	-1.66196E-06	9.99978E-01
13	.00000E+00	6.31594E-08	5.11117E-01	5.52309E-01	4.55015E-01	5.61172E-02	1.60048E-06	9.99967E-01
14	.00000E+00	1.25165E-08	4.91393E-01	5.11761E-01	4.09535E-01	8.18633E-02	-3.76107E-07	9.99990E-01
15	.00000E+00	1.41450E-09	2.68747E-01	2.30751E-01	2.59700E-01	8.96168E-03	-9.29524E-06	1.00036E+00
16	.00000E+00	4.15347E-10	1.82353E-01	1.05163E-01	1.74994E-01	7.29584E-03	-5.61701E-06	1.00037E+00
17	.00000E+00	1.33762E-10	9.67408E-02	3.17412E-02	8.67507E-02	9.96625E-03	2.81560E-06	1.00022E+00
18	.00000E+00	9.57698E-11	8.56479E-02	1.82845E-02	5.51654E-02	3.04764E-02	4.09092E-07	1.00006E+00
19	.00000E+00	1.35398E-10	1.32713E-01	6.00729E-02	1.19640E-01	1.30495E-02	2.65518E-06	1.00016E+00
20	.00000E+00	2.20171E-10	3.18495E-01	3.62149E-01	2.89997E-01	2.84033E-02	-1.50844E-05	1.00034E+00
21	.00000E+00	3.22259E-11	1.55026E-01	6.99713E-02	1.28554E-01	2.64496E-02	1.27856E-06	1.00014E+00
22	.00000E+00	3.73894E-11	2.95501E-01	1.79258E-01	2.16048E-01	7.74092E-02	-5.98316E-06	1.00017E+00
23	.00000E+00	3.57484E-11	7.04042E-01	1.02984E+00	5.65746E-01	1.38108E-01	-3.58308E-06	1.00027E+00
24	.00000E+00	9.73027E-12	7.45053E-01	9.10240E-01	6.17187E-01	1.27729E-01	9.12368E-07	1.00020E+00
25	.00000E+00	2.84838E-12	4.95622E-01	3.73060E-01	4.25714E-01	6.98446E-02	4.73044E-06	1.00011E+00
26	.00000E+00	1.99730E-12	3.86224E-01	3.80677E-01	3.22748E-01	6.34375E-02	-8.85605E-08	1.00010E+00
27	.00000E+00	4.75968E-13	1.28209E-01	7.77169E-02	1.09899E-01	1.83039E-02	7.05898E-08	1.00004E+00
28	.00000E+00	1.00000E+00	1.00696E+01	1.55515E+01	1.00696E+01	1.00186E+00	-2.94321E-05	1.00006E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.37564E-02	2.68880E-09	1.31657E-02	.00000E+00	2.30095E-03	2.54853E-03	3.36247E-04	3.77319E-01
2	9.78884E-02	4.62509E-08	9.14349E-02	.00000E+00	1.56325E-05	1.10581E-02	1.75845E-03	2.67873E+00
3	1.21444E-01	5.63894E-08	1.12928E-01	.00000E+00	.00000E+00	1.32870E-02	1.99528E-03	3.32175E+00
4	7.47215E-02	4.07060E-08	6.91706E-02	.00000E+00	.00000E+00	5.68358E-03	9.58397E-04	2.04306E+00

5	1.11840E-01	1.13271E-07	1.02885E-01	.00000E+00	.00000E+00	1.60271E-03	1.11788E-03	3.05589E+00
6	2.09812E-01	1.71846E-07	1.92925E-01	.00000E+00	.00000E+00	1.26484E-03	1.87047E-03	5.73062E+00
7	2.03636E-01	-4.58645E-06	1.93174E-01	.00000E+00	.00000E+00	1.15758E-03	1.32634E-03	5.57814E+00
8	1.49040E-01	-3.20550E-07	1.47069E-01	.00000E+00	.00000E+00	1.13574E-03	7.54229E-04	4.09854E+00
9	1.15413E-01	9.41713E-06	1.16022E-01	.00000E+00	.00000E+00	1.48174E-03	5.09567E-04	3.18078E+00
10	1.05799E-01	-2.97725E-06	1.07281E-01	.00000E+00	.00000E+00	3.16392E-03	4.63520E-04	2.91860E+00
11	9.76494E-02	-4.18098E-06	1.01089E-01	.00000E+00	.00000E+00	6.93966E-03	4.19506E-04	2.70022E+00
12	6.14479E-02	-1.66196E-06	6.55422E-02	.00000E+00	.00000E+00	9.30799E-03	2.46854E-04	1.70515E+00
13	5.21141E-02	1.60048E-06	5.59150E-02	.00000E+00	.00000E+00	1.13687E-02	2.09817E-04	1.44729E+00
14	4.73053E-02	-3.76107E-07	5.30708E-02	.00000E+00	.00000E+00	7.12078E-03	1.86880E-04	1.32074E+00
15	2.78461E-02	-9.29524E-06	2.88649E-02	.00000E+00	.00000E+00	1.55906E-03	1.17715E-04	7.70414E-01
16	1.53000E-02	-5.61701E-06	1.59275E-02	.00000E+00	.00000E+00	1.12102E-03	6.02882E-05	4.23438E-01
17	6.24486E-03	2.81560E-06	6.88469E-03	.00000E+00	.00000E+00	1.16970E-03	2.16125E-05	1.73981E-01
18	3.34268E-03	4.09092E-07	5.06558E-03	.00000E+00	.00000E+00	6.99870E-04	8.15865E-06	9.70043E-02
19	9.19575E-03	2.65518E-06	1.05272E-02	.00000E+00	.00000E+00	1.88434E-03	3.27390E-05	2.56920E-01
20	3.22761E-02	-1.50844E-05	3.45506E-02	.00000E+00	.00000E+00	1.31901E-02	1.28118E-04	8.96536E-01
21	8.80620E-03	1.27856E-06	1.06271E-02	.00000E+00	.00000E+00	1.49055E-02	2.64959E-05	2.48295E-01
22	1.60104E-02	-5.98316E-06	2.16013E-02	.00000E+00	.00000E+00	4.44033E-02	4.46768E-05	4.58634E-01
23	5.83634E-02	-3.58903E-06	7.33008E-02	.00000E+00	.00000E+00	7.37467E-02	1.70049E-04	1.66037E+00
24	4.55585E-02	9.12368E-07	6.03340E-02	.00000E+00	.00000E+00	6.55348E-02	1.05803E-04	1.30770E+00
25	1.96549E-02	4.73046E-06	2.73313E-02	.00000E+00	.00000E+00	3.71580E-02	3.67944E-05	5.68588E-01
26	1.29978E-02	-8.85605E-08	1.97334E-02	.00000E+00	.00000E+00	3.41225E-02	1.85649E-05	3.80537E-01
27	2.19635E-03	7.05898E-08	3.74889E-03	.00000E+00	.00000E+00	9.65668E-03	1.99836E-06	6.51468E-02
28	1.71966E+00	-2.94197E-05	1.73997E+00	.00000E+00	2.31659E-03	3.76272E-01	1.29243E-02	4.74644E+01

- elapsed time .02 min.
0direct access unit 9 requires 556 blocks of length 216 for cross section weighting.
1 transport cross section weighting function

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.17813E-03	5.10618E-03	5.31911E-03	2.51551E-03	3.18495E-03	5.52315E-03	3.71522E-03	1.74474E-03
2	7.17753E-04	5.04228E-03	5.81787E-03	3.45209E-03	4.30139E-03	6.14684E-03	4.32892E-03	2.14997E-03
3	1.20789E-03	5.53410E-03	5.90345E-03	2.92089E-03	3.86175E-03	6.77226E-03	4.37252E-03	1.82536E-03
4	8.29392E-04	4.34569E-03	4.96063E-03	2.39522E-03	2.83104E-03	4.80034E-03	3.32731E-03	1.80051E-03
5	8.53673E-04	4.41300E-03	5.00471E-03	2.41967E-03	2.88072E-03	4.88860E-03	3.37605E-03	1.80067E-03

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.11407E-03	1.01463E-03	1.09279E-03	8.75769E-04	8.02605E-04	1.07075E-03	3.27189E-04	1.73544E-04
2	1.79255E-03	1.95561E-03	2.04409E-03	1.60541E-03	1.43427E-03	1.74001E-03	6.33522E-04	3.52567E-04
3	1.12226E-03	1.05255E-03	1.29000E-03	1.22412E-03	1.13843E-03	1.63197E-03	3.99080E-04	2.22891E-04
4	1.19720E-03	1.09604E-03	1.03093E-03	6.78184E-04	6.02020E-04	6.45895E-04	3.11402E-04	1.61499E-04
5	1.19522E-03	1.09649E-03	1.04607E-03	7.05857E-04	6.29027E-04	6.95465E-04	3.16166E-04	1.64672E-04

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.17950E-04	2.55100E-04	2.09827E-04	5.05261E-04	2.92204E-04	8.35224E-04	2.10019E-03	1.76126E-03
2	2.04480E-04	3.94776E-04	3.43641E-04	8.86648E-04	4.61474E-04	1.27828E-03	3.21924E-03	2.71167E-03
3	1.81742E-04	4.40078E-04	3.19116E-04	6.96578E-04	4.69257E-04	1.36531E-03	3.20162E-03	2.71696E-03
4	7.39435E-05	8.25546E-05	1.24815E-04	3.84526E-04	1.39479E-04	3.43500E-04	1.08898E-03	8.07407E-04
5	7.95174E-05	1.00861E-04	1.34662E-04	4.00439E-04	1.56276E-04	3.96011E-04	1.15228E-03	9.08085E-04

0zone	grp. 25	grp. 26	grp. 27	grp. 28
1	7.89621E-04	5.55903E-04	8.46702E-05	4.22635E-02
2	1.23294E-03	8.92954E-04	1.53520E-04	5.52948E-02
3	1.24981E-03	9.31120E-04	1.73817E-04	5.22246E-02
4	3.35566E-04	2.03516E-04	2.55228E-05	3.45729E-02
5	3.85561E-04	2.41154E-04	3.23551E-05	3.54711E-02

1broad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.0000E+07	2.6656E+06	1.9708E+09	7.2287E-01
2	9.0000E+05	1.5177E+05	1.0210E+07	2.7713E-01
3	4.0000E-01	1.2448E-01	3.6380E+05	1.2042E-10
4	1.0000E-05			

1 1200 d, second part of sas2h pass to make library
0cell averaged fluxes

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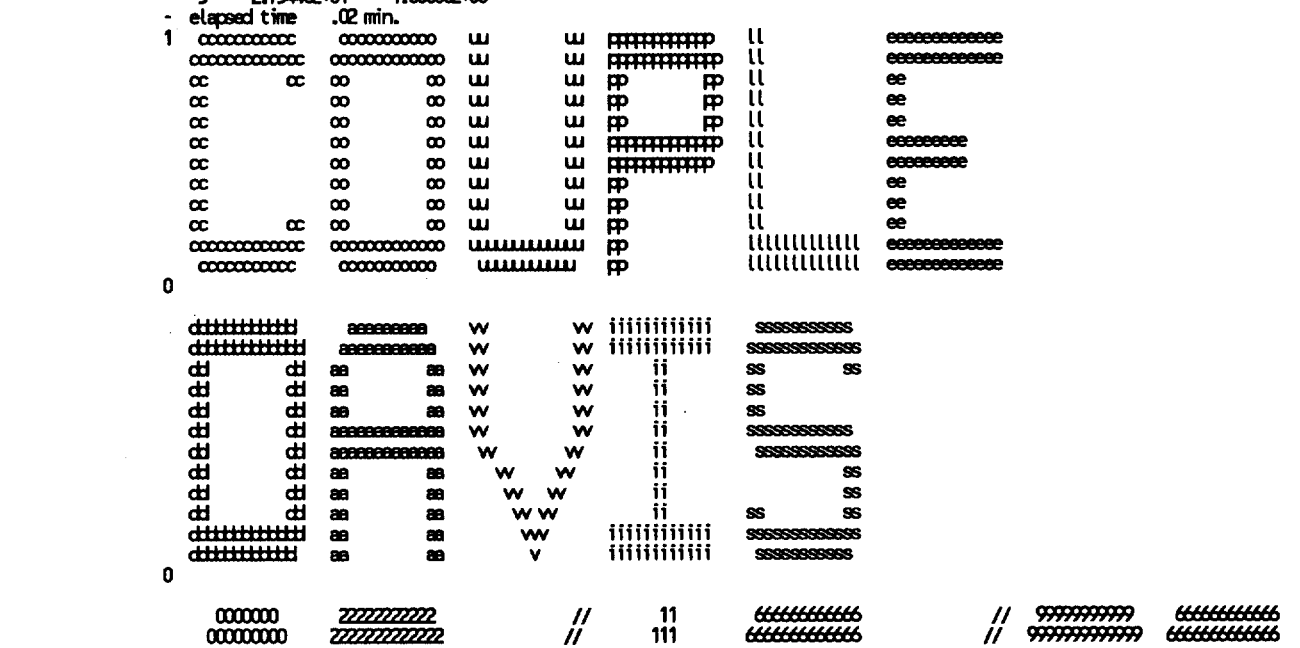
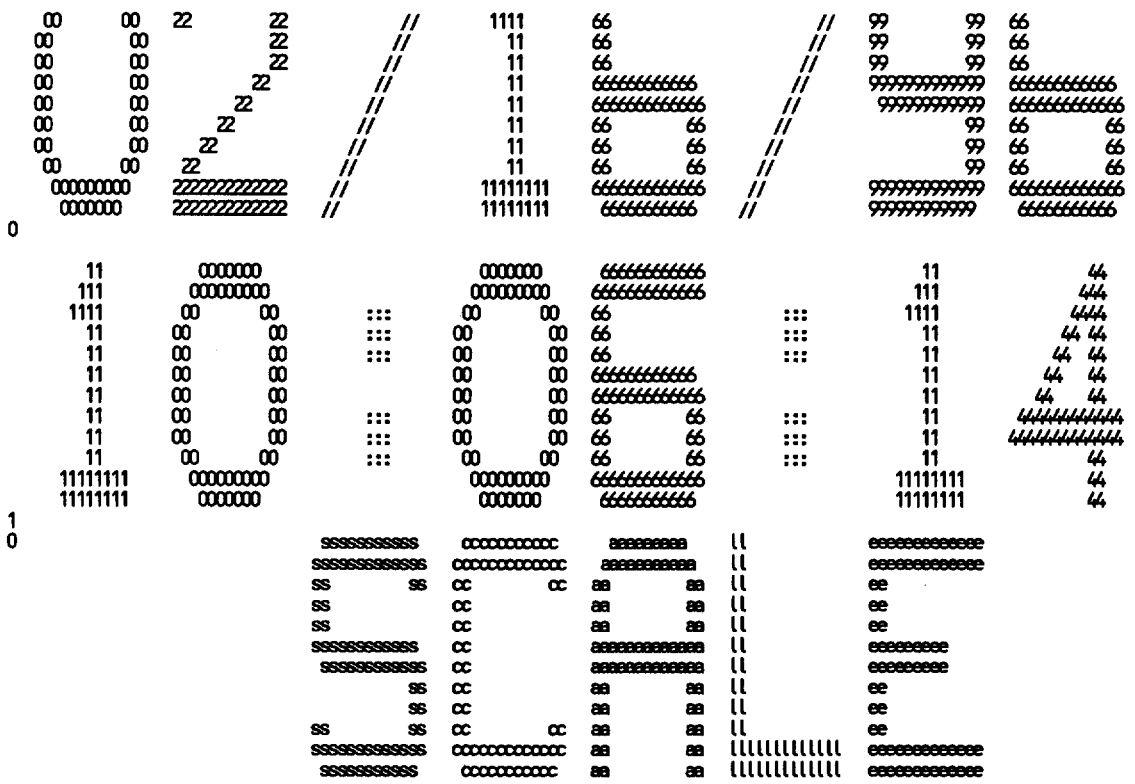
Ozone   grp. 1      grp. 2      grp. 3
    1 3.92924E-01 1.13410E+00 2.09577E-01
    2 3.98192E-01 1.13511E+00 2.00379E-01
    3 4.01162E-01 1.13526E+00 1.96343E-01
    4 4.18364E-01 1.13645E+00 1.67444E-01
    5 4.16670E-01 1.13631E+00 1.70247E-01
Oflux disadvantage factors (zone average/cell average-flux)

Ozone   grp. 1      grp. 2      grp. 3
    1 9.43011E-01 9.98057E-01 1.22985E+00
    2 9.55654E-01 9.98946E-01 1.17699E+00
    3 9.62782E-01 9.99076E-01 1.15329E+00
    4 1.00407E+00 1.00013E+00 9.85535E-01
    5 1.00000E+00 1.00000E+00 1.00000E+00
Ocell averaged currents

Ozone   grp. 1      grp. 2      grp. 3
    1 1.73039E-02 1.85406E-02 6.41907E-03
    2 1.95314E-02 2.60133E-02 9.95008E-03
    3 1.94281E-02 2.26887E-02 1.01079E-02
    4 1.53620E-02 1.63172E-02 2.89377E-03
    5 1.55718E-02 1.66296E-02 3.26972E-03
Ozone       volume      vol. fraction

   1     1.25665E+00     4.56236E-02
   2     1.66687E-01     6.05165E-03
   3     6.58265E-01     2.38987E-02
   4     2.54624E+01     9.24426E-01
   5     2.75440E+01     1.00000E+00
-  elapsed time    .02 min.
1
0
0
0
```





```
  00      00  22       22          //      1111     66                  //  99       99  66
 00       00           22         //        11     66                  //  99       99  66
 00       00           22        //         11     66                  //  99       99  66
 00       00         22         //          11     666666666666       //   9999999999999  666666666666
 00       00       22          //           11     6666666666666     //     999999999999  6666666666666
 00       00     22           //            11     66       66      //               99  66       66
 00       00   22            //             11     66       66     //                99  66       66
  00      00  22           //              11     66       66    //                 99  66       66
   000000000  2222222222222 //            11111111  6666666666666 //        9999999999999  6666666666666
    0000000   2222222222222 //            11111111   66666666666  //         999999999999   66666666666
0

      11        0000000                    0000000    666666666666                  11            44
     111       000000000                  000000000   6666666666666                111           444
    1111      00      00       :::      00      00  66                  :::       1111          4444
      11     00       00       :::     00       00  66                  :::         11         44 44
      11     00       00       :::     00       00  66                  :::         11        44  44
      11     00       00               00       00  666666666666                  11       44   44
      11     00       00               00       00  6666666666666                 11      44    44
      11     00       00       :::     00       00  66       66         :::         11    444444444444
      11     00       00       :::     00       00  66       66         :::         11    444444444444
      11      00      00       :::      00      00  66       66         :::         11            44
   11111111   000000000                  000000000   6666666666666                11111111        44
   11111111    0000000                    0000000    66666666666                  11111111        44
1
0                                 ssssssssss    cccccccccc    aaaaaaaa    ll          eeeeeeeeeeee
                                 ssssssssssss  cccccccccccc  aaaaaaaaaa  ll          eeeeeeeeeeee
                                 ss       ss   cc        cc  aa        aa  ll          ee
                                 ss            cc            aa        aa  ll          ee
                                 ss            cc            aa        aa  ll          ee
                                 ssssssssssss  cc            aaaaaaaaaaaa  ll          eeeeeeeee
                                  ssssssssssss cc            aaaaaaaaaaaa  ll          eeeeeeeee
                                          ss   cc            aa        aa  ll          ee
                                          ss   cc            aa        aa  ll          ee
                                 ss       ss   cc        cc  aa        aa  ll          ee
                                 ssssssssssss  cccccccccccc  aa        aa  llllllllllll  eeeeeeeeeeee
                                  ssssssssss    cccccccccc   aa        aa  llllllllllll  eeeeeeeeeeee
```

```
*****************************************************************************
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                 program verification information                   *****
*****                                                                   *****
*****                 code system:    scale  version:    4.2            *****
*****                                                                   *****
*****************************************************************************
*****************************************************************************
*****                                                                   *****
*****                                                                   *****
*****              program:  c0c005                                     *****
*****                                                                   *****
*****         creation date:  04/27/95                                  *****
*****                                                                   *****
*****              library:  /neutronics/scale/exe                      *****
*****                                                                   *****
```

```
                    *****                                                                  *****
                    *****   this is not a   scale  configuration controlled code           *****
                    *****                                                                  *****
                    *****             jobname:  davis                                      *****
                    *****                                                                  *****
                    *****   date of execution:  02/16/96                                   *****
                    *****                                                                  *****
                    *****   time of execution:  10:06:14                                   *****
                    *****                                                                  *****
                    *****                                                                  *****
                    ************************************************************************
                    ************************************************************************
                    ************************************************************************
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       2q array has      1 entries.
0        * core allocated to array-data (by -1$$ or default) was   200000 words. *
1         * broad 3-group flux weighting factors *
0
0                 therm =    .5134
0                 res   =    .4563
0                 fast  =   3.5488
0 user requested (see jadd) that only the nuclide transitions presently included in
0 origen library be updated.
1cross sections, available from ampx (normalized to thermal flux), barns

                    10010 to  10020  2.86486E-01
                    10010 tot-cap    2.86486E-01
                    50100 to  40100  2.54618E-02
                    50100 to  10010  2.54618E-02
                    50100 to  40090  3.93698E-03
                    50100 to  10020  3.93698E-03
                    50100 to  30070  3.29413E+03
                    50100 to  20040  3.29433E+03
                    50100 to  10030  9.56623E-02
                    50100 tot-cap    3.29426E+03
                    50110 to  50100  1.13713E-05
                    50110 to  50120  4.36372E-03
                    50110 to  40110  1.45109E-06
                    50110 to  10010  1.45109E-06
                    50110 to  40090  1.29495E-05
                    50110 to  10030  1.29495E-05
                    50110 to  30080  1.69049E-04
                    50110 to  20040  1.69049E-04
                    50110 tot-cap    4.55854E-03
                    80160 to  80170  1.53057E-04
                    80160 to  70160  9.94968E-05
                    80160 to  10010  9.94968E-05
                    80160 to  70150  1.87650E-05
                    80160 to  10020  1.87650E-05
                    80160 to  60130  2.74917E-02
                    80160 to  20040  2.74917E-02
                    80160 to  80161  4.36358E-03
```

80160	tot-cap	2.77630E-02
360830	to 360820	2.25882E-02
360830	to 360810	2.38476E-09
360830	to 360840	1.56736E+02
360830	to 350830	9.19953E-04
360830	to 10010	9.19953E-04
360830	to 350820	7.46029E-06
360830	to 10020	7.46029E-06
360830	to 350810	2.60751E-06
360830	to 10030	2.60751E-06
360830	to 340810	4.22004E-08
360830	to 20030	4.22004E-08
360830	to 340800	4.95479E-05
360830	to 20040	4.95479E-05
360830	tot-cap	1.56760E+02
360850	to 360860	1.42215E+00
360850	tot-cap	1.42215E+00
380900	to 380910	6.37479E-01
380900	tot-cap	6.37479E-01
390890	to 390900	1.00373E+00
390890	tot-cap	1.00373E+00
400930	to 400940	1.39857E+01
400930	tot-cap	1.39857E+01
400940	to 400950	1.95314E-01
400940	tot-cap	1.95314E-01
400950	to 400960	2.31722E+00
400950	tot-cap	2.31722E+00
410940	to 410950	3.99247E+01
410940	tot-cap	3.99247E+01
420950	to 420960	3.88237E+01
420950	tot-cap	3.88237E+01
430990	to 430980	6.85361E-03
430990	to 431000	9.12749E+01
430990	tot-cap	9.12817E+01
441010	to 441020	2.95358E+01
441010	tot-cap	2.95358E+01
441060	to 441070	9.03144E-01
441060	tot-cap	9.03144E-01
451030	to 451020	2.48212E-03
451030	to 451040	3.49220E+02
451030	tot-cap	3.49222E+02
451050	to 451060	8.22852E+03
451050	tot-cap	8.22852E+03
461050	to 461060	3.50150E+01
461050	tot-cap	3.50150E+01
461080	to 461090	7.07706E+01
461080	tot-cap	7.07706E+01
471090	to 471080	5.77202E-03
471090	to 471100	3.78681E+02
471090	to 461090	3.25365E-04
471090	to 10010	3.25365E-04
471090	to 451060	2.70340E-04
471090	to 20040	2.70340E-04
471090	to 471091	6.66486E-01
471090	tot-cap	3.78687E+02
511240	to 511250	1.24499E+01
511240	tot-cap	1.24499E+01
541310	to 541300	6.99877E-02
541310	to 541290	1.46346E-05
541310	to 541320	2.57690E+02

541310 to 531310	4.17668E-05
541310 to 10010	4.17668E-05
541310 to 531300	5.86917E-07
541310 to 10020	5.86917E-07
541310 to 531290	6.01824E-07
541310 to 10030	6.01824E-07
541310 to 521280	1.99981E-05
541310 to 20040	1.99981E-05
541310 tot-cap	2.57760E+02
541320 to 541310	1.13062E-02
541320 to 541300	2.39796E-05
541320 to 541330	9.54927E-01
541320 to 531320	8.60085E-06
541320 to 10010	8.60085E-06
541320 to 531310	3.64400E-07
541320 to 10020	3.64400E-07
541320 to 531300	4.90665E-08
541320 to 10030	4.90665E-08
541320 to 521290	1.06259E-06
541320 to 20040	1.06259E-06
541320 tot-cap	9.66268E-01
541350 to 541360	1.48021E+06
541350 tot-cap	1.48021E+06
541360 to 541350	1.93400E-02
541360 to 541340	5.90690E-05
541360 to 541370	1.25298E-01
541360 to 531360	3.57113E-07
541360 to 10010	3.57113E-07
541360 to 531350	1.32956E-07
541360 to 10020	1.32956E-07
541360 to 531340	3.00873E-08
541360 to 10030	3.00873E-08
541360 to 521330	2.99573E-07
541360 to 20040	2.99573E-07
541360 tot-cap	1.44698E-01
551330 to 551320	9.05656E-05
551330 to 551340	1.03135E+02
551330 to 541330	9.72211E-04
551330 to 10010	9.72211E-04
551330 to 531300	1.54730E-05
551330 to 20040	1.54730E-05
551330 tot-cap	1.03145E+02
551340 to 551350	1.31399E+02
551340 tot-cap	1.31399E+02
551350 to 551360	2.21934E+01
551350 tot-cap	2.21934E+01
551370 to 551380	2.37729E-01
551370 tot-cap	2.37729E-01
561360 to 561370	9.33725E-01
561360 tot-cap	9.33725E-01
571390 to 571400	8.09313E+00
571390 tot-cap	8.09313E+00
581440 to 581450	1.27143E+00
581440 tot-cap	1.27143E+00
591410 to 591400	6.48971E-03
591410 to 591390	1.86465E-06
591410 to 571370	2.78096E-06
591410 to 20040	5.73846E-05
591410 to 581400	1.97727E-05
591410 to 10010	5.60874E-05

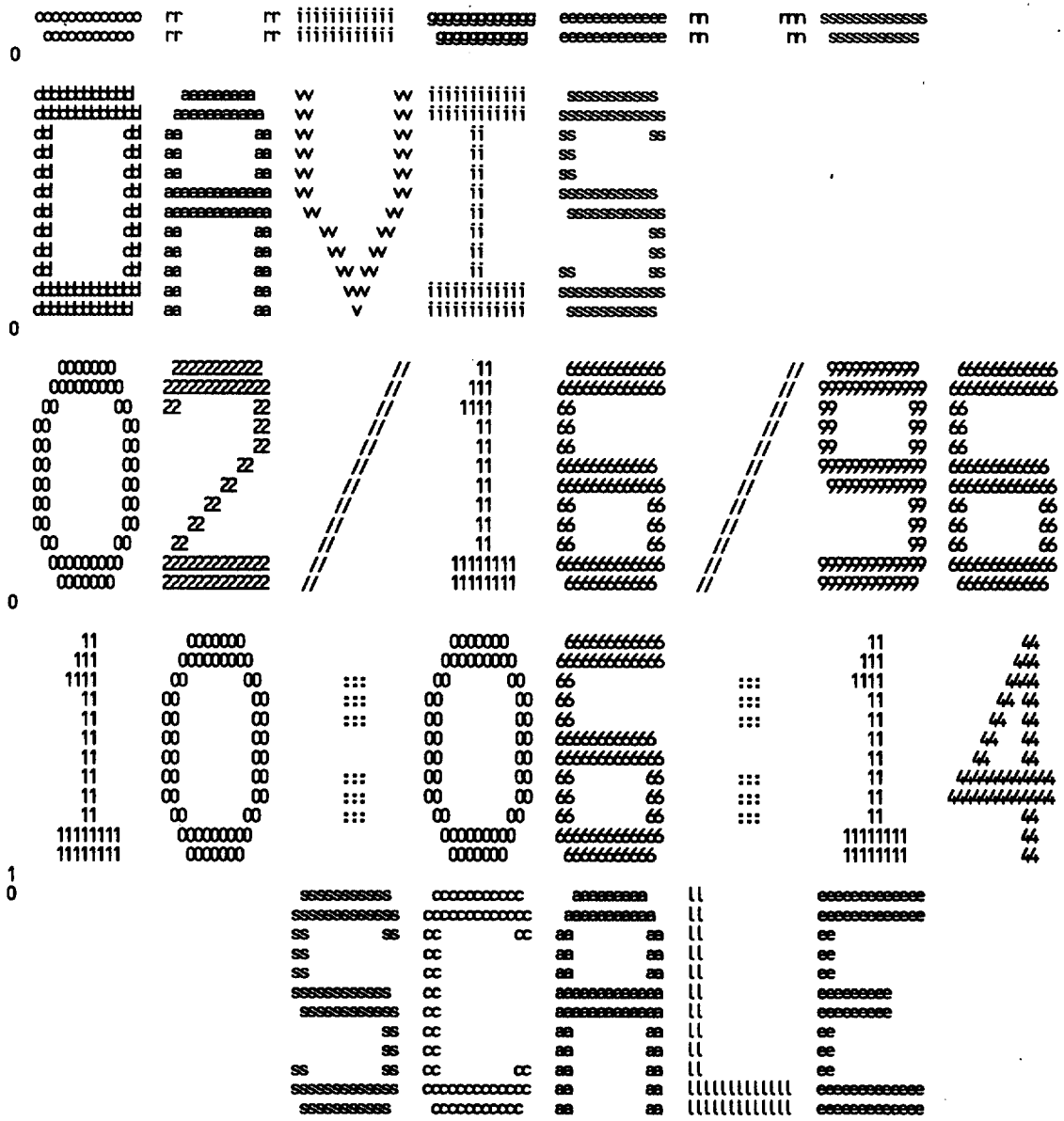
591410 to 591420 1.20857E+01
591410 to 581410 5.28492E-05
591410 to 10020 1.65345E-05
591410 to 581390 1.73401E-06
591410 to 10030 1.73401E-06
591410 to 571390 1.67463E-08
591410 to 20030 1.67463E-08
591410 to 571380 5.46036E-05
591410 tot-cap 1.20923E+01
591430 to 591440 1.00364E+02
591430 tot-cap 1.00364E+02
601430 to 601420 9.92310E-02
601430 to 601410 1.01344E-05
601430 to 581390 2.16519E-05
601430 to 20040 6.06348E-04
601430 to 591420 4.24225E-06
601430 to 10010 4.34810E-05
601430 to 601440 2.00818E+02
601430 to 591430 4.18828E-05
601430 to 10020 2.64399E-06
601430 to 591410 3.80998E-06
601430 to 10030 3.80998E-06
601430 to 581410 1.83054E-08
601430 to 20030 1.83054E-08
601430 to 581400 5.84698E-04
601430 tot-cap 2.00918E+02
601450 to 601440 1.27275E-01
601450 to 601430 1.29394E-04
601450 to 581410 9.09047E-05
601450 to 20040 2.26964E-04
601450 to 591440 2.43057E-06
601450 to 10010 1.57795E-05
601450 to 601460 8.02349E+01
601450 to 591450 1.48098E-05
601450 to 10020 1.46108E-06
601450 to 591430 2.30341E-06
601450 to 10030 2.30341E-06
601450 to 581430 4.68975E-09
601450 to 20030 4.68975E-09
601450 to 581420 2.17874E-04
601450 tot-cap 8.03625E+01
601470 to 601480 1.95601E+02
601470 tot-cap 1.95601E+02
611470 to 611460 3.48651E-02
611470 to 611450 1.08785E-04
611470 to 591430 9.62018E-06
611470 to 20040 8.89388E-05
611470 to 601460 1.33155E-05
611470 to 10010 3.02595E-05
611470 to 611480 5.95205E+02
611470 to 601470 2.69774E-05
611470 to 10020 1.00834E-05
611470 to 601450 3.78822E-06
611470 to 10030 3.78822E-06
611470 to 591450 5.69570E-09
611470 to 20030 5.69570E-09
611470 to 591440 7.93186E-05
611470 tot-cap 5.95240E+02
611480 to 611490 1.20952E+04
611480 tot-cap 1.20952E+04

621470 to 621460 9.09486E-02
621470 to 621450 8.18966E-03
621470 to 601430 7.01333E-05
621470 to 20040 1.33299E-03
621470 to 611460 1.65060E-04
621470 to 10010 2.34814E-04
621470 to 621480 2.40718E+02
621470 to 611470 2.06989E-04
621470 to 10020 1.37235E-04
621470 to 611450 1.47359E-04
621470 to 10030 1.47359E-04
621470 to 601450 6.78025E-06
621470 to 20030 6.78025E-06
621470 to 601440 1.26285E-03
621470 to 621471 1.74035E+00
621470 tot-cap 2.40819E+02
621490 to 621480 5.13940E-02
621490 to 621470 4.08219E-05
621490 to 621500 4.53374E+04
621490 to 611490 5.21771E-04
621490 to 10010 5.21771E-04
621490 to 601460 5.21771E-04
621490 to 20040 5.21771E-04
621490 tot-cap 4.53374E+04
621500 to 621510 1.36769E+02
621500 tot-cap 1.36769E+02
621510 to 621500 1.71089E-01
621510 to 621490 1.53609E-04
621510 to 601470 1.71465E-05
621510 to 20040 1.33173E-04
621510 to 611500 2.10336E-06
621510 to 10010 1.63148E-05
621510 to 621520 5.00646E+03
621510 to 611510 1.50297E-05
621510 to 10020 8.18287E-07
621510 to 611490 1.48719E-06
621510 to 10030 1.48719E-06
621510 to 601490 1.53209E-09
621510 to 20030 1.53209E-09
621510 to 601480 1.16026E-04
621510 tot-cap 5.00663E+03
621520 to 621510 2.05699E-02
621520 to 621500 1.38992E-04
621520 to 601480 3.10523E-06
621520 to 20040 1.28946E-05
621520 to 611510 8.90969E-07
621520 to 10010 2.62922E-06
621520 to 621530 7.36977E+02
621520 to 611520 2.33556E-06
621520 to 10020 5.97308E-07
621520 to 611500 1.55346E-07
621520 to 10030 1.55346E-07
621520 to 601500 4.70786E-10
621520 to 20030 4.70786E-10
621520 to 601490 9.78938E-06
621520 tot-cap 7.36997E+02
631530 to 631520 1.99789E-02
631530 to 631510 2.98338E-05
631530 to 611490 4.60126E-05
631530 to 20040 6.75243E-04

631530 to 621520 8.34917E-06
631530 to 10010 6.99057E-05
631530 to 631540 6.35374E+02
631530 to 621530 6.70570E-05
631530 to 10020 5.50050E-06
631530 to 621510 1.23327E-06
631530 to 10030 1.23327E-06
631530 to 611510 2.81953E-08
631530 to 20030 2.81953E-08
631530 to 611500 6.27230E-04
631530 tot-cap 6.35395E+02
631540 to 631530 3.19377E-02
631540 to 631520 1.14727E-05
631540 to 611500 1.11551E-10
631540 to 20040 8.10863E-04
631540 to 621530 2.51107E-06
631540 to 10010 1.32731E-03
631540 to 631550 1.08235E+03
631540 to 621540 1.32730E-03
631540 to 10020 2.50967E-06
631540 to 621520 4.25037E-06
631540 to 10030 4.25037E-06
631540 to 611520 1.80255E-08
631540 to 20030 1.80255E-08
631540 to 611510 8.10863E-04
631540 tot-cap 1.08238E+03
631550 to 631540 2.62221E-02
631550 to 631530 7.34276E-05
631550 to 611510 1.97547E-06
631550 to 20040 9.72207E-06
631550 to 621540 4.00387E-06
631550 to 10010 8.39165E-06
631550 to 631560 2.57630E+03
631550 to 621550 6.44349E-06
631550 to 10020 2.05572E-06
631550 to 621530 6.80514E-07
631550 to 10030 6.80514E-07
631550 to 611530 1.54241E-10
631550 to 20030 1.54241E-10
631550 to 611520 7.74659E-06
631550 tot-cap 2.57633E+03
641550 to 641560 1.72382E+04
641550 tot-cap 1.72382E+04
922340 to 922330 6.86982E-05
922340 fission 4.66762E+00
922340 nu-sigf 1.22751E+01
922340 to 922320 9.96083E-05
922340 to 922350 1.91754E+02
922340 to 922341 3.11810E+00
922340 tot-cap 1.96429E+02
922350 to 922340 3.12804E-02
922350 fission 3.65849E+02
922350 nu-sigf 8.86019E+02
922350 to 922330 3.00055E-05
922350 to 922360 8.77685E+01
922350 to 922351 8.86841E-02
922350 tot-cap 4.53648E+02
922360 to 922350 3.49963E-02
922360 fission 2.00610E+00
922360 nu-sigf 5.51004E+00

922360	to 922340	4.66385E-04
922360	to 922370	7.20087E+01
922360	to 922361	3.41118E+00
922360	tot-cap	7.40502E+01
922380	to 922370	6.98884E-02
922380	fission	1.00706E+00
922380	nu-sigf	2.83726E+00
922380	to 922360	4.51706E-04
922380	to 922390	8.80519E+00
922380	tot-cap	9.88059E+00
932370	to 932360	1.59539E-02
932370	fission	5.41228E+00
932370	nu-sigf	1.63064E+01
932370	to 932350	6.09581E-05
932370	to 932380	3.06479E+02
932370	to 932371	7.99538E-01
932370	tot-cap	3.11901E+02
942380	to 942370	2.56115E-03
942380	fission	2.30798E+01
942380	nu-sigf	6.54744E+01
942380	to 942360	1.43335E-05
942380	to 942390	2.68704E+02
942380	to 942381	3.13875E+00
942380	tot-cap	2.91786E+02
942390	to 942380	1.35444E-02
942390	fission	8.31324E+02
942390	nu-sigf	2.39040E+03
942390	to 942370	2.30761E-05
942390	to 942360	2.28757E-08
942390	to 942400	4.63709E+02
942390	tot-cap	1.29505E+03
942400	to 942390	6.37841E-03
942400	fission	6.08386E+00
942400	nu-sigf	1.90778E+01
942400	to 942380	6.22432E-05
942400	to 942410	1.23941E+03
942400	tot-cap	1.24550E+03
942410	to 942400	8.00730E-02
942410	fission	8.98817E+02
942410	nu-sigf	2.63740E+03
942410	to 942390	1.33183E-04
942410	to 942420	2.92612E+02
942410	tot-cap	1.19151E+03
942420	to 942410	2.60009E-02
942420	fission	4.69482E+00
942420	nu-sigf	1.47141E+01
942420	to 942400	3.16105E-04
942420	to 942430	3.37105E+02
942420	tot-cap	3.41826E+02
952410	fission	1.27105E+01
952410	nu-sigf	4.11364E+01
952410	to 952420	1.01153E+03
952410	tot-cap	1.03424E+03
952430	fission	3.62531E+00
952430	nu-sigf	1.21919E+01
952430	to 952440	4.29741E+02
952430	tot-cap	4.33366E+02
962440	to 962430	6.24886E-03
962440	fission	1.60052E+01
962440	nu-sigf	5.36525E+01

```
                    962440 to 962420  6.23160E-05
                    962440 to 962450  1.46352E+02
                    962440 to 962441  4.00245E+00
                    962440 tot-cap    1.62362E+02
0the reaction   50100 to  30070 was not used, because   50100 is not in library., (in subr pool)
                                        in the search of library number 3
0the reaction   50100 to  40090 was not used, because   50100 is not in library., (in subr pool)
                                        in the search of library number 3
0the reaction   50110 to  40090 was not used, because   50110 is not in library., (in subr pool)
                                        in the search of library number 3
0the reaction   50100 to  40100 was not used, because   50100 is not in library., (in subr pool)
                                        in the search of library number 3
0the reaction   80160 to  80161 was not used, because   80161 is not in library., (in subr pool)
0the reaction  621470 to 621471 was not used, because  621471 is not in library., (in subr pool)
0the fission product transitions for  922340 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  922340 to 922341 was not used, because  922341 is not in library., (in subr pool)
0the reaction  922350 to 922351 was not used, because  922351 is not in library., (in subr pool)
0the fission product transitions for  922360 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  922360 to 922361 was not used, because  922361 is not in library., (in subr pool)
0the fission product transitions for  932370 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  932370 to 932371 was not used, because  932371 is not in library., (in subr pool)
0the fission product transitions for  942380 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  942380 to 942381 was not used, because  942381 is not in library., (in subr pool)
0the fission product transitions for  942400 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  942420 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952410 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952430 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  962440 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  962440 to 962441 was not used, because  962441 is not in library., (in subr pool)
1
0                          case completed.  date,   2/16/1996
0 * normal termination *
1  ooooooooooo   rrrrrrrrrrrr   iiiiiiiiiiii   gggggggggg   eeeeeeeeeeeee   mn        mn   sssssssssss
   ooooooooooooo rrrrrrrrrrrrr iiiiiiiiiiii   gggggggggggg eeeeeeeeeeeee   mnn       mn   sssssssssssss
   oo        oo  rr        rr       ii       gg        gg  ee            mnnn      mn   ss        ss
   oo        oo  rr        rr       ii       gg            ee            mn mn     mn   ss
   oo        oo  rr        rr       ii       gg            ee            mn  mn    mn   ss
   oo        oo  rrrrrrrrrrrrr      ii       gg   gggggg   eeeeeeeee      mn   mn   mn   sssssssssssss
   oo        oo  rrrrrrrrrrrrr      ii       gg   gggggg   eeeeeeeee      mn    mn  mn   sssssssssssss
   oo        oo  rr      rr         ii       gg        gg  ee            mn     mn mn            ss
   oo        oo  rr       rr        ii       gg        gg  ee            mn      mnmn            ss
   oo        oo  rr        rr       ii       gg        gg  ee            mn       mnn  ss        ss
```



```
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************
                    *****                                                                      *****
                    *****                  program verification information                   *****
                    *****                                                                      *****
                    *****                  code system:    scale  version:    4.2             *****
                    *****                                                                      *****
                    ********************************************************************************
                    ********************************************************************************
                    *****                                                                      *****
                    *****                                                                      *****
                    *****              program:  c0c004                                        *****
                    *****                                                                      *****
                    *****         creation date:  04/27/95                                     *****
                    *****                                                                      *****
                    *****              library:  /neutronics/scale/exe                         *****
                    *****                                                                      *****
                    *****                                                                      *****
                    *****    this is not a   scale  configuration controlled code             *****
                    *****                                                                      *****
                    *****              jobname:  davis                                         *****
                    *****                                                                      *****
                    *****    date of execution:  02/16/96                                      *****
                    *****                                                                      *****
                    *****    time of execution:  10:06:14                                      *****
                    *****                                                                      *****
                    *****                                                                      *****
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0        dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0            short-lived split test fraction, qm =    9.1188E-04
0            half-norm of matrix used, am =    7.0000E+00
0            4-place-accuracy-retention ratio, ratio4 =    6.4516E-13
0       1q array has     20 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       4q array has      1 entries.
0      5*q array has     12 entries.
1library information...

         cross-section data taken from position number  1 of library on unit 33.

         pass   1
         pass   0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
           pass 0 applies start-up fuel densiities
           pass n applies mid time densities of nth library interval
```

```
        first library updated was...
        pass   1
        pass   0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
        ***********************************************************************
        *                                                                     *
        *          prelim lwr origen-s binary working library--id = 1143      *
        *        made from modified card-image origen-s libraries of scale 4.2 *
        *     data from the light element, actinide, and fission product libraries *
        *       decay data, including gamma and total energy, are from endf/b-vi *
        *                                                                     *
        *     neutron flux spectrum factors and cross sections were produced from *
        *    the "presas2" case updating all nuclides on the scale "burnup" library *
        *                                                                     *
        *                fission product yields are from endf/b-v             *
        *                                                                     *
        *            photon libraries use an 18-energy-group structure        *
        *           the photon data are from the master photon data base,     *
        *            produced to include bremsstrahlung from uo2 matrix       *
        *                                                                     *
        *       see information above this box (if present) for later updates *
        *                                                                     *
        ***********************************************************************
        *                                                                     *
0       ***********************************************************************
0                .other identification and sizes of library.
0                 data set name:  ft33f001
0              2/16/1996    date library was produced
0                   1697    total number of nuclides in library
                     689    number of light-element nuclides
                     129    number of actinide nuclides
                     879    number of fission product nuclides
0                   7935    number of nonzero off-diagonal matrix elements
0       ***********************************************************************
1
   sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                    light elements        page   1
0                                        nuclide concentrations, grams
                                         basis =single reactor assembly
            initial  1E-18 d
  total     .00E+00   .00E+00
1
   sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                        actinides         page   2
0                                        nuclide concentrations, grams
                                         basis =single reactor assembly
            initial  1E-18 d
    u234   1.11E+02  1.11E+02
    u235   1.39E+04  1.39E+04
    u236   6.40E+01  6.40E+01
    u238   4.50E+05  4.50E+05
  total    4.64E+05  4.64E+05
1  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                                          page   3
      power=   7.25mw, burnup=   1160.mwd, flux= 1.69E+13n/cm**2-sec
0                                        basis =
0  (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)
0                 initial        40.0 d        80.0 d       120.0 d       160.0 d       160.0 d
   productions  3.258919E+04  3.290367E+04  3.325273E+04  3.354246E+04  3.378176E+04  3.378195E+04
```

	absorptions	2.444205E+04	2.533198E+04	2.567749E+04	2.599583E+04	2.629677E+04	2.630302E+04
	k infinity	1.333324E+00	1.298898E+00	1.295015E+00	1.290302E+00	1.284635E+00	1.284337E+00
0		initial	40.0 d	80.0 d	120.0 d	160.0 d	160.0 d
	actinide						
	absorptions	2.444205E+04	2.466995E+04	2.495103E+04	2.517635E+04	2.540672E+04	2.540682E+04
	non-actinide						
	abs. fracs.	.000000E+00	2.613515E-02	2.907044E-02	3.152382E-02	3.384656E-02	3.407222E-02

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 4

power= 7.25mw, burnup= 1160.mwd, flux= 1.69E+13n/cm**2-sec

0 nuclide concentrations, gram atoms

basis = single reactor assembly

	charge	40.0 d	80.0 d	120.0 d	160.0 d	160.0 d
he 4	.00E+00	1.37E-06	5.40E-06	1.23E-05	2.22E-05	2.22E-05
th226	.00E+00	3.39E-21	1.00E-20	1.79E-20	2.67E-20	2.67E-20
th227	.00E+00	6.58E-18	4.57E-17	1.38E-16	2.97E-16	2.97E-16
th228	.00E+00	1.08E-12	4.34E-12	9.84E-12	1.78E-11	1.78E-11
th229	.00E+00	5.13E-14	2.07E-13	4.70E-13	8.44E-13	8.44E-13
th230	.00E+00	1.45E-07	2.85E-07	4.21E-07	5.52E-07	5.52E-07
th231	.00E+00	3.61E-10	4.72E-10	5.78E-10	6.80E-10	6.78E-10
th232	.00E+00	1.32E-09	3.51E-09	6.54E-09	1.04E-08	1.04E-08
th233	.00E+00	1.07E-15	2.82E-15	5.21E-15	8.23E-15	6.18E-15
th234	.00E+00	1.91E-08	2.51E-08	2.70E-08	2.76E-08	2.76E-08
pa231	.00E+00	7.55E-09	1.81E-08	3.14E-08	4.71E-08	4.71E-08
pa232	.00E+00	5.80E-12	1.38E-11	2.38E-11	3.55E-11	3.54E-11
pa233	.00E+00	5.98E-11	2.41E-10	4.92E-10	7.87E-10	7.87E-10
pa234m	.00E+00	6.43E-13	8.46E-13	9.10E-13	9.30E-13	9.30E-13
pa234	.00E+00	2.91E-13	3.93E-13	4.37E-13	4.64E-13	4.63E-13
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	3.29E-18	9.70E-18	1.73E-17	2.59E-17	2.58E-17
u231	.00E+00	1.47E-16	3.22E-16	5.05E-16	7.01E-16	7.01E-16
u232	.00E+00	2.03E-09	4.18E-09	6.52E-09	9.15E-09	9.15E-09
u233	.00E+00	2.08E-07	4.06E-07	5.94E-07	7.74E-07	7.74E-07
u234	4.76E-01	4.71E-01	4.67E-01	4.62E-01	4.58E-01	4.58E-01
u235	5.92E+01	5.77E+01	5.63E+01	5.49E+01	5.36E+01	5.36E+01
u236	2.71E-01	5.44E-01	8.07E-01	1.06E+00	1.31E+00	1.31E+00
u237	.00E+00	1.80E-03	2.07E-03	2.31E-03	2.53E-03	2.53E-03
u238	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03
u239	.00E+00	4.74E-04	4.70E-04	4.67E-04	4.66E-04	3.54E-04
u240	.00E+00	.00E+00	1.14E-38	8.79E-37	1.92E-35	1.92E-35
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	5.53E-12	2.80E-11	6.92E-11	1.30E-10	1.30E-10
np236m	.00E+00	9.07E-11	2.21E-10	3.64E-10	5.20E-10	5.18E-10
np236	.00E+00	3.83E-10	1.98E-09	5.00E-09	9.58E-09	9.58E-09
np237	.00E+00	5.39E-03	1.32E-02	2.19E-02	3.14E-02	3.14E-02
np238	.00E+00	6.47E-06	1.58E-05	2.60E-05	3.71E-05	3.71E-05
np239	.00E+00	6.84E-02	6.79E-02	6.75E-02	6.71E-02	6.71E-02
np240m	.00E+00	.00E+00	9.72E-41	7.50E-39	1.64E-37	1.64E-37
np240	.00E+00	1.13E-06	1.11E-06	1.10E-06	1.09E-06	9.82E-07
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	.00E+00	5.02E-10	2.62E-09	6.57E-09	1.25E-08	1.25E-08
pu237	.00E+00	2.88E-10	9.86E-10	1.86E-09	2.81E-09	2.81E-09
pu238	.00E+00	3.19E-05	1.71E-04	4.34E-04	8.31E-04	8.31E-04
pu239	.00E+00	7.08E-01	1.42E+00	2.08E+00	2.68E+00	2.68E+00
pu240	.00E+00	1.06E-02	4.03E-02	8.48E-02	1.41E-01	1.41E-01
pu241	.00E+00	4.33E-04	3.18E-03	9.97E-03	2.20E-02	2.20E-02
pu242	.00E+00	1.97E-06	2.84E-05	1.34E-04	3.98E-04	3.98E-04
pu243	.00E+00	2.42E-10	3.47E-09	1.63E-08	4.79E-08	4.68E-08
pu244	.00E+00	3.31E-31	5.68E-28	4.38E-26	9.57E-25	9.57E-25
pu245	.00E+00	2.51E-37	4.29E-34	3.28E-32	7.14E-31	7.07E-31

```
    pu246    .00E+00  2.10E-40  6.03E-37  6.00E-35  1.53E-33  1.53E-33
    am239    .00E+00  8.52E-18  1.22E-16  5.69E-16  1.67E-15  1.65E-15
    am240    .00E+00  3.65E-15  5.22E-14  2.44E-13  7.16E-13  7.15E-13
1
    sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                    actinides        page   5
    power=   7.25mw, burnup=   1160.mwd, flux= 1.69E+13n/cm**2-sec
0                                          nuclide concentrations, gram atoms
                                           basis = single reactor assembly
            charge    40.0 d    80.0 d   120.0 d   160.0 d   160.0 d
    am241    .00E+00  5.91E-07  8.50E-06  3.95E-05  1.18E-04  1.18E-04
    am242m   .00E+00  1.12E-09  3.03E-08  2.04E-07  7.73E-07  7.73E-07
    am242    .00E+00  7.01E-10  1.00E-08  4.68E-08  1.37E-07  1.36E-07
    am243    .00E+00  6.68E-09  1.90E-07  1.34E-06  5.31E-06  5.31E-06
    am244m   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
    am244    .00E+00  2.18E-12  6.14E-11  4.32E-10  1.70E-09  1.68E-09
    am245    .00E+00  2.30E-35  3.87E-32  2.93E-30  6.30E-29  6.30E-29
    am246    .00E+00   .00E+00  1.51E-39  1.50E-37  3.83E-36  3.83E-36
    cm241    .00E+00  3.37E-21  3.33E-19  4.68E-18  2.94E-17  2.94E-17
    cm242    .00E+00  4.75E-09  1.31E-07  9.06E-07  3.49E-06  3.49E-06
    cm243    .00E+00  3.13E-12  1.71E-10  1.75E-09  8.97E-09  8.97E-09
    cm244    .00E+00  2.43E-11  1.36E-09  1.45E-08  7.66E-08  7.67E-08
    cm245    .00E+00  2.50E-14  2.75E-12  4.31E-11  3.00E-10  3.00E-10
    cm246    .00E+00  4.53E-17  9.92E-15  2.32E-13  2.15E-12  2.15E-12
    cm247    .00E+00  1.35E-20  5.86E-18  2.03E-16  2.49E-15  2.49E-15
    cm248    .00E+00  1.73E-23  1.49E-20  7.66E-19  1.25E-17  1.25E-17
    cm249    .00E+00  1.04E-28  8.86E-26  4.53E-24  7.37E-23  6.67E-23
    cm250    .00E+00  8.14E-34  1.38E-30  1.05E-28  2.27E-27  2.27E-27
    cm251    .00E+00  2.04E-41  3.47E-38  2.63E-36  5.66E-35  3.87E-35
   totals   1.95E+03  1.95E+03  1.95E+03  1.95E+03  1.94E+03  1.94E+03
0   flux              1.71E+13  1.70E+13  1.69E+13  1.68E+13  1.68E-02
0       1q array has      20 entries.
0       3q array has       1 entries.
0       3q array has       1 entries.
0       3q array has       1 entries.
0       4q array has       1 entries.
0      54q array has      12 entries.
1library information...

        cross-section data taken from position number  2 of library on unit 33.

        pass   1
        pass   0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
        pass   1
        pass   0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
        ********************************************************************************
        *                                                                              *
        *          prelim lwr origen-s binary working library--id = 1143               *
        *        made from modified card-image origen-s libraries of scale 4.2         *
        *      data from the light element, actinide, and fission product libraries    *
        *       decay data, including gamma and total energy, are from endf/b-vi       *
```

```
*                                                                              *
*     neutron flux spectrum factors and cross sections were produced from      *
*    the "presas2" case updating all nuclides on the scale "burnup" library    *
*                                                                              *
*                  fission product yields are from endf/b-v                    *
*                                                                              *
*             photon libraries use an 18-energy-group structure                *
*            the photon data are from the master photon data base,             *
*             produced to include bremsstrahlung from uo2 matrix               *
*                                                                              *
*       see information above this box (if present) for later updates          *
*                                                                              *
********************************************************************************
*                                                                              *
********************************************************************************
0
0          .other identification and sizes of library.
0           data set name:  ft33f001
0         2/16/1996    date library was produced
0             1697     total number of nuclides in library
                689     number of light-element nuclides
                129     number of actinide nuclides
                879     number of fission product nuclides
0              7955     number of nonzero off-diagonal matrix elements
0
1   sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                                    page   6
       power=   7.25mw, burnup=   2520.mwd, flux= 1.64E+13n/cm**2-sec
0                                      basis =
0   (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)
0                  initial        200.0 d        240.0 d        280.0 d        320.0 d        320.0 d
    productions  3.427559E+04  3.450159E+04  3.469240E+04  3.484916E+04  3.497630E+04  3.497669E+04
    absorptions  2.700098E+04  2.729749E+04  2.758232E+04  2.785215E+04  2.810795E+04  2.811999E+04
    k infinity   1.269420E+00  1.263911E+00  1.257777E+00  1.251220E+00  1.244356E+00  1.243837E+00
0                  initial        200.0 d        240.0 d        280.0 d        320.0 d        320.0 d
    actinide
    absorptions  2.609392E+04  2.632092E+04  2.653591E+04  2.673765E+04  2.692678E+04  2.692698E+04
    non-actinide
    abs. fracs.  3.359577E-02  3.577524E-02  3.795770E-02  4.001468E-02  4.202265E-02  4.242539E-02
1
    sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                    actinides       page   7
    power=   7.25mw, burnup=   2520.mwd, flux= 1.64E+13n/cm**2-sec
0                                      nuclide concentrations, gram atoms
                                       basis = single reactor assembly
           charge   200.0 d   240.0 d   280.0 d   320.0 d   320.0 d
    he  4  2.22E-05  3.60E-05  5.44E-05  7.89E-05  1.11E-04  1.11E-04
    th226  2.67E-20  3.86E-20  5.16E-20  6.63E-20  8.34E-20  8.33E-20
    th227  2.97E-16  5.39E-16  8.77E-16  1.32E-15  1.89E-15  1.89E-15
    th228  1.78E-11  2.84E-11  4.23E-11  5.98E-11  8.14E-11  8.14E-11
    th229  8.44E-13  1.34E-12  1.96E-12  2.71E-12  3.61E-12  3.61E-12
    th230  5.52E-07  6.79E-07  8.02E-07  9.21E-07  1.04E-06  1.04E-06
    th231  6.78E-10  8.06E-10  9.04E-10  1.00E-09  1.09E-09  1.09E-09
    th232  1.04E-08  1.50E-08  2.03E-08  2.64E-08  3.33E-08  3.33E-08
    th233  6.18E-15  1.23E-14  1.67E-14  2.17E-14  2.72E-14  1.53E-14
    th234  2.78E-08  2.78E-08  2.78E-08  2.78E-08  2.78E-08  2.78E-08
    pa231  4.71E-08  6.57E-08  8.66E-08  1.10E-07  1.35E-07  1.35E-07
    pa232  3.54E-11  5.07E-11  6.67E-11  8.43E-11  1.03E-10  1.03E-10
    pa233  7.87E-10  1.12E-09  1.49E-09  1.88E-09  2.31E-09  2.31E-09
    pa234m 9.30E-13  9.36E-13  9.38E-13  9.38E-13  9.38E-13  9.38E-13
    pa234  4.63E-13  4.89E-13  5.13E-13  5.38E-13  5.65E-13  5.60E-13
    pa235   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
    u230   2.58E-17  3.74E-17  5.00E-17  6.43E-17  8.08E-17  8.07E-17
```

u231	7.01E-16	9.83E-16	1.25E-15	1.56E-15	1.91E-15	1.91E-15
u232	9.15E-09	1.23E-08	1.60E-08	2.02E-08	2.52E-08	2.52E-08
u233	7.74E-07	9.59E-07	1.14E-06	1.30E-06	1.47E-06	1.47E-06
u234	4.58E-01	4.54E-01	4.49E-01	4.45E-01	4.41E-01	4.41E-01
u235	5.36E+01	5.23E+01	5.10E+01	4.98E+01	4.86E+01	4.86E+01
u236	1.31E+00	1.55E+00	1.78E+00	2.00E+00	2.22E+00	2.22E+00
u237	2.53E-03	2.87E-03	3.09E-03	3.30E-03	3.50E-03	3.50E-03
u238	1.89E+03	1.89E+03	1.88E+03	1.88E+03	1.88E+03	1.88E+03
u239	3.54E-04	4.81E-04	4.79E-04	4.78E-04	4.77E-04	2.76E-04
u240	1.92E-35	2.19E-34	1.60E-33	8.50E-33	3.57E-32	3.57E-32
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	1.30E-10	2.17E-10	3.28E-10	4.61E-10	6.18E-10	6.18E-10
np236m	5.18E-10	7.48E-10	9.48E-10	1.16E-09	1.39E-09	1.37E-09
np236	9.58E-09	1.63E-08	2.51E-08	3.60E-08	4.92E-08	4.92E-08
np237	3.14E-02	4.21E-02	5.35E-02	6.57E-02	7.85E-02	7.85E-02
np238	3.71E-05	5.08E-05	6.44E-05	7.86E-05	9.41E-05	9.37E-05
np239	6.71E-02	6.95E-02	6.92E-02	6.90E-02	6.88E-02	6.88E-02
np240m	1.64E-37	1.87E-36	1.37E-35	7.26E-35	3.05E-34	3.05E-34
np240	9.82E-07	1.17E-06	1.16E-06	1.15E-06	1.15E-06	9.34E-07
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	1.25E-08	2.12E-08	3.23E-08	4.60E-08	6.23E-08	6.23E-08
pu237	2.81E-09	3.95E-09	5.05E-09	6.10E-09	7.12E-09	7.12E-09
pu238	8.31E-04	1.35E-03	2.11E-03	3.00E-03	4.08E-03	4.08E-03
pu239	2.68E+00	3.26E+00	3.81E+00	4.31E+00	4.77E+00	4.77E+00
pu240	1.41E-01	2.06E-01	2.78E-01	3.57E-01	4.40E-01	4.40E-01
pu241	2.20E-02	3.86E-02	6.13E-02	9.03E-02	1.26E-01	1.26E-01
pu242	3.96E-04	8.88E-04	1.70E-03	2.92E-03	4.65E-03	4.65E-03
pu243	4.68E-08	1.12E-07	2.13E-07	3.66E-07	5.82E-07	5.58E-07
pu244	9.57E-25	1.09E-23	7.98E-23	4.25E-22	1.78E-21	1.78E-21
pu245	7.07E-31	8.01E-30	5.83E-29	3.09E-28	1.30E-27	1.27E-27
pu246	1.53E-33	1.91E-32	1.51E-31	8.53E-31	3.77E-30	3.77E-30
am239	1.65E-15	3.95E-15	7.51E-15	1.28E-14	2.03E-14	1.99E-14
am240	7.15E-13	1.70E-12	3.23E-12	5.53E-12	8.74E-12	8.71E-12

1

sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 8
power= 7.25mw, burnup= 2520.mwd, flux= 1.64E+13n/cm**2-sec

0 nuclide concentrations, gram atoms
basis = single reactor assembly

	charge	200.0 d	240.0 d	280.0 d	320.0 d	320.0 d
am241	1.18E-04	2.65E-04	5.05E-04	8.64E-04	1.37E-03	1.37E-03
am242m	7.73E-07	2.10E-06	4.66E-06	9.01E-06	1.58E-05	1.58E-05
am242	1.36E-07	3.05E-07	5.80E-07	9.91E-07	1.57E-06	1.55E-06
am243	5.31E-06	1.56E-05	3.66E-05	7.37E-05	1.35E-04	1.35E-04
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	1.68E-09	5.17E-09	1.20E-08	2.42E-08	4.43E-08	4.33E-08
am245	6.30E-29	7.41E-28	5.34E-27	2.79E-26	1.16E-25	1.16E-25
am246	3.83E-36	4.77E-35	3.78E-34	2.13E-33	9.41E-33	9.41E-33
cm241	2.94E-17	1.27E-16	3.92E-16	9.86E-16	2.15E-15	2.15E-15
cm242	3.49E-06	9.65E-06	2.17E-05	4.26E-05	7.56E-05	7.56E-05
cm243	8.97E-09	3.20E-08	8.74E-08	2.00E-07	4.06E-07	4.06E-07
cm244	7.67E-08	2.87E-07	8.21E-07	1.96E-06	4.13E-06	4.13E-06
cm245	3.00E-10	1.42E-09	4.88E-09	1.36E-08	3.26E-08	3.26E-08
cm246	2.15E-12	1.23E-11	5.14E-11	1.69E-10	4.68E-10	4.68E-10
cm247	2.49E-15	1.83E-14	9.15E-14	3.53E-13	1.12E-12	1.12E-12
cm248	1.25E-17	1.17E-16	7.06E-16	3.19E-15	1.16E-14	1.16E-14
cm249	6.67E-23	7.20E-22	4.33E-21	1.95E-20	7.12E-20	5.83E-20
cm250	2.27E-27	2.66E-26	1.94E-25	1.02E-24	4.29E-24	4.29E-24
cm251	3.87E-35	6.50E-34	4.71E-33	2.48E-32	1.04E-31	4.85E-32
totals	1.94E+03	1.94E+03	1.94E+03	1.94E+03	1.94E+03	1.94E+03
0 flux		1.65E+13	1.64E+13	1.64E+13	1.64E+13	1.64E-02

```
0        1q array has     20 entries.
0        3q array has      1 entries.
0        3q array has      1 entries.
0        3q array has      1 entries.
0        4q array has      1 entries.
0       54q array has     12 entries.
1library information...

         cross-section data taken from position number  3 of library on unit 33.

         pass   1
         pass   0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
           pass 0 applies start-up fuel densiities
           pass n applies mid time densities of nth library interval
         first library updated was...
         pass   1
         pass   0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
           pass 0 applies start-up fuel densiities
           pass n applies mid time densities of nth library interval
         first library updated was...
         ************************************************************************
         *                                                                      *
         *          prelim lwr origen-s binary working library--id = 1143      *
         *        made from modified card-image origen-s libraries of scale 4.2 *
         *     data from the light element, actinide, and fission product libraries *
         *       decay data, including gamma and total energy, are from endf/b-vi *
         *                                                                      *
         *     neutron flux spectrum factors and cross sections were produced from *
         *    the "presas2" case updating all nuclides on the scale "burnup" library *
         *                                                                      *
         *                fission product yields are from endf/b-v              *
         *                                                                      *
         *            photon libraries use an 18-energy-group structure         *
         *           the photon data are from the master photon data base,      *
         *            produced to include bremsstrahlung from uo2 matrix        *
         *                                                                      *
         *       see information above this box (if present) for later updates *
         *                                                                      *
         ************************************************************************
         *                                                                      *
0        ************************************************************************
0                .other identification and sizes of library.
0                 data set name:  ft33f001
0              2/16/1996    date library was produced
0                   1697    total number of nuclides in library
                     689    number of light-element nuclides
                     129    number of actinide nuclides
                     879    number of fission product nuclides
0                   7935    number of nonzero off-diagonal matrix elements
0        ************************************************************************
1    sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                                    page    9
       power=   7.25mw, burnup=   3480.mwd, flux= 1.62E+13n/cm**2-sec
0                                          basis =
0    (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)
0                  initial        360.0 d        400.0 d        440.0 d        480.0 d        480.0 d
     productions  3.533429E+04   3.545952E+04   3.556331E+04   3.564504E+04   3.570724E+04   3.570783E+04
```

absorptions 2.863199E+04 2.887506E+04 2.911586E+04 2.934422E+04 2.956090E+04 2.957839E+04
k infinity 1.234084E+00 1.228033E+00 1.221441E+00 1.214721E+00 1.207921E+00 1.207227E+00
0 initial 360.0 d 400.0 d 440.0 d 480.0 d 480.0 d
actinide
absorptions 2.742413E+04 2.760863E+04 2.778306E+04 2.794630E+04 2.809889E+04 2.809919E+04
non-actinide
abs. fracs. 4.218566E-02 4.385889E-02 4.577571E-02 4.763854E-02 4.945773E-02 5.000957E-02
1

sas2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp actinides page 10
power= 7.25mw, burnup= 3480.mwd, flux= 1.62E+13n/cm**2-sec
0 nuclide concentrations, gram atoms
basis = single reactor assembly

	charge	360.0 d	400.0 d	440.0 d	480.0 d	480.0 d
he 4	1.11E-04	1.54E-04	2.11E-04	2.85E-04	3.80E-04	3.80E-04
th226	8.33E-20	1.07E-19	1.32E-19	1.60E-19	1.93E-19	1.93E-19
th227	1.89E-15	2.59E-15	3.44E-15	4.44E-15	5.60E-15	5.61E-15
th228	8.14E-11	1.08E-10	1.40E-10	1.79E-10	2.24E-10	2.24E-10
th229	3.61E-12	4.67E-12	5.90E-12	7.33E-12	8.96E-12	8.96E-12
th230	1.04E-06	1.15E-06	1.25E-06	1.35E-06	1.45E-06	1.45E-06
th231	1.09E-09	1.22E-09	1.31E-09	1.39E-09	1.48E-09	1.46E-09
th232	3.33E-08	4.08E-08	4.89E-08	5.77E-08	6.72E-08	6.72E-08
th233	1.53E-14	3.44E-14	4.12E-14	4.88E-14	5.66E-14	2.39E-14
th234	2.78E-08	2.78E-08	2.78E-08	2.78E-08	2.78E-08	2.78E-08
pa231	1.35E-07	1.63E-07	1.93E-07	2.25E-07	2.58E-07	2.58E-07
pa232	1.03E-10	1.28E-10	1.51E-10	1.75E-10	2.01E-10	1.99E-10
pa233	2.31E-09	2.76E-09	3.25E-09	3.74E-09	4.26E-09	4.26E-09
pa234m	9.38E-13	9.38E-13	9.37E-13	9.37E-13	9.37E-13	9.36E-13
pa234	5.60E-13	5.99E-13	6.30E-13	6.63E-13	6.97E-13	6.84E-13
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	8.07E-17	1.04E-16	1.28E-16	1.56E-16	1.87E-16	1.87E-16
u231	1.91E-15	2.42E-15	2.90E-15	3.44E-15	4.08E-15	4.07E-15
u232	2.52E-08	3.10E-08	3.78E-08	4.56E-08	5.45E-08	5.45E-08
u233	1.47E-06	1.63E-06	1.79E-06	1.94E-06	2.08E-06	2.08E-06
u234	4.41E-01	4.36E-01	4.32E-01	4.28E-01	4.24E-01	4.24E-01
u235	4.86E+01	4.74E+01	4.63E+01	4.52E+01	4.41E+01	4.41E+01
u236	2.22E+00	2.44E+00	2.64E+00	2.84E+00	3.04E+00	3.04E+00
u237	3.50E-03	3.80E-03	4.00E-03	4.19E-03	4.38E-03	4.37E-03
u238	1.88E+03	1.88E+03	1.88E+03	1.88E+03	1.88E+03	1.88E+03
u239	2.76E-04	4.91E-04	4.90E-04	4.89E-04	4.89E-04	2.16E-04
u240	3.57E-32	1.28E-31	3.99E-31	1.11E-30	2.81E-30	2.81E-30
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	6.18E-10	8.11E-10	1.03E-09	1.27E-09	1.54E-09	1.54E-09
np236m	1.37E-09	1.72E-09	1.99E-09	2.27E-09	2.59E-09	2.52E-09
np236	4.92E-08	6.58E-08	8.50E-08	1.07E-07	1.32E-07	1.32E-07
np237	7.85E-02	9.22E-02	1.07E-01	1.22E-01	1.37E-01	1.37E-01
np238	9.37E-05	1.12E-04	1.30E-04	1.48E-04	1.67E-04	1.66E-04
np239	6.88E-02	7.08E-02	7.07E-02	7.06E-02	7.06E-02	7.05E-02
np240m	3.05E-34	1.09E-33	3.41E-33	9.49E-33	2.40E-32	2.40E-32
np240	9.34E-07	1.22E-06	1.21E-06	1.21E-06	1.21E-06	8.88E-07
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	6.23E-08	8.25E-08	1.06E-07	1.32E-07	1.62E-07	1.62E-07
pu237	7.12E-09	8.37E-09	9.53E-09	1.06E-08	1.17E-08	1.17E-08
pu238	4.08E-03	5.37E-03	6.88E-03	8.60E-03	1.06E-02	1.06E-02
pu239	4.77E+00	5.23E+00	5.66E+00	6.05E+00	6.42E+00	6.42E+00
pu240	4.40E-01	5.27E-01	6.18E-01	7.11E-01	8.04E-01	8.04E-01
pu241	1.26E-01	1.63E-01	2.06E-01	2.55E-01	3.09E-01	3.09E-01
pu242	4.65E-03	6.93E-03	9.82E-03	1.34E-02	1.78E-02	1.78E-02
pu243	5.58E-07	8.97E-07	1.27E-06	1.73E-06	2.30E-06	2.16E-06
pu244	1.78E-21	6.36E-21	1.99E-20	5.54E-20	1.40E-19	1.40E-19
pu245	1.27E-27	4.58E-27	1.43E-26	3.98E-26	1.01E-25	9.75E-26

```
    pu246  3.77E-30  1.38E-29  4.48E-29  1.29E-28  3.34E-28  3.33E-28
    am239  1.99E-14  3.14E-14  4.43E-14  6.01E-14  7.91E-14  7.70E-14
    am240  8.71E-12  1.36E-11  1.91E-11  2.59E-11  3.42E-11  3.40E-11
1
    sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                    actinides        page  11
    power=   7.25mw, burnup=   3480.mwd, flux= 1.62E+13n/cm**2-sec
0                                          nuclide concentrations, gram atoms
                                           basis = single reactor assembly
          charge   360.0 d   400.0 d   440.0 d   480.0 d   480.0 d
    am241 1.37E-03 2.03E-03 2.87E-03 3.89E-03 5.12E-03 5.12E-03
    am242m 1.58E-05 2.55E-05 3.89E-05 5.64E-05 7.87E-05 7.87E-05
    am242  1.55E-06 2.31E-06 3.25E-06 4.42E-06 5.81E-06 5.70E-06
    am243  1.35E-04 2.31E-04 3.70E-04 5.62E-04 8.20E-04 8.20E-04
    am244m  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00
    am244  4.33E-08 7.79E-08 1.25E-07 1.89E-07 2.76E-07 2.67E-07
    am245  1.16E-25 4.20E-25 1.31E-24 3.59E-24 8.98E-24 8.98E-24
    am246  9.41E-33 3.44E-32 1.12E-31 3.21E-31 8.34E-31 8.34E-31
    cm241  2.15E-15 4.40E-15 8.06E-15 1.37E-14 2.20E-14 2.20E-14
    cm242  7.56E-05 1.24E-04 1.91E-04 2.81E-04 3.96E-04 3.96E-04
    cm243  4.06E-07 7.61E-07 1.31E-06 2.13E-06 3.29E-06 3.29E-06
    cm244  4.13E-06 8.04E-06 1.45E-05 2.45E-05 3.92E-05 3.93E-05
    cm245  3.26E-08 7.17E-08 1.43E-07 2.66E-07 4.64E-07 4.64E-07
    cm246  4.68E-10 1.15E-09 2.56E-09 5.26E-09 1.01E-08 1.01E-08
    cm247  1.12E-12 3.16E-12 7.85E-12 1.78E-11 3.73E-11 3.73E-11
    cm248  1.16E-14 3.74E-14 1.05E-13 2.63E-13 6.06E-13 6.06E-13
    cm249  5.83E-20 2.37E-19 6.63E-19 1.66E-18 3.83E-18 2.84E-18
    cm250  4.29E-24 1.56E-23 4.89E-23 1.36E-22 3.44E-22 3.44E-22
    cm251  4.85E-32 3.74E-31 1.17E-30 3.26E-30 8.24E-30 2.62E-30
   totals  1.94E+03 1.94E+03 1.94E+03 1.94E+03 1.93E+03 1.93E+03
0   flux            1.62E+13 1.62E+13 1.62E+13 1.62E+13 1.61E-02
0       1q array has      20 entries.
0       3q array has       1 entries.
0       3q array has       1 entries.
0       3q array has       1 entries.
0       4q array has       1 entries.
0      54q array has      12 entries.
1library infonmation...

        cross-section data taken from position number  4 of library on unit 33.

        pass  1
        pass  0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
        pass  1
        pass  0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
        ********************************************************************************
        *                                                                              *
        *            prelim lwr origen-s binary working library--id = 1143             *
        *          made from modified card-image origen-s libraries of scale 4.2       *
        *       data from the light element, actinide, and fission product libraries   *
        *         decay data, including gamma and total energy, are from endf/b-vi     *
```

```
      *                                                                     *
      *     neutron flux spectrum factors and cross sections were produced from    *
      *    the "presas2" case updating all nuclides on the scale "burnup" library  *
      *                                                                     *
      *                  fission product yields are from endf/b-v           *
      *                                                                     *
      *            photon libraries use an 18-energy-group structure        *
      *           the photon data are from the master photon data base,     *
      *            produced to include bremsstrahlung from uo2 matrix       *
      *                                                                     *
      *       see information above this box (if present) for later updates *
      *                                                                     *
      ***********************************************************************
      *                                                                     *
0     ***********************************************************************
0              .other identification and sizes of library.
0               data set name:  ft33f001
0             2/16/1996    date library was produced
0                  1697    total number of nuclides in library
                    689    number of light-element nuclides
                    129    number of actinide nuclides
                    879    number of fission product nuclides
0                  7985    number of nonzero off-diagonal matrix elements
0     ***********************************************************************
1   sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                                  page  12
       power=  7.25mw, burnup=  4640.mwd, flux= 1.60E+13n/cm**2-sec
0                                    basis =
0   (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)
0                 initial       520.0 d       560.0 d       600.0 d       640.0 d       640.1 d
    productions  3.597085E+04  3.608198E+04  3.607921E+04  3.611125E+04  3.612969E+04  3.613048E+04
    absorptions  2.993967E+04  3.013748E+04  3.034138E+04  3.053502E+04  3.071900E+04  3.074160E+04
    k infinity   1.201445E+00  1.195587E+00  1.189109E+00  1.182618E+00  1.176135E+00  1.175298E+00
0                 initial       520.0 d       560.0 d       600.0 d       640.0 d       640.1 d
    actinide
    absorptions  2.844444E+04  2.859273E+04  2.875273E+04  2.896341E+04  2.898521E+04  2.898562E+04
    non-actinide
    abs. fracs.  4.994160E-02  5.125684E-02  5.301845E-02  5.474389E-02  5.644029E-02  5.712068E-02
1
    sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                  actinides       page  13
    power=  7.25mw, burnup=  4640.mwd, flux= 1.60E+13n/cm**2-sec
0                                    nuclide concentrations, gram atoms
                                     basis = single reactor assembly
          charge   520.0 d   560.0 d   600.0 d   640.0 d   640.1 d
    he  4 3.80E-04 5.02E-04 6.56E-04 8.48E-04 1.08E-03 1.08E-03
    pb206 9.74E-18 1.41E-17 1.97E-17 2.70E-17 3.63E-17 3.63E-17
    pb207 2.44E-14 3.30E-14 4.37E-14 5.67E-14 7.24E-14 7.24E-14
    pb208 3.04E-11 4.02E-11 5.25E-11 6.71E-11 8.51E-11 8.51E-11
    pb209 1.93E-18 2.40E-18 2.96E-18 3.61E-18 4.37E-18 4.37E-18
    pb210 2.80E-15 3.55E-15 4.42E-15 5.42E-15 6.58E-15 6.58E-15
    pb211 6.96E-18 8.69E-18 1.07E-17 1.29E-17 1.54E-17 1.54E-17
    pb212 1.43E-13 1.77E-13 2.18E-13 2.65E-13 3.19E-13 3.19E-13
    pb214 2.99E-19 3.47E-19 3.98E-19 4.52E-19 5.09E-19 4.97E-19
    th226 1.93E-19 2.36E-19 2.82E-19 3.32E-19 3.88E-19 3.88E-19
    th227 5.61E-15 6.95E-15 8.47E-15 1.02E-14 1.21E-14 1.21E-14
    th228 2.24E-10 2.78E-10 3.42E-10 4.15E-10 5.01E-10 5.01E-10
    th229 8.96E-12 1.08E-11 1.30E-11 1.54E-11 1.82E-11 1.82E-11
    th230 1.45E-06 1.55E-06 1.64E-06 1.73E-06 1.81E-06 1.81E-06
    th231 1.46E-09 1.60E-09 1.68E-09 1.75E-09 1.83E-09 1.80E-09
    th232 6.72E-08 7.72E-08 8.79E-08 9.91E-08 1.11E-07 1.11E-07
    th233 2.39E-14 6.67E-14 7.59E-14 8.56E-14 9.59E-14 3.05E-14
```

th234	2.78E-08	2.77E-08	2.77E-08	2.77E-08	2.77E-08	2.77E-08
pa231	2.58E-07	2.94E-07	3.31E-07	3.70E-07	4.10E-07	4.10E-07
pa232	1.99E-10	2.33E-10	2.63E-10	2.94E-10	3.26E-10	3.22E-10
pa233	4.26E-09	4.80E-09	5.37E-09	5.96E-09	6.56E-09	6.56E-09
pa234m	9.36E-13	9.36E-13	9.36E-13	9.36E-13	9.35E-13	9.34E-13
pa234	6.84E-13	7.41E-13	7.79E-13	8.18E-13	8.59E-13	8.32E-13
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	1.87E-16	2.29E-16	2.73E-16	3.21E-16	3.76E-16	3.75E-16
u231	4.07E-15	4.96E-15	5.80E-15	6.73E-15	7.78E-15	7.74E-15
u232	5.45E-08	6.47E-08	7.63E-08	8.93E-08	1.04E-07	1.04E-07
u233	2.08E-06	2.23E-06	2.37E-06	2.50E-06	2.63E-06	2.63E-06
u234	4.24E-01	4.19E-01	4.15E-01	4.11E-01	4.07E-01	4.07E-01
u235	4.41E+01	4.30E+01	4.20E+01	4.10E+01	4.00E+01	4.00E+01
u236	3.04E+00	3.23E+00	3.41E+00	3.59E+00	3.77E+00	3.77E+00
u237	4.37E-03	4.63E-03	4.82E-03	4.99E-03	5.17E-03	5.15E-03
u238	1.88E+03	1.88E+03	1.88E+03	1.88E+03	1.88E+03	1.88E+03
u239	2.16E-04	5.01E-04	5.01E-04	5.01E-04	5.01E-04	1.69E-04
u240	2.81E-30	6.61E-30	1.46E-29	3.05E-29	6.04E-29	6.04E-29
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	1.54E-09	1.86E-09	2.20E-09	2.56E-09	2.96E-09	2.96E-09
np236m	2.52E-09	2.99E-09	3.32E-09	3.66E-09	4.00E-09	3.93E-09
np236	1.32E-07	1.61E-07	1.94E-07	2.30E-07	2.70E-07	2.70E-07
np237	1.37E-01	1.53E-01	1.70E-01	1.87E-01	2.05E-01	2.05E-01
np238	1.66E-04	1.89E-04	2.10E-04	2.32E-04	2.54E-04	2.51E-04
np239	7.05E-02	7.23E-02	7.23E-02	7.23E-02	7.23E-02	7.21E-02
np240m	2.40E-32	5.64E-32	1.25E-31	2.60E-31	5.15E-31	5.15E-31
np240	8.88E-07	1.27E-06	1.27E-06	1.27E-06	1.27E-06	8.43E-07
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	1.62E-07	1.98E-07	2.34E-07	2.76E-07	3.21E-07	3.21E-07
pu237	1.17E-08	1.31E-08	1.43E-08	1.55E-08	1.67E-08	1.67E-08
pu238	1.06E-02	1.28E-02	1.53E-02	1.80E-02	2.10E-02	2.10E-02
pu239	6.42E+00	6.79E+00	7.13E+00	7.44E+00	7.74E+00	7.74E+00
pu240	8.04E-01	9.03E-01	1.00E+00	1.10E+00	1.20E+00	1.20E+00

1

sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 14
power= 7.25mw, burnup= 4640.mwd, flux= 1.60E+13n/cm**2-sec

0 nuclide concentrations, gram atoms
basis = single reactor assembly

	charge	520.0 d	560.0 d	600.0 d	640.0 d	640.1 d
pu241	3.09E-01	3.62E-01	4.19E-01	4.82E-01	5.48E-01	5.48E-01
pu242	1.78E-02	2.29E-02	2.89E-02	3.57E-02	4.34E-02	4.34E-02
pu243	2.16E-06	3.04E-06	3.83E-06	4.73E-06	5.77E-06	5.29E-06
pu244	1.40E-19	3.29E-19	7.27E-19	1.52E-18	3.01E-18	3.01E-18
pu245	9.75E-26	2.35E-25	5.19E-25	1.08E-24	2.15E-24	2.06E-24
pu246	3.33E-28	7.96E-28	1.80E-27	3.82E-27	7.70E-27	7.69E-27
am239	7.70E-14	1.05E-13	1.31E-13	1.61E-13	1.95E-13	1.88E-13
am240	3.40E-11	4.53E-11	5.67E-11	6.96E-11	8.42E-11	8.35E-11
am241	5.12E-03	6.57E-03	8.21E-03	1.01E-02	1.22E-02	1.22E-02
am242m	7.87E-05	1.05E-04	1.39E-04	1.78E-04	2.23E-04	2.23E-04
am242	5.70E-06	7.41E-06	9.28E-06	1.14E-05	1.38E-05	1.34E-05
am243	8.20E-04	1.16E-03	1.60E-03	2.13E-03	2.79E-03	2.79E-03
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	2.67E-07	3.98E-07	5.47E-07	7.32E-07	9.58E-07	9.19E-07
am245	8.98E-24	2.12E-23	4.67E-23	9.65E-23	1.89E-22	1.89E-22
am246	8.34E-31	1.99E-30	4.49E-30	9.54E-30	1.92E-29	1.92E-29
cm241	2.20E-14	3.46E-14	5.15E-14	7.38E-14	1.02E-13	1.02E-13
cm242	3.96E-04	5.40E-04	7.15E-04	9.25E-04	1.17E-03	1.17E-03
cm243	3.29E-06	4.90E-06	7.04E-06	9.79E-06	1.32E-05	1.32E-05
cm244	3.93E-05	6.08E-05	9.09E-05	1.31E-04	1.85E-04	1.85E-04
cm245	4.64E-07	7.81E-07	1.26E-06	1.94E-06	2.91E-06	2.91E-06

```
    cm246  1.01E-08  1.84E-08  3.20E-08  5.33E-08  8.58E-08  8.58E-08
    cm247  3.73E-11  7.47E-11  1.41E-10  2.52E-10  4.34E-10  4.34E-10
    cm248  6.06E-13  1.32E-12  2.71E-12  5.25E-12  9.70E-12  9.70E-12
    cm249  2.84E-18  8.62E-18  1.76E-17  3.42E-17  6.33E-17  4.25E-17
    cm250  3.44E-22  8.20E-22  1.82E-21  3.81E-21  7.57E-21  7.57E-21
    cm251  2.62E-30  1.95E-29  4.34E-29  9.08E-29  1.81E-28  3.94E-29
   totals  1.93E+03  1.93E+03  1.93E+03  1.93E+03  1.93E+03  1.93E+03
0   flux             1.60E+13  1.60E+13  1.60E+13  1.61E+13  1.61E-02
0       1q array has     20 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       4q array has      1 entries.
0      54q array has     12 entries.
1library information...

        cross-section data taken from position number  5 of library on unit 33.

        pass  1
        pass  0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
        pass  1
        pass  0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
        ************************************************************************
        *                                                                      *
        *          prelim lwr origen-s binary working library--id = 1143       *
        *        made from modified card-image origen-s libraries of scale 4.2 *
        *      data from the light element, actinide, and fission product libraries *
        *        decay data, including gamma and total energy, are from endf/b-vi *
        *                                                                      *
        *     neutron flux spectrum factors and cross sections were produced from *
        *    the "presas2" case updating all nuclides on the scale "burnup" library *
        *                                                                      *
        *                  fission product yields are from endf/b-v            *
        *                                                                      *
        *            photon libraries use an 18-energy-group structure         *
        *           the photon data are from the master photon data base,      *
        *            produced to include bremsstrahlung from uo2 matrix        *
        *                                                                      *
        *       see information above this box (if present) for later updates  *
        *                                                                      *
        ************************************************************************
        *                                                                      *
0       ************************************************************************
0               .other identification and sizes of library.
0                 data set name:  ft33f001
0              2/16/1996    date library was produced
0                   1697    total number of nuclides in library
                     689    number of light-element nuclides
                     129    number of actinide nuclides
                     879    number of fission product nuclides
```

0 7935 number of nonzero off-diagonal matrix elements
0 **********

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp page 15
power= 7.25mw, burnup= 5800.mwd, flux= 1.60E+13n/cm**2-sec
0 basis =
0 (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)

0	initial	680.1 d	720.1 d	760.1 d	800.1 d	800.1 d
productions	3.632766E+04	3.634378E+04	3.635084E+04	3.634718E+04	3.633388E+04	3.633488E+04
absorptions	3.099263E+04	3.115259E+04	3.132613E+04	3.149116E+04	3.164824E+04	3.167582E+04
k infinity	1.172139E+00	1.166637E+00	1.160400E+00	1.154208E+00	1.148054E+00	1.147086E+00

0	initial	680.1 d	720.1 d	760.1 d	800.1 d	800.1 d
actinide absorptions	2.922103E+04	2.939353E+04	2.945092E+04	2.955483E+04	2.965138E+04	2.965189E+04
non-actinide abs. fracs.	5.716181E-02	5.820584E-02	5.986065E-02	6.148809E-02	6.309545E-02	6.389511E-02

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 16
power= 7.25mw, burnup= 5800.mwd, flux= 1.60E+13n/cm**2-sec
0 nuclide concentrations, gram atoms
basis = single reactor assembly

	charge	680.1 d	720.1 d	760.1 d	800.1 d	800.1 d
he 4	1.08E-03	1.37E-03	1.72E-03	2.13E-03	2.61E-03	2.61E-03
pb206	3.63E-17	4.79E-17	6.21E-17	7.95E-17	1.00E-16	1.00E-16
pb207	7.24E-14	9.09E-14	1.13E-13	1.38E-13	1.67E-13	1.67E-13
pb208	8.51E-11	1.07E-10	1.32E-10	1.63E-10	1.99E-10	1.99E-10
pb209	4.37E-18	5.23E-18	6.24E-18	7.39E-18	8.69E-18	8.70E-18
pb210	6.58E-15	7.90E-15	9.39E-15	1.11E-14	1.30E-14	1.30E-14
pb211	1.54E-17	1.82E-17	2.12E-17	2.46E-17	2.83E-17	2.82E-17
pb212	3.19E-13	3.82E-13	4.53E-13	5.35E-13	6.27E-13	6.27E-13
pb214	4.97E-19	5.68E-19	6.30E-19	6.94E-19	7.61E-19	7.40E-19
th226	3.88E-19	4.60E-19	5.34E-19	6.15E-19	7.04E-19	7.03E-19
th227	1.21E-14	1.42E-14	1.66E-14	1.91E-14	2.19E-14	2.19E-14
th228	5.01E-10	5.99E-10	7.11E-10	8.39E-10	9.83E-10	9.83E-10
th229	1.82E-11	2.13E-11	2.48E-11	2.88E-11	3.33E-11	3.33E-11
th230	1.81E-06	1.89E-06	1.97E-06	2.04E-06	2.11E-06	2.11E-06
th231	1.80E-09	1.94E-09	2.01E-09	2.08E-09	2.14E-09	2.10E-09
th232	1.11E-07	1.23E-07	1.36E-07	1.49E-07	1.63E-07	1.63E-07
th233	3.05E-14	1.09E-13	1.20E-13	1.32E-13	1.45E-13	3.45E-14
th234	2.77E-08	2.77E-08	2.77E-08	2.77E-08	2.76E-08	2.76E-08
pa231	4.10E-07	4.52E-07	4.95E-07	5.39E-07	5.84E-07	5.84E-07
pa232	3.22E-10	3.66E-10	4.01E-10	4.37E-10	4.75E-10	4.67E-10
pa233	6.56E-09	7.18E-09	7.82E-09	8.47E-09	9.14E-09	9.14E-09
pa234m	9.34E-13	9.35E-13	9.35E-13	9.34E-13	9.34E-13	9.32E-13
pa234	8.32E-13	9.11E-13	9.56E-13	1.00E-12	1.05E-12	1.00E-12
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	3.75E-16	4.44E-16	5.18E-16	5.96E-16	6.82E-16	6.81E-16
u231	7.74E-15	9.19E-15	1.06E-14	1.20E-14	1.36E-14	1.35E-14
u232	1.04E-07	1.20E-07	1.38E-07	1.58E-07	1.80E-07	1.80E-07
u233	2.63E-06	2.75E-06	2.87E-06	2.99E-06	3.10E-06	3.10E-06
u234	4.07E-01	4.03E-01	3.99E-01	3.95E-01	3.91E-01	3.91E-01
u235	4.00E+01	3.90E+01	3.81E+01	3.71E+01	3.62E+01	3.62E+01
u236	3.77E+00	3.94E+00	4.10E+00	4.27E+00	4.42E+00	4.42E+00
u237	5.15E-03	5.39E-03	5.56E-03	5.72E-03	5.89E-03	5.87E-03
u238	1.88E+03	1.87E+03	1.87E+03	1.87E+03	1.87E+03	1.87E+03
u239	1.69E-04	5.11E-04	5.11E-04	5.12E-04	5.12E-04	1.31E-04
u240	6.04E-29	1.15E-28	2.10E-28	3.72E-28	6.39E-28	6.39E-28
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	2.96E-09	3.40E-09	3.88E-09	4.36E-09	4.87E-09	4.87E-09
np236m	3.93E-09	4.52E-09	4.91E-09	5.30E-09	5.70E-09	5.57E-09
np236	2.70E-07	3.15E-07	3.64E-07	4.17E-07	4.74E-07	4.74E-07

np237	2.05E-01	2.23E-01	2.42E-01	2.61E-01	2.80E-01	2.80E-01
np238	2.51E-04	2.79E-04	3.03E-04	3.27E-04	3.52E-04	3.49E-04
np239	7.21E-02	7.37E-02	7.38E-02	7.39E-02	7.39E-02	7.36E-02
np240m	5.15E-31	9.79E-31	1.79E-30	3.18E-30	5.45E-30	5.45E-30
np240	8.43E-07	1.33E-06	1.33E-06	1.33E-06	1.34E-06	7.97E-07
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	3.21E-07	3.72E-07	4.26E-07	4.84E-07	5.46E-07	5.46E-07
pu237	1.67E-08	1.82E-08	1.97E-08	2.11E-08	2.25E-08	2.24E-08
pu238	2.10E-02	2.44E-02	2.80E-02	3.20E-02	3.62E-02	3.62E-02
pu239	7.74E+00	8.03E+00	8.31E+00	8.56E+00	8.80E+00	8.80E+00
pu240	1.20E+00	1.30E+00	1.40E+00	1.50E+00	1.60E+00	1.60E+00

1

ses2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 17
power= 7.25mw, burnup= 5800.mwd, flux= 1.60E+13n/cm**2-sec

0 nuclide concentrations, gram atoms
basis = single reactor assembly

	charge	680.1 d	720.1 d	760.1 d	800.1 d	800.1 d
pu241	5.48E-01	6.10E-01	6.77E-01	7.46E-01	8.20E-01	8.20E-01
pu242	4.34E-02	5.20E-02	6.15E-02	7.20E-02	8.35E-02	8.35E-02
pu243	5.29E-06	7.04E-06	8.34E-06	9.77E-06	1.13E-05	1.02E-05
pu244	3.01E-18	5.72E-18	1.05E-17	1.85E-17	3.18E-17	3.18E-17
pu245	2.06E-24	4.07E-24	7.47E-24	1.33E-23	2.28E-23	2.16E-23
pu246	7.69E-27	1.48E-26	2.76E-26	4.95E-26	8.61E-26	8.60E-26
am239	1.88E-13	2.38E-13	2.80E-13	3.25E-13	3.74E-13	3.58E-13
am240	8.35E-11	1.03E-10	1.21E-10	1.41E-10	1.62E-10	1.60E-10
am241	1.22E-02	1.45E-02	1.70E-02	1.97E-02	2.26E-02	2.26E-02
am242m	2.23E-04	2.75E-04	3.33E-04	3.97E-04	4.69E-04	4.69E-04
am242	1.34E-05	1.63E-05	1.92E-05	2.23E-05	2.56E-05	2.48E-05
am243	2.79E-03	3.59E-03	4.54E-03	5.66E-03	6.94E-03	6.95E-03
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	9.19E-07	1.25E-06	1.59E-06	1.98E-06	2.43E-06	2.31E-06
am245	1.89E-22	3.61E-22	6.57E-22	1.15E-21	1.96E-21	1.96E-21
am246	1.92E-29	3.70E-29	6.88E-29	1.24E-28	2.15E-28	2.15E-28
cm241	1.02E-13	1.41E-13	1.88E-13	2.45E-13	3.13E-13	3.13E-13
cm242	1.17E-03	1.46E-03	1.78E-03	2.15E-03	2.56E-03	2.56E-03
cm243	1.32E-05	1.76E-05	2.29E-05	2.92E-05	3.66E-05	3.66E-05
cm244	1.85E-04	2.55E-04	3.45E-04	4.57E-04	5.95E-04	5.98E-04
cm245	2.91E-06	4.26E-06	6.09E-06	8.50E-06	1.16E-05	1.16E-05
cm246	8.58E-08	1.34E-07	2.04E-07	3.02E-07	4.38E-07	4.38E-07
cm247	4.34E-10	7.26E-10	1.17E-09	1.85E-09	2.82E-09	2.82E-09
cm248	9.70E-12	1.74E-11	3.01E-11	5.02E-11	8.15E-11	8.15E-11
cm249	4.25E-17	1.16E-16	2.01E-16	3.36E-16	5.47E-16	3.32E-16
cm250	7.57E-21	1.45E-20	2.68E-20	4.78E-20	8.22E-20	8.22E-20
cm251	3.94E-29	3.46E-28	6.39E-28	1.14E-27	1.96E-27	2.93E-28
totals	1.93E+03	1.93E+03	1.93E+03	1.93E+03	1.92E+03	1.92E+03
0 flux		1.60E+13	1.60E+13	1.60E+13	1.61E+13	1.61E-02

0 1q array has 20 entries.
0 3q array has 1 entries.
0 3q array has 1 entries.
0 3q array has 1 entries.
0 4q array has 1 entries.
0 54q array has 12 entries.
1library information...

cross-section data taken from position number 6 of library on unit 33.

pass 1
pass 0
scale-system control module ses2 library
used a time-dependent neutron spectrum, for each of the above passes

```
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
        pass   1
        pass   0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densiities
          pass n applies mid time densities of nth library interval
        first library updated was...
        ********************************************************************************
        *                                                                              *
        *            prelim lwr origen-s binary working library--id = 1143             *
        *          made from modified card-image origen-s libraries of scale 4.2       *
        *        data from the light element, actinide, and fission product libraries  *
        *          decay data, including gamma and total energy, are from endf/b-vi    *
        *                                                                              *
        *        neutron flux spectrum factors and cross sections were produced from   *
        *       the 'presas2" case updating all nuclides on the scale 'burnup' library *
        *                                                                              *
        *                     fission product yields are from endf/b-v                 *
        *                                                                              *
        *                photon libraries use an 18-energy-group structure             *
        *               the photon data are from the master photon data base,          *
        *                produced to include bremsstrahlung from uo2 matrix            *
        *                                                                              *
        *          see information above this box (if present) for later updates       *
        *                                                                              *
        ********************************************************************************
        *                                                                              *
0       ********************************************************************************
0                .other identification and sizes of library.
0                 data set name:  ft33f001
0               2/16/1996     date library was produced
0                    1697     total number of nuclides in library
                      689     number of light-element nuclides
                      129     number of actinide nuclides
                      879     number of fission product nuclides
0                    7985     number of nonzero off-diagonal matrix elements
0       ********************************************************************************
1   sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                                  page   18
       power=   7.25mw, burnup=   6960.mwd, flux= 1.61E+13n/cm**2-sec
0                                    basis =
0   (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)
0                  initial       840.1 d       880.1 d       920.1 d       960.1 d       960.1 d
    productions  3.648544E+04  3.646848E+04  3.644588E+04  3.641576E+04  3.637886E+04  3.638007E+04
    absorptions  3.184782E+04  3.197600E+04  3.212463E+04  3.226626E+04  3.240135E+04  3.243368E+04
    k infinity   1.145618E+00  1.140495E+00  1.134515E+00  1.128602E+00  1.122757E+00  1.121676E+00
0                  initial       840.1 d       880.1 d       920.1 d       960.1 d       960.1 d
    actinide
    absorptions  2.980953E+04  2.990528E+04  2.999171E+04  3.007383E+04  3.014992E+04  3.015054E+04
    non-actinide
    abs. fracs.  6.400120E-02  6.482118E-02  6.639504E-02  6.794798E-02  6.948555E-02  7.089404E-02
1
    sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                    actinides     page   19
    power=   7.25mw, burnup=   6960.mwd, flux= 1.61E+13n/cm**2-sec
0                                    nuclide concentrations, gram atoms
                                     basis = single reactor assembly
          charge   840.1 d   880.1 d   920.1 d   960.1 d   960.1 d
    he  4  2.61E-03  3.17E-03  3.82E-03  4.57E-03  5.42E-03  5.42E-03
```

pb206	1.00E-16	1.25E-16	1.55E-16	1.90E-16	2.31E-16	2.31E-16
pb207	1.67E-13	2.01E-13	2.39E-13	2.82E-13	3.30E-13	3.30E-13
pb208	1.99E-10	2.40E-10	2.85E-10	3.45E-10	4.10E-10	4.10E-10
pb209	8.70E-18	1.02E-17	1.18E-17	1.37E-17	1.58E-17	1.59E-17
pb210	1.30E-14	1.51E-14	1.74E-14	2.00E-14	2.29E-14	2.29E-14
pb211	2.82E-17	3.22E-17	3.65E-17	4.12E-17	4.61E-17	4.61E-17
pb212	6.27E-13	7.31E-13	8.47E-13	9.78E-13	1.12E-12	1.12E-12
pb214	7.40E-19	8.30E-19	9.01E-19	9.73E-19	1.05E-18	1.02E-18
th226	7.03E-19	8.15E-19	9.27E-19	1.05E-18	1.18E-18	1.18E-18
th227	2.19E-14	2.50E-14	2.82E-14	3.17E-14	3.55E-14	3.55E-14
th228	9.83E-10	1.15E-09	1.33E-09	1.53E-09	1.76E-09	1.76E-09
th229	3.33E-11	3.84E-11	4.42E-11	5.06E-11	5.78E-11	5.78E-11
th230	2.11E-06	2.18E-06	2.24E-06	2.30E-06	2.36E-06	2.36E-06
th231	2.10E-09	2.24E-09	2.31E-09	2.36E-09	2.42E-09	2.37E-09
th232	1.63E-07	1.78E-07	1.92E-07	2.08E-07	2.23E-07	2.23E-07
th233	3.45E-14	1.60E-13	1.74E-13	1.88E-13	2.03E-13	3.63E-14
th234	2.76E-08	2.76E-08	2.76E-08	2.76E-08	2.76E-08	2.76E-08
pa231	5.84E-07	6.31E-07	6.79E-07	7.27E-07	7.76E-07	7.76E-07
pa232	4.67E-10	5.20E-10	5.60E-10	6.01E-10	6.43E-10	6.30E-10
pa233	9.14E-09	9.82E-09	1.05E-08	1.12E-08	1.19E-08	1.19E-08
pa234m	9.32E-13	9.34E-13	9.33E-13	9.33E-13	9.33E-13	9.30E-13
pa234	1.00E-12	1.11E-12	1.16E-12	1.21E-12	1.26E-12	1.18E-12
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	6.81E-16	7.85E-16	8.98E-16	1.02E-15	1.14E-15	1.14E-15
u231	1.35E-14	1.57E-14	1.77E-14	1.99E-14	2.22E-14	2.21E-14
u232	1.80E-07	2.04E-07	2.30E-07	2.58E-07	2.89E-07	2.89E-07
u233	3.10E-06	3.21E-06	3.32E-06	3.42E-06	3.52E-06	3.52E-06
u234	3.91E-01	3.87E-01	3.83E-01	3.75E-01	3.75E-01	3.75E-01
u235	3.62E+01	3.53E+01	3.45E+01	3.36E+01	3.28E+01	3.28E+01
u236	4.42E+00	4.57E+00	4.72E+00	4.87E+00	5.01E+00	5.01E+00
u237	5.87E-03	6.08E-03	6.24E-03	6.39E-03	6.54E-03	6.52E-03
u238	1.87E+03	1.87E+03	1.87E+03	1.87E+03	1.87E+03	1.87E+03
u239	1.31E-04	5.21E-04	5.21E-04	5.22E-04	5.23E-04	1.02E-04
u240	6.39E-28	1.07E-27	1.74E-27	2.77E-27	4.32E-27	4.32E-27
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	4.87E-09	5.44E-09	6.04E-09	6.66E-09	7.30E-09	7.30E-09
np236m	5.57E-09	6.29E-09	6.73E-09	7.17E-09	7.62E-09	7.41E-09
np236	4.74E-07	5.37E-07	6.04E-07	6.76E-07	7.53E-07	7.53E-07
np237	2.80E-01	3.00E-01	3.20E-01	3.40E-01	3.61E-01	3.61E-01
np238	3.49E-04	3.81E-04	4.07E-04	4.34E-04	4.61E-04	4.55E-04
np239	7.36E-02	7.52E-02	7.53E-02	7.54E-02	7.55E-02	7.51E-02
np240m	5.45E-30	9.10E-30	1.48E-29	2.36E-29	3.69E-29	3.69E-29
np240	7.97E-07	1.38E-06	1.39E-06	1.39E-06	1.40E-06	7.51E-07
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	5.46E-07	6.15E-07	6.87E-07	7.63E-07	8.43E-07	8.43E-07
pu237	2.24E-08	2.42E-08	2.59E-08	2.76E-08	2.92E-08	2.92E-08
pu238	3.62E-02	4.09E-02	4.59E-02	5.12E-02	5.69E-02	5.69E-02
pu239	8.80E+00	9.04E+00	9.26E+00	9.47E+00	9.66E+00	9.66E+00
pu240	1.60E+00	1.71E+00	1.81E+00	1.91E+00	2.01E+00	2.01E+00

1

sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 20
power= 7.25mw, burnup= 6960.mwd, flux= 1.61E+13n/cm**2-sec

0 nuclide concentrations, gram atoms
basis = single reactor assembly

	charge	840.1 d	880.1 d	920.1 d	960.1 d	960.1 d
pu241	8.20E-01	8.87E-01	9.57E-01	1.03E+00	1.11E+00	1.11E+00
pu242	8.35E-02	9.58E-02	1.09E-01	1.23E-01	1.39E-01	1.39E-01
pu243	1.02E-05	1.32E-05	1.50E-05	1.70E-05	1.92E-05	1.69E-05
pu244	3.18E-17	5.31E-17	8.66E-17	1.38E-16	2.15E-16	2.15E-16
pu245	2.16E-23	3.80E-23	6.20E-23	9.90E-23	1.55E-22	1.44E-22

```
     pu246  8.60E-26 1.45E-25 2.40E-25 3.87E-25 6.10E-25 6.09E-25
     am239  3.58E-13 4.36E-13 4.93E-13 5.53E-13 6.17E-13 5.85E-13
     am240  1.60E-10 1.89E-10 2.14E-10 2.40E-10 2.67E-10 2.64E-10
     am241  2.28E-02 2.58E-02 2.91E-02 3.26E-02 3.63E-02 3.63E-02
     am242m 4.69E-04 5.46E-04 6.30E-04 7.21E-04 8.18E-04 8.18E-04
     am242  2.48E-05 2.91E-05 3.29E-05 3.70E-05 4.12E-05 3.96E-05
     am243  6.95E-03 8.44E-03 1.01E-02 1.21E-02 1.42E-02 1.42E-02
     am244m  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00
     am244  2.31E-06 2.99E-06 3.60E-06 4.29E-06 5.07E-06 4.76E-06
     am245  1.98E-21 3.27E-21 5.31E-21 8.40E-21 1.30E-20 1.30E-20
     am246  2.15E-28 3.63E-28 5.99E-28 9.66E-28 1.52E-27 1.52E-27
     cm241  3.13E-13 4.00E-13 4.99E-13 6.12E-13 7.40E-13 7.40E-13
     cm242  2.56E-03 3.01E-03 3.50E-03 4.04E-03 4.62E-03 4.62E-03
     cm243  3.66E-05 4.54E-05 5.55E-05 6.70E-05 8.01E-05 8.01E-05
     cm244  5.96E-04 7.66E-04 9.72E-04 1.22E-03 1.51E-03 1.51E-03
     cm245  1.16E-05 1.57E-05 2.08E-05 2.72E-05 3.50E-05 3.50E-05
     cm246  4.38E-07 6.24E-07 8.72E-07 1.20E-06 1.62E-06 1.62E-06
     cm247  2.82E-09 4.25E-09 6.25E-09 9.01E-09 1.28E-08 1.28E-08
     cm248  8.15E-11 1.30E-10 2.02E-10 3.06E-10 4.56E-10 4.56E-10
     cm249  3.32E-16 8.88E-16 1.38E-15 2.10E-15 3.14E-15 1.73E-15
     cm250  8.22E-20 1.39E-19 2.28E-19 3.65E-19 5.72E-19 5.72E-19
     cm251  2.93E-28 3.31E-27 5.44E-27 8.73E-27 1.37E-26 1.40E-27
   totals   1.92E+03 1.92E+03 1.92E+03 1.92E+03 1.92E+03 1.92E+03
0    flux            1.60E+13 1.61E+13 1.61E+13 1.61E+13 1.61E-02
0       1q array has     20 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       4q array has      1 entries.
0      54q array has     12 entries.
1library information...

        cross-section data taken from position number  7 of library on unit 33.

        pass   1
        pass   0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densities
          pass n applies mid time densities of nth library interval
        first library updated was...
        pass   1
        pass   0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densities
          pass n applies mid time densities of nth library interval
        first library updated was...
        ********************************************************************************
        *                                                                              *
        *          prelim lwr origen-s binary working library--id = 1143               *
        *        made from modified card-image origen-s libraries of scale 4.2         *
        *      data from the light element, actinide, and fission product libraries    *
        *        decay data, including gamma and total energy, are from endf/b-vi      *
        *                                                                              *
        *      neutron flux spectrum factors and cross sections were produced from     *
        *     the "presas2" case updating all nuclides on the scale "burnup" library   *
        *                                                                              *
        *                  fission product yields are from endf/b-v                    *
        *                                                                              *
```

```
        *            photon libraries use an 18-energy-group structure            *
        *           the photon data are from the master photon data base,         *
        *            produced to include bremsstrahlung from uo2 matrix           *
        *                                                                         *
        *      see information above this box (if present) for later updates      *
        *                                                                         *
        ***************************************************************************
        *                                                                         *
0       ***************************************************************************
0                .other identification and sizes of library.
0                 data set name:  ft33f001
0              2/16/1996    date library was produced
0                   1697    total number of nuclides in library
                     689    number of light-element nuclides
                     129    number of actinide nuclides
                     879    number of fission product nuclides
0                   7935    number of nonzero off-diagonal matrix elements
0       ***************************************************************************
1   sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                                  page  21
       power=   7.25mw, burnup=   8120.mwd, flux= 1.62E+13n/cm**2-sec
0                                          basis =
0   (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)
0                  initial      1000.1 d      1040.1 d      1080.1 d      1120.1 d      1120.2 d
    productions  3.649635E+04  3.645476E+04  3.641009E+04  3.636028E+04  3.630584E+04  3.630727E+04
    absorptions  3.254830E+04  3.264978E+04  3.277802E+04  3.290054E+04  3.301764E+04  3.305464E+04
    k infinity   1.121298E+00  1.116539E+00  1.110808E+00  1.105157E+00  1.099589E+00  1.098402E+00
0                  initial      1000.1 d      1040.1 d      1080.1 d      1120.1 d      1120.2 d
    actinide
    absorptions  3.025247E+04  3.032627E+04  3.039594E+04  3.046046E+04  3.052005E+04  3.052078E+04
    non-actinide
    abs. fracs.  7.053602E-02  7.116461E-02  7.267308E-02  7.416546E-02  7.564402E-02  7.665670E-02
1
    sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                          actinides       page  22
    power=   7.25mw, burnup=   8120.mwd, flux= 1.62E+13n/cm**2-sec
0                                          nuclide concentrations, gram atoms
                                           basis = single reactor assembly
```

	charge	1000.1 d	1040.1 d	1080.1 d	1120.1 d	1120.2 d
he 4	5.42E-03	6.39E-03	7.47E-03	8.68E-03	1.00E-02	1.00E-02
pb206	2.31E-16	2.78E-16	3.32E-16	3.95E-16	4.66E-16	4.67E-16
pb207	3.30E-13	3.84E-13	4.44E-13	5.11E-13	5.84E-13	5.84E-13
pb208	4.10E-10	4.84E-10	5.69E-10	6.65E-10	7.74E-10	7.74E-10
pb209	1.59E-17	1.81E-17	2.08E-17	2.37E-17	2.69E-17	2.71E-17
pb210	2.29E-14	2.60E-14	2.95E-14	3.33E-14	3.74E-14	3.74E-14
pb211	4.61E-17	5.15E-17	5.71E-17	6.31E-17	6.95E-17	6.94E-17
pb212	1.12E-12	1.28E-12	1.46E-12	1.65E-12	1.87E-12	1.87E-12
pb214	1.02E-18	1.12E-18	1.20E-18	1.28E-18	1.36E-18	1.32E-18
ra222	2.43E-20	2.74E-20	3.07E-20	3.42E-20	3.79E-20	3.80E-20
ra223	2.11E-14	2.35E-14	2.60E-14	2.88E-14	3.17E-14	3.17E-14
ra224	9.26E-12	1.06E-11	1.20E-11	1.37E-11	1.54E-11	1.54E-11
ra225	1.72E-15	1.98E-15	2.26E-15	2.57E-15	2.92E-15	2.91E-15
ra226	3.29E-11	3.53E-11	3.77E-11	4.02E-11	4.28E-11	4.28E-11
ra228	9.78E-18	1.09E-17	1.21E-17	1.33E-17	1.47E-17	1.47E-17
th226	1.18E-18	1.34E-18	1.50E-18	1.67E-18	1.85E-18	1.85E-18
th227	3.55E-14	3.95E-14	4.38E-14	4.83E-14	5.31E-14	5.31E-14
th228	1.76E-09	2.01E-09	2.29E-09	2.59E-09	2.93E-09	2.93E-09
th229	5.78E-11	6.59E-11	7.50E-11	8.51E-11	9.63E-11	9.63E-11
th230	2.36E-06	2.41E-06	2.46E-06	2.51E-06	2.56E-06	2.56E-06
th231	2.37E-09	2.51E-09	2.56E-09	2.61E-09	2.66E-09	2.59E-09
th232	2.23E-07	2.39E-07	2.56E-07	2.73E-07	2.90E-07	2.90E-07
th233	3.63E-14	2.21E-13	2.36E-13	2.53E-13	2.69E-13	3.61E-14

th234	2.76E-08	2.76E-08	2.76E-08	2.75E-08	2.75E-08	2.75E-08
pa231	7.78E-07	8.27E-07	8.77E-07	9.29E-07	9.80E-07	9.80E-07
pa232	6.30E-10	6.95E-10	7.37E-10	7.82E-10	8.27E-10	8.08E-10
pa233	1.19E-08	1.27E-08	1.34E-08	1.42E-08	1.49E-08	1.49E-08
pa234m	9.30E-13	9.32E-13	9.32E-13	9.32E-13	9.31E-13	9.28E-13
pa234	1.18E-12	1.33E-12	1.38E-12	1.44E-12	1.50E-12	1.38E-12
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	1.14E-15	1.30E-15	1.45E-15	1.62E-15	1.79E-15	1.79E-15
u231	2.21E-14	2.52E-14	2.80E-14	3.10E-14	3.42E-14	3.39E-14
u232	2.89E-07	3.22E-07	3.58E-07	3.96E-07	4.37E-07	4.37E-07
u233	3.52E-06	3.61E-06	3.70E-06	3.79E-06	3.87E-06	3.87E-06
u234	3.75E-01	3.71E-01	3.67E-01	3.63E-01	3.59E-01	3.59E-01
u235	3.28E+01	3.20E+01	3.12E+01	3.04E+01	2.97E+01	2.97E+01
u236	5.01E+00	5.14E+00	5.27E+00	5.40E+00	5.53E+00	5.53E+00
u237	6.52E-03	6.71E-03	6.88E-03	7.00E-03	7.14E-03	7.11E-03
u238	1.87E+03	1.87E+03	1.87E+03	1.86E+03	1.86E+03	1.86E+03
u239	1.02E-04	5.30E-04	5.31E-04	5.32E-04	5.34E-04	7.90E-05
u240	4.32E-27	6.61E-27	9.94E-27	1.47E-26	2.14E-26	2.14E-26
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	7.30E-09	7.99E-09	8.71E-09	9.45E-09	1.02E-08	1.02E-08
np236m	7.41E-09	8.28E-09	8.76E-09	9.25E-09	9.74E-09	9.42E-09
np236	7.53E-07	8.36E-07	9.24E-07	1.02E-06	1.12E-06	1.12E-06
np237	3.61E-01	3.81E-01	4.03E-01	4.24E-01	4.46E-01	4.46E-01
np238	4.55E-04	4.92E-04	5.21E-04	5.50E-04	5.79E-04	5.70E-04
np239	7.51E-02	7.66E-02	7.67E-02	7.69E-02	7.70E-02	7.65E-02
np240m	3.69E-29	5.64E-29	8.48E-29	1.26E-28	1.83E-28	1.83E-28
np240	7.51E-07	1.44E-06	1.44E-06	1.45E-06	1.46E-06	7.06E-07

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 23
power= 7.25mw, burnup= 8120.mwd, flux= 1.62E+13n/cm**2-sec

0 nuclide concentrations, gram atoms
basis = single reactor assembly

	charge	1000.1 d	1040.1 d	1080.1 d	1120.1 d	1120.2 d
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	8.43E-07	9.30E-07	1.02E-06	1.11E-06	1.21E-06	1.21E-06
pu237	2.92E-08	3.13E-08	3.33E-08	3.53E-08	3.73E-08	3.73E-08
pu238	5.69E-02	6.29E-02	6.94E-02	7.62E-02	8.34E-02	8.34E-02
pu239	9.66E+00	9.85E+00	1.00E+01	1.02E+01	1.04E+01	1.04E+01
pu240	2.01E+00	2.11E+00	2.22E+00	2.31E+00	2.41E+00	2.41E+00
pu241	1.11E+00	1.17E+00	1.25E+00	1.32E+00	1.40E+00	1.40E+00
pu242	1.35E-01	1.55E-01	1.72E-01	1.90E-01	2.09E-01	2.09E-01
pu243	1.69E-05	2.16E-05	2.40E-05	2.66E-05	2.93E-05	2.52E-05
pu244	2.15E-16	3.29E-16	4.95E-16	7.33E-16	1.07E-15	1.07E-15
pu245	1.46E-22	2.37E-22	3.57E-22	5.30E-22	7.75E-22	7.21E-22
pu246	6.05E-25	9.42E-25	1.43E-24	2.15E-24	3.16E-24	3.15E-24
am239	5.85E-13	6.96E-13	7.68E-13	8.42E-13	9.19E-13	8.63E-13
am240	2.64E-10	3.02E-10	3.33E-10	3.65E-10	3.98E-10	3.92E-10
am241	3.63E-02	4.01E-02	4.41E-02	4.82E-02	5.25E-02	5.25E-02
am242m	8.18E-04	9.20E-04	1.03E-03	1.14E-03	1.26E-03	1.26E-03
am242	3.96E-05	4.56E-05	5.03E-05	5.51E-05	6.01E-05	5.74E-05
am243	1.42E-02	1.66E-02	1.95E-02	2.22E-02	2.55E-02	2.55E-02
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	4.78E-06	5.95E-06	6.97E-06	8.05E-06	9.24E-06	8.58E-06
am245	1.30E-20	1.98E-20	2.97E-20	4.36E-20	6.30E-20	6.30E-20
am246	1.52E-27	2.35E-27	3.58E-27	5.36E-27	7.90E-27	7.89E-27
cm241	7.40E-13	8.97E-13	1.07E-12	1.26E-12	1.47E-12	1.47E-12
cm242	4.62E-03	5.25E-03	5.91E-03	6.62E-03	7.37E-03	7.37E-03
cm243	8.01E-05	9.48E-05	1.11E-04	1.29E-04	1.49E-04	1.49E-04
cm244	1.51E-03	1.85E-03	2.25E-03	2.72E-03	3.25E-03	3.25E-03
cm245	3.50E-05	4.47E-05	5.64E-05	7.03E-05	8.69E-05	8.69E-05

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     cm246   1.62E-06  2.17E-06  2.86E-06  3.74E-06  4.82E-06  4.82E-06
     cm247   1.28E-08  1.79E-08  2.46E-08  3.35E-08  4.49E-08  4.49E-08
     cm248   4.56E-10  6.70E-10  9.67E-10  1.37E-09  1.93E-09  1.93E-09
     cm249   1.73E-15  4.69E-15  6.78E-15  9.67E-15  1.36E-14  6.75E-15
     cm250   5.72E-19  8.83E-19  1.34E-18  1.99E-18  2.92E-18  2.92E-18
     cm251   1.40E-27  2.12E-26  3.22E-26  4.81E-26  7.06E-26  4.90E-27
    totals   1.92E+03  1.92E+03  1.92E+03  1.92E+03  1.91E+03  1.91E+03
0    flux              1.61E+13  1.61E+13  1.62E+13  1.62E+13  1.62E-02
0       1q array has      20 entries.
0       3q array has       1 entries.
0       3q array has       1 entries.
0       3q array has       1 entries.
0       4q array has       1 entries.
0      54q array has      12 entries.
1library information...

         cross-section data taken from position number  1 of library on unit 15.

         pass   8
         pass   1
         pass   0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
           pass 0 applies start-up fuel densiities
           pass n applies mid time densities of nth library interval
         first library updated was...
         pass   1
         pass   0
         *scale-system control module sas2 library*
         used a time-dependent neutron spectrum, for each of the above passes
           pass 0 applies start-up fuel densiities
           pass n applies mid time densities of nth library interval
         first library updated was...
         ************************************************************************
         *                                                                      *
         *           prelim lwr origen-s binary working library--id = 1143      *
         *        made from modified card-image origen-s libraries of scale 4.2 *
         *      data from the light element, actinide, and fission product libraries *
         *        decay data, including gamma and total energy, are from endf/b-vi *
         *                                                                      *
         *      neutron flux spectrum factors and cross sections were produced from *
         *     the "presas2" case updating all nuclides on the scale "burnup" library *
         *                                                                      *
         *                  fission product yields are from endf/b-v            *
         *                                                                      *
         *             photon libraries use an 18-energy-group structure        *
         *            the photon data are from the master photon data base,     *
         *             produced to include bremsstrahlung from uo2 matrix       *
         *                                                                      *
         *        see information above this box (if present) for later updates *
         *                                                                      *
         ************************************************************************
         *                                                                      *
0        ************************************************************************
0                .other identification and sizes of library.
0                 data set name:  ft15f001
0               2/16/1996     date library was produced
0                    1697     total number of nuclides in library
                      689     number of light-element nuclides
                      129     number of actinide nuclides
```

879 number of fission product nuclides
0 7955 number of nonzero off-diagonal matrix elements
0 **********

1 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp page 24
power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 basis =
0 (note, k-infinities, clad and moderator absorptions are correct, only, if correctly weighted cross sections are applied.)

0	initial	1160.2 d	1200.2 d	1240.2 d	1280.2 d
productions	3.639873E+04	3.633892E+04	3.627805E+04	3.621389E+04	3.614675E+04
absorptions	3.312836E+04	3.320723E+04	3.331886E+04	3.342576E+04	3.352825E+04
k infinity	1.098718E+00	1.094307E+00	1.088814E+00	1.083413E+00	1.078099E+00

0	initial	1160.2 d	1200.2 d	1240.2 d	1280.2 d
actinide absorptions	3.058359E+04	3.064127E+04	3.069584E+04	3.074624E+04	3.079265E+04
non-actinide abs. fracs.	7.681549E-02	7.727140E-02	7.872462E-02	8.016524E-02	8.159089E-02

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 25
power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 nuclide concentrations, gram atoms
basis = single reactor assembly

	charge	1160.2 d	1200.2 d	1240.2 d	1280.2 d
he 4	1.00E-02	1.15E-02	1.31E-02	1.49E-02	1.69E-02
pb206	4.67E-16	5.48E-16	6.40E-16	7.44E-16	8.60E-16
pb207	5.84E-13	6.65E-13	7.53E-13	8.49E-13	9.54E-13
pb208	7.74E-10	8.97E-10	1.03E-09	1.19E-09	1.36E-09
pb209	2.71E-17	3.04E-17	3.43E-17	3.85E-17	4.32E-17
pb210	3.74E-14	4.19E-14	4.67E-14	5.20E-14	5.77E-14
pb211	6.94E-17	7.62E-17	8.32E-17	9.06E-17	9.84E-17
pb212	1.87E-12	2.10E-12	2.35E-12	2.63E-12	2.93E-12
pb214	1.32E-18	1.45E-18	1.53E-18	1.62E-18	1.70E-18
ra222	3.80E-20	4.23E-20	4.68E-20	5.14E-20	5.64E-20
ra223	3.17E-14	3.47E-14	3.80E-14	4.13E-14	4.49E-14
ra224	1.54E-11	1.73E-11	1.94E-11	2.17E-11	2.42E-11
ra225	2.91E-15	3.29E-15	3.71E-15	4.17E-15	4.67E-15
ra226	4.28E-11	4.54E-11	4.80E-11	5.07E-11	5.34E-11
ra228	1.47E-17	1.61E-17	1.76E-17	1.91E-17	2.08E-17
th226	1.85E-18	2.06E-18	2.28E-18	2.51E-18	2.75E-18
th227	5.31E-14	5.81E-14	6.34E-14	6.90E-14	7.48E-14
th228	2.93E-09	3.29E-09	3.69E-09	4.12E-09	4.59E-09
th229	9.63E-11	1.09E-10	1.23E-10	1.38E-10	1.55E-10
th230	2.56E-06	2.60E-06	2.64E-06	2.68E-06	2.71E-06
th231	2.59E-09	2.74E-09	2.78E-09	2.83E-09	2.87E-09
th232	2.90E-07	3.08E-07	3.26E-07	3.44E-07	3.63E-07
th233	3.61E-14	2.89E-13	3.07E-13	3.25E-13	3.44E-13
th234	2.75E-08	2.75E-08	2.75E-08	2.75E-08	2.75E-08
pa231	9.80E-07	1.03E-06	1.09E-06	1.14E-06	1.19E-06
pa232	8.08E-10	8.81E-10	9.28E-10	9.76E-10	1.02E-09
pa233	1.49E-08	1.57E-08	1.64E-08	1.72E-08	1.80E-08
pa234m	9.28E-13	9.31E-13	9.31E-13	9.30E-13	9.30E-13
pa234	1.38E-12	1.57E-12	1.63E-12	1.69E-12	1.75E-12
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	1.79E-15	2.00E-15	2.21E-15	2.43E-15	2.67E-15
u231	3.35E-14	3.82E-14	4.20E-14	4.60E-14	5.02E-14
u232	4.37E-07	4.81E-07	5.27E-07	5.77E-07	6.29E-07
u233	3.87E-06	3.95E-06	4.03E-06	4.11E-06	4.18E-06
u234	3.59E-01	3.55E-01	3.52E-01	3.48E-01	3.44E-01
u235	2.97E+01	2.89E+01	2.82E+01	2.75E+01	2.68E+01
u236	5.53E+00	5.65E+00	5.76E+00	5.88E+00	5.99E+00
u237	7.11E-03	7.30E-03	7.43E-03	7.57E-03	7.70E-03

u238	1.86E+03	1.86E+03	1.86E+03	1.86E+03	1.86E+03
u239	7.90E-05	5.40E-04	5.41E-04	5.43E-04	5.44E-04
u240	2.14E-26	3.08E-26	4.37E-26	6.13E-26	8.49E-26
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	1.00E-08	1.10E-08	1.19E-08	1.27E-08	1.36E-08
np236m	9.42E-09	1.04E-08	1.10E-08	1.15E-08	1.20E-08
np236	1.12E-06	1.22E-06	1.33E-06	1.45E-06	1.57E-06
np237	4.46E-01	4.67E-01	4.89E-01	5.11E-01	5.33E-01
np238	5.70E-04	6.12E-04	6.42E-04	6.73E-04	7.04E-04
np239	7.65E-02	7.80E-02	7.82E-02	7.83E-02	7.85E-02
np240m	1.83E-28	2.63E-28	3.73E-28	5.23E-28	7.25E-28
np240	7.06E-07	1.49E-06	1.50E-06	1.51E-06	1.52E-06

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 26
power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 nuclide concentrations, gram atoms
basis = single reactor assembly

	charge	1160.2 d	1200.2 d	1240.2 d	1280.2 d
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	1.21E-06	1.32E-06	1.43E-06	1.54E-06	1.66E-06
pu237	3.73E-08	3.97E-08	4.21E-08	4.45E-08	4.69E-08
pu238	8.34E-02	9.10E-02	9.91E-02	1.07E-01	1.16E-01
pu239	1.04E+01	1.06E+01	1.07E+01	1.08E+01	1.09E+01
pu240	2.41E+00	2.51E+00	2.61E+00	2.71E+00	2.80E+00
pu241	1.40E+00	1.46E+00	1.53E+00	1.61E+00	1.68E+00
pu242	2.09E-01	2.28E-01	2.49E-01	2.70E-01	2.93E-01
pu243	2.52E-05	3.21E-05	3.51E-05	3.82E-05	4.15E-05
pu244	1.07E-15	1.54E-15	2.18E-15	3.05E-15	4.23E-15
pu245	7.21E-22	1.12E-21	1.59E-21	2.23E-21	3.10E-21
pu246	3.15E-24	4.58E-24	6.58E-24	9.31E-24	1.30E-23
am239	8.63E-13	1.01E-12	1.10E-12	1.18E-12	1.27E-12
am240	3.92E-10	4.39E-10	4.75E-10	5.12E-10	5.51E-10
am241	5.25E-02	5.69E-02	6.14E-02	6.61E-02	7.08E-02
am242m	1.26E-03	1.39E-03	1.51E-03	1.65E-03	1.78E-03
am242	5.74E-05	6.51E-05	7.04E-05	7.59E-05	8.16E-05
am243	2.55E-02	2.90E-02	3.28E-02	3.70E-02	4.15E-02
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	8.58E-06	1.06E-05	1.20E-05	1.36E-05	1.53E-05
am245	6.30E-20	9.02E-20	1.27E-19	1.77E-19	2.44E-19
am246	7.85E-27	1.15E-26	1.64E-26	2.33E-26	3.26E-26
cm241	1.47E-12	1.72E-12	1.98E-12	2.26E-12	2.57E-12
cm242	7.37E-03	8.15E-03	8.98E-03	9.84E-03	1.07E-02
cm243	1.49E-04	1.71E-04	1.95E-04	2.21E-04	2.48E-04
cm244	3.25E-03	3.86E-03	4.55E-03	5.33E-03	6.20E-03
cm245	8.69E-05	1.07E-04	1.30E-04	1.56E-04	1.87E-04
cm246	4.82E-06	6.16E-06	7.80E-06	9.79E-06	1.22E-05
cm247	4.49E-08	5.97E-08	7.84E-08	1.02E-07	1.31E-07
cm248	1.93E-09	2.67E-09	3.66E-09	4.95E-09	6.62E-09
cm249	6.75E-15	1.91E-14	2.62E-14	3.56E-14	4.77E-14
cm250	2.92E-18	4.23E-18	6.05E-18	8.54E-18	1.19E-17
cm251	4.90E-27	1.03E-25	1.47E-25	2.08E-25	2.91E-25
bk249	1.62E-11	2.33E-11	3.28E-11	4.57E-11	6.28E-11
bk250	4.54E-15	8.28E-15	1.17E-14	1.63E-14	2.25E-14
bk251	3.75E-20	1.19E-19	1.69E-19	2.36E-19	3.26E-19
totals	1.91E+03	1.91E+03	1.91E+03	1.91E+03	1.91E+03
0 flux		1.62E+13	1.63E+13	1.63E+13	1.64E+13

0 .results on logical unit no. 71, position 1, for time step 4, subcase 9. (run position 1, case position 1)
title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp light elements page 27

decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 nuclide concentrations, grams
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
total	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 element radioactivity, curies
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
totals	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 element thermal power, watts
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
totals	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 nuclide gamma power, watts
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
total	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 nuclide concentrations, gram atoms
basis = single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
he 4	1.69E-02	2.64E-02	3.03E-02	3.28E-02	3.48E-02	3.69E-02	3.89E-02
th230	2.71E-06	3.52E-06	4.34E-06	5.15E-06	5.96E-06	6.78E-06	7.60E-06
th232	3.63E-07	5.10E-07	6.58E-07	8.06E-07	9.53E-07	1.10E-06	1.25E-06
pa231	1.19E-06	1.22E-06	1.24E-06	1.26E-06	1.28E-06	1.30E-06	1.33E-06
u232	6.29E-07	9.24E-07	1.16E-06	1.35E-06	1.51E-06	1.63E-06	1.73E-06
u233	4.18E-06	4.34E-06	4.51E-06	4.67E-06	4.84E-06	5.00E-06	5.17E-06
u234	3.44E-01	3.45E-01	3.46E-01	3.47E-01	3.47E-01	3.48E-01	3.49E-01
u235	2.68E+01	2.68E+01	2.68E+01	2.68E+01	2.68E+01	2.68E+01	2.68E+01
u236	5.99E+00	5.99E+00	5.99E+00	5.99E+00	5.99E+00	5.99E+00	5.99E+00
u238	1.86E+03	1.86E+03	1.86E+03	1.86E+03	1.86E+03	1.86E+03	1.86E+03
np236	1.57E-06	1.57E-06	1.57E-06	1.57E-06	1.57E-06	1.57E-06	1.57E-06
np237	5.33E-01	5.41E-01	5.41E-01	5.42E-01	5.42E-01	5.43E-01	5.43E-01
pu238	1.16E-01	1.24E-01	1.25E-01	1.25E-01	1.25E-01	1.24E-01	1.23E-01
pu239	1.09E+01	1.10E+01	1.10E+01	1.10E+01	1.10E+01	1.10E+01	1.10E+01
pu240	2.80E+00	2.80E+00	2.80E+00	2.80E+00	2.80E+00	2.80E+00	2.80E+00
pu241	1.68E+00	1.61E+00	1.55E+00	1.49E+00	1.43E+00	1.37E+00	1.32E+00
pu242	2.93E-01	2.93E-01	2.93E-01	2.93E-01	2.93E-01	2.93E-01	2.93E-01
am241	7.08E-02	1.37E-01	2.00E-01	2.61E-01	3.20E-01	3.75E-01	4.29E-01
am242m	1.78E-03	1.78E-03	1.77E-03	1.76E-03	1.76E-03	1.75E-03	1.74E-03
am243	4.15E-02	4.15E-02	4.15E-02	4.15E-02	4.15E-02	4.15E-02	4.15E-02
cm242	1.07E-02	2.97E-03	8.16E-04	2.27E-04	6.55E-05	2.12E-05	9.12E-06
cm243	2.48E-04	2.43E-04	2.38E-04	2.33E-04	2.29E-04	2.24E-04	2.20E-04
cm244	6.20E-03	6.02E-03	5.83E-03	5.65E-03	5.47E-03	5.30E-03	5.13E-03
cm245	1.87E-04	1.87E-04	1.87E-04	1.87E-04	1.87E-04	1.87E-04	1.87E-04
cm246	1.22E-05	1.22E-05	1.22E-05	1.22E-05	1.22E-05	1.22E-05	1.22E-05
total	1.91E+03	1.91E+03	1.91E+03	1.91E+03	1.91E+03	1.91E+03	1.91E+03

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decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 element concentrations, gram atoms
basis = single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
he	1.69E-02	2.64E-02	3.03E-02	3.28E-02	3.48E-02	3.69E-02	3.89E-02
th	3.11E-06	4.07E-06	5.04E-06	6.00E-06	6.97E-06	7.94E-06	8.91E-06
pa	1.21E-06	1.23E-06	1.26E-06	1.28E-06	1.30E-06	1.32E-06	1.34E-06
u	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03	1.89E+03
np	6.13E-01	5.41E-01	5.41E-01	5.42E-01	5.42E-01	5.43E-01	5.43E-01
pu	1.58E+01	1.58E+01	1.58E+01	1.57E+01	1.57E+01	1.56E+01	1.55E+01
am	1.14E-01	1.80E-01	2.44E-01	3.04E-01	3.63E-01	4.19E-01	4.72E-01
cm	1.74E-02	9.43E-03	7.09E-03	6.31E-03	5.97E-03	5.75E-03	5.56E-03
totals	1.91E+03	1.91E+03	1.91E+03	1.91E+03	1.91E+03	1.91E+03	1.91E+03

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 33
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 nuclide concentrations, grams
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
he 4	6.76E-02	1.06E-01	1.21E-01	1.31E-01	1.39E-01	1.47E-01	1.56E-01
pb208	2.83E-07	7.04E-07	1.43E-06	2.49E-06	3.88E-06	5.59E-06	7.58E-06
th228	1.05E-06	2.06E-06	3.24E-06	4.46E-06	5.63E-06	6.73E-06	7.71E-06
th230	6.24E-04	8.10E-04	9.97E-04	1.18E-03	1.37E-03	1.56E-03	1.75E-03
th232	8.41E-05	1.18E-04	1.53E-04	1.87E-04	2.21E-04	2.55E-04	2.90E-04
th234	6.43E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06
pa231	2.75E-04	2.81E-04	2.86E-04	2.91E-04	2.96E-04	3.01E-04	3.06E-04
pa233	4.19E-06	4.36E-06	4.36E-06	4.36E-06	4.37E-06	4.37E-06	4.37E-06
u232	1.46E-04	2.14E-04	2.70E-04	3.14E-04	3.50E-04	3.78E-04	4.01E-04
u233	9.73E-04	1.01E-03	1.05E-03	1.09E-03	1.13E-03	1.17E-03	1.20E-03
u234	8.05E+01	8.07E+01	8.09E+01	8.11E+01	8.13E+01	8.15E+01	8.17E+01
u235	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.30E+03
u236	1.41E+03	1.41E+03	1.41E+03	1.41E+03	1.41E+03	1.41E+03	1.41E+03
u237	1.82E+00	1.18E-05	1.13E-05	1.09E-05	1.04E-05	1.00E-05	9.64E-06
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05
np236	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04
np237	1.28E+02	1.28E+02	1.28E+02	1.28E+02	1.28E+02	1.29E+02	1.29E+02
np239	1.88E+01	8.68E-06	8.68E-06	8.68E-06	8.68E-06	8.67E-06	8.67E-06
pu236	3.91E-04	3.22E-04	2.64E-04	2.16E-04	1.77E-04	1.45E-04	1.19E-04
pu238	2.77E+01	2.95E+01	2.98E+01	2.98E+01	2.98E+01	2.95E+01	2.93E+01
pu239	2.61E+03	2.63E+03	2.63E+03	2.63E+03	2.63E+03	2.63E+03	2.63E+03
pu240	6.72E+02	6.72E+02	6.72E+02	6.72E+02	6.72E+02	6.72E+02	6.72E+02
pu241	4.05E+02	3.86E+02	3.73E+02	3.59E+02	3.45E+02	3.31E+02	3.18E+02
pu242	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01
am241	1.71E+01	3.30E+01	4.83E+01	6.29E+01	7.70E+01	9.05E+01	1.03E+02
am242m	4.32E-01	4.30E-01	4.28E-01	4.27E-01	4.25E-01	4.23E-01	4.21E-01
am242	1.97E-02	5.55E-06	5.53E-06	5.50E-06	5.48E-06	5.46E-06	5.44E-06
am243	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01
cm242	2.60E+00	7.18E-01	1.97E-01	5.49E-02	1.58E-02	5.14E-03	2.21E-03
cm243	6.03E-02	5.91E-02	5.79E-02	5.67E-02	5.56E-02	5.45E-02	5.34E-02
cm244	1.51E+00	1.47E+00	1.42E+00	1.38E+00	1.34E+00	1.29E+00	1.25E+00
cm245	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02
cm246	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
cm247	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05
cm248	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 34
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 element concentrations, grams
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
he	6.76E-02	1.06E-01	1.21E-01	1.31E-01	1.39E-01	1.47E-01	1.56E-01
pb	2.84E-07	7.06E-07	1.43E-06	2.49E-06	3.89E-06	5.60E-06	7.59E-06
th	7.16E-04	9.37E-04	1.16E-03	1.38E-03	1.61E-03	1.83E-03	2.05E-03
pa	2.79E-04	2.85E-04	2.90E-04	2.95E-04	3.00E-04	3.06E-04	3.11E-04
u	4.50E+05	4.50E+05	4.50E+05	4.50E+05	4.50E+05	4.50E+05	4.50E+05
np	1.45E+02	1.28E+02	1.28E+02	1.28E+02	1.28E+02	1.29E+02	1.29E+02
pu	3.79E+03	3.79E+03	3.78E+03	3.76E+03	3.75E+03	3.73E+03	3.72E+03
am	2.76E+01	4.35E+01	5.88E+01	7.35E+01	8.75E+01	1.01E+02	1.14E+02
cm	4.22E+00	2.29E+00	1.73E+00	1.54E+00	1.46E+00	1.40E+00	1.36E+00
totals	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 35
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 element radioactivity, curies
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
tl	3.11E-04	6.09E-04	9.58E-04	1.32E-03	1.67E-03	1.99E-03	2.28E-03
pb	8.64E-04	1.69E-03	2.66E-03	3.67E-03	4.64E-03	5.54E-03	6.35E-03
bi	8.64E-04	1.69E-03	2.66E-03	3.67E-03	4.64E-03	5.54E-03	6.35E-03
po	1.42E-03	2.78E-03	4.37E-03	6.01E-03	7.61E-03	9.08E-03	1.04E-02
rn	8.64E-04	1.69E-03	2.66E-03	3.67E-03	4.64E-03	5.54E-03	6.35E-03
ra	8.64E-04	1.69E-03	2.66E-03	3.67E-03	4.64E-03	5.54E-03	6.35E-03
ac	5.99E-07	8.95E-07	1.22E-06	1.55E-06	1.87E-06	2.19E-06	2.51E-06
th	5.05E-01	1.64E-01	1.65E-01	1.66E-01	1.67E-01	1.68E-01	1.69E-01
pa	3.40E-01	2.40E-01	2.40E-01	2.40E-01	2.40E-01	2.40E-01	2.40E-01
u	4.51E+06	1.72E+00	1.69E+00	1.65E+00	1.62E+00	1.59E+00	1.56E+00
np	4.40E+06	2.13E+00	2.13E+00	2.12E+00	2.12E+00	2.12E+00	2.12E+00
pu	6.89E+04	4.10E+04	3.95E+04	3.79E+04	3.65E+04	3.51E+04	3.37E+04
am	2.08E+04	1.24E+02	1.77E+02	2.27E+02	2.75E+02	3.21E+02	3.66E+02
cm	8.74E+03	2.50E+03	7.72E+02	2.96E+02	1.64E+02	1.25E+02	1.12E+02
bk	4.76E-05	1.33E-05	6.86E-06	3.55E-06	1.84E-06	9.50E-07	4.91E-07
totals	9.01E+06	4.37E+04	4.04E+04	3.85E+04	3.69E+04	3.55E+04	3.42E+04

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 36
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 element thermal power, watts
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
tl	7.26E-06	1.42E-05	2.24E-05	3.08E-05	3.90E-05	4.66E-05	5.34E-05
pb	1.63E-06	3.20E-06	5.04E-06	6.93E-06	8.77E-06	1.06E-05	1.20E-05
bi	1.45E-05	2.84E-05	4.46E-05	6.14E-05	7.77E-05	9.28E-05	1.06E-04
po	6.47E-05	1.27E-04	2.00E-04	2.75E-04	3.47E-04	4.15E-04	4.76E-04
rn	3.28E-05	6.43E-05	1.01E-04	1.39E-04	1.76E-04	2.10E-04	2.41E-04
ra	2.96E-05	5.81E-05	9.14E-05	1.26E-04	1.59E-04	1.90E-04	2.18E-04
th	4.82E-04	1.32E-04	1.64E-04	1.97E-04	2.29E-04	2.58E-04	2.85E-04
pa	1.64E-03	9.63E-04	9.63E-04	9.63E-04	9.63E-04	9.63E-04	9.64E-04
u	1.21E+04	2.31E-02	2.31E-02	2.31E-02	2.31E-02	2.31E-02	2.31E-02
np	1.13E+04	7.77E-03	7.77E-03	7.77E-03	7.78E-03	7.78E-03	7.78E-03
pu	5.71E+01	2.79E+01	2.80E+01	2.79E+01	2.78E+01	2.76E+01	2.75E+01
am	5.21E+01	3.85E+00	5.60E+00	7.28E+00	8.89E+00	1.04E+01	1.19E+01
cm	3.19E+02	9.10E+01	2.80E+01	1.09E+01	5.80E+00	4.39E+00	3.92E+00
cf	1.73E-08	1.63E-08	1.50E-08	1.38E-08	1.27E-08	1.17E-08	1.09E-08
totals	2.38E+04	1.23E+02	6.16E+01	4.59E+01	4.25E+01	4.25E+01	4.34E+01

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 37
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 nuclide gamma power, watts
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d

tl208	6.18E-06	1.21E-05	1.91E-05	2.62E-05	3.32E-05	3.96E-05	4.54E-05
pb212	7.42E-07	1.46E-06	2.29E-06	3.15E-06	3.98E-06	4.78E-06	5.46E-06
bi212	5.38E-07	1.06E-06	1.66E-06	2.29E-06	2.89E-06	3.45E-06	3.96E-06
rn220	3.12E-09	6.12E-09	9.63E-09	1.33E-08	1.68E-08	2.00E-08	2.30E-08
ra224	5.15E-08	1.01E-07	1.59E-07	2.19E-07	2.77E-07	3.30E-07	3.79E-07
th228	1.79E-08	3.53E-08	5.54E-08	7.62E-08	9.64E-08	1.15E-07	1.32E-07
th231	6.47E-05	2.50E-06	2.50E-06	2.50E-06	2.50E-06	2.50E-06	2.50E-06
th234	8.56E-06	8.56E-06	8.56E-06	8.56E-06	8.56E-06	8.56E-06	8.56E-06
pa233	1.15E-04	1.20E-04	1.20E-04	1.20E-04	1.20E-04	1.20E-04	1.20E-04
pa234m	9.84E-06	9.79E-06	9.79E-06	9.79E-06	9.79E-06	9.79E-06	9.79E-06
pa234	9.50E-06	2.25E-06	2.25E-06	2.25E-06	2.25E-06	2.25E-06	2.25E-06
u232	4.15E-08	6.09E-08	7.66E-08	8.92E-08	9.95E-08	1.07E-07	1.14E-07
u234	4.78E-06	4.79E-06	4.80E-06	4.82E-06	4.83E-06	4.84E-06	4.85E-06
u235	1.34E-05	1.34E-05	1.34E-05	1.34E-05	1.34E-05	1.34E-05	1.34E-05
u236	9.21E-07	9.21E-07	9.21E-07	9.21E-07	9.21E-07	9.21E-07	9.22E-07
u237	1.26E+02	8.13E-04	7.81E-04	7.50E-04	7.21E-04	6.92E-04	6.65E-04
u238	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06
np235	1.86E-07	1.09E-07	6.42E-08	3.77E-08	2.21E-08	1.30E-08	7.63E-09
np237	1.85E-05	1.88E-05	1.88E-05	1.88E-05	1.89E-05	1.89E-05	1.89E-05
np238	1.67E+02	7.78E-05	7.75E-05	7.72E-05	7.69E-05	7.66E-05	7.62E-05
np239	4.74E+03	2.19E-03	2.19E-03	2.19E-03	2.19E-03	2.19E-03	2.19E-03
pu236	2.83E-06	2.32E-06	1.90E-06	1.56E-06	1.28E-06	1.05E-06	8.58E-07
pu238	5.34E-03	5.70E-03	5.76E-03	5.75E-03	5.72E-03	5.68E-03	5.65E-03
pu239	7.79E-04	7.84E-04	7.84E-04	7.84E-04	7.84E-04	7.84E-04	7.84E-04
pu240	1.49E-03	1.49E-03	1.49E-03	1.49E-03	1.49E-03	1.49E-03	1.49E-03
pu241	4.34E-04	4.17E-04	4.01E-04	3.85E-04	3.70E-04	3.55E-04	3.41E-04
pu242	2.44E-06	2.44E-06	2.44E-06	2.44E-06	2.44E-06	2.44E-06	2.44E-06
am241	9.92E-03	1.92E-02	2.81E-02	3.66E-02	4.48E-02	5.26E-02	6.02E-02
am242m	1.64E-04	1.63E-04	1.62E-04	1.62E-04	1.61E-04	1.60E-04	1.60E-04
am242	1.84E+00	5.17E-04	5.15E-04	5.13E-04	5.10E-04	5.08E-04	5.06E-04
am243	7.00E-04	7.01E-04	7.01E-04	7.01E-04	7.01E-04	7.01E-04	7.01E-04
cm242	1.08E-01	2.97E-02	8.18E-03	2.27E-03	6.57E-04	2.13E-04	9.14E-05
cm243	2.45E-03	2.40E-03	2.35E-03	2.31E-03	2.26E-03	2.22E-03	2.17E-03
cm244	1.35E-03	1.31E-03	1.27E-03	1.23E-03	1.19E-03	1.15E-03	1.12E-03
cm245	4.34E-06	4.34E-06	4.34E-06	4.34E-06	4.34E-06	4.34E-06	4.34E-06
cm246	2.71E-08	2.71E-08	2.71E-08	2.71E-08	2.71E-08	2.71E-08	2.71E-08
total	6.41E+03	6.57E-02	5.30E-02	5.54E-02	6.19E-02	6.91E-02	7.63E-02

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp fission products page 38
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0
nuclide concentrations, grams
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
h 3	1.36E-02	1.30E-02	1.24E-02	1.18E-02	1.13E-02	1.07E-02	1.03E-02
li 6	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05
li 7	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06
be 9	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06
be 10	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05
c 14	7.47E-06	7.47E-06	7.47E-06	7.47E-06	7.47E-06	7.46E-06	7.46E-06
zn 70	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06
ga 71	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05
ge 72	1.29E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03
ge 73	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03
ge 74	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03
as 75	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02
ge 76	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01
se 76	6.29E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04
se 77	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01
se 78	7.24E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01
se 79	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.40E+00

br 79	5.12E-05	7.58E-05	1.00E-04	1.25E-04	1.49E-04	1.74E-04	1.98E-04
se 80	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00
kr 80	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05
br 81	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00
kr 81	7.13E-07	7.13E-07	7.13E-07	7.13E-07	7.13E-07	7.13E-07	7.13E-07
se 82	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00
kr 82	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01
kr 83	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01
kr 84	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01
kr 85	6.66E+00	6.31E+00	5.97E+00	5.66E+00	5.36E+00	5.08E+00	4.82E+00
rb 85	2.80E+01	2.83E+01	2.86E+01	2.90E+01	2.93E+01	2.95E+01	2.98E+01
kr 86	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01
sr 86	6.19E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02
rb 87	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01
sr 87	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04
sr 88	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
y 89	1.33E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
sr 90	1.63E+02	1.59E+02	1.56E+02	1.53E+02	1.50E+02	1.47E+02	1.44E+02
y 90	4.30E-02	4.14E-02	4.05E-02	3.97E-02	3.89E-02	3.81E-02	3.74E-02
zr 90	7.74E+00	1.10E+01	1.43E+01	1.74E+01	2.06E+01	2.36E+01	2.66E+01
zr 91	1.69E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02
zr 92	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02
zr 93	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
rb 93	8.41E-06	1.32E-05	1.97E-05	2.78E-05	3.74E-05	4.86E-05	6.12E-05
rb 93m	1.10E-04	1.58E-04	2.04E-04	2.48E-04	2.91E-04	3.32E-04	3.72E-04
zr 94	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02
rb 94	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04
zr 95	1.55E+01	5.76E-01	2.13E-02	7.90E-04	2.93E-05	1.08E-06	4.02E-08
rb 95	8.53E+00	6.69E-01	2.56E-02	9.51E-04	3.52E-05	1.30E-06	4.83E-08
mo 95	2.00E+02	2.23E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02
zr 96	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02
mo 96	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00
mo 97	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02
mo 98	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02
tc 98	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03

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sas2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp fission products page 39
decay, following reactor irradiation identified by: power= 7.2mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 nuclide concentrations, grams
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
tc 99	2.30E+02	2.31E+02	2.31E+02	2.31E+02	2.31E+02	2.31E+02	2.31E+02
ru 99	9.13E-03	9.79E-03	1.04E-02	1.10E-02	1.17E-02	1.23E-02	1.29E-02
mo100	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02
ru100	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01
ru101	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02
ru102	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02
rh102	2.17E-04	1.78E-04	1.46E-04	1.19E-04	9.79E-05	8.02E-05	6.57E-05
rh103	1.34E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02
ru104	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
pd104	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01
pd105	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
ru106	3.37E+01	1.91E+01	1.08E+01	6.14E+00	3.48E+00	1.97E+00	1.12E+00
rh106	3.22E-05	1.77E-05	1.00E-05	5.69E-06	3.23E-06	1.83E-06	1.04E-06
pd106	4.57E+01	6.03E+01	6.86E+01	7.33E+01	7.59E+01	7.74E+01	7.83E+01
pd107	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01
ag107	7.30E-06	1.18E-05	1.64E-05	2.09E-05	2.55E-05	3.00E-05	3.46E-05
pd108	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01
ag108m	4.21E-05	4.19E-05	4.17E-05	4.16E-05	4.14E-05	4.12E-05	4.10E-05
cd108	4.34E-05	4.34E-05	4.34E-05	4.34E-05	4.35E-05	4.35E-05	4.35E-05

ag109	2.18E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01
pd110	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00
ag110m	1.04E-01	4.46E-02	1.92E-02	8.23E-03	3.54E-03	1.52E-03	6.53E-04
cd110	5.66E+00	5.72E+00	5.74E+00	5.75E+00	5.76E+00	5.76E+00	5.76E+00
cd111	4.98E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00
cd112	2.63E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00
cd113	4.52E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02
cd113m	2.80E-02	2.69E-02	2.58E-02	2.48E-02	2.38E-02	2.29E-02	2.19E-02
in113	1.97E-03	3.10E-03	4.18E-03	5.21E-03	6.21E-03	7.16E-03	8.08E-03
cd114	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00
sn114	6.61E-05	7.50E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05
in115	4.53E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01
sn115	4.55E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02
cd116	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
sn116	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01
sn117	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00
sn118	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01
sn119	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00
sn119m	2.29E-03	1.12E-03	5.43E-04	2.64E-04	1.29E-04	6.26E-05	3.05E-05
sn120	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00
sn121m	1.08E-02	1.07E-02	1.05E-02	1.04E-02	1.03E-02	1.02E-02	1.01E-02
sb121	1.03E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00
sn122	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
te122	4.65E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02
sn123	1.57E-02	3.07E-03	6.00E-04	1.17E-04	2.29E-05	4.47E-06	8.72E-07
sb123	1.22E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00
te123	2.99E-04	3.56E-04	3.66E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04
sn124	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00
te124	3.43E-02	3.96E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02
sb125	1.85E+00	1.50E+00	1.22E+00	9.84E-01	7.96E-01	6.45E-01	5.22E-01
te125	8.02E-01	1.16E+00	1.45E+00	1.68E+00	1.87E+00	2.03E+00	2.15E+00
te125m	2.33E-02	2.13E-02	1.73E-02	1.40E-02	1.13E-02	9.16E-03	7.41E-03
sn126	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.89E+00

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp fission products page 40
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0

nuclide concentrations, grams
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
te126	7.76E-02	7.84E-02	7.84E-02	7.85E-02	7.85E-02	7.85E-02	7.85E-02
te127m	2.94E-01	4.41E-02	6.37E-03	9.19E-04	1.33E-04	1.92E-05	2.77E-06
i127	1.08E+01	1.11E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01
te128	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01
xe128	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01
i129	4.95E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01
xe129	1.18E-03	1.20E-03	1.21E-03	1.21E-03	1.21E-03	1.21E-03	1.21E-03
te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00
xe131	1.36E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02
ba132	4.82E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05
cs133	3.38E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02
cs134	2.08E+01	1.57E+01	1.19E+01	8.99E+00	6.79E+00	5.13E+00	3.88E+00
ba134	8.91E+00	1.40E+01	1.79E+01	2.08E+01	2.30E+01	2.46E+01	2.59E+01
cs135	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02
ba135	3.81E-02	3.82E-02	3.83E-02	3.83E-02	3.84E-02	3.84E-02	3.84E-02
xe136	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02
ba136	4.65E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00
cs137	3.46E+02	3.39E+02	3.33E+02	3.26E+02	3.20E+02	3.14E+02	3.08E+02

ba137	1.43E+01	2.09E+01	2.74E+01	3.37E+01	3.99E+01	4.60E+01	5.20E+01
ba137m	5.31E-05	5.18E-05	5.08E-05	4.99E-05	4.89E-05	4.80E-05	4.71E-05
ba138	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02
la138	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03
la139	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02
ce140	3.61E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02
pr141	3.10E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02
ce142	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02
nd142	3.23E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00
nd143	2.64E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02
ce144	8.57E+01	4.09E+01	1.95E+01	9.30E+00	4.44E+00	2.12E+00	1.01E+00
pr144	3.62E-03	1.72E-03	8.22E-04	3.92E-04	1.87E-04	8.91E-05	4.25E-05
nd144	2.56E+02	3.01E+02	3.22E+02	3.33E+02	3.38E+02	3.40E+02	3.41E+02
nd145	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02
pm145	7.90E-05	1.19E-04	1.38E-04	1.45E-04	1.47E-04	1.46E-04	1.43E-04
sm145	9.31E-05	5.00E-05	2.69E-05	1.45E-05	7.78E-06	4.18E-06	2.25E-06
nd146	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02
pm146	1.87E-03	1.69E-03	1.52E-03	1.37E-03	1.23E-03	1.11E-03	1.00E-03
sm146	1.95E-03	2.01E-03	2.07E-03	2.12E-03	2.17E-03	2.21E-03	2.24E-03
pm147	5.78E+01	4.77E+01	3.83E+01	3.07E+01	2.46E+01	1.98E+01	1.59E+01
sm147	3.03E+01	4.20E+01	5.14E+01	5.90E+01	6.51E+01	6.99E+01	7.38E+01
nd148	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
sm148	2.84E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01
sm149	1.17E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00
nd150	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01
sm150	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01
sm151	6.15E+00	6.16E+00	6.12E+00	6.08E+00	6.04E+00	6.01E+00	5.97E+00
eu151	1.55E-02	5.51E-02	9.46E-02	1.34E-01	1.73E-01	2.11E-01	2.50E-01
sm152	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01
eu152	2.68E-02	2.54E-02	2.43E-02	2.33E-02	2.23E-02	2.14E-02	2.05E-02
gd152	2.45E-02	2.48E-02	2.52E-02	2.54E-02	2.57E-02	2.60E-02	2.62E-02

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp fission products page 41
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 nuclide concentrations, grams
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
eu153	2.68E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01
gd153	7.13E-04	2.98E-04	1.24E-04	5.19E-05	2.17E-05	9.05E-06	3.78E-06
sm154	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00
eu154	7.30E+00	6.83E+00	6.38E+00	5.97E+00	5.58E+00	5.22E+00	4.88E+00
gd154	6.33E-01	1.11E+00	1.55E+00	1.97E+00	2.35E+00	2.72E+00	3.06E+00
eu155	3.12E+00	2.78E+00	2.44E+00	2.16E+00	1.91E+00	1.69E+00	1.49E+00
gd155	5.34E-02	4.16E-01	7.37E-01	1.02E+00	1.27E+00	1.49E+00	1.69E+00
gd156	9.00E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00
gd157	2.88E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02
gd158	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00
tb159	5.02E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01
gd160	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01
dy160	3.04E-02	3.88E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02
dy161	8.12E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02
dy162	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02
dy163	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02
dy164	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
ho165	9.49E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03
ho166m	2.38E-05	2.38E-05	2.38E-05	2.38E-05	2.38E-05	2.37E-05	2.37E-05
er166	1.54E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03
er167	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05
er168	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
tm169	7.29E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07

er170	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07
yb171	3.69E-07	5.44E-07	6.77E-07	7.75E-07	8.44E-07	9.00E-07	9.39E-07
total	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03

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sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp fission products page 42
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 element radioactivity, curies
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
h	1.31E+02	1.25E+02	1.20E+02	1.14E+02	1.09E+02	1.04E+02	9.91E+01
be	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07
c	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05
se	2.20E+05	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01
kr	9.07E+05	2.47E+03	2.35E+03	2.22E+03	2.11E+03	2.00E+03	1.89E+03
rb	1.29E+06	2.64E-03	6.24E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06
sr	1.90E+06	2.54E+04	2.21E+04	2.16E+04	2.11E+04	2.07E+04	2.03E+04
y	2.46E+06	2.93E+04	2.22E+04	2.16E+04	2.11E+04	2.07E+04	2.03E+04
zr	2.03E+06	1.24E+04	4.59E+02	1.73E+01	9.78E-01	3.72E-01	3.50E-01
nb	2.95E+06	2.64E+04	1.01E+03	3.76E+01	1.46E+00	1.31E-01	9.06E-02
tc	2.04E+06	3.95E+00	3.95E+00	3.95E+00	3.95E+00	3.95E+00	3.95E+00
ru	8.68E+05	6.47E+04	3.59E+04	2.03E+04	1.15E+04	6.54E+03	3.71E+03
rh	1.11E+06	6.47E+04	3.59E+04	2.03E+04	1.15E+04	6.54E+03	3.71E+03
pd	8.87E+04	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02
ag	1.23E+05	2.15E+02	9.23E+01	3.97E+01	1.71E+01	7.33E+00	3.15E+00
cd	1.75E+04	6.66E+00	5.81E+00	5.57E+00	5.35E+00	5.13E+00	4.92E+00
sn	2.79E+05	3.06E+01	8.11E+00	3.09E+00	1.79E+00	1.38E+00	1.22E+00
sb	7.37E+05	1.58E+03	1.27E+03	1.03E+03	8.35E+02	6.78E+02	5.47E+02
te	1.64E+06	1.24E+03	4.30E+02	2.69E+02	2.06E+02	1.65E+02	1.34E+02
i	2.39E+06	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03
cs	1.59E+06	4.99E+04	4.44E+04	4.00E+04	3.67E+04	3.40E+04	3.18E+04
ba	1.98E+06	2.79E+04	2.73E+04	2.68E+04	2.63E+04	2.58E+04	2.53E+04
ce	1.56E+06	1.31E+05	6.21E+04	2.98E+04	1.41E+04	6.74E+03	3.21E+03
pr	1.33E+06	1.32E+05	6.30E+04	3.00E+04	1.43E+04	6.83E+03	3.26E+03
pm	2.92E+05	4.43E+04	3.55E+04	2.85E+04	2.28E+04	1.83E+04	1.47E+04
sm	8.12E+04	1.62E+02	1.61E+02	1.60E+02	1.59E+02	1.58E+02	1.57E+02
eu	2.66E+04	3.21E+03	2.93E+03	2.68E+03	2.45E+03	2.24E+03	2.06E+03
gd	1.14E+03	1.06E+00	4.40E-01	1.84E-01	7.66E-02	3.20E-02	1.34E-02
tb	3.82E+02	5.44E+00	2.94E-01	1.59E-02	8.59E-04	4.64E-05	2.51E-06
ho	4.24E+00	4.27E-05	4.27E-05	4.27E-05	4.26E-05	4.26E-05	4.26E-05
tm	1.67E-03	5.51E-04	4.07E-04	3.01E-04	2.23E-04	1.65E-04	1.22E-04
totals	3.45E+07	6.17E+05	3.57E+05	2.45E+05	1.88E+05	1.52E+05	1.31E+05

1

sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp fission products page 43
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 element thermal power, watts
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
h	4.43E-03	4.23E-03	4.03E-03	3.85E-03	3.67E-03	3.50E-03	3.34E-03
c	9.77E-09	9.76E-09	9.76E-09	9.76E-09	9.76E-09	9.76E-09	9.76E-09
se	3.96E+03	6.03E-05	6.03E-05	6.03E-05	6.03E-05	6.03E-05	6.03E-05
kr	1.48E+04	3.71E+00	3.52E+00	3.33E+00	3.16E+00	2.99E+00	2.84E+00
sr	2.76E+04	3.63E+01	2.57E+01	2.51E+01	2.45E+01	2.40E+01	2.36E+01
y	4.05E+04	1.49E+02	1.23E+02	1.20E+02	1.17E+02	1.15E+02	1.12E+02
zr	2.05E+04	6.24E+01	2.31E+00	8.56E-02	3.21E-03	1.57E-04	4.37E-05
nb	4.16E+04	1.26E+02	4.84E+00	1.80E-01	6.66E-03	2.60E-04	2.46E-05
tc	2.36E+04	1.98E-03	1.98E-03	1.98E-03	1.98E-03	1.98E-03	1.98E-03
ru	4.60E+03	8.43E+00	2.16E+00	1.21E+00	6.86E-01	3.89E-01	2.20E-01
rh	5.01E+03	6.07E+02	3.44E+02	1.95E+02	1.11E+02	6.27E+01	3.55E+01
pd	2.93E+02	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.45E-06
ag	4.89E+02	3.56E+00	1.53E+00	6.57E-01	2.82E-01	1.21E-01	5.21E-02

cd	2.07E+02	8.85E-03	6.33E-03	6.06E-03	5.81E-03	5.58E-03	5.36E-03
sn	3.71E+03	8.18E-02	1.71E-02	4.17E-03	1.48E-03	8.70E-04	7.11E-04
sb	1.36E+04	5.02E+00	4.03E+00	3.26E+00	2.64E+00	2.14E+00	1.73E+00
te	1.57E+04	1.19E+00	3.74E-01	2.28E-01	1.74E-01	1.39E-01	1.12E-01
i	3.59E+04	4.13E-06	4.13E-06	4.13E-06	4.13E-06	4.13E-06	4.13E-06
cs	2.92E+04	2.41E+02	1.89E+02	1.50E+02	1.21E+02	9.81E+01	8.10E+01
ba	1.73E+04	1.10E+02	1.07E+02	1.05E+02	1.03E+02	1.01E+02	9.95E+01
ce	7.13E+03	8.59E+01	4.06E+01	1.94E+01	9.24E+00	4.41E+00	2.10E+00
pr	1.06E+04	9.56E+02	4.56E+02	2.17E+02	1.04E+02	4.95E+01	2.36E+01
pm	1.35E+03	1.69E+01	1.30E+01	1.05E+01	8.39E+00	6.73E+00	5.40E+00
sm	2.00E+02	1.91E-02	1.90E-02	1.88E-02	1.87E-02	1.86E-02	1.85E-02
eu	2.36E+02	1.78E+01	1.66E+01	1.55E+01	1.45E+01	1.35E+01	1.26E+01
gd	3.47E+00	9.25E-04	3.86E-04	1.61E-04	6.74E-05	2.81E-05	1.17E-05
tb	2.21E+00	4.77E-02	2.58E-03	1.39E-04	7.53E-06	4.07E-07	2.20E-08
ho	1.82E-02	4.49E-07	4.49E-07	4.49E-07	4.48E-07	4.48E-07	4.48E-07
tm	5.59E-06	8.70E-08	6.32E-08	4.66E-08	3.44E-08	2.55E-08	1.88E-08
totals	4.30E+05	2.43E+03	1.33E+03	8.67E+02	6.19E+02	4.81E+02	4.01E+02

1

sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp fission products page 44
decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec
0 nuclide gamma power, watts
basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	3.45E-02	3.27E-02	3.10E-02	2.94E-02	2.78E-02	2.64E-02	2.50E-02
y 90	2.35E-04	2.27E-04	2.22E-04	2.17E-04	2.13E-04	2.09E-04	2.05E-04
y 91	5.30E+00	1.45E-01	3.94E-03	1.07E-04	2.91E-06	7.89E-08	2.14E-09
rb 93m	2.93E-07	4.19E-07	5.41E-07	6.59E-07	7.73E-07	8.82E-07	9.88E-07
rb 94	2.18E-07	2.18E-07	2.18E-07	2.18E-07	2.18E-07	2.18E-07	2.18E-07
zr 95	1.45E+03	5.37E+01	1.99E+00	7.37E-02	2.73E-03	1.01E-04	3.74E-06
nb 95	1.52E+03	1.19E+02	4.56E+00	1.69E-01	6.27E-03	2.32E-04	8.61E-06
nb 95m	1.57E+00	5.92E-02	2.19E-03	8.12E-05	3.01E-06	1.11E-07	4.13E-09
tc 98	9.81E-09	9.81E-09	9.81E-09	9.81E-09	9.81E-09	9.81E-09	9.81E-09
tc 99	1.44E-08	1.45E-08	1.45E-08	1.45E-08	1.45E-08	1.45E-08	1.45E-08
rh102	3.36E-03	2.75E-03	2.26E-03	1.85E-03	1.52E-03	1.24E-03	1.02E-03
rh106	1.41E+02	7.73E+01	4.38E+01	2.48E+01	1.41E+01	7.98E+00	4.52E+00
ag108	1.74E-05	1.04E-08	1.03E-08	1.03E-08	1.02E-08	1.02E-08	1.01E-08
ag108m	1.06E-05	1.05E-05	1.05E-05	1.04E-05	1.04E-05	1.03E-05	1.03E-05
ag110	3.54E+00	5.25E-04	2.25E-04	9.69E-05	4.16E-05	1.79E-05	7.69E-06
ag110m	8.01E+00	3.44E+00	1.48E+00	6.36E-01	2.73E-01	1.17E-01	5.04E-02
cd113m	2.64E-06	2.53E-06	2.43E-06	2.33E-06	2.24E-06	2.15E-06	2.06E-06
sn119m	5.82E-04	2.83E-04	1.38E-04	6.71E-05	3.27E-05	1.59E-05	7.74E-06
sn121m	1.71E-05	1.70E-05	1.68E-05	1.66E-05	1.64E-05	1.63E-05	1.61E-05
sn123	5.29E-03	1.03E-03	2.02E-04	3.94E-05	7.70E-06	1.50E-06	2.93E-07
te123m	5.38E-04	9.24E-05	1.58E-05	2.72E-06	4.66E-07	8.00E-08	1.37E-08
sb124	1.05E+00	3.15E-02	9.47E-04	2.85E-05	8.55E-07	2.57E-08	7.73E-10
sb125	4.98E+00	4.05E+00	3.28E+00	2.65E+00	2.15E+00	1.74E+00	1.41E+00
te125m	8.84E-02	8.08E-02	6.57E-02	5.32E-02	4.30E-02	3.48E-02	2.82E-02
sn126	1.07E-04	1.07E-04	1.07E-04	1.07E-04	1.07E-04	1.07E-04	1.07E-04
sb126	1.04E+00	3.17E-04	3.17E-04	3.17E-04	3.17E-04	3.17E-04	3.17E-04
sb126m	7.41E-01	1.28E-03	1.28E-03	1.28E-03	1.28E-03	1.28E-03	1.28E-03
te127	4.78E-01	1.18E-02	1.71E-03	2.47E-04	3.56E-05	5.14E-06	7.42E-07
te127m	1.83E-01	2.74E-02	3.95E-03	5.71E-04	8.24E-05	1.19E-05	1.72E-06
i129	1.28E-06	1.29E-06	1.29E-06	1.29E-06	1.29E-06	1.29E-06	1.29E-06
ba133	1.54E-08	1.46E-08	1.38E-08	1.30E-08	1.24E-08	1.17E-08	1.11E-08
cs134	2.49E+02	1.88E+02	1.42E+02	1.07E+02	8.11E+01	6.13E+01	4.63E+01
ba137m	1.01E+02	9.90E+01	9.71E+01	9.52E+01	9.34E+01	9.16E+01	8.99E+01
ce139	2.19E-05	4.73E-06	1.02E-06	2.21E-07	4.78E-08	1.03E-08	2.22E-09
ce144	3.07E+01	1.47E+01	6.99E+00	3.34E+00	1.59E+00	7.59E-01	3.62E-01
pr144	4.69E+01	2.23E+01	1.06E+01	5.07E+00	2.42E+00	1.15E+00	5.50E-01
pr144m	2.84E-01	1.35E-01	6.44E-02	3.07E-02	1.47E-02	6.99E-03	3.33E-03

pm145	2.11E-06	3.17E-06	3.67E-06	3.88E-06	3.93E-06	3.90E-06	3.82E-06
sm145	9.50E-05	5.11E-05	2.75E-05	1.48E-05	7.94E-06	4.27E-06	2.30E-06
pm146	3.69E-03	3.33E-03	3.00E-03	2.70E-03	2.43E-03	2.19E-03	1.97E-03
pm147	1.39E-03	1.15E-03	9.21E-04	7.39E-04	5.93E-04	4.76E-04	3.82E-04
eu150	1.30E-07	1.28E-07	1.26E-07	1.24E-07	1.22E-07	1.20E-07	1.18E-07
sm151	1.36E-05	1.36E-05	1.36E-05	1.35E-05	1.34E-05	1.33E-05	1.32E-05
eu152	3.23E-02	3.09E-02	2.96E-02	2.83E-02	2.71E-02	2.60E-02	2.49E-02
gd153	1.61E-03	6.71E-04	2.80E-04	1.17E-04	4.89E-05	2.04E-05	8.52E-06
eu154	1.47E+01	1.37E+01	1.28E+01	1.20E+01	1.12E+01	1.05E+01	9.80E+00
eu155	5.91E-01	5.22E-01	4.61E-01	4.08E-01	3.61E-01	3.19E-01	2.82E-01
tb160	7.30E-01	3.94E-02	2.13E-03	1.15E-04	6.22E-06	3.36E-07	1.82E-08
ho166m	4.12E-07	4.12E-07	4.12E-07	4.12E-07	4.11E-07	4.11E-07	4.11E-07
total	2.13E+05	6.01E+02	3.25E+02	2.52E+02	2.07E+02	1.76E+02	1.53E+02

1

sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp fission products page 45

decay, following reactor irradiation identified by: power= 7.25mw, burnup= 9280.mwd, flux= 1.63E+13n/cm**2-sec

0 element gamma power, watts

basis =single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr	7.71E+03	3.27E-02	3.10E-02	2.94E-02	2.78E-02	2.64E-02	2.50E-02
y	1.47E+04	1.47E-01	4.19E-03	3.25E-04	2.16E-04	2.09E-04	2.05E-04
zr	8.12E+03	5.37E+01	1.99E+00	7.37E-02	2.73E-03	1.01E-04	3.74E-06
nb	1.75E+04	1.19E+02	4.56E+00	1.69E-01	6.28E-03	2.34E-04	9.82E-06
tc	1.21E+04	2.43E-08	2.43E-08	2.43E-08	2.43E-08	2.43E-08	2.43E-08
rh	1.55E+03	7.73E+01	4.38E+01	2.48E+01	1.41E+01	7.98E+00	4.53E+00
ag	1.30E+02	3.44E+00	1.48E+00	6.36E-01	2.73E-01	1.17E-01	5.04E-02
cd	9.93E+01	1.20E-04	3.48E-06	2.35E-06	2.24E-06	2.15E-06	2.06E-06
sn	2.40E+03	1.44E-03	4.64E-04	2.30E-04	1.64E-04	1.41E-04	1.31E-04
sb	9.36E+03	4.08E+00	3.28E+00	2.66E+00	2.15E+00	1.74E+00	1.41E+00
te	9.32E+03	1.30E-01	7.14E-02	5.40E-02	4.31E-02	3.48E-02	2.82E-02
i	2.38E+04	1.29E-06	1.29E-06	1.29E-06	1.29E-06	1.29E-06	1.29E-06
cs	1.44E+04	1.88E+02	1.42E+02	1.07E+02	8.11E+01	6.13E+01	4.63E+01
ba	7.30E+03	9.90E+01	9.71E+01	9.52E+01	9.34E+01	9.16E+01	8.99E+01
ce	3.37E+03	1.49E+01	6.99E+00	3.34E+00	1.59E+00	7.59E-01	3.62E-01
pr	3.19E+03	2.24E+01	1.07E+01	5.10E+00	2.43E+00	1.16E+00	5.54E-01
pm	5.12E+02	5.92E-01	7.47E-03	3.46E-03	3.03E-03	2.67E-03	2.36E-03
sm	4.66E+01	6.47E-05	4.10E-05	2.82E-05	2.13E-05	1.78E-05	1.55E-05
eu	1.61E+02	1.43E+01	1.33E+01	1.24E+01	1.16E+01	1.08E+01	1.01E+01
gd	1.08E+00	6.71E-04	2.80E-04	1.17E-04	4.89E-05	2.04E-05	8.52E-06
tb	1.52E+00	3.94E-02	2.13E-03	1.15E-04	6.22E-06	3.36E-07	1.82E-08
ho	7.42E-04	4.12E-07	4.12E-07	4.12E-07	4.11E-07	4.11E-07	4.11E-07
totals	2.13E+05	6.01E+02	3.25E+02	2.52E+02	2.07E+02	1.76E+02	1.53E+02

1 page 46

photon spectrum as a function of time for light elements, cladding and structural materials

0 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

power= 7.25 mw, burnup= 9280.mwd, flux= 1.63E+13 n**2-sec

0 spectrum of photon release rates, photons/sec

basis = single reactor assembly

0

emean	time after discharge						
(mev)	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
1.00E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
3.00E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
5.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
8.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
1.20E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
1.70E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
3.00E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
6.50E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

	1.13E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
	1.58E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
	2.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
	2.40E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
	2.80E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
	3.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
	3.75E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
	4.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
	4.75E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
	5.50E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
0	total	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
0	mev/sec	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

0 spectrum of energy release rates, mev/watt-sec
basis = single reactor assembly

0

emean (mev)	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
			time after discharge				
1.00E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
3.00E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
5.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
8.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
1.20E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
1.70E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
3.00E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
6.50E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
1.13E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
1.58E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
2.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
2.40E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
2.80E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
3.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
3.75E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
4.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
4.75E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
5.50E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
0 total	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
0 gamma watts	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1 page 47

photon spectrum as a function of time for fission products

0 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
power= 7.25 mw, burnup= 9280.mwd, flux= 1.63E+13 n**2-sec

0 spectrum of photon release rates, photons/sec
basis = single reactor assembly

0

emean (mev)	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
			time after discharge				
1.00E-02	4.22E+17	6.46E+15	3.54E+15	2.14E+15	1.43E+15	1.05E+15	8.42E+14
3.00E-02	1.87E+17	2.77E+15	1.52E+15	9.21E+14	6.14E+14	4.54E+14	3.68E+14
5.50E-02	9.88E+16	1.51E+15	8.32E+14	5.00E+14	3.29E+14	2.39E+14	1.91E+14
8.50E-02	6.82E+16	9.54E+14	5.17E+14	3.05E+14	1.96E+14	1.39E+14	1.08E+14
1.20E-01	5.58E+16	1.20E+15	6.29E+14	3.51E+14	2.13E+14	1.42E+14	1.06E+14
1.70E-01	9.03E+16	6.24E+14	3.35E+14	1.96E+14	1.25E+14	8.75E+13	6.74E+13
3.00E-01	1.91E+17	7.19E+14	3.89E+14	2.25E+14	1.41E+14	9.75E+13	7.41E+13
6.50E-01	3.90E+17	5.53E+15	2.94E+15	2.28E+15	1.87E+15	1.59E+15	1.39E+15
1.13E+00	1.26E+17	1.80E+14	1.20E+14	8.60E+13	6.61E+13	5.37E+13	4.55E+13
1.58E+00	6.53E+16	6.03E+13	3.63E+13	2.30E+13	1.53E+13	1.07E+13	7.78E+12
2.00E+00	1.92E+16	4.68E+13	2.27E+13	1.11E+13	5.41E+12	2.66E+12	1.32E+12
2.40E+00	1.58E+16	2.84E+12	1.57E+12	8.74E+11	4.87E+11	2.72E+11	1.53E+11
2.80E+00	6.55E+15	4.44E+11	2.49E+11	1.40E+11	7.84E+10	4.41E+10	2.49E+10

	3.25E+00	3.37E+15	7.07E+10	4.01E+10	2.27E+10	1.29E+10	7.30E+09	4.14E+09
	3.75E+00	1.60E+15	3.12E+07	1.77E+07	1.00E+07	5.68E+06	3.22E+06	1.82E+06
	4.25E+00	1.58E+15	9.80E-06	1.00E-05	1.02E-05	1.04E-05	1.05E-05	1.06E-05
	4.75E+00	4.67E+14	4.92E-06	5.04E-06	5.14E-06	5.22E-06	5.28E-06	5.33E-06
	5.50E+00	3.58E+14	3.65E-06	3.74E-06	3.81E-06	3.87E-06	3.92E-06	3.95E-06
0	total	1.74E+18	2.01E+16	1.09E+16	7.04E+15	5.00E+15	3.86E+15	3.20E+15
0	mev/sec	7.22E+17	4.77E+15	2.58E+15	1.88E+15	1.48E+15	1.23E+15	1.06E+15

0 spectrum of energy release rates, mev/watt-sec
basis = single reactor assembly

0

emean	time after discharge						
(mev)	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
1.00E-02	5.82E+08	8.90E+06	4.88E+06	2.96E+06	1.97E+06	1.44E+06	1.16E+06
3.00E-02	7.73E+08	1.15E+07	6.30E+06	3.81E+06	2.54E+06	1.88E+06	1.52E+06
5.50E-02	7.50E+08	1.15E+07	6.31E+06	3.79E+06	2.50E+06	1.82E+06	1.45E+06
8.50E-02	8.00E+08	1.12E+07	6.07E+06	3.57E+06	2.29E+06	1.63E+06	1.27E+06
1.20E-01	9.23E+08	1.99E+07	1.04E+07	5.81E+06	3.52E+06	2.35E+06	1.75E+06
1.70E-01	2.12E+09	1.46E+07	7.86E+06	4.60E+06	2.95E+06	2.05E+06	1.58E+06
3.00E-01	7.91E+09	2.98E+07	1.61E+07	9.32E+06	5.85E+06	4.03E+06	3.07E+06
6.50E-01	3.50E+10	4.95E+08	2.64E+08	2.04E+08	1.68E+08	1.43E+08	1.25E+08
1.13E+00	1.96E+10	2.79E+07	1.86E+07	1.33E+07	1.08E+07	8.33E+06	7.06E+06
1.58E+00	1.42E+10	1.31E+07	7.88E+06	4.99E+06	3.33E+06	2.32E+06	1.69E+06
2.00E+00	5.31E+09	1.29E+07	6.26E+06	3.05E+06	1.49E+06	7.34E+05	3.64E+05
2.40E+00	5.22E+09	9.39E+05	5.21E+05	2.89E+05	1.61E+05	9.02E+04	5.05E+04
2.80E+00	2.53E+09	1.71E+05	9.60E+04	5.39E+04	3.03E+04	1.70E+04	9.60E+03
3.25E+00	1.51E+09	3.17E+04	1.80E+04	1.02E+04	5.78E+03	3.27E+03	1.86E+03
3.75E+00	8.27E+08	1.61E+01	9.14E+00	5.18E+00	2.94E+00	1.67E+00	9.44E-01
4.25E+00	9.28E+08	5.75E-12	5.89E-12	6.00E-12	6.10E-12	6.17E-12	6.23E-12
4.75E+00	3.06E+08	3.22E-12	3.30E-12	3.37E-12	3.42E-12	3.46E-12	3.49E-12
5.50E+00	2.71E+08	2.77E-12	2.84E-12	2.89E-12	2.94E-12	2.97E-12	3.00E-12
0 total	9.95E+10	6.58E+08	3.55E+08	2.60E+08	2.05E+08	1.69E+08	1.46E+08
0 gamma watts	1.16E+05	7.65E+02	4.13E+02	3.02E+02	2.38E+02	1.97E+02	1.69E+02

1 page 48

0 principal photon sources in group 1, photons/sec
mean energy = .0100 mev. nuclides exceeding 1.0E-03 of total group release rate (1.05E+15) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	1.38E+13	1.31E+13	1.24E+13	1.17E+13	1.11E+13	1.05E+13	9.98E+12
sr 90	9.35E+13	9.16E+13	8.97E+13	8.79E+13	8.61E+13	8.44E+13	8.27E+13
y 90	4.68E+14	4.50E+14	4.41E+14	4.32E+14	4.23E+14	4.15E+14	4.06E+14
rh106	3.42E+15	1.88E+15	1.07E+15	6.05E+14	3.43E+14	1.95E+14	1.10E+14
sb125	4.63E+12	3.77E+12	3.05E+12	2.47E+12	2.00E+12	1.62E+12	1.31E+12
cs134	8.74E+13	6.60E+13	4.99E+13	3.77E+13	2.85E+13	2.15E+13	1.63E+13
cs137	1.06E+14	1.04E+14	1.02E+14	1.00E+14	9.83E+13	9.65E+13	9.46E+13
ba137m	5.01E+12	4.89E+12	4.79E+12	4.70E+12	4.61E+12	4.52E+12	4.44E+12
ce144	5.25E+14	2.51E+14	1.20E+14	5.70E+13	2.72E+13	1.30E+13	6.18E+12
pr144	6.98E+15	3.32E+15	1.58E+15	7.55E+14	3.60E+14	1.72E+14	8.19E+13
pm147	6.23E+13	5.14E+13	4.12E+13	3.31E+13	2.65E+13	2.13E+13	1.71E+13
eu154	1.30E+13	1.21E+13	1.13E+13	1.06E+13	9.91E+12	9.27E+12	8.67E+12
eu155	4.07E+12	3.60E+12	3.18E+12	2.81E+12	2.49E+12	2.20E+12	1.94E+12

0 principal photon sources in group 2, photons/sec
mean energy = .0300 mev. nuclides exceeding 1.0E-03 of total group release rate (4.54E+14) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	4.02E+12	3.81E+12	3.61E+12	3.42E+12	3.24E+12	3.07E+12	2.91E+12
sr 90	2.64E+13	2.59E+13	2.54E+13	2.48E+13	2.43E+13	2.38E+13	2.34E+13
y 90	1.52E+14	1.47E+14	1.44E+14	1.41E+14	1.38E+14	1.35E+14	1.32E+14
rh106	1.14E+15	6.29E+14	3.57E+14	2.02E+14	1.15E+14	6.50E+13	3.68E+13
sb125	3.55E+13	2.89E+13	2.34E+13	1.89E+13	1.53E+13	1.24E+13	1.00E+13
te125m	1.79E+13	1.64E+13	1.33E+13	1.08E+13	8.72E+12	7.08E+12	5.71E+12

cs134	3.26E+13	2.46E+13	1.86E+13	1.41E+13	1.06E+13	8.03E+12	6.07E+12
cs137	2.98E+13	2.90E+13	2.85E+13	2.79E+13	2.74E+13	2.69E+13	2.64E+13
ba137m	8.60E+13	8.39E+13	8.23E+13	8.08E+13	7.92E+13	7.77E+13	7.62E+13
ce144	1.22E+15	5.82E+14	2.78E+14	1.32E+14	6.31E+13	3.01E+13	1.44E+13
pr144	2.31E+15	1.10E+15	5.24E+14	2.50E+14	1.19E+14	5.68E+13	2.71E+13
pr144m	4.72E+13	2.24E+13	1.07E+13	5.10E+12	2.43E+12	1.16E+12	5.54E+11
pm147	1.37E+13	1.13E+13	9.07E+12	7.27E+12	5.84E+12	4.68E+12	3.76E+12
eu154	2.83E+12	2.64E+12	2.47E+12	2.31E+12	2.16E+12	2.02E+12	1.89E+12

0 principal photon sources in group 3, photons/sec

mean energy = .0550 mev. nuclides exceeding 1.0E-03 of total group release rate (2.39E+14) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	2.46E+12	2.33E+12	2.21E+12	2.10E+12	1.99E+12	1.88E+12	1.78E+12
sr 90	1.56E+13	1.53E+13	1.50E+13	1.47E+13	1.44E+13	1.41E+13	1.38E+13
y 90	1.05E+14	1.01E+14	9.93E+13	9.73E+13	9.53E+13	9.34E+13	9.15E+13
rh106	8.10E+14	4.46E+14	2.53E+14	1.43E+14	8.12E+13	4.60E+13	2.61E+13
cs134	1.45E+13	1.09E+13	8.26E+12	6.24E+12	4.72E+12	3.57E+12	2.69E+12
cs137	1.72E+13	1.69E+13	1.66E+13	1.63E+13	1.59E+13	1.56E+13	1.53E+13
ce144	1.77E+14	8.42E+13	4.02E+13	1.91E+13	9.13E+12	4.36E+12	2.08E+12
pr144	1.62E+15	7.71E+14	3.68E+14	1.75E+14	8.37E+13	3.99E+13	1.90E+13
pm147	5.75E+12	4.75E+12	3.81E+12	3.06E+12	2.45E+12	1.97E+12	1.58E+12
eu154	1.66E+13	1.56E+13	1.46E+13	1.36E+13	1.27E+13	1.19E+13	1.11E+13
eu155	1.19E+13	1.06E+13	9.28E+12	8.20E+12	7.25E+12	6.41E+12	5.66E+12

1 page 49

0 principal photon sources in group 4, photons/sec

mean energy = .0850 mev. nuclides exceeding 1.0E-03 of total group release rate (1.39E+14) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	1.23E+12	1.17E+12	1.11E+12	1.05E+12	9.94E+11	9.42E+11	8.92E+11
sr 90	7.45E+12	7.29E+12	7.15E+12	7.00E+12	6.86E+12	6.72E+12	6.58E+12
y 90	6.09E+13	5.87E+13	5.75E+13	5.63E+13	5.52E+13	5.40E+13	5.29E+13
rh106	4.81E+14	2.66E+14	1.50E+14	8.51E+13	4.82E+13	2.73E+13	1.55E+13
cs134	7.00E+12	5.29E+12	4.00E+12	3.02E+12	2.28E+12	1.73E+12	1.30E+12
cs137	8.06E+12	7.91E+12	7.76E+12	7.61E+12	7.47E+12	7.32E+12	7.18E+12
ce144	2.49E+14	1.19E+14	5.67E+13	2.70E+13	1.29E+13	6.15E+12	2.93E+12
pr144	9.55E+14	4.54E+14	2.17E+14	1.03E+14	4.92E+13	2.35E+13	1.12E+13
pm147	1.64E+12	1.35E+12	1.08E+12	8.70E+11	6.98E+11	5.60E+11	4.49E+11
eu154	9.14E+11	8.54E+11	7.99E+11	7.47E+11	6.98E+11	6.53E+11	6.10E+11
eu155	1.80E+13	1.59E+13	1.41E+13	1.25E+13	1.10E+13	9.73E+12	8.60E+12

0 principal photon sources in group 5, photons/sec

mean energy = .1200 mev. nuclides exceeding 1.0E-03 of total group release rate (1.42E+14) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	7.43E+11	7.04E+11	6.67E+11	6.32E+11	5.99E+11	5.68E+11	5.38E+11
sr 90	4.24E+12	4.15E+12	4.07E+12	3.99E+12	3.90E+12	3.82E+12	3.75E+12
y 90	4.29E+13	4.13E+13	4.04E+13	3.96E+13	3.88E+13	3.80E+13	3.72E+13
rh106	3.48E+14	1.91E+14	1.08E+14	6.15E+13	3.48E+13	1.97E+13	1.12E+13
cs134	4.08E+12	3.08E+12	2.33E+12	1.76E+12	1.33E+12	1.00E+12	7.59E+11
cs137	4.52E+12	4.43E+12	4.35E+12	4.27E+12	4.19E+12	4.11E+12	4.03E+12
ce144	1.22E+15	5.83E+14	2.78E+14	1.33E+14	6.32E+13	3.02E+13	1.44E+13
pr144	6.83E+14	3.25E+14	1.55E+14	7.39E+13	3.52E+13	1.68E+13	8.02E+12
pm147	5.19E+11	4.28E+11	3.44E+11	2.78E+11	2.21E+11	1.78E+11	1.42E+11
eu154	3.10E+13	2.89E+13	2.71E+13	2.53E+13	2.37E+13	2.21E+13	2.07E+13
eu155	1.03E+13	9.10E+12	8.04E+12	7.11E+12	6.28E+12	5.55E+12	4.91E+12

0 principal photon sources in group 6, photons/sec

mean energy = .1700 mev. nuclides exceeding 1.0E-03 of total group release rate (8.75E+13) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	5.90E+11	5.59E+11	5.30E+11	5.02E+11	4.76E+11	4.51E+11	4.27E+11
sr 90	3.02E+12	2.96E+12	2.90E+12	2.84E+12	2.78E+12	2.73E+12	2.67E+12

y 90	4.42E+13	4.25E+13	4.17E+13	4.08E+13	4.00E+13	3.92E+13	3.84E+13
rh106	3.73E+14	2.05E+14	1.16E+14	6.59E+13	3.74E+13	2.12E+13	1.20E+13
sb125	5.35E+12	4.35E+12	3.52E+12	2.85E+12	2.31E+12	1.87E+12	1.51E+12
cs134	3.05E+12	2.30E+12	1.74E+12	1.32E+12	9.94E+11	7.51E+11	5.68E+11
cs137	3.19E+12	3.13E+12	3.07E+12	3.01E+12	2.95E+12	2.90E+12	2.84E+12
pr144	7.22E+14	3.44E+14	1.64E+14	7.81E+13	3.73E+13	1.78E+13	8.48E+12
eu154	7.24E+11	6.77E+11	6.33E+11	5.92E+11	5.53E+11	5.17E+11	4.84E+11

1 page 50

0 principal photon sources in group 7, photons/sec

mean energy = .3000 mev. nuclides exceeding 1.0E-03 of total group release rate (9.75E+13) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
kr 85	3.56E+11	3.38E+11	3.20E+11	3.03E+11	2.87E+11	2.72E+11	2.58E+11
sr 90	1.37E+12	1.34E+12	1.32E+12	1.29E+12	1.26E+12	1.24E+12	1.21E+12
y 90	4.91E+13	4.72E+13	4.63E+13	4.53E+13	4.44E+13	4.35E+13	4.26E+13
rh106	4.50E+14	2.47E+14	1.40E+14	7.95E+13	4.51E+13	2.55E+13	1.45E+13
sb125	2.03E+12	1.65E+12	1.33E+12	1.08E+12	8.73E+11	7.07E+11	5.72E+11
cs134	1.94E+12	1.47E+12	1.11E+12	8.37E+11	6.33E+11	4.78E+11	3.61E+11
cs137	1.62E+12	1.58E+12	1.55E+12	1.52E+12	1.50E+12	1.47E+12	1.44E+12
pr144	8.46E+14	4.02E+14	1.92E+14	9.15E+13	4.36E+13	2.08E+13	9.92E+12
eu154	4.73E+12	4.42E+12	4.14E+12	3.87E+12	3.62E+12	3.38E+12	3.16E+12

0 principal photon sources in group 8, photons/sec

mean energy = .6500 mev. nuclides exceeding 1.0E-03 of total group release rate (1.59E+15) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
y 90	2.07E+13	2.00E+13	1.96E+13	1.92E+13	1.88E+13	1.84E+13	1.80E+13
rh106	1.39E+15	7.64E+14	4.33E+14	2.45E+14	1.39E+14	7.89E+13	4.47E+13
sb125	4.35E+13	3.54E+13	2.86E+13	2.32E+13	1.87E+13	1.52E+13	1.23E+13
cs134	2.27E+15	1.72E+15	1.30E+15	9.81E+14	7.42E+14	5.60E+14	4.24E+14
ba137m	9.67E+14	9.44E+14	9.26E+14	9.08E+14	8.91E+14	8.74E+14	8.57E+14
pr144	5.77E+14	2.74E+14	1.31E+14	6.24E+13	2.98E+13	1.42E+13	6.77E+12
eu154	3.96E+13	3.70E+13	3.46E+13	3.24E+13	3.03E+13	2.83E+13	2.65E+13

0 principal photon sources in group 9, photons/sec

mean energy = 1.1250 mev. nuclides exceeding 1.0E-03 of total group release rate (5.37E+13) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
y 90	2.70E+12	2.60E+12	2.55E+12	2.50E+12	2.45E+12	2.40E+12	2.35E+12
rh106	1.29E+14	7.12E+13	4.03E+13	2.29E+13	1.30E+13	7.35E+12	4.16E+12
ag110m	5.33E+12	2.29E+12	9.84E+11	4.23E+11	1.82E+11	7.81E+10	3.35E+10
cs134	2.78E+13	2.10E+13	1.59E+13	1.20E+13	9.08E+12	6.86E+12	5.19E+12
pr144	7.39E+13	3.51E+13	1.67E+13	7.99E+12	3.81E+12	1.82E+12	8.66E+11
eu152	7.28E+10	6.97E+10	6.67E+10	6.39E+10	6.12E+10	5.86E+10	5.61E+10
eu154	4.91E+13	4.59E+13	4.29E+13	4.02E+13	3.75E+13	3.51E+13	3.28E+13

0 principal photon sources in group 10, photons/sec

mean energy = 1.5750 mev. nuclides exceeding 1.0E-03 of total group release rate (1.07E+13) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
y 90	3.45E+11	3.32E+11	3.26E+11	3.19E+11	3.13E+11	3.06E+11	3.00E+11
rh106	2.44E+13	1.34E+13	7.61E+12	4.31E+12	2.44E+12	1.39E+12	7.85E+11
ag110m	7.10E+12	3.05E+12	1.31E+12	5.63E+11	2.42E+11	1.04E+11	4.47E+10
cs134	2.63E+13	1.99E+13	1.50E+13	1.13E+13	8.57E+12	6.48E+12	4.90E+12
pr144	4.59E+13	2.18E+13	1.04E+13	4.97E+12	2.37E+12	1.13E+12	5.39E+11
eu152	3.34E+10	3.20E+10	3.07E+10	2.94E+10	2.81E+10	2.69E+10	2.58E+10
eu154	1.78E+12	1.66E+12	1.55E+12	1.45E+12	1.36E+12	1.27E+12	1.19E+12

1 page 51

0 principal photon sources in group 11, photons/sec

mean energy = 2.0000 mev. nuclides exceeding 1.0E-03 of total group release rate (2.66E+12) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
y 90	2.07E+10	1.99E+10	1.95E+10	1.91E+10	1.87E+10	1.83E+10	1.79E+10

rh106	7.93E+12	4.36E+12	2.47E+12	1.40E+12	7.94E+11	4.50E+11	2.55E+11
pr144	8.91E+13	4.24E+13	2.02E+13	9.64E+12	4.60E+12	2.19E+12	1.05E+12

0 principal photon sources in group 12, photons/sec
mean energy = 2.4000 mev. nuclides exceeding 1.0E-03 of total group release rate (2.72E+11) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
rh106	4.43E+12	2.44E+12	1.38E+12	7.83E+11	4.44E+11	2.52E+11	1.43E+11
pr144	8.42E+11	4.00E+11	1.91E+11	9.11E+10	4.34E+10	2.07E+10	9.88E+09

0 principal photon sources in group 13, photons/sec
mean energy = 2.8000 mev. nuclides exceeding 1.0E-03 of total group release rate (4.41E+10) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
rh106	7.47E+11	4.11E+11	2.33E+11	1.32E+11	7.49E+10	4.25E+10	2.41E+10
pr144	6.78E+10	3.22E+10	1.54E+10	7.33E+09	3.50E+09	1.67E+09	7.96E+08

0 principal photon sources in group 14, photons/sec
mean energy = 3.2500 mev. nuclides exceeding 1.0E-03 of total group release rate (7.30E+09) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
rh106	1.29E+11	7.07E+10	4.01E+10	2.27E+10	1.29E+10	7.30E+09	4.14E+09

0 principal photon sources in group 15, photons/sec
mean energy = 3.7500 mev. nuclides exceeding 1.0E-03 of total group release rate (3.22E+06) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
rh106	5.67E+07	3.12E+07	1.77E+07	1.00E+07	5.68E+06	3.22E+06	1.82E+06

0 principal photon sources in group 16, photons/sec
mean energy = 4.2500 mev. nuclides exceeding 1.0E-03 of total group release rate (1.05E-05) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
ce142	8.67E-06	8.67E-06	8.67E-06	8.67E-06	8.67E-06	8.67E-06	8.67E-06
sm146	5.18E-08	5.35E-08	5.50E-08	5.63E-08	5.76E-08	5.87E-08	5.97E-08
sm147	7.78E-07	1.08E-06	1.32E-06	1.51E-06	1.67E-06	1.79E-06	1.89E-06

1 page 52
0 principal photon sources in group 17, photons/sec
mean energy = 4.7500 mev. nuclides exceeding 1.0E-03 of total group release rate (5.28E-06) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
ce142	4.35E-06	4.35E-06	4.35E-06	4.35E-06	4.35E-06	4.35E-06	4.35E-06
sm146	2.60E-08	2.68E-08	2.76E-08	2.83E-08	2.89E-08	2.94E-08	2.99E-08
sm147	3.89E-07	5.40E-07	6.62E-07	7.59E-07	8.37E-07	9.00E-07	9.50E-07

0 principal photon sources in group 18, photons/sec
mean energy = 5.5000 mev. nuclides exceeding 1.0E-03 of total group release rate (3.92E-06) at 1521.9 d

nuclide	time after discharge						
	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
ce142	3.23E-06	3.23E-06	3.23E-06	3.23E-06	3.23E-06	3.23E-06	3.23E-06
sm146	1.93E-08	1.99E-08	2.05E-08	2.10E-08	2.14E-08	2.18E-08	2.22E-08
sm147	2.89E-07	4.01E-07	4.91E-07	5.63E-07	6.21E-07	6.67E-07	7.05E-07

1 page 53

photon spectrum as a function of time for heavy metals and their daughters

0 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
power= 7.25 mw, burnup= 9280.mwd, flux= 1.63E+13 n**2-sec
0 actinide photon release rates, photons/sec
basis = single reactor assembly
0

emean	time after discharge						
(mev)	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
1.00E-02	2.27E+17	2.10E+13	1.10E+13	8.56E+12	8.12E+12	8.22E+12	8.46E+12
3.00E-02	1.43E+16	1.02E+11	1.46E+11	1.88E+11	2.28E+11	2.67E+11	3.04E+11
5.50E-02	1.92E+16	1.69E+12	2.43E+12	3.15E+12	3.84E+12	4.51E+12	5.14E+12
8.50E-02	9.06E+16	8.07E+10	8.08E+10	8.08E+10	8.08E+10	8.08E+10	8.07E+10

	1.20E-01	9.33E+16	1.12E+11	1.10E+11	1.09E+11	1.08E+11	1.07E+11	1.06E+11
	1.70E-01	2.97E+15	3.54E+09	2.71E+09	2.47E+09	2.39E+09	2.36E+09	2.35E+09
	3.00E-01	4.92E+16	5.79E+10	5.72E+10	5.64E+10	5.57E+10	5.50E+10	5.43E+10
	6.50E-01	2.59E+15	6.37E+08	4.92E+08	4.79E+08	5.01E+08	5.31E+08	5.62E+08
	1.13E+00	1.13E+15	4.46E+08	4.27E+08	4.20E+08	4.18E+08	4.16E+08	4.15E+08
	1.58E+00	3.91E+07	2.06E+07	1.72E+07	1.71E+07	1.79E+07	1.88E+07	1.97E+07
	2.00E+00	2.22E+06	1.92E+06	1.96E+06	1.99E+06	2.03E+06	2.06E+06	2.09E+06
	2.40E+00	1.45E+07	6.30E+06	3.98E+06	3.28E+06	3.02E+06	2.89E+06	2.79E+06
	2.80E+00	1.95E+07	2.48E+07	3.54E+07	4.74E+07	5.92E+07	7.03E+07	8.03E+07
	3.25E+00	5.18E+06	2.26E+06	1.42E+06	1.17E+06	1.08E+06	1.03E+06	1.00E+06
	3.75E+00	3.00E+06	1.31E+06	8.25E+05	6.80E+05	6.27E+05	5.99E+05	5.80E+05
	4.25E+00	1.74E+06	7.57E+05	4.78E+05	3.94E+05	3.63E+05	3.47E+05	3.36E+05
	4.75E+00	1.01E+06	4.39E+05	2.77E+05	2.28E+05	2.10E+05	2.01E+05	1.95E+05
	5.50E+00	9.10E+05	3.97E+05	2.51E+05	2.06E+05	1.90E+05	1.82E+05	1.76E+05
0	total	5.00E+17	2.30E+13	1.39E+13	1.21E+13	1.24E+13	1.32E+13	1.42E+13
0	mev/sec	4.09E+16	3.45E+11	2.87E+11	3.03E+11	3.37E+11	3.76E+11	4.14E+11

0 actinide energy release rates, mev/watt-sec
basis = single reactor assembly

0

	emean		time after discharge					
	(mev)	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
	1.00E-02	3.13E+03	2.90E+04	1.52E+04	1.18E+04	1.12E+04	1.13E+04	1.17E+04
	3.00E-02	5.94E+07	4.29E+02	6.04E+02	7.78E+02	9.45E+02	1.10E+03	1.26E+03
	5.50E-02	1.46E+03	1.28E+04	1.84E+04	2.39E+04	2.91E+04	3.42E+04	3.90E+04
	8.50E-02	1.06E+09	9.47E+02	9.47E+02	9.47E+02	9.47E+02	9.47E+02	9.47E+02
	1.20E-01	1.54E+09	1.85E+03	1.82E+03	1.80E+03	1.79E+03	1.77E+03	1.76E+03
	1.70E-01	6.96E+07	8.31E+01	6.35E+01	5.79E+01	5.61E+01	5.54E+01	5.50E+01
	3.00E-01	2.04E+09	2.40E+03	2.37E+03	2.33E+03	2.31E+03	2.28E+03	2.25E+03
	6.50E-01	2.32E+08	5.71E+01	4.41E+01	4.30E+01	4.50E+01	4.76E+01	5.04E+01
	1.13E+00	1.75E+08	6.92E+01	6.62E+01	6.52E+01	6.48E+01	6.46E+01	6.44E+01
	1.58E+00	8.50E+00	4.48E+00	3.73E+00	3.71E+00	3.89E+00	4.09E+00	4.29E+00
	2.00E+00	6.11E-01	5.31E-01	5.40E-01	5.50E-01	5.59E-01	5.68E-01	5.76E-01
	2.40E+00	4.79E+00	2.09E+00	1.32E+00	1.08E+00	1.00E+00	9.57E-01	9.25E-01
	2.80E+00	7.52E+00	9.58E+00	1.37E+01	1.83E+01	2.29E+01	2.72E+01	3.10E+01
	3.25E+00	2.32E+00	1.01E+00	6.39E-01	5.26E-01	4.85E-01	4.64E-01	4.48E-01
	3.75E+00	1.55E+00	6.76E-01	4.27E-01	3.52E-01	3.24E-01	3.10E-01	3.00E-01
	4.25E+00	1.02E+00	4.44E-01	2.80E-01	2.31E-01	2.13E-01	2.04E-01	1.97E-01
	4.75E+00	6.59E-01	2.87E-01	1.82E-01	1.50E-01	1.38E-01	1.32E-01	1.28E-01
	5.50E+00	6.90E-01	3.01E-01	1.90E-01	1.57E-01	1.44E-01	1.38E-01	1.34E-01
0	total	5.64E+09	4.76E+04	3.96E+04	4.17E+04	4.65E+04	5.18E+04	5.71E+04
0	gamma watts	6.55E+03	5.53E-02	4.60E-02	4.85E-02	5.40E-02	6.02E-02	6.64E-02

1 neutron source intensity as a function of time

0 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
alpha-n neutron source, neutrons/sec/basis
basis = single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
pb210	2.24E-15	3.18E-15	4.36E-15	5.98E-15	8.09E-15	1.08E-14	1.41E-14
bi210	5.61E-13	8.11E-13	1.11E-12	1.53E-12	2.07E-12	2.75E-12	3.60E-12
bi211	8.13E-04	1.41E-03	1.93E-03	2.45E-03	2.96E-03	3.47E-03	3.98E-03
bi212	3.78E-01	7.42E-01	1.17E+00	1.61E+00	2.03E+00	2.43E+00	2.78E+00
bi213	9.63E-07	1.79E-07	1.96E-07	2.14E-07	2.32E-07	2.50E-07	2.70E-07
bi214	3.35E-09	4.84E-09	6.72E-09	9.00E-09	1.17E-08	1.47E-08	1.82E-08
po210	4.43E-07	7.84E-07	1.11E-06	1.54E-06	2.09E-06	2.81E-06	3.72E-06
po211	3.22E-06	5.58E-06	7.64E-06	9.69E-06	1.17E-05	1.37E-05	1.57E-05
po212	1.94E+00	3.80E+00	5.97E+00	8.22E+00	1.04E+01	1.24E+01	1.42E+01
po213	1.27E-04	2.36E-05	2.59E-05	2.82E-05	3.06E-05	3.30E-05	3.56E-05

po214	7.16E-05	4.31E-05	5.99E-05	8.01E-05	1.04E-04	1.31E-04	1.62E-04
po215	1.15E-03	1.99E-03	2.73E-03	3.46E-03	4.18E-03	4.90E-03	5.62E-03
po216	1.51E+00	2.96E+00	4.66E+00	6.42E+00	8.12E+00	9.69E+00	1.11E+01
po218	1.42E-05	2.05E-05	2.85E-05	3.81E-05	4.94E-05	6.24E-05	7.70E-05
at217	8.23E-05	1.53E-05	1.68E-05	1.83E-05	1.98E-05	2.14E-05	2.31E-05
rn218	3.40E-05	1.34E-09	5.25E-14	2.07E-18	8.12E-23	2.73E-27	.00E+00
rn219	9.14E-04	1.58E-03	2.17E-03	2.75E-03	3.33E-03	3.90E-03	4.47E-03
rn220	1.20E+00	2.35E+00	3.69E+00	5.08E+00	6.43E+00	7.68E+00	8.80E+00
rn222	1.04E-05	1.50E-05	2.08E-05	2.78E-05	3.61E-05	4.55E-05	5.62E-05
fr221	6.01E-05	1.12E-05	1.22E-05	1.33E-05	1.45E-05	1.56E-05	1.68E-05
fr223	3.77E-10	5.99E-10	8.21E-10	1.04E-09	1.26E-09	1.47E-09	1.69E-09
ra222	2.63E-05	1.03E-09	4.06E-14	1.60E-18	6.28E-23	2.47E-27	.00E+00
ra223	5.29E-04	9.17E-04	1.26E-03	1.59E-03	1.93E-03	2.26E-03	2.59E-03
ra224	8.46E-01	1.66E+00	2.61E+00	3.59E+00	4.54E+00	5.43E+00	6.22E+00
ra226	6.05E-06	8.76E-06	1.22E-05	1.63E-05	2.11E-05	2.66E-05	3.29E-05
ac225	4.32E-05	8.04E-06	8.79E-06	9.58E-06	1.04E-05	1.12E-05	1.21E-05
ac227	4.24E-06	6.75E-06	9.24E-06	1.17E-05	1.42E-05	1.66E-05	1.90E-05
ac228	2.26E-17	3.90E-17	6.02E-17	8.56E-17	1.15E-16	1.48E-16	1.83E-16
th226	2.37E-05	9.33E-10	3.67E-14	1.44E-18	5.67E-23	2.23E-27	.00E+00
th227	6.03E-04	1.01E-03	1.39E-03	1.76E-03	2.12E-03	2.49E-03	2.85E-03
th228	7.10E-01	1.40E+00	2.20E+00	3.02E+00	3.82E+00	4.56E+00	5.23E+00
th229	4.27E-06	4.70E-06	5.14E-06	5.60E-06	6.07E-06	6.56E-06	7.07E-06
th230	6.02E-03	7.82E-03	9.62E-03	1.14E-02	1.32E-02	1.51E-02	1.69E-02
th232	2.05E-09	2.89E-09	3.73E-09	4.56E-09	5.40E-09	6.24E-09	7.07E-09
pa231	7.88E-03	8.05E-03	8.19E-03	8.34E-03	8.49E-03	8.63E-03	8.78E-03
u230	1.87E-05	7.34E-10	2.89E-14	1.13E-18	4.46E-23	1.76E-27	.00E+00
u231	7.25E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	2.49E+00	3.65E+00	4.59E+00	5.35E+00	5.96E+00	6.44E+00	6.83E+00
u233	4.96E-03	5.16E-03	5.35E-03	5.55E-03	5.74E-03	5.94E-03	6.14E-03
u234	2.52E+02	2.52E+02	2.53E+02	2.54E+02	2.54E+02	2.55E+02	2.55E+02
u235	5.03E+00	5.03E+00	5.03E+00	5.03E+00	5.03E+00	5.03E+00	5.03E+00
u236	3.58E+01	3.58E+01	3.58E+01	3.58E+01	3.58E+01	3.58E+01	3.58E+01
u238	4.25E+01	4.25E+01	4.25E+01	4.25E+01	4.25E+01	4.25E+01	4.25E+01
np235	3.81E-05	2.24E-05	1.31E-05	7.71E-06	4.53E-06	2.66E-06	1.56E-06
np237	4.24E+01	4.31E+01	4.31E+01	4.31E+01	4.31E+01	4.32E+01	4.32E+01
pu236	2.11E+02	1.74E+02	1.42E+02	1.17E+02	9.55E+01	7.82E+01	6.41E+01
pu237	4.58E-03	4.30E-05	4.02E-07	3.77E-09	3.53E-11	3.31E-13	3.10E-15
pu238	4.11E+05	4.39E+05	4.43E+05	4.43E+05	4.40E+05	4.38E+05	4.35E+05

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neutron source intensity as a function of time

0

ses2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp
alpha-n neutron source, neutrons/sec/basis
basis = single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
pu239	1.10E+05	1.11E+05	1.11E+05	1.11E+05	1.11E+05	1.11E+05	1.11E+05
pu240	1.05E+05	1.05E+05	1.06E+05	1.05E+05	1.05E+05	1.05E+05	1.05E+05
pu241	5.56E+02	5.34E+02	5.13E+02	4.93E+02	4.73E+02	4.54E+02	4.37E+02
pu242	1.57E+02	1.57E+02	1.57E+02	1.57E+02	1.57E+02	1.57E+02	1.57E+02
pu244	8.07E-15	2.77E-14	4.74E-14	6.71E-14	8.68E-14	1.06E-13	1.26E-13
am239	3.45E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	5.15E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	5.04E+04	9.75E+04	1.43E+05	1.86E+05	2.28E+05	2.67E+05	3.06E+05
am242m	1.46E+01	1.45E+01	1.45E+01	1.44E+01	1.44E+01	1.43E+01	1.42E+01
am243	1.51E+03	1.51E+03	1.51E+03	1.51E+03	1.51E+03	1.51E+03	1.51E+03
cm241	1.15E-04	1.85E-07	2.97E-10	4.78E-13	7.70E-16	1.24E-18	1.99E-21
cm242	1.05E+07	2.89E+06	7.94E+05	2.21E+05	6.37E+04	2.07E+04	8.87E+03
cm243	3.38E+03	3.32E+03	3.25E+03	3.18E+03	3.12E+03	3.06E+03	3.00E+03

cm244	1.30E+05	1.26E+05	1.22E+05	1.18E+05	1.14E+05	1.11E+05	1.07E+05
cm245	6.55E+00	6.55E+00	6.55E+00	6.55E+00	6.55E+00	6.55E+00	6.55E+00
cm246	7.41E-01	7.41E-01	7.41E-01	7.41E-01	7.41E-01	7.41E-01	7.41E-01
cm247	1.72E-06	1.72E-06	1.72E-06	1.72E-06	1.72E-06	1.72E-06	1.72E-06
cm248	4.09E-06	4.09E-06	4.09E-06	4.09E-06	4.09E-06	4.09E-06	4.09E-06
cm250	4.29E-14	4.29E-14	4.29E-14	4.29E-14	4.29E-14	4.29E-14	4.29E-14
bk249	2.95E-07	1.53E-07	7.90E-08	4.09E-08	2.11E-08	1.09E-08	5.65E-09
cf249	1.29E-05	4.70E-05	6.45E-05	7.35E-05	7.81E-05	8.04E-05	8.16E-05
cf250	2.27E-04	2.18E-04	2.09E-04	2.00E-04	1.91E-04	1.83E-04	1.75E-04
cf251	1.45E-06	1.45E-06	1.45E-06	1.45E-06	1.44E-06	1.44E-06	1.44E-06
cf252	1.66E-04	1.34E-04	1.07E-04	8.63E-05	6.94E-05	5.58E-05	4.48E-05
cf253	2.36E-08	1.69E-13	1.22E-18	8.73E-24	6.27E-29	.00E+00	.00E+00
cf254	2.47E-12	7.55E-14	2.31E-15	7.06E-17	2.16E-18	6.60E-20	2.02E-21
es253	7.86E-06	2.07E-09	8.24E-14	2.85E-18	9.62E-23	3.21E-27	.00E+00
es254	9.36E-09	4.35E-09	2.03E-09	9.42E-10	4.38E-10	2.04E-10	9.48E-11
es255	9.38E-11	4.21E-13	1.88E-15	8.42E-18	3.77E-20	1.68E-22	7.53E-25
0 total	1.13E+07	3.77E+06	1.72E+06	1.19E+06	1.07E+06	1.06E+06	1.08E+06

1 page 56

neutron source intensity as a function of time

0 sas2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp
spontaneous fission neutron source, neutrons/sec/basis
basis = single reactor assembly

	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
th230	1.55E-07	2.01E-07	2.47E-07	2.93E-07	3.40E-07	3.86E-07	4.33E-07
pa231	9.88E-07	1.01E-06	1.03E-06	1.05E-06	1.06E-06	1.08E-06	1.10E-06
u232	1.53E-04	2.24E-04	2.82E-04	3.29E-04	3.66E-04	3.96E-04	4.19E-04
u234	5.42E-01	5.43E-01	5.44E-01	5.46E-01	5.47E-01	5.48E-01	5.50E-01
u235	6.15E-02	6.15E-02	6.15E-02	6.15E-02	6.15E-02	6.15E-02	6.15E-02
u236	5.38E+00	5.38E+00	5.38E+00	5.38E+00	5.38E+00	5.38E+00	5.38E+00
u237	3.03E-06	1.95E-11	1.88E-11	1.80E-11	1.73E-11	1.66E-11	1.60E-11
u238	6.00E+03	6.00E+03	6.00E+03	6.00E+03	6.00E+03	6.00E+03	6.00E+03
u239	1.66E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	5.88E-08	5.88E-08	5.88E-08	5.88E-08	5.88E-08	5.88E-08	5.88E-08
np238	9.14E-06	4.27E-12	4.25E-12	4.23E-12	4.22E-12	4.20E-12	4.18E-12
np239	3.38E-02	1.56E-08	1.56E-08	1.56E-08	1.56E-08	1.56E-08	1.56E-08
pu236	1.43E+01	1.17E+01	9.63E+00	7.89E+00	6.46E+00	5.30E+00	4.34E+00
pu238	7.59E+04	8.10E+04	8.19E+04	8.17E+04	8.13E+04	8.08E+04	8.03E+04
pu239	5.91E+01	5.95E+01	5.95E+01	5.95E+01	5.95E+01	5.95E+01	5.95E+01
pu240	6.98E+05	6.98E+05	6.98E+05	6.98E+05	6.98E+05	6.98E+05	6.98E+05
pu241	2.00E+01	1.92E+01	1.85E+01	1.77E+01	1.70E+01	1.64E+01	1.57E+01
pu242	1.22E+05	1.22E+05	1.22E+05	1.22E+05	1.22E+05	1.22E+05	1.22E+05
pu243	6.67E-04	7.45E-17	7.45E-17	7.45E-17	7.45E-17	7.45E-17	7.45E-17
pu244	1.93E-09	6.64E-09	1.13E-08	1.60E-08	2.08E-08	2.55E-08	3.02E-08
am241	1.94E+01	3.75E+01	5.49E+01	7.16E+01	8.76E+01	1.03E+02	1.18E+02
am242m	6.94E+01	6.91E+01	6.88E+01	6.86E+01	6.83E+01	6.80E+01	6.77E+01
am242	2.67E+02	7.51E-02	7.48E-02	7.44E-02	7.41E-02	7.38E-02	7.35E-02
am243	6.95E+00	6.95E+00	6.95E+00	6.95E+00	6.95E+00	6.95E+00	6.95E+00
am244	6.80E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm242	5.22E+07	1.44E+07	3.97E+06	1.10E+06	3.18E+05	1.03E+05	4.43E+04
cm243	7.35E+01	7.20E+01	7.06E+01	6.91E+01	6.78E+01	6.64E+01	6.51E+01
cm244	1.69E+07	1.64E+07	1.59E+07	1.54E+07	1.49E+07	1.44E+07	1.40E+07
cm245	1.78E+00	1.78E+00	1.78E+00	1.78E+00	1.78E+00	1.78E+00	1.78E+00
cm246	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
cm248	6.70E+01	6.70E+01	6.70E+01	6.70E+01	6.70E+01	6.70E+01	6.70E+01
cm250	1.83E-05	1.83E-05	1.83E-05	1.83E-05	1.83E-05	1.83E-05	1.83E-05
bk249	1.63E-03	8.42E-04	4.35E-04	2.25E-04	1.16E-04	6.03E-05	3.12E-05
cf249	7.83E-06	2.86E-05	3.92E-05	4.47E-05	4.75E-05	4.89E-05	4.96E-05

	cf250	1.90E+01	1.82E+01	1.75E+01	1.67E+01	1.60E+01	1.53E+01	1.47E+01
	cf252	5.82E+02	4.66E+02	3.76E+02	3.02E+02	2.43E+02	1.95E+02	1.57E+02
	cf254	1.06E-01	3.24E-03	9.91E-05	3.03E-06	9.27E-08	2.83E-09	8.67E-11
	es253	5.85E-05	1.54E-08	6.13E-13	2.12E-17	7.16E-22	2.40E-26	8.03E-31
	es255	2.70E-07	1.21E-09	5.42E-12	2.42E-14	1.08E-16	4.85E-19	2.17E-21
0	total	7.00E+07	3.18E+07	2.08E+07	1.74E+07	1.62E+07	1.55E+07	1.50E+07
	---	---	---	---	---	---	---	---
0	total	8.13E+07	3.55E+07	2.25E+07	1.86E+07	1.72E+07	1.65E+07	1.60E+07

1 page 57

alpha-n neutron source spectrum as a function of time
(using reaction spectra for uranium dioxide)

0 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
alpha-n neutron spectra, neutrons/sec/basis
basis = single reactor assembly

	boundaries, mev	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
1	6.43E+00 - 2.00E+01	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
2	3.00E+00 - 6.43E+00	4.957E+06	1.553E+06	6.080E+05	3.276E+05	2.468E+05	2.269E+05	2.256E+05
3	1.85E+00 - 3.00E+00	5.320E+06	1.812E+06	8.610E+05	6.208E+05	5.717E+05	5.719E+05	5.845E+05
4	1.40E+00 - 1.85E+00	7.028E+05	2.721E+05	1.616E+05	1.423E+05	1.442E+05	1.490E+05	1.538E+05
5	9.00E-01 - 1.40E+00	2.409E+05	1.072E+05	7.586E+04	7.450E+04	7.877E+04	8.248E+04	8.545E+04
6	4.00E-01 - 9.00E-01	3.964E+04	2.217E+04	1.912E+04	2.061E+04	2.248E+04	2.376E+04	2.468E+04
7	1.00E-01 - 4.00E-01	7.422E+03	3.864E+03	3.159E+03	3.328E+03	3.603E+03	3.798E+03	3.941E+03
8	1.70E-02 - 1.00E-01	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
9	3.00E-03 - 1.70E-02	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
10	5.50E-04 - 3.00E-03	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
11	1.00E-04 - 5.50E-04	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
12	3.00E-05 - 1.00E-04	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
13	1.00E-05 - 3.00E-05	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
14	3.05E-06 - 1.00E-05	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
15	1.77E-06 - 3.05E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
16	1.30E-06 - 1.77E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
17	1.13E-06 - 1.30E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
18	1.00E-06 - 1.13E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
19	8.00E-07 - 1.00E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
20	4.00E-07 - 8.00E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
21	3.25E-07 - 4.00E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
22	2.25E-07 - 3.25E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
23	1.00E-07 - 2.25E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
24	5.00E-08 - 1.00E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
25	3.00E-08 - 5.00E-08	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
26	1.00E-08 - 3.00E-08	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
27	1.00E-11 - 1.00E-08	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
0		1.127E+07	3.770E+06	1.724E+06	1.189E+06	1.067E+06	1.058E+06	1.078E+06

1 page 58

spontaneous fission neutron source spectrum as a function of time

0 sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
spontaneous fission neutron spectra, neutrons/sec/basis
basis = single reactor assembly

	boundaries, mev	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
1	6.43E+00 - 2.00E+01	1.333E+06	6.018E+05	3.925E+05	3.284E+05	3.043E+05	2.913E+05	2.817E+05
2	3.00E+00 - 6.43E+00	1.467E+07	6.651E+06	4.357E+06	3.653E+06	3.387E+06	3.244E+06	3.136E+06
3	1.85E+00 - 3.00E+00	1.595E+07	7.218E+06	4.717E+06	3.951E+06	3.662E+06	3.507E+06	3.391E+06
4	1.40E+00 - 1.85E+00	9.080E+06	4.131E+06	2.713E+06	2.278E+06	2.114E+06	2.025E+06	1.958E+06
5	9.00E-01 - 1.40E+00	1.240E+07	5.663E+06	3.718E+06	3.121E+06	2.895E+06	2.773E+06	2.681E+06

6	4.00E-01 - 9.00E-01	1.385E+07	6.259E+06	4.092E+06	3.427E+06	3.177E+06	3.045E+06	2.942E+06	
7	1.00E-01 - 4.00E-01	2.725E+06	1.230E+06	8.025E+05	6.715E+05	6.222E+05	5.958E+05	5.760E+05	
8	1.70E-02 - 1.00E-01	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
9	3.00E-03 - 1.70E-02	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
10	5.50E-04 - 3.00E-03	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
11	1.00E-04 - 5.50E-04	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
12	3.00E-05 - 1.00E-04	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
13	1.00E-05 - 3.00E-05	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
14	3.05E-06 - 1.00E-05	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
15	1.77E-06 - 3.05E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
16	1.30E-06 - 1.77E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
17	1.13E-06 - 1.30E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
18	1.00E-06 - 1.13E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
19	8.00E-07 - 1.00E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
20	4.00E-07 - 8.00E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
21	3.25E-07 - 4.00E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
22	2.25E-07 - 3.25E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
23	1.00E-07 - 2.25E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
24	5.00E-08 - 1.00E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
25	3.00E-08 - 5.00E-08	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
26	1.00E-08 - 3.00E-08	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
27	1.00E-11 - 1.00E-08	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	
0		7.004E+07	3.175E+07	2.079E+07	1.743E+07	1.616E+07	1.548E+07	1.498E+07	

1

total (alpha-n plus spon. fission) neutron source spectrum as a function of time
(using reaction spectra for uranium dioxide)

0 sas2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp
neutron spectra, neutrons/sec/basis
basis = single reactor assembly

	boundaries, mev	initial	304.4 d	608.8 d	913.1 d	1217.5 d	1521.9 d	1826.3 d
1	6.43E+00 - 2.00E+01	1.333E+06	6.018E+05	3.925E+05	3.284E+05	3.043E+05	2.913E+05	2.817E+05
2	3.00E+00 - 6.43E+00	1.962E+07	8.204E+06	4.960E+06	3.980E+06	3.634E+06	3.471E+06	3.362E+06
3	1.85E+00 - 3.00E+00	2.127E+07	9.080E+06	5.578E+06	4.572E+06	4.234E+06	4.079E+06	3.975E+06
4	1.40E+00 - 1.85E+00	9.783E+06	4.403E+06	2.875E+06	2.421E+06	2.258E+06	2.174E+06	2.111E+06
5	9.00E-01 - 1.40E+00	1.270E+07	5.770E+06	3.794E+06	3.195E+06	2.974E+06	2.855E+06	2.766E+06
6	4.00E-01 - 9.00E-01	1.387E+07	6.281E+06	4.111E+06	3.448E+06	3.200E+06	3.066E+06	2.966E+06
7	1.00E-01 - 4.00E-01	2.732E+06	1.234E+06	8.057E+05	6.748E+05	6.258E+05	5.993E+05	5.799E+05
8	1.70E-02 - 1.00E-01	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
9	3.00E-03 - 1.70E-02	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
10	5.50E-04 - 3.00E-03	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
11	1.00E-04 - 5.50E-04	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
12	3.00E-05 - 1.00E-04	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
13	1.00E-05 - 3.00E-05	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
14	3.05E-06 - 1.00E-05	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
15	1.77E-06 - 3.05E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
16	1.30E-06 - 1.77E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
17	1.13E-06 - 1.30E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
18	1.00E-06 - 1.13E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
19	8.00E-07 - 1.00E-06	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
20	4.00E-07 - 8.00E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
21	3.25E-07 - 4.00E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
22	2.25E-07 - 3.25E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
23	1.00E-07 - 2.25E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
24	5.00E-08 - 1.00E-07	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
25	3.00E-08 - 5.00E-08	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
26	1.00E-08 - 3.00E-08	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00
27	1.00E-11 - 1.00E-08	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00	.000E+00

```
0                    8.131E+07 3.552E+07 2.252E+07 1.862E+07 1.723E+07 1.654E+07 1.604E+07
1
1                  * gamma sources determined *
0case applies the following photon data base
                   master photon library
                   in binary mode
0    the sources include photons of nuclides for...

       light elements
       actinides
       fission products
1                    gamma source spectrum for gamma lines (sas2)
0                                  1826.25  day time of the requested nuclides
0                       energy interval in mev      photons / second     mev / second
0
                     1.0000E-02 to      5.0000E-02      6.8561E+14      2.0568E+13
                     5.0000E-02 to      1.0000E-01      2.0308E+14      1.5231E+13
                     1.0000E-01 to      2.0000E-01      1.6111E+14      2.4167E+13
                     2.0000E-01 to      3.0000E-01      4.5083E+13      1.1271E+13
                     3.0000E-01 to      4.0000E-01      3.1358E+13      1.0975E+13
                     4.0000E-01 to      6.0000E-01      2.2631E+14      1.1315E+14
                     6.0000E-01 to      8.0000E-01      1.0168E+15      7.1177E+14
                     8.0000E-01 to      1.0000E+00      9.6947E+13      8.7252E+13
                     1.0000E+00 to      1.3300E+00      3.6226E+13      4.2204E+13
                     1.3300E+00 to      1.6600E+00      7.9334E+12      1.1860E+13
                     1.6600E+00 to      2.0000E+00      4.3816E+11      8.0183E+11
                     2.0000E+00 to      2.5000E+00      1.1466E+12      2.5799E+12
                     2.5000E+00 to      3.0000E+00      3.0775E+10      8.4631E+10
                     3.0000E+00 to      4.0000E+00      3.7983E+09      1.3294E+10
                     4.0000E+00 to      5.0000E+00      5.2258E+05      2.3516E+06
                     5.0000E+00 to      6.5000E+00      2.0954E+05      1.2048E+06
                     6.5000E+00 to      8.0000E+00      4.1069E+04      2.9775E+05
                     8.0000E+00 to      1.0000E+01      8.7149E+03      7.8434E+04
0                    totals                             2.5121E+15      1.0519E+15
0
0                    total energy from nuclides with spectrum data    =   1.0519E+15
0                    total energy from nuclides with no spectrum data =   6.4491E+09
1
0  .results on logical unit no. 71, position  2, for time step  6, subcase10. (run position 1, case position 2)
   title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0     .terminated logical unit no. 71 with zero flag record.
1  * normal termination of execution *
0                                  table of contents for material tables
0                                    case or subcase printed      page

                                                 1                  1
                                                 2                  3
                                                 3                  6
                                                 4                  9
                                                 5                 12
                                                 6                 15
                                                 7                 18
                                                 8                 21
                                                 9                 24
                                                10                 27
0ndset          33
        33          4          1         27          6          0          0          0          0          0
         0          0          0          0          0          2         -1       1698        690        130
       880       7935          0          5         99          2         16         96         18         18
        18          0         71
```

```
0       56q array has      20 entries.
0       57q array has       3 entries.
0        1q array has      20 entries.
0        1q array has      10 entries.
     l90  87162
     l116  49981
     l32  33663 rudata (library) storage size
     l44  33734
     l103  65583
0       60q array has       1 entries.
0       61q array has       7 entries.
0       65q array has      63 entries.
0       73q array has       4 entries.
0       74q array has       4 entries.
0       75q array has       4 entries.
     l140  56777
     used   88136 in size  200000
0jcpt          12
             5          0          0          0          0          0          0          0          0          0
             0          0
0therm          4
 5.091676E-01 3.604486E-01 2.731459E+00 1.000000E-31
0rcn            5
          7985         20          6         18       1697
0rmn           19
             0          1          0          0          1         -1          0          0          0          0
            21        100          4          4          3          0          4          0          0
0tconst         5
 8.640000E+04 1.000000E-20  .000000E+00  .000000E+00 1.000000E-08
0rzero          4
             0        689        129        879
0pow            3
  .000000E+00  .000000E+00  .000000E+00
0 lirp          9
             6          0         51         26          2       3000       1000       1697         94
0 case or subcase    1  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       57q array has       4 entries.
0        1q array has      20 entries.
0        1q array has      10 entries.
     l90  93972
     l116  57212
     l32  33663 rudata (library) storage size
     l44  33734
     l103  72497
0       58q array has       5 entries.
0       60q array has       5 entries.
0       66q array has       1 entries.
0       73q array has       4 entries.
0       74q array has       4 entries.
0       75q array has       4 entries.
     l140  63587
     used   96742 in size  200000
```

```
0jqpt          12
          5          0          0          0          0          0          0          0          0          0
          0          0
0therm          4
  5.091676E-01 3.604486E-01 2.731459E+00 1.000000E-31
0ncn            5
       7935         20          6         18       1697
0mm            19
          5          5          0          0          1          3          0          0          0          0
         21        100          4          4          3         74          4          1          0
0tconst         5
  8.640000E+04 1.000000E-20 5.000000E+00  .000000E+00 1.000000E-08
0mzero          4
         12        689        129        879
0pow            3
   .000000E+00  .000000E+00  .000000E+00
0 lirp          9
          6          0         51         26          2       3000       1000       1697         94
 n-gamma, fission and total mev/fission =            4.4180E+00 1.9429E+02 1.9871E+02
 start of interval flux =        1.71666E+13
 n-gamma, fission and total mev/fission =            4.8296E+00 1.9446E+02 1.9929E+02
 start of interval flux =        1.70387E+13
 n-gamma, fission and total mev/fission =            4.9247E+00 1.9462E+02 1.9955E+02
 start of interval flux =        1.69221E+13
 n-gamma, fission and total mev/fission =            5.0218E+00 1.9477E+02 1.9980E+02
 start of interval flux =        1.68318E+13
 n-gamma, fission and total mev/fission =            5.1227E+00 1.9491E+02 2.0004E+02
 start of interval flux =        1.67630E-02
0 case or subcase    2  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0ndset         33
         33          4          2         27          6          0          0          0          0          0
          0          0          0          0          0          2         -1       1698        690        130
        880       7935          0          5         99          2         16         96         18         18
         18          0         71
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       57q array has      4 entries.
0        1q array has     20 entries.
0        1q array has     10 entries.
     l90  93972
     l116 57212
     l32  33663 nudata (library) storage size
     l44  33734
     l103 72497
0       58q array has      5 entries.
0       60q array has      5 entries.
0       66q array has      1 entries.
     l140 63587
     used   96742 in size   200000
0jqpt          12
          5          0          0          0          0          0          0          0          0          0
          0          0
0therm          4
  5.091676E-01 3.604486E-01 2.731459E+00 1.000000E-31
```

```
0non            5
        7935          20           6          18        1697
0mm            19
           5           5           0           0           1           3           0           0           0           5
          21         100           0           4           3          74           4           1           0
0tconst         5
  8.640000E+04 1.600064E+02 2.900000E+01  .000000E+00 1.000000E-08
0mzero          4
          16         689         129         879
0pow            3
  7.250000E+00 1.159993E+03 1.694262E+13
0 lirp          9
           6           0          51          26           2        3000        1000        1697          94
 n-gamma, fission and total mev/fission =             5.2408E+00  1.9492E+02  2.0016E+02
 start of interval flux =          1.6520E+13
 n-gamma, fission and total mev/fission =             5.3397E+00  1.9505E+02  2.0039E+02
 start of interval flux =          1.6459ZE+13
 n-gamma, fission and total mev/fission =             5.4422E+00  1.9518E+02  2.0062E+02
 start of interval flux =          1.6411BE+13
 n-gamma, fission and total mev/fission =             5.5462E+00  1.9530E+02  2.0085E+02
 start of interval flux =          1.6377ZE+13
 n-gamma, fission and total mev/fission =             5.6512E+00  1.9542E+02  2.0107E+02
 start of interval flux =          1.6355SE-02
0 case or subcase    3  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0ndset         33
          33           4           3          27           6           0           0           0           0           0
           0           0           0           0           0           2          -1        1698         690         130
         880        7935           0           5          99           2          16          96          18          18
          18           0          71
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       57q array has       4 entries.
0        1q array has      20 entries.
0        1q array has      10 entries.
     l90   93972
     l116  57212
     l32   33663 nudata (library) storage size
     l44   33734
     l103  72497
0       58q array has       5 entries.
0       60q array has       5 entries.
0       66q array has       1 entries.
     l140  63587
     used   96742 in size   200000
0jqpt           12
           5           0           0           0           0           0           0           0           0           0
           0           0
0therm          4
  5.091678E-01 3.604486E-01 2.731459E+00 1.000000E-31
0non            5
        7935          20           6          18        1697
0mm            19
           5           5           0           0           1           3           0           0           0           5
          21         100           0           4           3          74           4           1           0
```

```
0tconst          5
  8.640000E+04 3.200192E+02 2.600000E+01  .000000E+00 1.000000E-08
0mzero           4
          16         689         129         879
0pow             3
  7.250000E+00 2.319985E+03 1.642759E+13
0 lirp           9
           6           0          51          26           2        3000        1000        1697          94
 n-gamma, fission and total mev/fission =              5.7355E+00  1.9541E+02  2.0115E+02
 start of interval flux =          1.61872E+13
 n-gamma, fission and total mev/fission =              5.8525E+00  1.9552E+02  2.0136E+02
 start of interval flux =          1.61661E+13
 n-gamma, fission and total mev/fission =              5.9353E+00  1.9563E+02  2.0157E+02
 start of interval flux =          1.61526E+13
 n-gamma, fission and total mev/fission =              6.0383E+00  1.9574E+02  2.0178E+02
 start of interval flux =          1.61473E+13
 n-gamma, fission and total mev/fission =              6.1413E+00  1.9584E+02  2.0198E+02
 start of interval flux =          1.61492E-02
0 case or subcase    4  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0ndset           33
          33           4           4          27           6           0           0           0           0           0
           0           0           0           0           0           2          -1        1698         690         130
         880        7935           0           5          99           2          16          96          18          18
          18           0          71
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
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0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       57q array has       4 entries.
0        1q array has      20 entries.
0        1q array has      10 entries.
     l90  99972
     l116  57212
     l32  33663 nudata (library) storage size
     l44  33734
     l103  72497
0       58q array has       5 entries.
0       60q array has       5 entries.
0       66q array has       1 entries.
     l140  63587
     used   96742 in size   200000
0jopt            12
          5           0           0           0           0           0           0           0           0           0
          0           0
0therm           4
  5.091676E-01 3.604486E-01 2.731459E+00 1.000000E-31
0non             5
        7935          20           6          18        1697
0mm             19
          5           5           0           0           1           3           0           0           0           5
         21         100           0           4           3          74           4           1           0
0tconst          5
  8.640000E+04 4.800385E+02 2.900000E+01  .000000E+00 1.000000E-08
0mzero           4
          16         689         129         879
0pow             3
```

```
  7.249999E+00 3.479978E+03 1.616451E+13
0 lirp          9
          6          0         51         26          2       3000       1000       1697         94
 n-gamma, fission and total mev/fission =              6.1975E+00    1.9583E+02    2.0203E+02
 start of interval flux =          1.60283E+13
 n-gamma, fission and total mev/fission =              6.2896E+00    1.9593E+02    2.0222E+02
 start of interval flux =          1.60310E+13
 n-gamma, fission and total mev/fission =              6.3902E+00    1.9602E+02    2.0241E+02
 start of interval flux =          1.60378E+13
 n-gamma, fission and total mev/fission =              6.4905E+00    1.9612E+02    2.0261E+02
 start of interval flux =          1.60502E+13
 n-gamma, fission and total mev/fission =              6.5905E+00    1.9621E+02    2.0280E+02
 start of interval flux =          1.60674E-02
0 case or subcase    5  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0ndset          33
         33          4          5         27          6          0          0          0          0          0
          0          0          0          0          0          2         -1       1698        690        130
        880       7935          0          5         99          2         16         96         18         18
         18          0         71
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       57q array has       4 entries.
0        1q array has      20 entries.
0        1q array has      10 entries.
    l90  93972
    l116  57212
    l32  33663 nudata (library) storage size
    l44  33734
    l103  72497
0       58q array has       5 entries.
0       60q array has       5 entries.
0       66q array has       1 entries.
    l140  63587
    used  96742 in size  200000
0jopt          12
          5          0          0          0          0          0          0          0          0          0
          0          0
0therm          4
  5.091678E-01 3.604486E-01 2.731459E+00 1.000000E-31
0non            5
       7935         20          6         18       1697
0mm            19
          5          5          0          0          1          3          0          0          0          5
         21        100          0          4          3         74          4          1          0
0tconst         5
  8.640000E+04 6.400641E+02 2.900000E+01  .000000E+00 1.000000E-08
0mzero          4
         16        689        129        879
0pow            3
  7.250002E+00 4.639970E+03 1.604761E+13
0 lirp          9
          6          0         51         26          2       3000       1000       1697         94
 n-gamma, fission and total mev/fission =              6.6274E+00    1.9620E+02    2.0283E+02
 start of interval flux =          1.59778E+13
```

```
 n-gamma, fission and total mev/fission =              6.7144E+00      1.9629E+02      2.0300E+02
 start of interval flux =          1.59963E+13
 n-gamma, fission and total mev/fission =              6.8126E+00      1.9637E+02      2.0319E+02
 start of interval flux =          1.60171E+13
 n-gamma, fission and total mev/fission =              6.9104E+00      1.9646E+02      2.0337E+02
 start of interval flux =          1.60417E+13
 n-gamma, fission and total mev/fission =              7.0078E+00      1.9654E+02      2.0355E+02
 start of interval flux =          1.60897E-02
0 case or subcase    6  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0ndset          33
          33          4          6         27          6          0          0          0          0          0
           0          0          0          0          0          2         -1       1698        650        130
         880       7935          0          5         99          2         16         96         18         18
          18          0         71
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       57q array has       4 entries.
0        1q array has      20 entries.
0        1q array has      10 entries.
     l90   93972
     l116  57212
     l32   33663 nudata (library) storage size
     l44   33734
     l103  72497
0       58q array has       5 entries.
0       60q array has       5 entries.
0       66q array has       1 entries.
     l140  63587
     used   96742 in size   200000
0jqpt           12
           5          0          0          0          0          0          0          0          0          0
           0          0
0therm          4
 5.091678E-01 3.604486E-01 2.731459E+00 1.000000E-31
0non            5
        7935         20          6         18       1697
0mm            19
           5          5          0          0          1          3          0          0          0          5
          21        100          0          4          3         74          4          1          0
0tconst         5
 8.640000E+04 8.000961E+02 2.800000E+01  .000000E+00 1.000000E-08
0mzero          4
          16        689        129        879
0pow            3
 7.250000E+00 5.799963E+03 1.602551E+13
0 lirp          9
           6          0         51         26          2       3000       1000       1697         94
 n-gamma, fission and total mev/fission =              7.0320E+00      1.9653E+02      2.0356E+02
 start of interval flux =          1.60012E+13
 n-gamma, fission and total mev/fission =              7.1140E+00      1.9661E+02      2.0372E+02
 start of interval flux =          1.60313E+13
 n-gamma, fission and total mev/fission =              7.2102E+00      1.9669E+02      2.0390E+02
 start of interval flux =          1.60621E+13
 n-gamma, fission and total mev/fission =              7.3057E+00      1.9677E+02      2.0407E+02
```

```
 start of interval flux =        1.60956E+13
 n-gamma, fission and total mev/fission =              7.4007E+00      1.9684E+02      2.0424E+02
 start of interval flux =        1.61315E-02
0 case or subcase    7  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0ndset          33
          33          4          7         27          6          0          0          0          0          0
           0          0          0          0          0          2         -1       1698        690        130
         880       7935          0          5         99          2         16         96         18         18
          18          0         71
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       57q array has      4 entries.
0        1q array has     20 entries.
0        1q array has     10 entries.
     l90  93972
     l116  57212
     l32  33663 nudata (library) storage size
     l44  33734
     l103  72497
0       58q array has      5 entries.
0       60q array has      5 entries.
0       66q array has      1 entries.
     l140  63587
     used  96742 in size  200000
0jqpt           12
          5          0          0          0          0          0          0          0          0          0
          0          0
0therm           4
 5.091676E-01 3.604486E-01 2.731459E+00 1.000000E-31
0nan             5
       7935         20          6         18       1697
0mm             19
          5          5          0          0          1          3          0          0          0          5
         21        100          0          4          3         74          4          1          0
0tconst          5
 8.640000E+04 9.601346E+02 2.900000E+01  .000000E+00 1.000000E-08
0mzero           4
         16        689        129        879
0pow             3
 7.250001E+00 6.959956E+03 1.606958E+13
0 lirp           9
          6          0         51         26          2       3000       1000       1697         94
 n-gamma, fission and total mev/fission =              7.4172E+00      1.9683E+02      2.0425E+02
 start of interval flux =        1.60782E+13
 n-gamma, fission and total mev/fission =              7.4945E+00      1.9691E+02      2.0440E+02
 start of interval flux =        1.61169E+13
 n-gamma, fission and total mev/fission =              7.5889E+00      1.9698E+02      2.0457E+02
 start of interval flux =        1.61552E+13
 n-gamma, fission and total mev/fission =              7.6825E+00      1.9705E+02      2.0473E+02
 start of interval flux =        1.61953E+13
 n-gamma, fission and total mev/fission =              7.7755E+00      1.9712E+02      2.0490E+02
 start of interval flux =        1.62371E-02
0 case or subcase    8  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0ndset          33
```

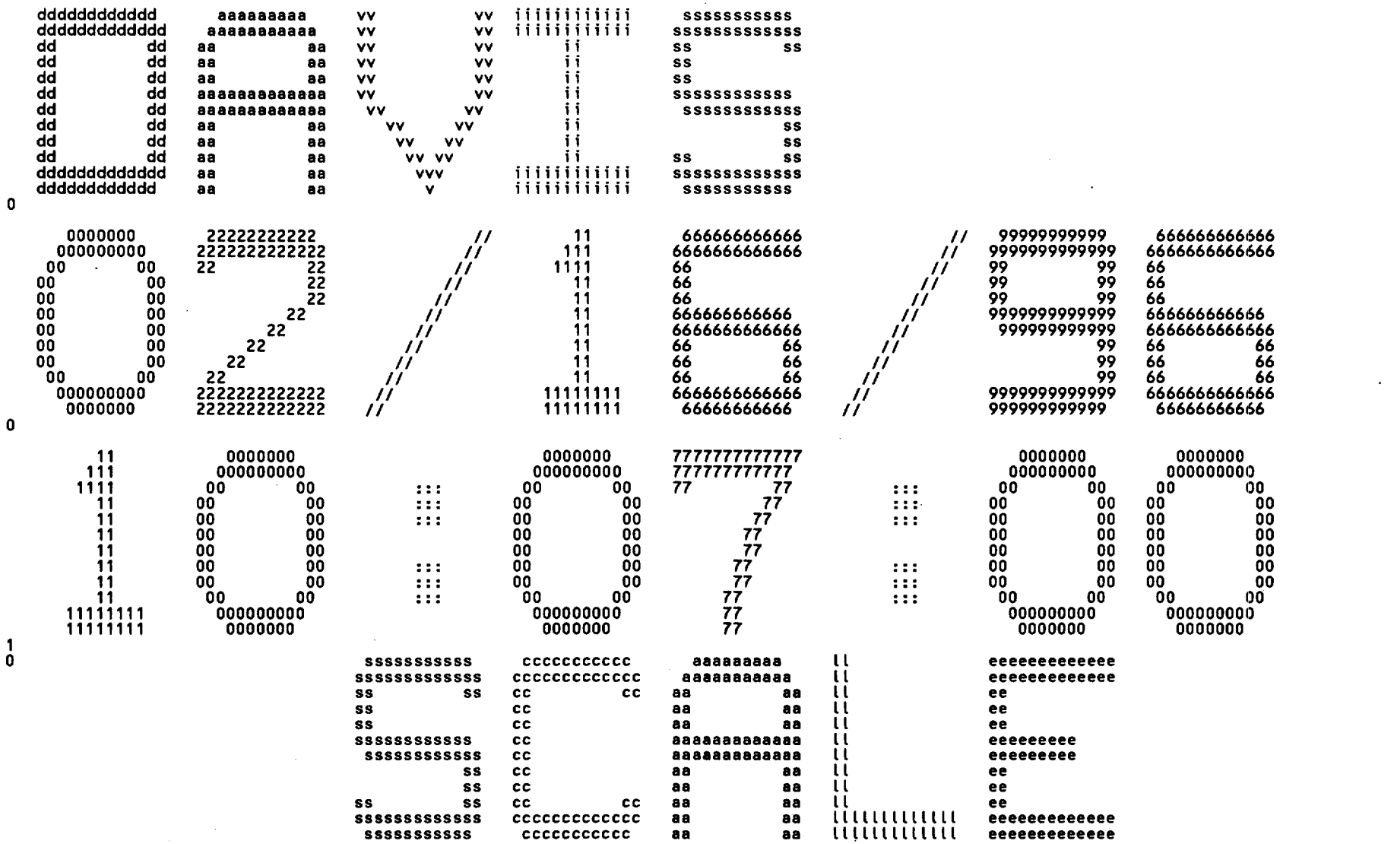
```
          15          4          1         27          6          0          0          0          0          0
           0          0          0          0          0          2         -1       1698        690        130
         880       7935          0          5         99          2         16         96         18         18
          18          0         71
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       57q array has      4 entries.
0        1q array has     20 entries.
0        1q array has     10 entries.
    l90  92270
    l116  55405
    l32  33663 rudata (library) storage size
    l44  33734
    l103  70769
0       58q array has      4 entries.
0       60q array has      4 entries.
0       66q array has      1 entries.
    l140  61885
    used  94591 in size  200000
0jqpt          12
          5          0          0          0          0          0          0          0          0          0
          0          0
0therm          4
  5.134401E-01 4.563286E-01 3.548801E+00 1.000000E-31
0non          5
       7935         20          6         18       1697
0mm          19
          4          4          0          0          1          1          0          0          0          5
         21        100          0          4          3         74          4          1          0
0tconst          5
  8.640000E+04 1.120179E+03 2.800000E+01  .000000E+00 1.000000E-08
0mzero          4
         16        689        129        879
0pow          3
  7.250000E+00 8.119948E+03 1.616192E+13
0 lirp          9
          6          0         51         26          2       3000       1000       1697         94
 n-gamma, fission and total mev/fission =          7.7875E+00  1.9711E+02  2.0490E+02
 start of interval flux =       1.61945E+13
 n-gamma, fission and total mev/fission =          7.8604E+00  1.9718E+02  2.0504E+02
 start of interval flux =       1.62397E+13
 n-gamma, fission and total mev/fission =          7.9532E+00  1.9725E+02  2.0520E+02
 start of interval flux =       1.62835E+13
 n-gamma, fission and total mev/fission =          8.0451E+00  1.9732E+02  2.0536E+02
 start of interval flux =       1.63285E+13
0 case or subcase    9  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       56q array has     20 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
0       56q array has      1 entries.
```

```
0       56q array has       1 entries.
0       57q array has       4 entries.
0        1q array has      20 entries.
0        1q array has      10 entries.
     l90  95662
     l116  59001
     l32  33663 nudata (library) storage size
     l44  33734
     l103  74213
0       60q array has       6 entries.
0       66q array has       1 entries.
0       61q array has       7 entries.
0       65q array has      63 entries.
0       81q array has       4 entries.
0       82q array has       6 entries.
0       83q array has      19 entries.
     l140  80695
     used   98881 in size  200000
0jopt           12
             5          0          0          0          0          0          0          0          0          0
             0          0
0therm           4
  5.134401E-01 4.563286E-01 3.548801E+00 1.000000E-31
0non             5
          7935         20          6         18       1697
0mm             19
             0          6          0          0          5          1          0          0          0          4
            21        100          0          4          3         74          2          1          0
0tconst          5
  8.640000E+04 1.000000E-19 2.900000E+01  .000000E+00 1.000000E-03
0mzero           4
            15        689        129        879
0pow             3
  7.250000E+00 9.279940E+03 1.626613E+13
0 lirp           9
             6          2         51         26          1      18418       1000       1697         94
0 case or subcase   10  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       56q array has      20 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has      20 entries.
0requested parm=halt8,skipcellwt,skipshipdata
  pass= 9, exec halts after pass   8
1
0    ************************************************************
     ************************************************************
0       information on the origen-s library produced
0
          dataset name:  ft33f001
0         logical unit number: 33
0         number of records:   68
0
     ************************************************************
     ************************************************************
0.....................................................
0 halt feature invokes stop 0
```

```
0*******************************************************************************
*                                                                              *
*                    scale4.2  bulletin  board                                 *
*                    --------  --------  -----                                 *
*                                                                              *
*      welcome to the configuration controlled version of scale4.2.            *
*      any problems should be reported to kay martin at 4-9213.                *
*                                                                              *
*      updates that have been made from version 4.1 to 4.2 include:            *
*                                                                              *
*      nitawl:  parameter added to prevent exponent underflows for very        *
*      dilute resonance calculations on workstation.  (mrr 93-011)             *
*                                                                              *
*      nitawl:   corrected discrepancies in maximum fractional energy loss     *
*      of neutron in admixed moderator calculation and simpson rule            *
*      calculation of collision density as documented in "improved             *
*      calculation of flux shapes with the resonance shielding code            *
*      nitawl", by j. oppe, ecn-i--93-003.  affects all calculations.          *
*      impact will vary, but is insignificant for hydrogen-moderated           *
*      systems. (mrr 93-030)                                                   *
*                                                                              *
*      sas4:  added option of axial source profile input for both radial       *
*      and axial dose calculations. also added option idr = 2 for              *
*      estimation to point detectors from collisions in both top and           *
*      bottom halves of geometry.  (mrr 92-016)                                *
*                                                                              *
*      morse:  modifications made for compatibility with the new options in    *
*      sas4 (i.e., the axial source profile input option and                   *
*      the option idr = 2 for estimation to point detectors from collisions    *
*      in both top and bottom halves of geometry).  (mrr 92-016)               *
*                                                                              *
*      csas & keno-v.a:  error checking during input processing was added      *
*      so that these modules terminate with an error message if input          *
*      errors are encountered.  (mrr 93-013, 93-014, 93-015, 93-018)           *
*                                                                              *
*      keno-v.a:  corrections made for applying differential albedo            *
*      boundary conditions to supergrouped problems where global unit          *
*      contains only an array specification.  effect on keff is very large     *
*      for this type of problem.  (mrr 93-033)                                 *
*                                                                              *
*      keno-v.a:  corrected an error introduced with modification on may 24,   *
*      1993 (mrr 93-033). this error affected problems with mirror or          *
*      periodic boundary conditions and could cause problem to loop, fail,     *
*      or run incorrectly.                                                     *
*                                                                              *
*      xsdrnpm:  corrected calculation of number of direct access data         *
*      blocks needed to weight the cross sections to prevent occasional        *
*      failure.  improved calculation of balance tables.  (mrr 93-021)         *
*                                                                              *
*      origen-s:  modified program to read combined binary libraries that      *
*      include multi-cycle cross sections.  add option to edit binary          *
*      library.  (mrr 93-026)                                                  *
*                                                                              *
*      sas2:  modified to produce combined binary libraries for origen-s.      *
*      (mrr 93-027)                                                            *
*                                                                              *
*      couple:  modified to allow combined binary libraries to be made by      *
*      sas2.  (mrr 93-031)                                                     *
*                                                                              *
*      origen-s couple, sas2:  modified programs to accept the new updated     *
```

```
*      and expanded decay data and fission product yield libraries.  (mrr     *
*      92-088, 92-025, 92-026)                                                *
*                                                                             *
*      origen-s libraries:  the six standard origen-s card image libraries    *
*      have been replaced by two new libraries, end6dec and xsectpho.         *
*      end6dec contains the updated and expanded decay data library based     *
*      on endf/b-vi data.  xsectpho contains the basic cross section and      *
*      photon spectra data and updated fission product yield data based on    *
*      endf/b-v data.  (drr 92-006, 007, 008, 009, 010, and drr 93-001,       *
*      002, 003, 006, 008, 009)                                               *
*                                                                             *
*      std. comp. library:  in drr 92-033, the following nuclides were        *
*      changed to turn on resonance processing flag but should not have       *
*      been changed:  niss, fess, mnss, crss, niinconel, crinconel,           *
*      feinconel.  flags for these nuclides have now been returned to off.    *
*      (drr 93-014)                                                           *
*                                                                             *
*      heating7:  replaced heating6 with version 7.2.  (mrr 93-038)           *
*                                                                             *
*      htas1:  updated for compatibility with heating7 and to interact        *
*      effectively with ocular.  fin effectiveness technique was added.       *
*      (mrr 93-036)                                                           *
*                                                                             *
*      ocular:  made compatible with heating7 and htas1 on mainframe and      *
*      workstation.  (mrr 93-037)                                             *
*                                                                             *
*      sas2:  corrected so that 'parm=skipshipdata' would work on             *
*      workstation.  (mrr 93-051)                                             *
*                                                                             *
*      aim:  ft47ft001 is no longer require for aim to execute on             *
*      workstation.  (mrr 93-052)                                             *
*                                                                             *
*      27group, 27burnup, and 218group - these libraries have been            *
*      updated to correct an error found in the chlorine cross-sections.      *
*      (drr93-022)                                                            *
*                                                                             *
*      bonami:  corrected so that a case with a number density of zero        *
*      for a nuclide that has bondarenko data will run without failing.       *
*      (mrr 93-060)                                                           *
*                                                                             *
*      csas:  corrected calculation of dancoff correction factor for          *
*      cylindrical cells.  note that previous calculations of small           *
*      cylindrical cells (o.d. < 0.3 cm) gave non-conservative keff           *
*      values.  also corrected dancoff factor for multiregion slab            *
*      cell with vacuum boundary conditions to be set to zero.                *
*      (mrr 93-065)                                                           *
*                                                                             *
*      csas, sas1, sas2, sas3, sas4:  error in miplib was corrected.  for     *
*      resonance materials that are not part of the unit cell in lattice-     *
*      cell or multiregion problems, the dancoff factor defaulted  to -1.     *
*      check your nitawl output in any previous scale-4.2 calculations        *
*      for dancoff factors =-1.                                               *
*      (mrr 93-070)                                                           *
*                                                                             *
*******************************************************************************
1          primary module access and input record ( scale driver - 10/01/86 - 14:00 )
-   module origens  will be called
      0$$  a8 26 a11 71 e
      1$$ 1  1t
       b&w 15x15, 3.0%/20 Decay
```

```
      3$$ 21 0 1 e
      '   3$$ 21 0 1  a33  -88
      2t
      35$$ 0  t
      '  54$$ a8 1 e
      '   56$$ 0 7 a5 1 a13 -1 a15 3 0 4 e   5t
      56$$ 0 7 a13 -1 a15 3 0 4 e   5t
      Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
      per B&W assembly, 0.409 mthm for grams
      60**  0 1 90 365.25 730.5 1826.25  3652.5
      '  61** f1-20
      '  65$$ a4 1 2z 1 2z 1 5z 1 2z 1
      '   a25 1 2z 1 2z 1 5z 1 2z 1
      '   a46 1 2z 1 2z 1 5z 1 2z 1 e
      65$$ a25 1 5z 0 a46 1 5z 0 e
      6t
      '   56$$ 0 -6 a10 1  e  t
      56$$ 0 10 a10 7 a14 5 a17 4 e  57** 10  e  5t
      60**  15 20 30 50 100 150 200 250 300 400
      '  61** f1-20
      '  65$$ a4 1 2z 1 2z 1 5z 1 2z 1
      '   a25 1 2z 1 2z 1 5z 1 2z 1
      '   a46 1 2z 1 2z 1 5z 1 2z 1 e
      65$$ a25 1 5z 0 a46 1 5z 0 e
      6t
      56$$ 0 10 a10 10 a14 5 a17 4 e  57** 400  e  5t
      60**  500 1+3 2+3 4+3 6+3 8+3 1+4 1.2+4 1.4+4 1.6+4
      '    61** f1-20
      65$$ a25 1 5z 0 a46 1 5z 0 e
      6t
      56$$ 0 10 a10 10 a14 5 a17 4 e  57** 1.6+4  e  5t
      60**  1.8+4 2.0+4 2.2+4 2.4+4 2.6+4 2.8+4 3+4 3.2+4 3.6+4 3.8+4
      '  61** f1-20
      65$$ a25 1 5z 0 a46 1 5z 0 e
      6t
      56$$ 0 10 a10 10 a14 5 a17 4 e  57** 3.8+4  e  5t
      60**  4+4 4.5+4 5+4 5.5+4 6+4 6.5+4 7+4 1+5 2+5 2.5+5
      '    61** f1-20
      65$$ a25 1 5z 0 a46 1 5z 0 e
      6t
      56$$ 0 3 a10 10 a14 5 a17 4 e  57** 2.5+5  e  5t
      60**  3+5 5+5 999999
      '  61** f1-20
      65$$ a25 1 5z 0 a46 1 5z 0 e
      6t
      '   56$$ 0 -10 a10 1 e  t
      56$$ f0  t
0   module origens  is finished. completion code     0. cpu time used     5.00 (seconds).
1    ooooooooooo    rrrrrrrrrrr    iiiiiiiiiii     ggggggggggg    eeeeeeeeeeeee   nn          nn   sssssssssss
   ooooooooooooo   rrrrrrrrrrrr   iiiiiiiiiiii    gggggggggggg   eeeeeeeeeeeee   nnn         nn  sssssssssssss
   oo          oo  rr          rr        ii       gg          gg  ee              nnnn        nn  ss          ss
   oo          oo  rr          rr        ii       gg              ee              nn nn       nn  ss
   oo          oo  rr          rr        ii       gg              ee              nn  nn      nn  ss
   oo          oo  rrrrrrrrrrrr          ii       gg    ggggggg   eeeeeeeee       nn   nn     nn   sssssssssss
   oo          oo  rrrrrrrrrrrr          ii       gg    ggggggg   eeeeeeeee       nn    nn    nn    sssssssssss
   oo          oo  rr        rr          ii       gg          gg  ee              nn     nn   nn              ss
   oo          oo  rr         rr         ii       gg          gg  ee              nn      nn nn              ss
   oo          oo  rr          rr        ii       gg          gg  ee              nn       nnnn  ss          ss
   ooooooooooooo   rr           rr  iiiiiiiiiiii   ggggggggggggg  eeeeeeeeeeeee   nn         nnn  sssssssssssss
    ooooooooooo    rr           rr  iiiiiiiiiiii    gggggggggg   eeeeeeeeeeeee   nn          nn   sssssssssss
```



```
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************
                    *****                                                                      *****
                    *****                  program verification information                   *****
                    *****                                                                      *****
                    *****                 code system:    scale  version:   4.2               *****
                    *****                                                                      *****
                    ********************************************************************************
                    ********************************************************************************
                    *****                                                                      *****
                    *****                                                                      *****
                    *****              program:  origns                                        *****
                    *****                                                                      *****
                    *****         creation date:  04/27/95                                     *****
                    *****                                                                      *****
                    *****              library:  /neutronics/scale/exe                         *****
                    *****                                                                      *****
                    *****                                                                      *****
                    *****    this is not a   scale  configuration controlled code             *****
                    *****                                                                      *****
                    *****              jobname:  davis                                         *****
                    *****                                                                      *****
                    *****    date of execution:  02/16/96                                      *****
                    *****                                                                      *****
                    *****    time of execution:  10:07:00                                      *****
                    *****                                                                      *****
                    *****                                                                      *****
                    ********************************************************************************
                    ********************************************************************************
                    ********************************************************************************
1
1            * input echo * (with break between col. 1-72 and 73-80)
0        note:  only comments are permitted after column 72.
0--------------------only this is used as input data.--------------------         comment or title end
0..............................columns 1-72.............................              ..73-80.

 0$$  a8 26 a11 71 e
 1$$ 1  1t
  b&w 15x15, 3.0%/20 Decay
 3$$ 21 0 1 e
 '   3$$ 21 0 1  a33  -88
 2t
 35$$ 0  t
 '  54$$ a8 1 e
 '   56$$ 0 7 a5 1 a13 -1 a15 3 0 4 e   5t
 56$$ 0 7 a13 -1 a15 3 0 4 e   5t
 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
 per B&W assembly, 0.409 mthm for grams
 60**  0 1 90 365.25 730.5 1826.25  3652.5
 '  61** f1-20
 '  65$$ a4 1 2z 1 2z 1 5z 1 2z 1
 '   a25 1 2z 1 2z 1 5z 1 2z 1
 '   a46 1 2z 1 2z 1 5z 1 2z 1 e
 65$$ a25 1 5z 0 a46 1 5z 0 e
 6t
 '   56$$ 0 -6 a10 1  e  t
 56$$ 0 10 a10 7 a14 5 a17 4 e  57** 10  e  5t
 60**  15 20 30 50 100 150 200 250 300 400
 '  61** f1-20
```

```
'  65$$ a4 1 2z 1 2z 1 5z 1 2z 1
'   a25 1 2z 1 2z 1 5z 1 2z 1
'   a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e  57** 400  e  5t
60**  500 1+3 2+3 4+3 6+3 8+3 1+4 1.2+4 1.4+4 1.6+4
'    61** f1-20
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e  57** 1.6+4  e  5t
60**  1.8+4 2.0+4 2.2+4 2.4+4 2.6+4 2.8+4 3+4 3.2+4 3.6+4 3.8+4
'  61** f1-20
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e  57** 3.8+4  e  5t
60**  4+4 4.5+4 5+4 5.5+4 6+4 6.5+4 7+4 1+5 2+5 2.5+5
'    61** f1-20
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
56$$ 0 3 a10 10 a14 5 a17 4 e  57** 2.5+5  e  5t
60**  3+5 5+5 999999
'  61** f1-20
65$$ a25 1 5z 0 a46 1 5z 0 e
6t
'   56$$ 0 -10 a10 1 e  t
56$$ f0  t
0when job "fails", make sure no fido input.....................................is out here!

0    0$ array     12 entries read
0    1$ array      1 entries read
0    1t
0         dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0             short-lived split test fraction, qxn =    9.1188E-04
0             half-norm of matrix used, axn =    7.0000E+00
0             4-place-accuracy-retention ratio, ratio4 =    6.4516E-13
   3$$ 21 0 1  a33  -88
0    3$ array     33 entries read
0    2t
1library information...

          cross-section data taken from position number  1 of library on unit 21.

          pass   1
          pass   0
          *scale-system control module sas2 library*
          used a time-dependent neutron spectrum, for each of the above passes
            pass 0 applies start-up fuel densiities
            pass n applies mid time densities of nth library interval
          first library updated was...
          ********************************************************************************
          *                                                                              *
          *            prelim lwr origen-s binary working library--id = 1143             *
          *         made from modified card-image origen-s libraries of scale 4.2        *
          *      data from the light element, actinide, and fission product libraries    *
          *        decay data, including gamma and total energy, are from endf/b-vi      *
          *                                                                              *
          *      neutron flux spectrum factors and cross sections were produced from     *
          *     the "presas2" case updating all nuclides on the scale "burnup" library   *
          *                                                                              *
```

```
          *                  fission product yields are from endf/b-v                  *
          *                                                                            *
          *              photon libraries use an 18-energy-group structure             *
          *             the photon data are from the master photon data base,          *
          *              produced to include bremsstrahlung from uo2 matrix            *
          *                                                                            *
          *        see information above this box (if present) for later updates       *
          *                                                                            *
          ******************************************************************************
          *                                                                            *
0         ******************************************************************************
0                   .other identification and sizes of library.
0                    data set name:  /neutronics/scale/datalib/origen/binrylib/pr
0                 4/20/1995     date library was produced
0                      1697     total number of nuclides in library
                        689     number of light-element nuclides
                        129     number of actinide nuclides
                        879     number of fission product nuclides
0                      7935     number of nonzero off-diagonal matrix elements
0         ******************************************************************************
0obtaining data from position no.     1 on unit no.   71
1
     Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay                                                    actinides          page    1
0                                        nuclide concentrations, grams
                                         basis =per B&W assembly, 0.409 mthm for grams
            charge  discharge     .0 d     1.0 d    90.0 d   365.3 d   730.5 d  1826.3 d  3652.5 d
he  4   6.76E-02  6.76E-02  6.76E-02  6.78E-02  8.33E-02  1.10E-01  1.26E-01  1.56E-01  2.09E-01
tl206   5.52E-24  5.52E-24  5.52E-24  5.54E-24  6.41E-24  8.49E-24  1.24E-23  3.54E-23  1.29E-22
tl207   2.68E-15  2.68E-15  2.68E-15  2.69E-15  3.19E-15  5.00E-15  7.05E-15  1.31E-14  2.29E-14
tl208   1.05E-12  1.05E-12  1.05E-12  1.07E-12  1.32E-12  2.28E-12  3.72E-12  7.68E-12  1.13E-11
tl209   2.14E-18  2.14E-18  2.14E-18  2.13E-18  4.40E-19  4.05E-19  4.50E-19  5.97E-19  8.79E-19
pb206   1.77E-13  1.77E-13  1.77E-13  1.78E-13  2.43E-13  5.26E-13  1.08E-12  4.78E-12  2.81E-11
pb207   1.97E-10  1.97E-10  1.97E-10  1.98E-10  2.53E-10  4.88E-10  9.40E-10  3.23E-09  1.01E-08
pb208   2.83E-07  2.83E-07  2.83E-07  2.84E-07  3.79E-07  8.23E-07  1.81E-06  7.58E-06  2.38E-05
pb209   9.02E-15  9.02E-15  9.02E-15  8.59E-15  1.86E-15  1.71E-15  1.90E-15  2.52E-15  3.71E-15
pb210   1.21E-11  1.21E-11  1.21E-11  1.21E-11  1.38E-11  1.83E-11  2.68E-11  7.64E-11  2.79E-10
pb211   2.08E-14  2.08E-14  2.08E-14  2.08E-14  2.47E-14  3.87E-14  5.46E-14  1.01E-13  1.77E-13
pb212   6.21E-10  6.21E-10  6.21E-10  6.20E-10  7.81E-10  1.35E-09  2.20E-09  4.55E-09  6.68E-09
pb214   3.64E-16  3.64E-16  3.64E-16  3.64E-16  4.08E-16  5.64E-16  8.25E-16  1.98E-15  5.12E-15
bi208    .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
bi209   1.42E-11  1.42E-11  1.42E-11  1.43E-11  1.63E-11  1.86E-11  2.19E-11  3.42E-11  6.31E-11
bi210m   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
bi210   7.33E-15  7.33E-15  7.33E-15  7.34E-15  8.50E-15  1.13E-14  1.65E-14  4.70E-14  1.72E-13
bi211   1.23E-15  1.23E-15  1.23E-15  1.23E-15  1.46E-15  2.29E-15  3.23E-15  6.01E-15  1.05E-14
bi212   5.89E-11  5.89E-11  5.89E-11  6.01E-11  7.41E-11  1.28E-10  2.09E-10  4.32E-10  6.34E-10
bi213   2.15E-15  2.15E-15  2.15E-15  2.14E-15  4.43E-16  4.07E-16  4.52E-16  6.01E-16  8.84E-16
bi214   2.70E-16  2.70E-16  2.70E-16  2.71E-16  3.03E-16  4.19E-16  6.13E-16  1.47E-15  3.81E-15
po210   1.29E-13  1.29E-13  1.29E-13  1.30E-13  1.62E-13  2.47E-13  3.71E-13  1.10E-12  4.74E-12
po211m   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00   .00E+00
po211   1.36E-20  1.36E-20  1.36E-20  1.36E-20  1.61E-20  2.53E-20  3.57E-20  6.64E-20  1.16E-19
po212   3.09E-21  3.09E-21  3.09E-21  3.16E-21  3.89E-21  6.74E-21  1.10E-20  2.27E-20  3.33E-20
po213   3.23E-24  3.23E-24  3.23E-24  3.22E-24  6.66E-25  6.12E-25  6.80E-25  9.03E-25  1.33E-24
po214   8.94E-23  8.94E-23  8.94E-23  8.77E-23  4.42E-23  5.76E-23  8.43E-23  2.02E-22  5.24E-22
po215   1.74E-20  1.74E-20  1.74E-20  1.74E-20  2.06E-20  3.24E-20  4.57E-20  8.49E-20  1.48E-19
po216   2.39E-15  2.39E-15  2.39E-15  2.39E-15  3.01E-15  5.22E-15  8.50E-15  1.76E-14  2.58E-14
po218   4.29E-17  4.29E-17  4.29E-17  4.29E-17  4.80E-17  6.65E-17  9.73E-17  2.33E-16  6.04E-16
at217   2.58E-20  2.58E-20  2.58E-20  2.58E-20  5.33E-21  4.90E-21  5.44E-21  7.23E-21  1.06E-20
rn218   1.13E-20  1.13E-20  1.13E-20  1.10E-20  5.64E-22  5.86E-26  3.03E-31   .00E+00   .00E+00
rn219   3.94E-17  3.94E-17  3.94E-17  3.95E-17  4.68E-17  7.34E-17  1.04E-16  1.92E-16  3.36E-16
rn220   9.35E-13  9.35E-13  9.35E-13  9.35E-13  1.18E-12  2.04E-12  3.32E-12  6.86E-12  1.01E-11
```

rn222	7.77E-14	7.77E-14	7.77E-14	7.77E-14	8.69E-14	1.20E-13	1.76E-13	4.21E-13	1.09E-12
fr221	2.39E-16	2.39E-16	2.39E-16	2.39E-16	4.94E-17	4.54E-17	5.05E-17	6.70E-17	9.86E-17
fr223	1.99E-16	1.99E-16	1.99E-16	1.99E-16	2.34E-16	3.40E-16	4.80E-16	8.92E-16	1.56E-15
ra222	1.25E-17	1.25E-17	1.25E-17	1.21E-17	6.24E-19	6.48E-23	3.35E-28	.00E+00	.00E+00
ra223	1.00E-11	1.00E-11	1.00E-11	1.00E-11	1.19E-11	1.86E-11	2.63E-11	4.89E-11	8.54E-11
ra224	5.42E-09	5.42E-09	5.42E-09	5.41E-09	6.82E-09	1.18E-08	1.92E-08	3.97E-08	5.83E-08
ra225	1.05E-12	1.05E-12	1.05E-12	1.01E-12	1.96E-13	2.01E-13	2.24E-13	2.97E-13	4.37E-13
ra226	1.21E-08	1.21E-08	1.21E-08	1.21E-08	1.35E-08	1.87E-08	2.74E-08	6.55E-08	1.70E-07
ra228	4.74E-15	4.74E-15	4.74E-15	4.75E-15	5.65E-15	9.00E-15	1.47E-14	3.85E-14	9.44E-14
ac225	7.17E-13	7.17E-13	7.17E-13	7.15E-13	1.48E-13	1.36E-13	1.51E-13	2.00E-13	2.95E-13
ac227	7.71E-09	7.71E-09	7.71E-09	7.72E-09	9.06E-09	1.32E-08	1.86E-08	3.46E-08	6.04E-08
ac228	5.79E-19	5.79E-19	5.79E-19	5.79E-19	6.90E-19	1.10E-18	1.79E-18	4.70E-18	1.15E-17
th226	6.22E-16	6.22E-16	6.22E-16	6.02E-16	3.10E-17	3.22E-21	1.66E-26	.00E+00	.00E+00
th227	1.70E-11	1.70E-11	1.70E-11	1.70E-11	2.01E-11	3.06E-11	4.32E-11	8.03E-11	1.40E-10
th228	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.32E-06	2.29E-06	3.73E-06	7.71E-06	1.13E-05
th229	3.55E-08	3.55E-08	3.55E-08	3.55E-08	3.65E-08	3.98E-08	4.42E-08	5.87E-08	8.64E-08
th230	6.24E-04	6.24E-04	6.24E-04	6.25E-04	6.79E-04	8.48E-04	1.07E-03	1.75E-03	2.89E-03
th231	6.62E-07	6.62E-07	6.62E-07	3.57E-07	2.56E-08	2.56E-08	2.56E-08	2.56E-08	2.56E-08

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 2

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
th232	8.41E-05	8.41E-05	8.41E-05	8.43E-05	9.43E-05	1.25E-04	1.66E-04	2.90E-04	4.95E-04
th233	8.02E-11	8.02E-11	8.02E-11	2.92E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	6.43E-06	6.43E-06	6.43E-06	6.43E-06	6.42E-06	6.43E-06	6.42E-06	6.42E-06	6.42E-06
pa231	2.75E-04	2.75E-04	2.75E-04	2.75E-04	2.77E-04	2.82E-04	2.88E-04	3.06E-04	3.37E-04
pa232	2.38E-07	2.38E-07	2.38E-07	1.40E-07	4.98E-28	.00E+00	.00E+00	.00E+00	.00E+00
pa233	4.19E-06	4.19E-06	4.19E-06	4.20E-06	4.34E-06	4.36E-06	4.36E-06	4.37E-06	4.41E-06
pa234m	2.18E-10	2.18E-10	2.18E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10
pa234	4.09E-10	4.09E-10	4.09E-10	1.23E-10	9.67E-11	9.68E-11	9.67E-11	9.67E-11	9.67E-11
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	6.13E-13	6.13E-13	6.13E-13	5.93E-13	3.05E-14	3.17E-18	1.64E-23	2.26E-39	.00E+00
u231	1.16E-11	1.16E-11	1.16E-11	9.83E-12	4.13E-18	7.84E-38	.00E+00	.00E+00	.00E+00
u232	1.46E-04	1.46E-04	1.46E-04	1.46E-04	1.68E-04	2.26E-04	2.89E-04	4.01E-04	4.60E-04
u233	9.73E-04	9.73E-04	9.73E-04	9.73E-04	9.83E-04	1.02E-03	1.06E-03	1.19E-03	1.40E-03
u234	8.05E+01	8.05E+01	8.05E+01	8.05E+01	8.06E+01	8.08E+01	8.10E+01	8.17E+01	8.28E+01
u235	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.30E+03
u236	1.41E+03	1.41E+03	1.41E+03	1.41E+03	1.41E+03	1.41E+03	1.41E+03	1.41E+03	1.41E+03
u237	1.82E+00	1.82E+00	1.82E+00	1.65E+00	1.89E-04	1.17E-05	1.11E-05	9.64E-06	7.57E-06
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05
u239	1.30E-01	1.30E-01	1.30E-01	4.38E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	2.04E-23	2.04E-23	2.04E-23	2.05E-23	3.51E-23	8.00E-23	1.40E-22	3.19E-22	6.17E-22
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	3.20E-06	3.20E-06	3.20E-06	3.19E-06	2.73E-06	1.69E-06	8.91E-07	1.31E-07	5.36E-09
np236m	2.84E-06	2.84E-06	2.84E-06	1.36E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04
np237	1.26E+02	1.26E+02	1.26E+02	1.27E+02	1.28E+02	1.28E+02	1.28E+02	1.29E+02	1.30E+02
np238	1.68E-01	1.68E-01	1.68E-01	1.21E-01	7.85E-08	7.82E-08	7.78E-08	7.67E-08	7.48E-08
np239	1.88E+01	1.88E+01	1.88E+01	1.41E+01	8.68E-06	8.68E-06	8.68E-06	8.67E-06	8.67E-06
np240m	1.74E-25	1.74E-25	1.74E-25	1.75E-25	2.99E-25	6.83E-25	1.19E-24	2.72E-24	5.27E-24
np240	3.64E-04	3.64E-04	3.64E-04	3.61E-11	3.08E-27	7.03E-27	1.23E-26	2.80E-26	5.42E-26
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	3.91E-04	3.91E-04	3.91E-04	3.92E-04	3.70E-04	3.09E-04	2.44E-04	1.19E-04	3.60E-05
pu237	1.11E-05	1.11E-05	1.11E-05	1.09E-05	2.79E-06	4.09E-08	1.51E-10	7.52E-18	5.08E-30
pu238	2.77E+01	2.77E+01	2.77E+01	2.77E+01	2.86E+01	2.96E+01	2.98E+01	2.93E+01	2.81E+01
pu239	2.61E+03	2.61E+03	2.61E+03	2.62E+03	2.63E+03	2.63E+03	2.63E+03	2.63E+03	2.63E+03
pu240	6.72E+02	6.72E+02	6.72E+02	6.72E+02	6.72E+02	6.72E+02	6.72E+02	6.72E+02	6.72E+02
pu241	4.05E+02	4.05E+02	4.05E+02	4.05E+02	4.00E+02	3.86E+02	3.67E+02	3.18E+02	2.50E+02
pu242	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01

pu243	1.01E-02	1.01E-02	1.01E-02	3.52E-04	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15
pu244	1.03E-12	1.03E-12	1.03E-12	1.04E-12	1.78E-12	4.05E-12	7.07E-12	1.61E-11	3.12E-11
pu245	7.59E-19	7.59E-19	7.59E-19	1.56E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	3.21E-21	3.21E-21	3.21E-21	3.08E-21	1.26E-21	1.25E-21	1.25E-21	1.25E-21	1.25E-21
am239	3.03E-10	3.03E-10	3.03E-10	7.49E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	1.32E-07	1.32E-07	1.32E-07	9.53E-08	2.21E-20	.00E+00	.00E+00	.00E+00	.00E+00
am241	1.71E+01	1.71E+01	1.71E+01	1.71E+01	2.18E+01	3.61E+01	5.42E+01	1.03E+02	1.71E+02
am242m	4.32E-01	4.32E-01	4.32E-01	4.32E-01	4.31E-01	4.30E-01	4.28E-01	4.21E-01	4.11E-01
am242	1.97E-02	1.97E-02	1.97E-02	6.99E-03	5.57E-06	5.54E-06	5.52E-06	5.44E-06	5.30E-06
am243	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.01E+01
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	3.73E-03	3.73E-03	3.73E-03	7.18E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	5.97E-17	5.97E-17	5.97E-17	5.95E-17	4.91E-17	2.70E-17	1.23E-17	1.14E-18	2.19E-20
am246	8.01E-24	8.01E-24	8.01E-24	7.72E-24	3.14E-24	3.12E-24	3.12E-24	3.12E-24	3.12E-24
cm241	6.19E-10	6.19E-10	6.19E-10	6.06E-10	9.25E-11	2.75E-13	1.22E-16	1.08E-26	3.38E-43

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 3

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
cm242	2.60E+00	2.60E+00	2.60E+00	2.60E+00	1.78E+00	5.54E-01	1.18E-01	2.21E-03	1.07E-03
cm243	6.03E-02	6.03E-02	6.03E-02	6.03E-02	5.99E-02	5.88E-02	5.74E-02	5.34E-02	4.73E-02
cm244	1.51E+00	1.51E+00	1.51E+00	1.52E+00	1.50E+00	1.46E+00	1.41E+00	1.25E+00	1.03E+00
cm245	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02
cm246	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	2.99E-03
cm247	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05
cm248	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06
cm249	1.19E-11	1.19E-11	1.19E-11	3.68E-18	5.01E-20	1.12E-24	7.51E-31	.00E+00	.00E+00
cm250	2.98E-15	2.98E-15	2.98E-15	2.98E-15	2.98E-15	2.98E-15	2.98E-15	2.98E-15	2.98E-15
cm251	7.30E-23	7.30E-23	7.30E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	1.56E-08	1.56E-08	1.56E-08	1.56E-08	1.29E-08	7.10E-09	3.22E-09	3.00E-10	5.74E-12
bk250	5.62E-12	5.62E-12	5.62E-12	3.19E-14	1.36E-18	6.81E-19	2.72E-19	1.73E-20	1.84E-22
bk251	8.19E-17	8.19E-17	8.19E-17	3.31E-21	6.81E-22	5.11E-24	7.74E-27	2.70E-35	.00E+00
cf249	2.85E-09	2.85E-09	2.85E-09	2.88E-09	5.62E-09	1.14E-08	1.52E-08	1.81E-08	1.82E-08
cf250	1.73E-09	1.73E-09	1.73E-09	1.74E-09	1.72E-09	1.65E-09	1.56E-09	1.33E-09	1.02E-09
cf251	8.53E-10	8.53E-10	8.53E-10	8.53E-10	8.53E-10	8.52E-10	8.52E-10	8.50E-10	8.46E-10
cf252	2.52E-10	2.52E-10	2.52E-10	2.52E-10	2.36E-10	1.94E-10	1.49E-10	6.80E-11	1.83E-11
cf253	2.17E-13	2.17E-13	2.17E-13	2.09E-13	6.55E-15	1.46E-19	9.81E-26	.00E+00	.00E+00
cf254	8.70E-17	8.70E-17	8.70E-17	8.60E-17	3.10E-17	1.32E-18	2.02E-20	7.12E-26	5.83E-35
cf255	8.67E-21	8.67E-21	8.67E-21	1.32E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	1.91E-13	1.91E-13	1.91E-13	1.92E-13	3.80E-14	6.80E-18	3.30E-23	2.56E-39	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	3.56E-15	3.56E-15	3.56E-15	3.55E-15	2.84E-15	1.42E-15	5.68E-16	3.61E-17	3.66E-19
es255	3.36E-18	3.36E-18	3.36E-18	3.31E-18	6.81E-19	5.11E-21	7.74E-24	2.70E-32	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 4

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
h 3	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.34E-02	1.28E-02	1.21E-02	1.03E-02	7.74E-03
li 6	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05
li 7	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06
be 9	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06
be 10	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05
c 14	7.47E-06	7.47E-06	7.47E-06	7.47E-06	7.47E-06	7.47E-06	7.47E-06	7.46E-06	7.46E-06
ni 66	5.76E-10	5.76E-10	5.76E-10	4.25E-10	7.15E-22	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	9.01E-13	9.01E-13	9.01E-13	6.62E-13	1.11E-24	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	1.74E-07	1.74E-07	1.74E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07

se 77	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01
se 77m	1.65E-10	1.65E-10	1.65E-10	1.14E-10	3.29E-27	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	4.61E-15	4.61E-15	4.61E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	1.28E-12	1.28E-12	1.28E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	1.79E-09	1.79E-09	1.79E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	2.77E-08	2.77E-08	2.77E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	4.88E-05	4.88E-05	4.88E-05	5.79E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	5.09E-05	5.09E-05	5.09E-05	8.65E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	7.24E-01	7.24E-01	7.24E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01
cu 79	3.71E-13	3.71E-13	3.71E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	5.92E-10	5.92E-10	5.92E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	1.65E-08	1.65E-08	1.65E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	3.08E-07	3.08E-07	3.08E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	9.49E-06	9.49E-06	9.49E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.40E+00
se 79m	4.08E-06	4.08E-06	4.08E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	5.12E-05	5.12E-05	5.12E-05	5.13E-05	5.85E-05	8.07E-05	1.10E-04	1.98E-04	3.46E-04
br 79m	3.00E-14	3.00E-14	3.00E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	6.66E-14	6.66E-14	6.66E-14	4.14E-14	1.82E-32	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	2.91E-14	2.91E-14	2.91E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	1.23E-10	1.23E-10	1.23E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	7.45E-09	7.45E-09	7.45E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	1.19E-06	1.19E-06	1.19E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	7.11E-07	7.11E-07	7.11E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00
br 80	3.70E-10	3.70E-10	3.70E-10	6.11E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	3.69E-09	3.69E-09	3.69E-09	8.56E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05
cu 81	2.46E-15	2.46E-15	2.46E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	6.41E-12	6.41E-12	6.41E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	3.53E-09	3.53E-09	3.53E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	3.27E-07	3.27E-07	3.27E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	2.28E-06	2.28E-06	2.28E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	7.98E-05	7.98E-05	7.98E-05	2.27E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	1.78E-05	1.78E-05	1.78E-05	4.78E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00
kr 81	7.13E-07	7.13E-07	7.13E-07	7.13E-07	7.13E-07	7.13E-07	7.13E-07	7.13E-07	7.13E-07
kr 81m	9.94E-14	9.94E-14	9.94E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	1.50E-12	1.50E-12	1.50E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	1.10E-09	1.10E-09	1.10E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 6

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
ge 82	1.92E-07	1.92E-07	1.92E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	1.30E-06	1.30E-06	1.30E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	3.59E-07	3.59E-07	3.59E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00
br 82	3.96E-04	3.96E-04	3.96E-04	2.48E-04	1.52E-22	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	9.40E-07	9.40E-07	9.40E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01
zn 83	5.12E-14	5.12E-14	5.12E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	6.88E-11	6.88E-11	6.88E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	3.59E-08	3.59E-08	3.59E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	1.47E-06	1.47E-06	1.47E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	1.12E-04	1.12E-04	1.12E-04	4.08E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	6.19E-06	6.19E-06	6.19E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	1.53E-03	1.53E-03	1.53E-03	1.63E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01

kr 83m	1.16E-03	1.16E-03	1.16E-03	5.36E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	1.80E-10	1.80E-10	1.80E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	1.51E-08	1.51E-08	1.51E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	4.51E-07	4.51E-07	4.51E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	6.23E-05	6.23E-05	6.23E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	6.36E-04	6.36E-04	6.36E-04	1.65E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	3.22E-06	3.22E-06	3.22E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01
ga 85	3.15E-13	3.15E-13	3.15E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	5.49E-10	5.49E-10	5.49E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	9.72E-08	9.72E-08	9.72E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	4.92E-06	4.92E-06	4.92E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	2.59E-06	2.59E-06	2.59E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	6.48E-05	6.48E-05	6.48E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	6.65E+00	6.65E+00	6.65E+00	6.65E+00	6.55E+00	6.24E+00	5.85E+00	4.82E+00	3.49E+00
kr 85m	6.08E-03	6.08E-03	6.08E-03	1.50E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	2.80E+01	2.80E+01	2.80E+01	2.80E+01	2.81E+01	2.84E+01	2.88E+01	2.98E+01	3.11E+01
ge 86	1.17E-10	1.17E-10	1.17E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	2.45E-08	2.45E-08	2.45E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	5.76E-06	5.76E-06	5.76E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	2.56E-05	2.56E-05	2.56E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	4.85E-06	4.85E-06	4.85E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01
rb 86	2.67E-03	2.67E-03	2.67E-03	2.57E-03	9.38E-05	3.35E-09	4.22E-15	8.39E-33	.00E+00
rb 86m	8.18E-09	8.18E-09	8.18E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	6.19E-02	6.19E-02	6.19E-02	6.20E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02
ge 87	5.35E-10	5.35E-10	5.35E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	4.80E-09	4.80E-09	4.80E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	1.25E-06	1.25E-06	1.25E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	3.41E-05	3.41E-05	3.41E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	3.55E-03	3.55E-03	3.55E-03	7.48E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01
sr 87	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04
sr 87m	5.51E-08	5.51E-08	5.51E-08	1.48E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	9.21E-13	9.21E-13	9.21E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	9.66E-10	9.66E-10	9.66E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	1.82E-07	1.82E-07	1.82E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 7

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
br 88	9.89E-06	9.89E-06	9.89E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	1.11E-02	1.11E-02	1.11E-02	3.17E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	1.19E-03	1.19E-03	1.19E-03	3.70E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
as 89	1.60E-11	1.60E-11	1.60E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	1.77E-08	1.77E-08	1.77E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	1.84E-06	1.84E-06	1.84E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	2.61E-04	2.61E-04	2.61E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	1.35E-03	1.35E-03	1.35E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	6.62E+00	6.62E+00	6.62E+00	6.53E+00	1.93E+00	4.43E-02	2.96E-04	8.85E-11	1.18E-21
y 89	1.33E+02	1.33E+02	1.33E+02	1.33E+02	1.37E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
y 89m	2.28E-09	2.28E-09	2.28E-09	2.23E-09	6.59E-10	1.51E-11	1.01E-13	3.02E-20	4.04E-31
as 90	1.18E-13	1.18E-13	1.18E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	4.12E-09	4.12E-09	4.12E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	4.43E-07	4.43E-07	4.43E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	4.79E-05	4.79E-05	4.79E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	2.10E-04	2.10E-04	2.10E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	1.12E-04	1.12E-04	1.12E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sr 90	1.63E+02	1.63E+02	1.63E+02	1.63E+02	1.62E+02	1.59E+02	1.55E+02	1.44E+02	1.27E+02
y 90	4.30E-02	4.30E-02	4.30E-02	4.28E-02	4.20E-02	4.12E-02	4.02E-02	3.74E-02	3.30E-02
y 90m	3.65E-08	3.65E-08	3.65E-08	1.98E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	7.74E+00	7.74E+00	7.74E+00	7.75E+00	8.72E+00	1.17E+01	1.56E+01	2.66E+01	4.32E+01
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	2.67E-10	2.67E-10	2.67E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	4.62E-08	4.62E-08	4.62E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	8.82E-06	8.82E-06	8.82E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	1.07E-04	1.07E-04	1.07E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	6.74E-02	6.74E-02	6.74E-02	1.18E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	1.01E+01	1.01E+01	1.01E+01	1.01E+01	3.51E+00	1.35E-01	1.78E-03	4.09E-09	1.64E-18
y 91m	3.40E-03	3.40E-03	3.40E-03	6.50E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.69E+02	1.69E+02	1.69E+02	1.69E+02	1.76E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02
nb 91	2.67E-10	2.67E-10	2.67E-10	2.67E-10	2.67E-10	2.67E-10	2.66E-10	2.65E-10	2.64E-10
se 92	1.39E-11	1.39E-11	1.39E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	4.84E-09	4.84E-09	4.84E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	1.03E-06	1.03E-06	1.03E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	7.36E-06	7.36E-06	7.36E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	2.06E-02	2.06E-02	2.06E-02	4.44E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	2.71E-02	2.71E-02	2.71E-02	8.55E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02
nb 92	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08
se 93	6.10E-14	6.10E-14	6.10E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	6.53E-10	6.53E-10	6.53E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	2.47E-07	2.47E-07	2.47E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	7.80E-06	7.80E-06	7.80E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	1.07E-03	1.07E-03	1.07E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	5.92E-02	5.92E-02	5.92E-02	1.15E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
nb 93	8.41E-06	8.41E-06	8.41E-06	8.42E-06	9.65E-06	1.44E-05	2.27E-05	6.12E-05	1.65E-04
nb 93m	1.10E-04	1.10E-04	1.10E-04	1.10E-04	1.24E-04	1.67E-04	2.22E-04	3.72E-04	5.83E-04
br 94	2.17E-11	2.17E-11	2.17E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	1.87E-08	1.87E-08	1.87E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	1.93E-06	1.93E-06	1.93E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 8

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
sr 94	1.81E-04	1.81E-04	1.81E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	2.93E-03	2.93E-03	2.93E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02
nb 94	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04
nb 94m	3.29E-10	3.29E-10	3.29E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	2.38E-13	2.38E-13	2.38E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	6.61E-09	6.61E-09	6.61E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	1.34E-07	1.34E-07	1.34E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	5.48E-05	5.48E-05	5.48E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	1.72E-03	1.72E-03	1.72E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	1.55E+01	1.55E+01	1.55E+01	1.54E+01	5.87E+00	2.98E-01	5.71E-03	4.02E-08	1.04E-16
nb 95	8.53E+00	8.53E+00	8.53E+00	8.53E+00	5.35E+00	3.51E-01	7.08E-03	4.84E-08	1.25E-16
nb 95m	1.01E-02	1.01E-02	1.01E-02	1.00E-02	3.89E-03	1.98E-04	3.79E-06	2.66E-11	6.88E-20
mo 95	2.00E+02	2.00E+02	2.00E+02	2.00E+02	2.13E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02
br 96	4.47E-14	4.47E-14	4.47E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	4.35E-10	4.35E-10	4.35E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	1.75E-08	1.75E-08	1.75E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	1.71E-06	1.71E-06	1.71E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	1.57E-05	1.57E-05	1.57E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02
nb 96	2.59E-04	2.59E-04	2.59E-04	1.27E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

mo 96	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00
kr 97	2.02E-12	2.02E-12	2.02E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	4.20E-09	4.20E-09	4.20E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	3.46E-07	3.46E-07	3.46E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	7.71E-06	7.71E-06	7.71E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	1.66E-01	1.66E-01	1.66E-01	6.21E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	1.19E-02	1.19E-02	1.19E-02	4.44E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	1.56E-04	1.56E-04	1.56E-04	5.81E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02
kr 98	1.17E-12	1.17E-12	1.17E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	2.82E-10	2.82E-10	2.82E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	2.21E-07	2.21E-07	2.21E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	1.06E-06	1.06E-06	1.06E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	8.98E-05	8.98E-05	8.98E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	8.43E-06	8.43E-06	8.43E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	7.05E-05	7.05E-05	7.05E-05	2.50E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02
tc 98	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03
rb 99	4.36E-12	4.36E-12	4.36E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	3.65E-08	3.65E-08	3.65E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	1.54E-06	1.54E-06	1.54E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	6.09E-06	6.09E-06	6.09E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	2.82E-05	2.82E-05	2.82E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	2.01E-04	2.01E-04	2.01E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	7.60E-01	7.60E-01	7.60E-01	5.91E-01	1.05E-10	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	2.30E+02	2.30E+02	2.30E+02	2.30E+02	2.31E+02	2.31E+02	2.31E+02	2.31E+02	2.31E+02
tc 99m	6.10E-02	6.10E-02	6.10E-02	5.18E-02	9.26E-12	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	9.13E-03	9.13E-03	9.13E-03	9.14E-03	9.34E-03	9.91E-03	1.07E-02	1.29E-02	1.67E-02
rb100	2.25E-12	2.25E-12	2.25E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	3.57E-09	3.57E-09	3.57E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	2.48E-07	2.48E-07	2.48E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 9

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
zr100	2.05E-05	2.05E-05	2.05E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	4.70E-06	4.70E-06	4.70E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	7.50E-07	7.50E-07	7.50E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02
tc100	7.90E-06	7.90E-06	7.90E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01
rb101	1.75E-14	1.75E-14	1.75E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	5.22E-10	5.22E-10	5.22E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	8.60E-08	8.60E-08	8.60E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	3.36E-06	3.36E-06	3.36E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	2.00E-05	2.00E-05	2.00E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	2.59E-03	2.59E-03	2.59E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	2.52E-03	2.52E-03	2.52E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02
sr102	1.32E-10	1.32E-10	1.32E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	7.27E-08	7.27E-08	7.27E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	3.41E-06	3.41E-06	3.41E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	3.10E-06	3.10E-06	3.10E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	1.91E-03	1.91E-03	1.91E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	1.49E-05	1.49E-05	1.49E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	7.52E-07	7.52E-07	7.52E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02
rh102	2.17E-04	2.17E-04	2.17E-04	2.17E-04	2.05E-04	1.71E-04	1.35E-04	6.57E-05	1.99E-05
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sr103	4.49E-13	4.49E-13	4.49E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	6.32E-09	6.32E-09	6.32E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	5.65E-07	5.65E-07	5.65E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	2.64E-06	2.64E-06	2.64E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	1.83E-04	1.83E-04	1.83E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	1.50E-04	1.50E-04	1.50E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	9.36E+00	9.36E+00	9.36E+00	9.19E+00	1.91E+00	1.48E-02	2.34E-05	9.29E-14	9.22E-28
rh103	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.42E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02
rh103m	9.27E-03	9.27E-03	9.27E-03	9.11E-03	1.89E-03	1.47E-05	2.32E-08	9.20E-17	9.13E-31
sr104	1.95E-13	1.95E-13	1.95E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	8.72E-11	8.72E-11	8.72E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	3.30E-07	3.30E-07	3.30E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	3.85E-06	3.85E-06	3.85E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	1.28E-04	1.28E-04	1.28E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	2.46E-03	2.46E-03	2.46E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
rh104	4.73E-05	4.73E-05	4.73E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	2.12E-05	2.12E-05	2.12E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01
y105	1.25E-12	1.25E-12	1.25E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	1.86E-08	1.86E-08	1.86E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	9.52E-07	9.52E-07	9.52E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	5.53E-05	5.53E-05	5.53E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	8.43E-04	8.43E-04	8.43E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	2.99E-02	2.99E-02	2.99E-02	7.25E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	2.32E-01	2.32E-01	2.32E-01	1.66E-01	1.09E-19	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	2.39E-05	2.39E-05	2.39E-05	5.82E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 10

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
y106	1.39E-14	1.39E-14	1.39E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	1.59E-09	1.59E-09	1.59E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	6.07E-08	6.07E-08	6.07E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	7.13E-06	7.13E-06	7.13E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	4.67E-05	4.67E-05	4.67E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	3.37E+01	3.37E+01	3.37E+01	3.36E+01	2.85E+01	1.70E+01	8.63E+00	1.12E+00	3.71E-02
rh106	3.22E-05	3.22E-05	3.22E-05	3.12E-05	2.64E-05	1.58E-05	8.01E-06	1.04E-06	3.44E-08
rh106m	1.10E-04	1.10E-04	1.10E-04	5.11E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	4.57E+01	4.57E+01	4.57E+01	4.58E+01	5.09E+01	6.24E+01	7.08E+01	7.83E+01	7.94E+01
ag106	2.68E-15	2.68E-15	2.68E-15	2.33E-33	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	1.31E-16	1.31E-16	1.31E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	4.24E-12	4.24E-12	4.24E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	8.29E-09	8.29E-09	8.29E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	1.19E-06	1.19E-06	1.19E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	1.86E-05	1.86E-05	1.86E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	2.39E-04	2.39E-04	2.39E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	1.39E-03	1.39E-03	1.39E-03	1.80E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01
pd107m	6.52E-08	6.52E-08	6.52E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	7.30E-06	7.30E-06	7.30E-06	7.31E-06	8.64E-06	1.28E-05	1.82E-05	3.46E-05	6.19E-05
zr108	2.68E-13	2.68E-13	2.68E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	8.12E-11	8.12E-11	8.12E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	7.28E-08	7.28E-08	7.28E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	1.54E-06	1.54E-06	1.54E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	1.85E-04	1.85E-04	1.85E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	1.16E-05	1.16E-05	1.16E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	4.06E-06	4.06E-06	4.06E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pd108	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01
ag108	2.17E-10	2.17E-10	2.17E-10	1.30E-13	1.30E-13	1.29E-13	1.29E-13	1.27E-13	1.23E-13
ag108m	4.21E-05	4.21E-05	4.21E-05	4.21E-05	4.21E-05	4.19E-05	4.17E-05	4.10E-05	3.99E-05
cd108	4.34E-05	4.34E-05	4.34E-05	4.34E-05	4.34E-05	4.34E-05	4.34E-05	4.35E-05	4.36E-05
zr109	6.67E-17	6.67E-17	6.67E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	4.24E-12	4.24E-12	4.24E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	7.22E-09	7.22E-09	7.22E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	1.41E-07	1.41E-07	1.41E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	1.63E-05	1.63E-05	1.63E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	4.36E-05	4.36E-05	4.36E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	1.36E-05	1.36E-05	1.36E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	2.97E-02	2.97E-02	2.97E-02	8.84E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	7.34E-07	7.34E-07	7.34E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	2.18E+01	2.18E+01	2.18E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01
ag109m	2.39E-05	2.39E-05	2.39E-05	7.10E-06	2.85E-14	1.88E-14	1.09E-14	2.11E-15	1.37E-16
cd109	3.29E-08	3.29E-08	3.29E-08	3.28E-08	2.87E-08	1.90E-08	1.10E-08	2.13E-09	1.38E-10
nb110	7.02E-14	7.02E-14	7.02E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	1.49E-09	1.49E-09	1.49E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	1.28E-08	1.28E-08	1.28E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	2.20E-06	2.20E-06	2.20E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	8.06E-08	8.06E-08	8.06E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	4.90E-06	4.90E-06	4.90E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00
ag110	4.66E-06	4.66E-06	4.66E-06	1.60E-09	1.25E-09	5.84E-10	2.12E-10	1.01E-11	6.37E-14
ag110m	1.04E-01	1.04E-01	1.04E-01	1.03E-01	8.08E-02	3.77E-02	1.37E-02	6.53E-04	4.11E-06

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 11

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
cd110	5.66E+00	5.66E+00	5.66E+00	5.66E+00	5.68E+00	5.72E+00	5.75E+00	5.76E+00	5.76E+00
nb111	6.56E-16	6.56E-16	6.56E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	2.22E-11	2.22E-11	2.22E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	5.89E-09	5.89E-09	5.89E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	7.75E-08	7.75E-08	7.75E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	1.06E-06	1.06E-06	1.06E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	1.45E-04	1.45E-04	1.45E-04	2.51E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	9.29E-05	9.29E-05	9.29E-05	4.51E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	6.65E-02	6.65E-02	6.65E-02	6.08E-02	1.54E-05	1.16E-16	2.03E-31	.00E+00	.00E+00
ag111m	6.70E-06	6.70E-06	6.70E-06	1.44E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	4.98E+00	4.98E+00	4.98E+00	4.98E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00
cd111m	2.40E-07	2.40E-07	2.40E-07	2.89E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb112	1.14E-17	1.14E-17	1.14E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	6.07E-12	6.07E-12	6.07E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	2.10E-10	2.10E-10	2.10E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	5.80E-08	5.80E-08	5.80E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	5.87E-08	5.87E-08	5.87E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	3.68E-03	3.68E-03	3.68E-03	1.67E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	5.50E-04	5.50E-04	5.50E-04	2.92E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	2.63E+00	2.63E+00	2.63E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00
mo113	2.68E-14	2.68E-14	2.68E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	7.30E-11	7.30E-11	7.30E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	1.53E-08	1.53E-08	1.53E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	1.70E-08	1.70E-08	1.70E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	2.63E-06	2.63E-06	2.63E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	5.31E-04	5.31E-04	5.31E-04	2.41E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	3.79E-07	3.79E-07	3.79E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	4.52E-02	4.52E-02	4.52E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02
cd113m	2.80E-02	2.80E-02	2.80E-02	2.81E-02	2.77E-02	2.67E-02	2.54E-02	2.19E-02	1.72E-02
in113	1.97E-03	1.97E-03	1.97E-03	1.98E-03	2.31E-03	3.32E-03	4.60E-03	8.08E-03	1.29E-02

in113m	1.77E-13	1.77E-13	1.77E-13	7.77E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	2.22E-14	2.22E-14	2.22E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	3.44E-12	3.44E-12	3.44E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	1.50E-08	1.50E-08	1.50E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	1.64E-08	1.64E-08	1.64E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	3.32E-06	3.32E-06	3.32E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	1.08E-07	1.08E-07	1.08E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00
in114	2.18E-10	2.18E-10	2.18E-10	1.49E-10	4.30E-11	9.11E-13	5.48E-15	1.19E-21	9.42E-33
in114m	9.41E-06	9.41E-06	9.41E-06	9.28E-06	2.67E-06	5.66E-08	3.41E-10	7.43E-17	5.86E-28
sn114	6.61E-05	6.61E-05	6.61E-05	6.62E-05	7.25E-05	7.50E-05	7.51E-05	7.51E-05	7.51E-05
mo115	3.27E-17	3.27E-17	3.27E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	1.58E-13	1.58E-13	1.58E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	3.72E-10	3.72E-10	3.72E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	3.31E-08	3.31E-08	3.31E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	5.26E-07	5.26E-07	5.26E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	1.32E-05	1.32E-05	1.32E-05	2.88E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	8.28E-08	8.28E-08	8.28E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	2.96E-03	2.96E-03	2.96E-03	2.18E-03	2.06E-15	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	2.68E-03	2.68E-03	2.68E-03	2.64E-03	6.63E-04	9.19E-06	3.15E-08	1.26E-15	5.93E-28
in115	4.53E-01	4.53E-01	4.53E-01	4.54E-01	4.58E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01
in115m	2.49E-04	2.49E-04	2.49E-04	1.99E-04	3.07E-10	4.25E-12	1.46E-14	5.84E-22	2.75E-34

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 12

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
sn115	4.55E-02	4.55E-02	4.55E-02	4.55E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02
tc116	2.84E-14	2.84E-14	2.84E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	2.36E-10	2.36E-10	2.36E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	1.90E-09	1.90E-09	1.90E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	1.96E-07	1.96E-07	1.96E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	2.84E-06	2.84E-06	2.84E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	2.32E-08	2.32E-08	2.32E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
in116	3.47E-08	3.47E-08	3.47E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	3.01E-05	3.01E-05	3.01E-05	2.97E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01
tc117	4.62E-16	4.62E-16	4.62E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	7.53E-12	7.53E-12	7.53E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	9.56E-10	9.56E-10	9.56E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	5.24E-08	5.24E-08	5.24E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	6.78E-07	6.78E-07	6.78E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	4.97E-08	4.97E-08	4.97E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	1.46E-04	1.46E-04	1.46E-04	1.84E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	4.51E-05	4.51E-05	4.51E-05	3.20E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	3.19E-05	3.19E-05	3.19E-05	2.06E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	1.04E-04	1.04E-04	1.04E-04	6.20E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00
sn117m	9.88E-05	9.88E-05	9.88E-05	9.45E-05	1.01E-06	8.18E-13	6.73E-21	.00E+00	.00E+00
tc118	7.42E-18	7.42E-18	7.42E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	2.38E-12	2.38E-12	2.38E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	5.96E-11	5.96E-11	5.96E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	1.57E-08	1.57E-08	1.57E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	3.27E-08	3.27E-08	3.27E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	1.23E-08	1.23E-08	1.23E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	4.60E-05	4.60E-05	4.60E-05	1.11E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	7.63E-08	7.63E-08	7.63E-08	1.84E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	5.28E-09	5.28E-09	5.28E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01

ru119	9.05E-14	9.05E-14	9.05E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	3.06E-11	3.06E-11	3.06E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	4.56E-09	4.56E-09	4.56E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	2.09E-08	2.09E-08	2.09E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	1.73E-06	1.73E-06	1.73E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	6.82E-07	6.82E-07	6.82E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	9.69E-07	9.69E-07	9.69E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	1.05E-05	1.05E-05	1.05E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00
sn119m	2.29E-03	2.29E-03	2.29E-03	2.29E-03	1.85E-03	9.66E-04	4.07E-04	3.05E-05	4.06E-07
ru120	2.08E-14	2.08E-14	2.08E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	2.64E-12	2.64E-12	2.64E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	5.71E-09	5.71E-09	5.71E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	7.90E-09	7.90E-09	7.90E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	7.69E-07	7.69E-07	7.69E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	4.75E-08	4.75E-08	4.75E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	1.26E-08	1.26E-08	1.26E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00
rh121	1.06E-12	1.06E-12	1.06E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 13

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
pd121	3.96E-10	3.96E-10	3.96E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	3.89E-09	3.89E-09	3.89E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	2.06E-07	2.06E-07	2.06E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	3.41E-08	3.41E-08	3.41E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	3.62E-06	3.62E-06	3.62E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	1.63E-03	1.63E-03	1.63E-03	8.83E-04	4.67E-07	4.63E-07	4.57E-07	4.40E-07	4.13E-07
sn121m	1.08E-02	1.08E-02	1.08E-02	1.08E-02	1.07E-02	1.06E-02	1.05E-02	1.01E-02	9.49E-03
sb121	1.03E+00	1.03E+00	1.03E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00
rh122	5.06E-14	5.06E-14	5.06E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	2.88E-10	2.88E-10	2.88E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	1.21E-09	1.21E-09	1.21E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	8.64E-08	8.64E-08	8.64E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	2.76E-08	2.76E-08	2.76E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	1.97E-08	1.97E-08	1.97E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
sb122	3.32E-04	3.32E-04	3.32E-04	2.57E-04	3.07E-14	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	3.59E-08	3.59E-08	3.59E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	4.65E-02	4.65E-02	4.65E-02	4.66E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02
rh123	5.43E-15	5.43E-15	5.43E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	1.08E-11	1.08E-11	1.08E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	3.96E-10	3.96E-10	3.96E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	9.52E-08	9.52E-08	9.52E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	8.20E-08	8.20E-08	8.20E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	1.79E-07	1.79E-07	1.79E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	1.57E-02	1.57E-02	1.57E-02	1.57E-02	9.71E-03	2.22E-03	3.12E-04	8.72E-07	4.84E-11
sn123m	4.31E-05	4.31E-05	4.31E-05	6.67E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	1.22E+00	1.22E+00	1.22E+00	1.22E+00	1.22E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00
te123	2.99E-04	2.99E-04	2.99E-04	2.99E-04	3.27E-04	3.60E-04	3.67E-04	3.68E-04	3.68E-04
te123m	6.92E-05	6.92E-05	6.92E-05	6.88E-05	4.11E-05	8.34E-06	1.01E-06	1.76E-09	4.49E-14
pd124	1.00E-11	1.00E-11	1.00E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	1.96E-10	1.96E-10	1.96E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	1.49E-08	1.49E-08	1.49E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	9.87E-08	9.87E-08	9.87E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00
sb124	5.48E-03	5.48E-03	5.48E-03	5.41E-03	1.94E-03	8.17E-05	1.22E-06	4.03E-12	2.97E-21
sb124m	2.46E-09	2.46E-09	2.46E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

te124	3.43E-02	3.43E-02	3.43E-02	3.43E-02	3.78E-02	3.97E-02	3.98E-02	3.98E-02	3.98E-02
pd125	7.83E-13	7.83E-13	7.83E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	1.19E-10	1.19E-10	1.19E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	1.60E-08	1.60E-08	1.60E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	4.16E-08	4.16E-08	4.16E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	1.67E-07	1.67E-07	1.67E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	8.76E-03	8.76E-03	8.76E-03	8.15E-03	1.36E-05	3.44E-14	1.35E-25	.00E+00	.00E+00
sn125m	1.85E-05	1.85E-05	1.85E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	1.85E+00	1.85E+00	1.85E+00	1.85E+00	1.74E+00	1.44E+00	1.12E+00	5.22E-01	1.47E-01
te125	8.02E-01	8.02E-01	8.02E-01	8.04E-01	9.14E-01	1.22E+00	1.55E+00	2.15E+00	2.53E+00
te125m	2.33E-02	2.33E-02	2.33E-02	2.33E-02	2.37E-02	2.04E-02	1.59E-02	7.41E-03	2.08E-03
pd126	2.73E-13	2.73E-13	2.73E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	2.20E-11	2.20E-11	2.20E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	6.17E-09	6.17E-09	6.17E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	6.12E-08	6.12E-08	6.12E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.89E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 14

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
sb126	7.63E-04	7.63E-04	7.63E-04	7.22E-04	5.21E-06	2.32E-07	2.32E-07	2.32E-07	2.32E-07
sb126m	1.02E-06	1.02E-06	1.02E-06	1.77E-09	1.77E-09	1.77E-09	1.77E-09	1.77E-09	1.76E-09
te126	7.76E-02	7.76E-02	7.76E-02	7.77E-02	7.84E-02	7.84E-02	7.84E-02	7.85E-02	7.87E-02
xe126	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09
ag127	1.54E-11	1.54E-11	1.54E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	5.35E-09	5.35E-09	5.35E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	4.37E-08	4.37E-08	4.37E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	1.43E-07	1.43E-07	1.43E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	5.72E-04	5.72E-04	5.72E-04	2.07E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	2.51E-05	2.51E-05	2.51E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	6.23E-02	6.23E-02	6.23E-02	5.25E-02	5.76E-09	1.72E-30	.00E+00	.00E+00	.00E+00
te127	6.23E-03	6.23E-03	6.23E-03	5.80E-03	6.04E-04	1.05E-04	1.03E-05	9.68E-09	8.76E-14
te127m	2.94E-01	2.94E-01	2.94E-01	2.94E-01	1.72E-01	3.00E-02	2.94E-03	2.77E-06	2.50E-11
i127	1.08E+01	1.08E+01	1.08E+01	1.08E+01	1.10E+01	1.11E+01	1.12E+01	1.12E+01	1.12E+01
xe127	1.45E-07	1.45E-07	1.45E-07	1.43E-07	2.62E-08	1.39E-10	1.32E-13	1.15E-22	9.04E-38
ag128	4.02E-12	4.02E-12	4.02E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	9.25E-09	9.25E-09	9.25E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	6.18E-08	6.18E-08	6.18E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	1.11E-03	1.11E-03	1.11E-03	5.11E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	1.07E-03	1.07E-03	1.07E-03	1.77E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	2.06E-04	2.06E-04	2.06E-04	1.09E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01
i128	1.96E-05	1.96E-05	1.96E-05	8.75E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01
cd129	1.32E-09	1.32E-09	1.32E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	4.70E-08	4.70E-08	4.70E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	3.60E-05	3.60E-05	3.60E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	1.09E-04	1.09E-04	1.09E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	1.14E-02	1.14E-02	1.14E-02	2.63E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	2.84E-03	2.84E-03	2.84E-03	4.39E-04	5.77E-05	1.97E-07	1.05E-10	1.61E-20	6.97E-37
te129m	3.99E-01	3.99E-01	3.99E-01	3.93E-01	6.26E-02	2.14E-04	1.14E-07	1.74E-17	7.56E-34
i129	4.95E+01	4.95E+01	4.95E+01	4.95E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01
xe129	1.18E-03	1.18E-03	1.18E-03	1.18E-03	1.20E-03	1.20E-03	1.21E-03	1.21E-03	1.22E-03
xe129m	2.07E-05	2.07E-05	2.07E-05	1.92E-05	1.86E-08	8.88E-18	3.81E-30	.00E+00	.00E+00
cd130	7.83E-10	7.83E-10	7.83E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	1.86E-08	1.86E-08	1.86E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	1.69E-04	1.69E-04	1.69E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	5.74E-04	5.74E-04	5.74E-04	6.09E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	3.82E-04	3.82E-04	3.82E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
i130	1.31E-03	1.31E-03	1.31E-03	3.43E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	8.33E-06	8.33E-06	8.33E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00
cd131	2.73E-11	2.73E-11	2.73E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	6.83E-09	6.83E-09	6.83E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	2.52E-05	2.52E-05	2.52E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	2.46E-03	2.46E-03	2.46E-03	3.54E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	2.88E-03	2.88E-03	2.88E-03	8.74E-05	3.22E-26	.00E+00	.00E+00	.00E+00	.00E+00
te131m	4.85E-02	4.85E-02	4.85E-02	2.80E-02	1.03E-23	.00E+00	.00E+00	.00E+00	.00E+00
i131	1.57E+00	1.57E+00	1.57E+00	1.46E+00	6.97E-04	3.45E-14	7.30E-28	.00E+00	.00E+00
xe131	1.36E+02	1.36E+02	1.36E+02	1.36E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe131m	2.55E-02	2.55E-02	2.55E-02	2.55E-02	4.00E-04	4.60E-11	2.64E-20	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 15

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
cd132	4.27E-12	4.27E-12	4.27E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	1.27E-09	1.27E-09	1.27E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	2.11E-05	2.11E-05	2.11E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	2.70E-04	2.70E-04	2.70E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	1.74E-04	1.74E-04	1.74E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	9.25E-01	9.25E-01	9.25E-01	7.48E-01	4.48E-09	.00E+00	.00E+00	.00E+00	.00E+00
i132	2.75E-02	2.75E-02	2.75E-02	2.25E-02	1.35E-10	.00E+00	.00E+00	.00E+00	.00E+00
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02
cs132	4.00E-05	4.00E-05	4.00E-05	3.59E-05	2.63E-09	4.29E-22	4.59E-39	.00E+00	.00E+00
ba132	4.82E-05	4.82E-05	4.82E-05	4.83E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05
in133	2.45E-11	2.45E-11	2.45E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	2.08E-07	2.08E-07	2.08E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	2.24E-04	2.24E-04	2.24E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	1.93E-03	1.93E-03	1.93E-03	5.39E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	7.03E-03	7.03E-03	7.03E-03	1.06E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	3.55E-01	3.55E-01	3.55E-01	1.64E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	3.25E-06	3.25E-06	3.25E-06	2.93E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	2.09E+00	2.09E+00	2.09E+00	2.02E+00	1.76E-05	2.76E-21	2.98E-42	.00E+00	.00E+00
xe133m	2.82E-02	2.82E-02	2.82E-02	2.54E-02	1.94E-14	.00E+00	.00E+00	.00E+00	.00E+00
cs133	3.38E+02	3.38E+02	3.38E+02	3.39E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02
ba133	2.52E-08	2.52E-08	2.52E-08	2.52E-08	2.48E-08	2.36E-08	2.21E-08	1.81E-08	1.30E-08
in134	2.98E-12	2.98E-12	2.98E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	2.57E-08	2.57E-08	2.57E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	2.33E-07	2.33E-07	2.33E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	2.08E-06	2.08E-06	2.08E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	1.06E-02	1.06E-02	1.06E-02	4.51E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	1.67E-02	1.67E-02	1.67E-02	3.90E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	1.02E-04	1.02E-04	1.02E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02
xe134m	2.79E-08	2.79E-08	2.79E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	2.08E+01	2.08E+01	2.08E+01	2.08E+01	1.92E+01	1.49E+01	1.06E+01	3.88E+00	7.23E-01
cs134m	6.61E-04	6.61E-04	6.61E-04	2.18E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	8.91E+00	8.91E+00	8.91E+00	8.93E+00	1.06E+01	1.49E+01	1.91E+01	2.59E+01	2.90E+01
sn135	8.95E-10	8.95E-10	8.95E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	2.17E-07	2.17E-07	2.17E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	4.34E-05	4.34E-05	4.34E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	1.08E-01	1.08E-01	1.08E-01	8.60E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	7.66E-02	7.66E-02	7.66E-02	4.43E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	9.14E-04	9.14E-04	9.14E-04	5.45E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02
cs135m	1.03E-04	1.03E-04	1.03E-04	6.85E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	3.81E-02	3.81E-02	3.81E-02	3.82E-02	3.82E-02	3.82E-02	3.83E-02	3.84E-02	3.87E-02

ba135m	3.22E-05	3.22E-05	3.22E-05	1.81E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	1.36E-10	1.36E-10	1.36E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	1.65E-08	1.65E-08	1.65E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	1.80E-05	1.80E-05	1.80E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	1.75E-04	1.75E-04	1.75E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	4.82E-05	4.82E-05	4.82E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02
cs136	1.34E-01	1.34E-01	1.34E-01	1.27E-01	1.17E-03	5.92E-10	2.61E-18	.00E+00	.00E+00
ba136	4.65E+00	4.65E+00	4.65E+00	4.66E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00
ba136m	4.08E-09	4.08E-09	4.08E-09	3.87E-09	3.56E-11	1.80E-17	7.94E-26	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 16

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
sb137	9.38E-09	9.38E-09	9.38E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	1.23E-06	1.23E-06	1.23E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	5.54E-05	5.54E-05	5.54E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	1.02E-03	1.02E-03	1.02E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	3.46E+02	3.46E+02	3.46E+02	3.46E+02	3.44E+02	3.38E+02	3.30E+02	3.08E+02	2.75E+02
ba137	1.43E+01	1.43E+01	1.43E+01	1.43E+01	1.63E+01	2.22E+01	2.99E+01	5.20E+01	8.56E+01
ba137m	5.31E-05	5.31E-05	5.31E-05	5.28E-05	5.25E-05	5.16E-05	5.04E-05	4.71E-05	4.19E-05
sb138	4.92E-11	4.92E-11	4.92E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	1.20E-07	1.20E-07	1.20E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	7.48E-06	7.48E-06	7.48E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	3.54E-03	3.54E-03	3.54E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	8.77E-03	8.77E-03	8.77E-03	5.21E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	3.36E-05	3.36E-05	3.36E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02
la138	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03
sb139	4.72E-12	4.72E-12	4.72E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	7.94E-09	7.94E-09	7.94E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	1.30E-06	1.30E-06	1.30E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	1.24E-04	1.24E-04	1.24E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	2.37E-03	2.37E-03	2.37E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	2.22E-02	2.22E-02	2.22E-02	1.89E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02
ce139	3.11E-06	3.11E-06	3.11E-06	3.10E-06	1.98E-06	4.95E-07	7.86E-08	3.15E-10	3.19E-14
pr139	2.13E-10	2.13E-10	2.13E-10	4.91E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	1.80E-09	1.80E-09	1.80E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	1.25E-07	1.25E-07	1.25E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	2.98E-05	2.98E-05	2.98E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	2.45E-04	2.45E-04	2.45E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	4.85E+00	4.85E+00	4.85E+00	4.59E+00	3.64E-02	1.16E-08	2.78E-17	.00E+00	.00E+00
la140	6.59E-01	6.59E-01	6.59E-01	6.46E-01	5.52E-03	1.76E-09	4.22E-18	.00E+00	.00E+00
ce140	3.61E+02	3.61E+02	3.61E+02	3.62E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02
pr140	9.58E-09	9.58E-09	9.58E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	6.64E-12	6.64E-12	6.64E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	9.03E-09	9.03E-09	9.03E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	1.47E-06	1.47E-06	1.47E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	7.39E-05	7.39E-05	7.39E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	4.42E-03	4.42E-03	4.42E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	5.74E-02	5.74E-02	5.74E-02	8.94E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	1.15E+01	1.15E+01	1.15E+01	1.13E+01	1.69E+00	4.77E-03	1.97E-06	1.40E-16	1.70E-33
pr141	3.10E+02	3.10E+02	3.10E+02	3.10E+02	3.20E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02
nd141	5.58E-10	5.58E-10	5.58E-10	6.97E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	5.69E-12	5.69E-12	5.69E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	1.06E-09	1.06E-09	1.06E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	4.13E-07	4.13E-07	4.13E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	2.93E-06	2.93E-06	2.93E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ba142	2.45E-03	2.45E-03	2.45E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	2.19E-02	2.19E-02	2.19E-02	4.30E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02
pr142	6.12E-03	6.12E-03	6.12E-03	2.56E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	3.23E+00	3.23E+00	3.23E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00
i143	2.57E-11	2.57E-11	2.57E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 17

0

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
xe143	4.92E-08	4.92E-08	4.92E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	1.57E-06	1.57E-06	1.57E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	4.82E-05	4.82E-05	4.82E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	3.25E-03	3.25E-03	3.25E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	4.58E-01	4.58E-01	4.58E-01	2.79E-01	9.13E-21	.00E+00	.00E+00	.00E+00	.00E+00
pr143	4.38E+00	4.38E+00	4.38E+00	4.34E+00	4.92E-02	3.84E-08	3.01E-16	.00E+00	.00E+00
nd143	2.64E+02	2.64E+02	2.64E+02	2.64E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02
i144	3.79E-13	3.79E-13	3.79E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	1.22E-08	1.22E-08	1.22E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	2.64E-07	2.64E-07	2.64E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	2.96E-05	2.96E-05	2.96E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	1.39E-04	1.39E-04	1.39E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	8.57E+01	8.57E+01	8.57E+01	8.55E+01	6.89E+01	3.53E+01	1.45E+01	1.01E+00	1.19E-02
pr144	3.62E-03	3.62E-03	3.62E-03	3.60E-03	2.90E-03	1.49E-03	6.11E-04	4.25E-05	5.00E-07
pr144m	2.11E-05	2.11E-05	2.11E-05	2.10E-05	1.69E-05	8.66E-06	3.56E-06	2.48E-07	2.92E-09
nd144	2.56E+02	2.56E+02	2.56E+02	2.56E+02	2.73E+02	3.07E+02	3.27E+02	3.41E+02	3.42E+02
i145	1.59E-14	1.59E-14	1.59E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	1.01E-09	1.01E-09	1.01E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	3.80E-08	3.80E-08	3.80E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	5.01E-06	5.01E-06	5.01E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	5.89E-05	5.89E-05	5.89E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	4.80E-04	4.80E-04	4.80E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	5.73E-02	5.73E-02	5.73E-02	3.59E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02
pm145	7.90E-05	7.90E-05	7.90E-05	7.92E-05	9.38E-05	1.24E-04	1.42E-04	1.43E-04	1.20E-04
sm145	9.31E-05	9.31E-05	9.31E-05	9.29E-05	7.75E-05	4.42E-05	2.10E-05	2.25E-06	5.44E-08
xe146	5.73E-11	5.73E-11	5.73E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	4.87E-09	4.87E-09	4.87E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	1.33E-06	1.33E-06	1.33E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	9.74E-06	9.74E-06	9.74E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	1.73E-03	1.73E-03	1.73E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	3.11E-03	3.11E-03	3.11E-03	7.92E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02
pm146	1.87E-03	1.87E-03	1.87E-03	1.87E-03	1.82E-03	1.65E-03	1.46E-03	1.00E-03	5.35E-04
sm146	1.95E-03	1.95E-03	1.95E-03	1.95E-03	1.97E-03	2.02E-03	2.09E-03	2.24E-03	2.40E-03
xe147	6.43E-14	6.43E-14	6.43E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	1.75E-10	1.75E-10	1.75E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	7.16E-08	7.16E-08	7.16E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	2.96E-06	2.96E-06	2.96E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	9.09E-05	9.09E-05	9.09E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	1.39E-03	1.39E-03	1.39E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	1.62E+00	1.62E+00	1.62E+00	1.52E+00	5.52E-03	1.57E-10	1.52E-20	.00E+00	.00E+00
pm147	5.78E+01	5.78E+01	5.78E+01	5.79E+01	5.57E+01	4.56E+01	3.50E+01	1.59E+01	4.23E+00
sm147	3.03E+01	3.03E+01	3.03E+01	3.03E+01	3.40E+01	4.40E+01	5.46E+01	7.38E+01	8.54E+01
cs148	1.21E-11	1.21E-11	1.21E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	1.24E-08	1.24E-08	1.24E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	2.25E-07	2.25E-07	2.25E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	6.40E-05	6.40E-05	6.40E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pr148	1.80E-04	1.80E-04	1.80E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
pm148	1.79E-01	1.79E-01	1.79E-01	1.57E-01	5.80E-04	5.70E-06	1.24E-08	1.28E-16	6.21E-30
pm148m	3.81E-01	3.81E-01	3.81E-01	3.75E-01	8.42E-02	8.29E-04	1.80E-06	1.86E-14	9.04E-28

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 18

0

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
sm148	2.84E+01	2.84E+01	2.84E+01	2.84E+01	2.88E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01
cs149	1.19E-13	1.19E-13	1.19E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	1.60E-09	1.60E-09	1.60E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	1.48E-07	1.48E-07	1.48E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	3.08E-06	3.08E-06	3.08E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	1.24E-04	1.24E-04	1.24E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	6.03E-03	6.03E-03	6.03E-03	3.99E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	2.49E-01	2.49E-01	2.49E-01	1.87E-01	1.44E-13	.00E+00	.00E+00	.00E+00	.00E+00
sm149	1.17E+00	1.17E+00	1.17E+00	1.23E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00
eu149	3.79E-11	3.79E-11	3.79E-11	3.76E-11	1.94E-11	2.49E-12	1.64E-13	4.68E-17	5.79E-23
cs150	7.79E-15	7.79E-15	7.79E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	2.02E-10	2.02E-10	2.02E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	6.33E-09	6.33E-09	6.33E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	1.07E-06	1.07E-06	1.07E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	3.53E-06	3.53E-06	3.53E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01
pm150	5.92E-05	5.92E-05	5.92E-05	1.19E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01
eu150	2.14E-07	2.14E-07	2.14E-07	2.14E-07	2.13E-07	2.10E-07	2.06E-07	1.95E-07	1.77E-07
ba151	7.05E-13	7.05E-13	7.05E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	1.28E-09	1.28E-09	1.28E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	7.82E-08	7.82E-08	7.82E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	5.63E-06	5.63E-06	5.63E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	3.73E-04	3.73E-04	3.73E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	5.17E-02	5.17E-02	5.17E-02	2.90E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	6.15E+00	6.15E+00	6.15E+00	6.17E+00	6.19E+00	6.15E+00	6.11E+00	5.97E+00	5.74E+00
eu151	1.55E-02	1.55E-02	1.55E-02	1.56E-02	2.72E-02	6.30E-02	1.10E-01	2.50E-01	4.75E-01
ba152	4.80E-15	4.80E-15	4.80E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	6.93E-12	6.93E-12	6.93E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	6.72E-08	6.72E-08	6.72E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	6.55E-07	6.55E-07	6.55E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	2.30E-04	2.30E-04	2.30E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	8.57E-05	8.57E-05	8.57E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	5.66E-06	5.66E-06	5.66E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01
eu152	2.65E-02	2.65E-02	2.65E-02	2.65E-02	2.62E-02	2.52E-02	2.39E-02	2.05E-02	1.58E-02
eu152m	2.51E-05	2.51E-05	2.51E-05	4.21E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	2.45E-02	2.45E-02	2.45E-02	2.45E-02	2.46E-02	2.49E-02	2.53E-02	2.62E-02	2.75E-02
la153	4.68E-12	4.68E-12	4.68E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	5.33E-09	5.33E-09	5.33E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	1.88E-07	1.88E-07	1.88E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	1.30E-05	1.30E-05	1.30E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	7.53E-05	7.53E-05	7.53E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	1.48E-01	1.48E-01	1.48E-01	1.03E-01	1.32E-15	.00E+00	.00E+00	.00E+00	.00E+00
eu153	2.68E+01	2.68E+01	2.68E+01	2.69E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01
gd153	7.13E-04	7.13E-04	7.13E-04	7.11E-04	5.51E-04	2.50E-04	8.77E-05	3.78E-06	2.00E-08
la154	5.64E-14	5.64E-14	5.64E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	7.52E-10	7.52E-10	7.52E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	8.48E-09	8.48E-09	8.48E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	3.79E-06	3.79E-06	3.79E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	1.24E-05	1.24E-05	1.24E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pm154m	4.02E-06	4.02E-06	4.02E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 19

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
sm154	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00
eu154	7.30E+00	7.30E+00	7.30E+00	7.30E+00	7.16E+00	6.73E+00	6.21E+00	4.88E+00	3.26E+00
gd154	6.33E-01	6.33E-01	6.33E-01	6.35E-01	7.77E-01	1.20E+00	1.72E+00	3.06E+00	4.67E+00
la155	2.88E-16	2.88E-16	2.88E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	1.71E-11	1.71E-11	1.71E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	1.98E-09	1.98E-09	1.98E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	5.96E-07	5.96E-07	5.96E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	3.63E-06	3.63E-06	3.63E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	1.23E-04	1.23E-04	1.23E-04	4.63E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	3.12E+00	3.12E+00	3.12E+00	3.12E+00	3.01E+00	2.69E+00	2.32E+00	1.49E+00	7.10E-01
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	5.34E-02	5.34E-02	5.34E-02	5.46E-02	1.65E-01	4.83E-01	8.54E-01	1.69E+00	2.47E+00
ce156	1.51E-12	1.51E-12	1.51E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	9.59E-11	9.59E-11	9.59E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	2.27E-07	2.27E-07	2.27E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	4.95E-07	4.95E-07	4.95E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	1.97E-03	1.97E-03	1.97E-03	3.36E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	3.13E-01	3.13E-01	3.13E-01	3.01E-01	5.19E-03	1.81E-08	1.04E-15	.00E+00	.00E+00
gd156	9.00E+00	9.00E+00	9.00E+00	9.01E+00	9.31E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00
ce157	2.60E-14	2.60E-14	2.60E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	1.46E-11	1.46E-11	1.46E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	7.14E-09	7.14E-09	7.14E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	1.02E-06	1.02E-06	1.02E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	1.74E-05	1.74E-05	1.74E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	2.31E-03	2.31E-03	2.31E-03	7.80E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	2.88E-02	2.88E-02	2.88E-02	3.03E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02
pr158	3.40E-13	3.40E-13	3.40E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	1.29E-09	1.29E-09	1.29E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	1.68E-08	1.68E-08	1.68E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	6.11E-06	6.11E-06	6.11E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	5.75E-05	5.75E-05	5.75E-05	2.32E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00
pr159	1.49E-14	1.49E-14	1.49E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	2.75E-11	2.75E-11	2.75E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	2.99E-09	2.99E-09	2.99E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	1.21E-06	1.21E-06	1.21E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	1.14E-05	1.14E-05	1.14E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	8.20E-04	8.20E-04	8.20E-04	3.40E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.02E-01	5.02E-01	5.02E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01
nd160	1.99E-12	1.99E-12	1.99E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	8.10E-11	8.10E-11	8.10E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	1.60E-07	1.60E-07	1.60E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	1.87E-07	1.87E-07	1.87E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01
tb160	8.91E-03	8.91E-03	8.91E-03	8.83E-03	3.76E-03	2.69E-04	8.10E-06	2.22E-10	5.53E-18
dy160	3.04E-02	3.04E-02	3.04E-02	3.05E-02	3.55E-02	3.90E-02	3.93E-02	3.93E-02	3.93E-02
nd161	3.04E-14	3.04E-14	3.04E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	9.99E-12	9.99E-12	9.99E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	2.24E-09	2.24E-09	2.24E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	6.86E-08	6.86E-08	6.86E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	5.03E-07	5.03E-07	5.03E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	1.44E-03	1.44E-03	1.44E-03	1.30E-03	1.71E-07	1.68E-19	1.96E-35	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 20

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
dy161	8.12E-02	8.12E-02	8.12E-02	8.13E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02
pm162	2.17E-13	2.17E-13	2.17E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	3.58E-10	3.58E-10	3.58E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	6.73E-08	6.73E-08	6.73E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	4.94E-07	4.94E-07	4.94E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	4.65E-07	4.65E-07	4.65E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	1.49E-07	1.49E-07	1.49E-07	8.55E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02
sm163	6.78E-12	6.78E-12	6.78E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	6.20E-10	6.20E-10	6.20E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	3.23E-08	3.23E-08	3.23E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	4.70E-07	4.70E-07	4.70E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02
sm164	4.86E-13	4.86E-13	4.86E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	1.47E-11	1.47E-11	1.47E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	1.35E-07	1.35E-07	1.35E-07	1.38E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	2.63E-08	2.63E-08	2.63E-08	2.21E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
sm165	7.20E-15	7.20E-15	7.20E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	1.41E-12	1.41E-12	1.41E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	9.57E-10	9.57E-10	9.57E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	6.35E-09	6.35E-09	6.35E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	3.09E-06	3.09E-06	3.09E-06	2.50E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	2.11E-08	2.11E-08	2.11E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	9.49E-03	9.49E-03	9.49E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03
dy166	2.61E-06	2.61E-06	2.61E-06	2.13E-06	2.82E-14	.00E+00	.00E+00	.00E+00	.00E+00
ho166	6.02E-06	6.02E-06	6.02E-06	3.59E-06	1.38E-14	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	2.38E-05	2.38E-05	2.38E-05	2.38E-05	2.38E-05	2.38E-05	2.38E-05	2.37E-05	2.37E-05
er166	1.54E-03	1.54E-03	1.54E-03	1.54E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03
er167	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05
er167m	6.33E-16	6.33E-16	6.33E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	1.23E-08	1.23E-08	1.23E-08	1.14E-08	1.61E-11	2.47E-20	4.97E-32	.00E+00	.00E+00
tm169	7.29E-07	7.29E-07	7.29E-07	7.30E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07
tm170	9.71E-10	9.71E-10	9.71E-10	9.66E-10	5.98E-10	1.36E-10	1.89E-11	5.15E-14	2.73E-18
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	3.65E-09	3.65E-09	3.65E-09	3.66E-09	4.02E-09	4.49E-09	4.60E-09	4.62E-09	4.62E-09
er171	5.73E-10	5.73E-10	5.73E-10	6.27E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	6.82E-07	6.82E-07	6.82E-07	6.82E-07	6.24E-07	4.76E-07	3.31E-07	1.12E-07	1.85E-08
yb171	3.69E-07	3.69E-07	3.69E-07	3.70E-07	4.27E-07	5.76E-07	7.20E-07	9.39E-07	1.03E-06
er172	2.37E-09	2.37E-09	2.37E-09	1.69E-09	1.54E-22	.00E+00	.00E+00	.00E+00	.00E+00
tm172	3.20E-09	3.20E-09	3.20E-09	3.06E-09	8.23E-19	.00E+00	.00E+00	.00E+00	.00E+00
yb172	6.67E-07	6.67E-07	6.67E-07	6.68E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07
total	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03

1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 21

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
he 4	2.09E-01	2.70E-01	3.35E-01	4.74E-01	7.72E-01	1.51E+00	2.18E+00	2.79E+00	3.36E+00	3.87E+00	4.81E+00
tl206	1.29E-22	3.23E-22	6.46E-22	1.79E-21	6.59E-21	3.78E-20	1.01E-19	2.00E-19	3.34E-19	5.04E-19	9.52E-19
tl207	2.29E-14	3.24E-14	4.16E-14	5.93E-14	9.27E-14	1.71E-13	2.47E-13	3.22E-13	3.98E-13	4.73E-13	6.23E-13
tl208	1.13E-11	1.22E-11	1.22E-11	1.12E-11	9.22E-12	5.61E-12	3.41E-12	2.08E-12	1.26E-12	7.70E-13	2.85E-13

tl209	8.79E-19	1.21E-18	1.58E-18	2.46E-18	4.80E-18	1.44E-17	3.01E-17	5.28E-17	8.35E-17	1.23E-16	2.31E-16
pb206	2.81E-11	9.66E-11	2.48E-10	9.95E-10	6.06E-09	7.08E-08	2.91E-07	7.77E-07	1.65E-06	3.02E-06	7.74E-06
pb207	1.01E-08	2.07E-08	3.48E-08	7.35E-08	1.90E-07	6.97E-07	1.50E-06	2.59E-06	3.97E-06	5.64E-06	9.84E-06
pb208	2.38E-05	4.36E-05	6.40E-05	1.03E-04	1.71E-04	2.91E-04	3.65E-04	4.09E-04	4.37E-04	4.53E-04	4.69E-04
pb209	3.71E-15	5.09E-15	6.66E-15	1.04E-14	2.03E-14	6.08E-14	1.27E-13	2.23E-13	3.53E-13	5.19E-13	9.74E-13
pb210	2.79E-10	6.96E-10	1.39E-09	3.85E-09	1.42E-08	8.16E-08	2.19E-07	4.31E-07	7.20E-07	1.09E-06	2.05E-06
pb211	1.77E-13	2.51E-13	3.22E-13	4.58E-13	7.17E-13	1.32E-12	1.91E-12	2.49E-12	3.08E-12	3.66E-12	4.82E-12
pb212	6.68E-09	7.26E-09	7.21E-09	6.65E-09	5.46E-09	3.32E-09	2.02E-09	1.23E-09	7.50E-10	4.56E-10	1.69E-10
pb214	5.12E-15	9.83E-15	1.61E-14	3.34E-14	8.76E-14	3.41E-13	7.70E-13	1.38E-12	2.17E-12	3.14E-12	5.62E-12
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	6.31E-11	1.04E-10	1.59E-10	3.16E-10	8.78E-10	4.48E-09	1.30E-08	2.91E-08	5.57E-08	9.61E-08	2.33E-07
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	1.72E-13	4.29E-13	8.58E-13	2.37E-12	8.75E-12	5.02E-11	1.35E-10	2.65E-10	4.43E-10	6.69E-10	1.26E-09
bi211	1.05E-14	1.49E-14	1.91E-14	2.72E-14	4.25E-14	7.84E-14	1.13E-13	1.48E-13	1.82E-13	2.17E-13	2.86E-13
bi212	6.34E-10	6.89E-10	6.84E-10	6.30E-10	5.18E-10	3.15E-10	1.92E-10	1.17E-10	7.11E-11	4.33E-11	1.61E-11
bi213	8.84E-16	1.21E-15	1.59E-15	2.47E-15	4.83E-15	1.45E-14	3.02E-14	5.31E-14	8.40E-14	1.24E-13	2.32E-13
bi214	3.81E-15	7.30E-15	1.20E-14	2.48E-14	6.50E-14	2.53E-13	5.72E-13	1.02E-12	1.61E-12	2.33E-12	4.17E-12
po210	4.74E-12	1.18E-11	2.37E-11	6.55E-11	2.42E-10	1.39E-09	3.71E-09	7.32E-09	1.22E-08	1.85E-08	3.49E-08
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	1.16E-19	1.64E-19	2.11E-19	3.00E-19	4.70E-19	8.66E-19	1.25E-18	1.63E-18	2.01E-18	2.40E-18	3.16E-18
po212	3.33E-20	3.62E-20	3.59E-20	3.31E-20	2.72E-20	1.66E-20	1.01E-20	6.14E-21	3.74E-21	2.27E-21	8.44E-22
po213	1.33E-24	1.82E-24	2.38E-24	3.72E-24	7.26E-24	2.17E-23	4.55E-23	7.99E-23	1.26E-22	1.86E-22	3.49E-22
po214	5.24E-22	1.00E-21	1.65E-21	3.42E-21	8.95E-21	3.48E-20	7.86E-20	1.41E-19	2.21E-19	3.21E-19	5.74E-19
po215	1.48E-19	2.10E-19	2.69E-19	3.84E-19	6.00E-19	1.11E-18	1.60E-18	2.09E-18	2.58E-18	3.06E-18	4.04E-18
po216	2.58E-14	2.80E-14	2.78E-14	2.56E-14	2.11E-14	1.28E-14	7.80E-15	4.75E-15	2.89E-15	1.76E-15	6.53E-16
po218	6.04E-16	1.16E-15	1.90E-15	3.94E-15	1.03E-14	4.02E-14	9.07E-14	1.62E-13	2.56E-13	3.70E-13	6.62E-13
at217	1.06E-20	1.46E-20	1.91E-20	2.98E-20	5.81E-20	1.74E-19	3.64E-19	6.39E-19	1.01E-18	1.49E-18	2.79E-18
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	3.36E-16	4.75E-16	6.10E-16	8.70E-16	1.36E-15	2.51E-15	3.62E-15	4.73E-15	5.84E-15	6.94E-15	9.14E-15
rn220	1.01E-11	1.09E-11	1.09E-11	1.00E-11	8.23E-12	5.01E-12	3.05E-12	1.85E-12	1.13E-12	6.88E-13	2.55E-13
rn222	1.09E-12	2.10E-12	3.43E-12	7.13E-12	1.87E-11	7.27E-11	1.64E-10	2.94E-10	4.62E-10	6.69E-10	1.20E-09
fr221	9.86E-17	1.35E-16	1.77E-16	2.76E-16	5.39E-16	1.61E-15	3.37E-15	5.93E-15	9.36E-15	1.38E-14	2.59E-14
fr223	1.56E-15	2.20E-15	2.83E-15	4.03E-15	6.31E-15	1.16E-14	1.68E-14	2.19E-14	2.71E-14	3.22E-14	4.24E-14
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	8.54E-11	1.21E-10	1.55E-10	2.21E-10	3.46E-10	6.37E-10	9.20E-10	1.20E-09	1.48E-09	1.76E-09	2.32E-09
ra224	5.83E-08	6.33E-08	6.29E-08	5.80E-08	4.77E-08	2.90E-08	1.76E-08	1.07E-08	6.54E-09	3.98E-09	1.48E-09
ra225	4.37E-13	5.99E-13	7.84E-13	1.22E-12	2.39E-12	7.15E-12	1.49E-11	2.62E-11	4.15E-11	6.10E-11	1.15E-10
ra226	1.70E-07	3.26E-07	5.34E-07	1.11E-06	2.91E-06	1.13E-05	2.55E-05	4.57E-05	7.19E-05	1.04E-04	1.86E-04
ra228	9.44E-14	1.62E-13	2.37E-13	3.96E-13	7.24E-13	1.55E-12	2.38E-12	3.22E-12	4.05E-12	4.89E-12	6.71E-12
ac225	2.95E-13	4.05E-13	5.29E-13	8.25E-13	1.61E-12	4.83E-12	1.01E-11	1.77E-11	2.80E-11	4.12E-11	7.74E-11
ac227	6.04E-08	8.54E-08	1.10E-07	1.56E-07	2.44E-07	4.51E-07	6.51E-07	8.50E-07	1.05E-06	1.25E-06	1.64E-06
ac228	1.15E-17	1.98E-17	2.89E-17	4.83E-17	8.84E-17	1.90E-16	2.91E-16	3.93E-16	4.95E-16	5.97E-16	8.19E-16
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	1.40E-10	1.98E-10	2.55E-10	3.63E-10	5.68E-10	1.05E-09	1.51E-09	1.97E-09	2.44E-09	2.90E-09	3.82E-09
th228	1.13E-05	1.23E-05	1.22E-05	1.13E-05	9.26E-06	5.63E-06	3.43E-06	2.09E-06	1.27E-06	7.74E-07	2.87E-07
th229	8.64E-08	1.19E-07	1.55E-07	2.42E-07	4.72E-07	1.41E-06	2.96E-06	5.19E-06	8.21E-06	1.21E-05	2.27E-05
th230	2.89E-03	4.04E-03	5.21E-03	7.59E-03	1.25E-02	2.55E-02	3.93E-02	5.35E-02	6.81E-02	8.29E-02	1.13E-01
th231	2.56E-08	2.56E-08	2.56E-08	2.56E-08	2.56E-08	2.56E-08	2.57E-08	2.57E-08	2.57E-08	2.57E-08	2.57E-08

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 22

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
th232	4.95E-04	7.01E-04	9.07E-04	1.32E-03	2.14E-03	4.21E-03	6.27E-03	8.35E-03	1.04E-02	1.25E-02	1.67E-02
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06
pa231	3.37E-04	3.67E-04	3.98E-04	4.59E-04	5.80E-04	8.85E-04	1.19E-03	1.49E-03	1.80E-03	2.10E-03	2.71E-03
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	4.41E-06	4.46E-06	4.53E-06	4.68E-06	5.05E-06	6.05E-06	7.00E-06	7.88E-06	8.70E-06	9.45E-06	1.08E-05
pa234m	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10

pa234	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	4.60E-04	4.62E-04	4.47E-04	4.07E-04	3.34E-04	2.03E-04	1.24E-04	7.54E-05	4.59E-05	2.79E-05	1.04E-05
u233	1.40E-03	1.60E-03	1.81E-03	2.25E-03	3.16E-03	5.76E-03	8.82E-03	1.23E-02	1.62E-02	2.04E-02	2.99E-02
u234	8.28E+01	8.39E+01	8.49E+01	8.68E+01	9.03E+01	9.69E+01	1.01E+02	1.04E+02	1.06E+02	1.08E+02	1.09E+02
u235	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.30E+03	6.31E+03	6.31E+03	6.31E+03	6.32E+03	6.32E+03	6.33E+03
u236	1.41E+03	1.41E+03	1.41E+03	1.42E+03	1.42E+03	1.42E+03	1.42E+03	1.43E+03	1.43E+03	1.43E+03	1.44E+03
u237	7.57E-06	5.94E-06	4.67E-06	2.88E-06	1.10E-06	9.79E-08	8.74E-09	7.83E-10	7.20E-11	8.48E-12	2.28E-12
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	6.17E-22	9.15E-22	1.21E-21	1.81E-21	3.00E-21	5.99E-21	8.97E-21	1.20E-20	1.49E-20	1.79E-20	2.39E-20
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	5.36E-09	2.20E-10	9.00E-12	1.51E-14	4.24E-20	5.62E-34	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.70E-04	3.70E-04	3.70E-04	3.70E-04	3.70E-04	3.70E-04
np237	1.30E+02	1.31E+02	1.33E+02	1.38E+02	1.49E+02	1.78E+02	2.06E+02	2.32E+02	2.56E+02	2.78E+02	3.17E+02
np238	7.48E-08	7.30E-08	7.12E-08	6.78E-08	6.14E-08	4.81E-08	3.76E-08	2.94E-08	2.30E-08	1.80E-08	1.10E-08
np239	8.67E-06	8.67E-06	8.66E-06	8.65E-06	8.64E-06	8.60E-06	8.56E-06	8.52E-06	8.48E-06	8.44E-06	8.36E-06
np240m	5.27E-24	7.81E-24	1.04E-23	1.54E-23	2.56E-23	5.11E-23	7.65E-23	1.02E-22	1.27E-22	1.53E-22	2.04E-22
np240	5.42E-26	8.04E-26	1.07E-25	1.59E-25	2.64E-25	5.26E-25	7.87E-25	1.05E-24	1.31E-24	1.57E-24	2.10E-24
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	3.60E-05	1.09E-05	3.30E-06	3.03E-07	3.37E-09	8.32E-10	8.31E-10	8.31E-10	8.31E-10	8.30E-10	8.30E-10
pu237	5.08E-30	3.32E-42	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	2.81E+01	2.71E+01	2.60E+01	2.41E+01	2.06E+01	1.39E+01	9.40E+00	6.36E+00	4.31E+00	2.92E+00	1.35E+00
pu239	2.63E+03	2.63E+03	2.63E+03	2.63E+03	2.63E+03	2.62E+03	2.62E+03	2.62E+03	2.61E+03	2.61E+03	2.60E+03
pu240	6.72E+02	6.72E+02	6.71E+02	6.71E+02	6.70E+02	6.66E+02	6.63E+02	6.59E+02	6.56E+02	6.52E+02	6.46E+02
pu241	2.50E+02	1.96E+02	1.54E+02	9.50E+01	3.62E+01	3.23E+00	2.88E-01	2.58E-02	2.37E-03	2.80E-04	7.54E-05
pu242	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01	7.08E+01
pu243	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15
pu244	3.12E-11	4.63E-11	6.15E-11	9.17E-11	1.52E-10	3.03E-10	4.54E-10	6.05E-10	7.56E-10	9.07E-10	1.21E-09
pu245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	1.25E-21	1.25E-21	1.25E-21	1.25E-21	1.25E-21	1.24E-21	1.24E-21	1.24E-21	1.24E-21	1.23E-21	1.23E-21
am239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	1.71E+02	2.23E+02	2.63E+02	3.17E+02	3.65E+02	3.68E+02	3.42E+02	3.16E+02	2.92E+02	2.69E+02	2.30E+02
am242m	4.11E-01	4.01E-01	3.91E-01	3.73E-01	3.38E-01	2.64E-01	2.07E-01	1.62E-01	1.26E-01	9.88E-02	6.05E-02
am242	5.30E-06	5.18E-06	5.05E-06	4.81E-06	4.36E-06	3.41E-06	2.67E-06	2.08E-06	1.63E-06	1.28E-06	7.80E-07
am243	1.01E+01	1.01E+01	1.01E+01	1.01E+01	1.00E+01	9.99E+00	9.94E+00	9.90E+00	9.85E+00	9.80E+00	9.71E+00
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	2.19E-20	4.18E-22	8.01E-24	2.94E-27	3.94E-34	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	3.12E-24	3.12E-24	3.12E-24	3.12E-24	3.12E-24	3.11E-24	3.10E-24	3.10E-24	3.09E-24	3.08E-24	3.07E-24
cm241	3.38E-43	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 23

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
cm242	1.07E-03	1.05E-03	1.02E-03	9.71E-04	8.80E-04	6.88E-04	5.38E-04	4.21E-04	3.29E-04	2.57E-04	1.57E-04
cm243	4.73E-02	4.18E-02	3.71E-02	2.91E-02	1.79E-02	5.29E-03	1.57E-03	4.65E-04	1.38E-04	4.08E-05	3.59E-06
cm244	1.03E+00	8.54E-01	7.05E-01	4.81E-01	2.24E-01	3.29E-02	4.85E-03	7.15E-04	1.05E-04	1.55E-05	3.37E-07
cm245	4.58E-02	4.58E-02	4.58E-02	4.57E-02	4.56E-02	4.55E-02	4.53E-02	4.51E-02	4.49E-02	4.47E-02	4.44E-02
cm246	2.99E-03	2.99E-03	2.99E-03	2.98E-03	2.98E-03	2.95E-03	2.93E-03	2.91E-03	2.89E-03	2.87E-03	2.83E-03
cm247	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05
cm248	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06
cm249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	2.98E-15	2.98E-15	2.98E-15	2.97E-15	2.97E-15	2.97E-15	2.96E-15	2.95E-15	2.95E-15	2.94E-15	2.93E-15
cm251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

bk249	5.74E-12	1.10E-13	2.10E-15	7.71E-19	1.03E-25	6.98E-43	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	1.84E-22	1.06E-23	8.80E-24	8.78E-24	8.77E-24	8.76E-24	8.74E-24	8.72E-24	8.71E-24	8.69E-24	8.65E-24
bk251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	1.82E-08	1.80E-08	1.78E-08	1.75E-08	1.68E-08	1.52E-08	1.38E-08	1.25E-08	1.13E-08	1.02E-08	8.41E-09
cf250	1.02E-09	7.85E-10	6.02E-10	3.55E-10	1.23E-10	8.68E-12	6.14E-13	4.34E-14	3.06E-15	2.17E-16	1.39E-18
cf251	8.46E-10	8.43E-10	8.40E-10	8.33E-10	8.21E-10	7.90E-10	7.60E-10	7.31E-10	7.03E-10	6.77E-10	6.26E-10
cf252	1.83E-11	4.95E-12	1.33E-12	9.71E-14	5.14E-16	1.05E-21	2.13E-27	4.34E-33	8.84E-39	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	5.83E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	3.66E-19	3.71E-21	3.76E-23	3.86E-27	4.07E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 24

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
h 3	7.74E-03	5.84E-03	4.41E-03	2.51E-03	8.17E-04	4.91E-05	2.95E-06	1.78E-07	1.07E-08	6.43E-10	2.32E-12
li 6	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05
li 7	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06
be 9	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06
be 10	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05
c 14	7.46E-06	7.45E-06	7.45E-06	7.44E-06	7.42E-06	7.38E-06	7.33E-06	7.29E-06	7.25E-06	7.20E-06	7.12E-06
ni 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07
cu 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08
zn 68	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09
zn 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08
zn 70	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06
ga 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09
zn 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05
ge 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03
co 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03
ge 73m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

zn 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03
co 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02
ni 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 25

0

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
zn 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01
as 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04
ni 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01
se 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01
cu 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.40E+00	1.39E+00	1.39E+00	1.39E+00
se 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	3.46E-04	4.93E-04	6.40E-04	9.35E-04	1.52E-03	2.99E-03	4.46E-03	5.93E-03	7.40E-03	8.86E-03	1.18E-02
br 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05
cu 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ga 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00
kr 81	7.13E-07	7.13E-07	7.12E-07	7.12E-07	7.12E-07	7.12E-07	7.12E-07	7.12E-07	7.12E-07	7.12E-07	7.12E-07
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 26

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
ge 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01
zn 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01
kr 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01
ga 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	3.49E+00	2.52E+00	1.83E+00	9.56E-01	2.62E-01	1.03E-02	4.08E-04	1.61E-05	6.34E-07	2.50E-08	3.89E-11
kr 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	3.11E+01	3.21E+01	3.28E+01	3.37E+01	3.44E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01
ge 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01
rb 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02
ge 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01
sr 87	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.07E-04	3.07E-04	3.07E-04	3.07E-04	3.07E-04
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 27

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	1.18E-21	1.57E-32	2.49E-43	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
y 89m	4.04E-31	5.74E-42	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	1.27E+02	1.12E+02	9.93E+01	7.77E+01	4.75E+01	1.39E+01	4.04E+00	1.18E+00	3.45E-01	1.01E-01	8.57E-03
y 90	3.30E-02	2.92E-02	2.58E-02	2.02E-02	1.23E-02	3.60E-03	1.05E-03	3.07E-04	8.95E-05	2.61E-05	2.23E-06
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	4.32E+01	5.80E+01	7.10E+01	9.27E+01	1.23E+02	1.56E+02	1.66E+02	1.69E+02	1.70E+02	1.70E+02	1.70E+02
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	1.64E-18	6.59E-28	2.64E-37	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02
nb 91	2.64E-10	2.63E-10	2.61E-10	2.59E-10	2.54E-10	2.41E-10	2.29E-10	2.18E-10	2.07E-10	1.97E-10	1.77E-10
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02
nb 92	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
nb 93	1.65E-04	3.09E-04	4.86E-04	9.15E-04	1.96E-03	4.96E-03	8.09E-03	1.12E-02	1.44E-02	1.75E-02	2.38E-02

nb 93m	5.83E-04	7.53E-04	8.91E-04	1.09E-03	1.31E-03	1.45E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03
br 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 28

0

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02
nb 94	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.24E-04	1.24E-04	1.24E-04	1.24E-04	1.24E-04	1.23E-04
nb 94m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	1.04E-16	2.68E-25	6.91E-34	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	1.25E-16	3.22E-25	8.31E-34	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	6.88E-20	1.78E-28	4.44E-37	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02
br 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02
nb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02
kr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02
tc 98	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03
rb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	2.31E+02	2.31E+02	2.31E+02	2.31E+02	2.31E+02	2.30E+02	2.30E+02	2.30E+02	2.30E+02	2.30E+02	2.30E+02
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	1.67E-02	2.05E-02	2.43E-02	3.19E-02	4.70E-02	8.48E-02	1.23E-01	1.61E-01	1.98E-01	2.36E-01	3.12E-01
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

y100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 29

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02
tc100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01
rb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02
sr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02
rh102	1.99E-05	6.02E-06	1.82E-06	1.67E-07	1.40E-09	9.04E-15	5.83E-20	3.76E-25	2.43E-30	1.56E-35	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	9.22E-28	9.09E-42	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02
rh103m	9.13E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
rh104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01
y105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02

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0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	3.71E-02	1.23E-03	4.08E-05	4.48E-08	5.42E-14	8.72E-29	1.49E-43	.00E+00	.00E+00	.00E+00	.00E+00
rh106	3.44E-08	1.14E-09	3.78E-11	4.16E-14	5.03E-20	8.09E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	6.19E-05	8.92E-05	1.16E-04	1.71E-04	2.80E-04	5.53E-04	8.26E-04	1.10E-03	1.37E-03	1.65E-03	2.19E-03
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01
ag108	1.23E-13	1.20E-13	1.17E-13	1.10E-13	9.90E-14	7.53E-14	5.73E-14	4.36E-14	3.32E-14	2.53E-14	1.47E-14
ag108m	3.99E-05	3.88E-05	3.78E-05	3.58E-05	3.21E-05	2.44E-05	1.86E-05	1.41E-05	1.08E-05	8.19E-06	4.75E-06
cd108	4.36E-05	4.37E-05	4.38E-05	4.39E-05	4.43E-05	4.49E-05	4.54E-05	4.58E-05	4.61E-05	4.63E-05	4.66E-05
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01
ag109m	1.37E-16	8.87E-18	5.74E-19	2.41E-21	4.25E-26	5.54E-38	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	1.38E-10	8.95E-12	5.80E-13	2.43E-15	4.29E-20	5.60E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00
ag110	6.37E-14	4.01E-16	2.52E-18	9.99E-23	1.56E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	4.11E-06	2.59E-08	1.63E-10	6.44E-15	1.01E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 31

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr

cd110	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00
nb111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	4.57E-02	4.57E-02	4.57E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02
cd113m	1.72E-02	1.34E-02	1.05E-02	6.42E-03	2.40E-03	2.06E-04	1.76E-05	1.51E-06	1.29E-07	1.10E-08	8.09E-11
in113	1.29E-02	1.66E-02	1.95E-02	2.36E-02	2.76E-02	2.98E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
in113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00
in114	9.42E-33	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	5.86E-28	4.61E-39	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05
mo115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	5.93E-28	2.78E-40	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01
in115m	2.75E-34	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 32

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
sn115	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02
tc116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

rh116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01
tc117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01
ru119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00
sn119m	4.06E-07	5.40E-09	7.18E-11	1.27E-14	3.98E-22	6.89E-41	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 33

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	4.13E-07	3.88E-07	3.64E-07	3.21E-07	2.50E-07	1.33E-07	7.08E-08	3.77E-08	2.01E-08	1.07E-08	3.03E-09

sn121m	9.49E-03	8.91E-03	8.37E-03	7.38E-03	5.73E-03	3.05E-03	1.63E-03	8.66E-04	4.61E-04	2.46E-04	6.96E-05
sb121	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02
rh123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	4.84E-11	2.68E-15	1.48E-19	4.55E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00
te123	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04
te123m	4.49E-14	1.14E-18	2.91E-23	1.89E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00
sb124	2.97E-21	2.19E-30	1.61E-39	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02
pd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	1.47E-01	4.12E-02	1.16E-02	9.13E-04	5.69E-06	1.74E-11	5.33E-17	1.63E-22	5.00E-28	1.53E-33	.00E+00
te125	2.53E+00	2.64E+00	2.67E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00
te125m	2.08E-03	5.85E-04	1.64E-04	1.30E-05	8.08E-08	2.47E-13	7.57E-19	2.32E-24	7.10E-30	2.15E-35	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	4.89E+00	4.89E+00	4.89E+00	4.89E+00	4.88E+00	4.88E+00	4.88E+00	4.88E+00	4.88E+00	4.88E+00	4.87E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 34

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
sb126	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07	2.32E-07
sb126m	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09	1.76E-09
te126	7.87E-02	7.89E-02	7.91E-02	7.94E-02	8.01E-02	8.18E-02	8.35E-02	8.51E-02	8.68E-02	8.85E-02	9.19E-02
xe126	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09
ag127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	8.76E-14	7.92E-19	7.16E-24	5.85E-34	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	2.50E-11	2.26E-16	2.04E-21	1.67E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01
xe127	9.04E-38	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01
i128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01
cd129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	6.97E-37	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	7.56E-34	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01
xe129	1.22E-03	1.24E-03	1.25E-03	1.27E-03	1.31E-03	1.42E-03	1.53E-03	1.64E-03	1.75E-03	1.86E-03	2.08E-03
xe129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 35

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02
ba133	1.30E-08	9.38E-09	6.75E-09	3.49E-09	9.35E-10	3.47E-11	1.29E-12	4.77E-14	1.77E-15	6.56E-17	9.02E-20
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02
xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	7.23E-01	1.35E-01	2.50E-02	8.68E-04	1.04E-06	5.23E-14	2.62E-21	1.31E-28	6.57E-36	3.76E-43	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	2.90E+01	2.96E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	3.87E-02	3.90E-02	3.92E-02	3.98E-02	4.09E-02	4.35E-02	4.62E-02	4.89E-02	5.15E-02	5.42E-02	5.95E-02
ba135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02
cs136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 36

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
sb137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	2.75E+02	2.45E+02	2.18E+02	1.73E+02	1.09E+02	3.43E+01	1.08E+01	3.40E+00	1.07E+00	3.37E-01	3.35E-02
ba137	8.56E+01	1.16E+02	1.42E+02	1.87E+02	2.51E+02	3.26E+02	3.49E+02	3.57E+02	3.59E+02	3.60E+02	3.60E+02
ba137m	4.19E-05	3.73E-05	3.33E-05	2.64E-05	1.66E-05	5.24E-06	1.65E-06	5.20E-07	1.64E-07	5.15E-08	5.11E-09
sb138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02
la138	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03

sb139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02
ce139	3.19E-14	3.22E-18	3.26E-22	3.33E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02
pr140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	1.70E-33	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02
nd141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02
pr142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00
i143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 37

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02
[illegible]	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	1.19E-02	1.40E-04	1.64E-06	2.27E-10	4.36E-18	2.21E-37	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	5.00E-07	5.88E-09	6.92E-11	9.58E-15	1.84E-22	2.02E-43	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	2.92E-09	3.43E-11	4.04E-13	5.59E-17	1.07E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02
i145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cs145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02
pm145	1.20E-04	9.85E-05	8.10E-05	5.47E-05	2.50E-05	3.53E-06	4.98E-07	7.03E-08	9.92E-09	1.40E-09	2.79E-11
sm145	5.44E-08	1.31E-09	3.17E-11	1.85E-14	6.32E-21	4.29E-37	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02
pm146	5.35E-04	2.86E-04	1.53E-04	4.36E-05	3.55E-06	6.73E-09	1.28E-11	2.42E-14	4.59E-17	8.69E-20	3.12E-25
sm146	2.40E-03	2.49E-03	2.53E-03	2.57E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03
xe147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	4.23E+00	1.13E+00	3.01E-01	2.15E-02	1.09E-04	1.99E-10	3.64E-16	6.66E-22	1.22E-27	2.23E-33	.00E+00
sm147	8.54E+01	8.85E+01	8.94E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01
cs148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
pm148	6.21E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	9.04E-28	4.40E-41	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 38

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
sm148	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01
cs149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00
eu149	5.79E-23	7.15E-29	8.83E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01
pm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01
eu150	1.77E-07	1.60E-07	1.45E-07	1.20E-07	8.14E-08	3.09E-08	1.17E-08	4.46E-09	1.69E-09	6.44E-10	9.29E-11
ba151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ce151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	5.74E+00	5.52E+00	5.32E+00	4.92E+00	4.22E+00	2.87E+00	1.95E+00	1.33E+00	9.04E-01	6.15E-01	2.85E-01
eu151	4.75E-01	6.92E-01	9.01E-01	1.29E+00	2.00E+00	3.35E+00	4.26E+00	4.89E+00	5.31E+00	5.60E+00	5.93E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01
eu152	1.58E-02	1.22E-02	9.38E-03	5.57E-03	1.97E-03	1.46E-04	1.09E-05	8.06E-07	5.98E-08	4.44E-09	2.45E-11
eu152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	2.75E-02	2.85E-02	2.93E-02	3.04E-02	3.14E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02
la153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01
gd153	2.00E-08	1.06E-10	5.61E-13	1.57E-17	1.24E-26	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 39

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
sm154	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00
eu154	3.26E+00	2.18E+00	1.45E+00	6.49E-01	1.29E-01	2.29E-03	4.04E-05	7.15E-07	1.27E-08	2.24E-10	7.01E-14
gd154	4.67E+00	5.76E+00	6.48E+00	7.28E+00	7.80E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	7.10E-01	3.39E-01	1.62E-01	3.67E-02	1.90E-03	1.15E-06	7.02E-10	4.27E-13	2.59E-16	1.58E-19	5.83E-26
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	2.47E+00	2.84E+00	3.02E+00	3.14E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01
tb160	5.53E-18	1.38E-25	3.43E-33	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 40

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
dy161	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	2.37E-05	2.36E-05	2.35E-05	2.34E-05	2.31E-05	2.25E-05	2.18E-05	2.12E-05	2.06E-05	2.00E-05	1.89E-05
er166	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.55E-03
er167	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07
tm170	2.73E-18	1.45E-22	7.68E-27	2.16E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	1.85E-08	3.04E-09	5.00E-10	1.35E-11	9.89E-15	1.43E-22	2.08E-30	3.01E-38	.00E+00	.00E+00	.00E+00
yb171	1.03E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07
total	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 41

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
he 4	4.81E+00	5.62E+00	8.60E+00	1.20E+01	1.64E+01	2.01E+01	2.33E+01	2.62E+01	2.89E+01	3.13E+01	3.35E+01
tl206	9.52E-19	1.54E-18	6.83E-18	2.46E-17	7.84E-17	1.44E-16	2.13E-16	2.82E-16	3.51E-16	4.19E-16	4.85E-16
tl207	6.23E-13	7.73E-13	1.57E-12	3.06E-12	5.99E-12	8.86E-12	1.17E-11	1.44E-11	1.71E-11	1.97E-11	2.23E-11
tl208	2.85E-13	1.06E-13	1.26E-15	5.33E-16	5.39E-16	5.46E-16	5.53E-16	5.61E-16	5.70E-16	5.79E-16	5.88E-16
tl209	2.31E-16	3.81E-16	1.90E-15	9.43E-15	4.29E-14	9.80E-14	1.71E-13	2.59E-13	3.59E-13	4.70E-13	5.88E-13
pb206	7.74E-06	1.59E-05	1.44E-04	1.12E-03	7.68E-03	2.22E-02	4.57E-02	7.83E-02	1.20E-01	1.71E-01	2.31E-01
pb207	9.84E-06	1.52E-05	6.00E-05	2.36E-04	9.26E-04	2.06E-03	3.63E-03	5.63E-03	8.04E-03	1.09E-02	1.41E-02
pb208	4.69E-04	4.75E-04	4.79E-04	4.79E-04	4.79E-04	4.80E-04	4.80E-04	4.81E-04	4.81E-04	4.81E-04	4.82E-04
pb209	9.74E-13	1.61E-12	8.02E-12	3.98E-11	1.81E-10	4.14E-10	7.23E-10	1.09E-09	1.52E-09	1.98E-09	2.48E-09
pb210	2.05E-06	3.32E-06	1.47E-05	5.30E-05	1.69E-04	3.10E-04	4.58E-04	6.08E-04	7.57E-04	9.03E-04	1.05E-03
pb211	4.82E-12	5.98E-12	1.21E-11	2.36E-11	4.63E-11	6.85E-11	9.03E-11	1.12E-10	1.32E-10	1.53E-10	1.72E-10
pb212	1.69E-10	6.29E-11	7.49E-13	3.16E-13	3.19E-13	3.24E-13	3.28E-13	3.33E-13	3.38E-13	3.43E-13	3.49E-13
pb214	5.62E-12	8.80E-12	3.43E-11	1.23E-10	3.94E-10	7.21E-10	1.07E-09	1.42E-09	1.76E-09	2.10E-09	2.44E-09
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	2.33E-07	4.71E-07	4.52E-06	4.51E-05	4.27E-04	1.51E-03	3.61E-03	6.99E-03	1.19E-02	1.84E-02	2.67E-02
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	1.26E-09	2.04E-09	9.06E-09	3.26E-08	1.04E-07	1.91E-07	2.82E-07	3.74E-07	4.66E-07	5.56E-07	6.44E-07
bi211	2.86E-13	3.55E-13	7.20E-13	1.40E-12	2.74E-12	4.06E-12	5.35E-12	6.61E-12	7.84E-12	9.05E-12	1.02E-11
bi212	1.61E-11	5.97E-12	7.10E-14	3.00E-14	3.03E-14	3.07E-14	3.11E-14	3.16E-14	3.20E-14	3.25E-14	3.31E-14
bi213	2.32E-13	3.83E-13	1.91E-12	9.48E-12	4.31E-11	9.85E-11	1.72E-10	2.61E-10	3.61E-10	4.72E-10	5.91E-10
bi214	4.17E-12	6.53E-12	2.55E-11	9.16E-11	2.92E-10	5.35E-10	7.93E-10	1.05E-09	1.31E-09	1.56E-09	1.81E-09
po210	3.49E-08	5.65E-08	2.50E-07	9.01E-07	2.87E-06	5.26E-06	7.79E-06	1.03E-05	1.29E-05	1.54E-05	1.78E-05
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	3.16E-18	3.92E-18	7.95E-18	1.55E-17	3.03E-17	4.49E-17	5.91E-17	7.31E-17	8.67E-17	1.00E-16	1.13E-16
po212	8.44E-22	3.14E-22	3.73E-24	1.57E-24	1.59E-24	1.61E-24	1.63E-24	1.66E-24	1.68E-24	1.71E-24	1.74E-24
po213	3.49E-22	5.76E-22	2.87E-21	1.43E-20	6.48E-20	1.48E-19	2.59E-19	3.92E-19	5.43E-19	7.10E-19	8.89E-19
po214	5.74E-19	8.99E-19	3.50E-18	1.26E-17	4.02E-17	7.37E-17	1.09E-16	1.45E-16	1.80E-16	2.15E-16	2.49E-16
po215	4.04E-18	5.01E-18	1.02E-17	1.98E-17	3.88E-17	5.74E-17	7.56E-17	9.34E-17	1.11E-16	1.28E-16	1.44E-16
po216	6.53E-16	2.43E-16	2.89E-18	1.22E-18	1.23E-18	1.25E-18	1.27E-18	1.28E-18	1.30E-18	1.32E-18	1.34E-18
po218	6.62E-13	1.04E-12	4.04E-12	1.45E-11	4.64E-11	8.50E-11	1.26E-10	1.67E-10	2.08E-10	2.48E-10	2.87E-10
at217	2.79E-18	4.61E-18	2.30E-17	1.14E-16	5.19E-16	1.19E-15	2.07E-15	3.14E-15	4.35E-15	5.68E-15	7.11E-15
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	9.14E-15	1.13E-14	2.30E-14	4.49E-14	8.79E-14	1.30E-13	1.71E-13	2.12E-13	2.51E-13	2.90E-13	3.27E-13
rn220	2.55E-13	9.48E-14	1.13E-15	4.76E-16	4.81E-16	4.87E-16	4.94E-16	5.01E-16	5.09E-16	5.17E-16	5.25E-16

rn222	1.20E-09	1.88E-09	7.31E-09	2.63E-08	8.39E-08	1.54E-07	2.28E-07	3.02E-07	3.76E-07	4.49E-07	5.20E-07
fr221	2.59E-14	4.27E-14	2.13E-13	1.06E-12	4.81E-12	1.10E-11	1.92E-11	2.91E-11	4.03E-11	5.27E-11	6.59E-11
fr223	4.24E-14	5.27E-14	1.07E-13	2.08E-13	4.08E-13	6.03E-13	7.95E-13	9.82E-13	1.17E-12	1.34E-12	1.52E-12
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	2.32E-09	2.88E-09	5.85E-09	1.14E-08	2.23E-08	3.30E-08	4.35E-08	5.38E-08	6.38E-08	7.36E-08	8.31E-08
ra224	1.48E-09	5.49E-10	6.53E-12	2.76E-12	2.79E-12	2.82E-12	2.86E-12	2.90E-12	2.95E-12	2.99E-12	3.04E-12
ra225	1.15E-10	1.89E-10	9.43E-10	4.68E-09	2.13E-08	4.87E-08	8.50E-08	1.29E-07	1.79E-07	2.33E-07	2.92E-07
ra226	1.86E-04	2.92E-04	1.14E-03	4.09E-03	1.31E-02	2.39E-02	3.54E-02	4.70E-02	5.85E-02	6.98E-02	8.08E-02
ra228	6.71E-12	8.40E-12	1.70E-11	3.46E-11	7.19E-11	1.11E-10	1.52E-10	1.95E-10	2.39E-10	2.83E-10	3.29E-10
ac225	7.74E-11	1.28E-10	6.37E-10	3.16E-09	1.44E-08	3.29E-08	5.74E-08	8.70E-08	1.21E-07	1.58E-07	1.97E-07
ac227	1.64E-06	2.04E-06	4.14E-06	8.07E-06	1.58E-05	2.34E-05	3.08E-05	3.81E-05	4.52E-05	5.21E-05	5.89E-05
ac228	8.19E-16	1.03E-15	2.07E-15	4.23E-15	8.77E-15	1.36E-14	1.86E-14	2.38E-14	2.91E-14	3.46E-14	4.01E-14
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	3.82E-09	4.74E-09	9.61E-09	1.87E-08	3.67E-08	5.43E-08	7.15E-08	8.83E-08	1.05E-07	1.21E-07	1.37E-07
th228	2.87E-07	1.07E-07	1.27E-09	5.35E-10	5.41E-10	5.48E-10	5.56E-10	5.64E-10	5.73E-10	5.82E-10	5.91E-10
th229	2.27E-05	3.75E-05	1.87E-04	9.27E-04	4.21E-03	9.63E-03	1.68E-02	2.55E-02	3.53E-02	4.62E-02	5.78E-02
th230	1.13E-01	1.43E-01	2.95E-01	5.98E-01	1.19E+00	1.77E+00	2.34E+00	2.89E+00	3.44E+00	3.96E+00	4.48E+00
th231	2.57E-08	2.58E-08	2.59E-08	2.62E-08	2.68E-08	2.73E-08	2.78E-08	2.82E-08	2.87E-08	2.91E-08	2.95E-08

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 42

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
th232	1.67E-02	2.09E-02	4.22E-02	8.61E-02	1.79E-01	2.77E-01	3.79E-01	4.85E-01	5.94E-01	7.04E-01	8.17E-01
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06
pa231	2.71E-03	3.32E-03	6.34E-03	1.23E-02	2.42E-02	3.58E-02	4.71E-02	5.83E-02	6.91E-02	7.97E-02	9.01E-02
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	1.08E-05	1.19E-05	1.55E-05	1.78E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05
pa234m	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10
pa234	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	1.04E-05	3.85E-06	4.62E-08	1.95E-08	1.92E-08	1.90E-08	1.88E-08	1.85E-08	1.83E-08	1.81E-08	1.79E-08
u233	2.99E-02	4.06E-02	1.06E-01	2.64E-01	6.03E-01	9.41E-01	1.28E+00	1.61E+00	1.94E+00	2.26E+00	2.59E+00
u234	1.09E+02	1.10E+02	1.11E+02	1.10E+02	1.10E+02	1.09E+02	1.09E+02	1.08E+02	1.08E+02	1.07E+02	1.07E+02
u235	6.33E+03	6.34E+03	6.37E+03	6.44E+03	6.58E+03	6.71E+03	6.83E+03	6.95E+03	7.06E+03	7.16E+03	7.26E+03
u236	1.44E+03	1.45E+03	1.48E+03	1.54E+03	1.64E+03	1.72E+03	1.79E+03	1.84E+03	1.89E+03	1.92E+03	1.95E+03
u237	2.28E-12	2.22E-12	2.13E-12	1.96E-12	1.67E-12	1.41E-12	1.20E-12	1.02E-12	8.67E-13	7.37E-13	6.26E-13
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	2.39E-20	2.98E-20	5.96E-20	1.19E-19	2.38E-19	3.56E-19	4.73E-19	5.91E-19	7.07E-19	8.24E-19	9.39E-19
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	3.70E-04	3.70E-04	3.68E-04	3.66E-04	3.62E-04	3.58E-04	3.53E-04	3.49E-04	3.45E-04	3.41E-04	3.37E-04
np237	3.17E+02	3.51E+02	4.57E+02	5.25E+02	5.42E+02	5.42E+02	5.42E+02	5.41E+02	5.41E+02	5.41E+02	5.40E+02
np238	1.10E-08	6.73E-09	5.76E-10	4.22E-12	2.27E-16	1.22E-20	6.54E-25	3.51E-29	1.89E-33	8.80E-38	.00E+00
np239	8.36E-06	8.28E-06	7.90E-06	7.19E-06	5.96E-06	4.94E-06	4.09E-06	3.39E-06	2.81E-06	2.33E-06	1.93E-06
np240m	2.04E-22	2.55E-22	5.09E-22	1.02E-21	2.03E-21	3.04E-21	4.04E-21	5.04E-21	6.04E-21	7.03E-21	8.02E-21
np240	2.10E-24	2.62E-24	5.24E-24	1.05E-23	2.09E-23	3.12E-23	4.16E-23	5.19E-23	6.21E-23	7.23E-23	8.25E-23
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	8.30E-10	8.29E-10	8.27E-10	8.22E-10	8.12E-10	8.02E-10	7.93E-10	7.83E-10	7.74E-10	7.65E-10	7.55E-10
pu237	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	1.35E+00	6.24E-01	1.53E-02	1.74E-05	1.67E-09	9.00E-14	4.83E-18	2.60E-22	1.39E-26	7.49E-31	4.02E-35
pu239	2.60E+03	2.59E+03	2.56E+03	2.49E+03	2.35E+03	2.22E+03	2.10E+03	1.98E+03	1.87E+03	1.77E+03	1.67E+03
pu240	6.46E+02	6.39E+02	6.06E+02	5.45E+02	4.41E+02	3.57E+02	2.89E+02	2.34E+02	1.90E+02	1.53E+02	1.24E+02
pu241	7.54E-05	7.32E-05	7.03E-05	6.48E-05	5.50E-05	4.67E-05	3.97E-05	3.37E-05	2.86E-05	2.43E-05	2.07E-05
pu242	7.08E+01	7.08E+01	7.07E+01	7.06E+01	7.03E+01	7.01E+01	6.98E+01	6.96E+01	6.93E+01	6.91E+01	6.88E+01

pu243	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15
pu244	1.21E-09	1.51E-09	3.02E-09	6.03E-09	1.20E-08	1.80E-08	2.40E-08	2.99E-08	3.58E-08	4.17E-08	4.76E-08
pu245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	1.23E-21	1.22E-21	1.20E-21	1.15E-21	1.07E-21	9.84E-22	9.09E-22	8.39E-22	7.75E-22	7.15E-22	6.61E-22
am239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	2.30E+02	1.96E+02	8.77E+01	1.77E+01	7.18E-01	3.05E-02	2.43E-03	1.11E-03	9.03E-04	7.66E-04	6.50E-04
am242m	6.05E-02	3.70E-02	3.17E-03	2.32E-05	1.25E-09	6.69E-14	3.60E-18	1.93E-22	1.04E-26	5.57E-31	2.99E-35
am242	7.80E-07	4.77E-07	4.08E-08	2.99E-10	1.61E-14	8.64E-19	4.64E-23	2.49E-27	1.34E-31	7.19E-36	.00E+00
am243	9.71E+00	9.62E+00	9.18E+00	8.36E+00	6.92E+00	5.74E+00	4.75E+00	3.94E+00	3.26E+00	2.70E+00	2.24E+00
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	3.07E-24	3.06E-24	3.00E-24	2.88E-24	2.66E-24	2.46E-24	2.27E-24	2.10E-24	1.94E-24	1.79E-24	1.65E-24
cm241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 43

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
cm242	1.57E-04	9.63E-05	8.25E-06	6.04E-08	3.26E-12	1.75E-16	9.40E-21	5.05E-25	2.71E-29	1.46E-33	7.82E-38
cm243	3.59E-06	3.15E-07	1.65E-12	4.51E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm244	3.37E-07	7.32E-09	3.54E-17	8.24E-34	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	4.44E-02	4.40E-02	4.22E-02	3.89E-02	3.31E-02	2.81E-02	2.39E-02	2.03E-02	1.72E-02	1.46E-02	1.24E-02
cm246	2.83E-03	2.79E-03	2.59E-03	2.24E-03	1.67E-03	1.24E-03	9.28E-04	6.93E-04	5.17E-04	3.85E-04	2.88E-04
cm247	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05
cm248	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.63E-06	1.62E-06	1.62E-06	1.61E-06	1.60E-06	1.60E-06	1.59E-06
cm249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	2.93E-15	2.92E-15	2.86E-15	2.75E-15	2.54E-15	2.34E-15	2.17E-15	2.00E-15	1.85E-15	1.70E-15	1.57E-15
cm251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	8.65E-24	8.62E-24	8.45E-24	8.12E-24	7.50E-24	6.92E-24	6.39E-24	5.90E-24	5.45E-24	5.03E-24	4.65E-24
bk251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	8.41E-09	6.90E-09	2.57E-09	3.55E-10	6.79E-12	1.30E-13	2.49E-15	4.77E-17	9.12E-19	1.75E-20	3.34E-22
cf250	1.39E-18	3.13E-19	3.01E-19	2.89E-19	2.67E-19	2.47E-19	2.28E-19	2.10E-19	1.94E-19	1.79E-19	1.66E-19
cf251	6.26E-10	5.80E-10	3.94E-10	1.82E-10	3.89E-11	8.31E-12	1.77E-12	3.79E-13	8.09E-14	1.73E-14	3.69E-15
cf252	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 44

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
h 3	2.32E-12	8.41E-15	5.20E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05
li 7	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06
be 9	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06
be 10	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.68E-05	3.68E-05	3.68E-05	3.67E-05	3.67E-05	3.67E-05
c 14	7.12E-06	7.03E-06	6.62E-06	5.86E-06	4.60E-06	3.61E-06	2.84E-06	2.23E-06	1.75E-06	1.37E-06	1.08E-06
ni 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07

cu 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08
zn 68	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09
zn 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08
zn 70	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06
ga 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09
zn 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05
ge 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03
co 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03
ge 73m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03
co 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02
ni 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 45

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
zn 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01
as 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04
ni 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

se 77	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01
se 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01
cu 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.39E+00	1.39E+00	1.37E+00	1.34E+00	1.29E+00	1.24E+00	1.18E+00	1.14E+00	1.09E+00	1.04E+00	1.00E+00
se 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	1.18E-02	1.47E-02	2.92E-02	5.77E-02	1.13E-01	1.66E-01	2.17E-01	2.66E-01	3.13E-01	3.57E-01	4.00E-01
br 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05
cu 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00
kr 81	7.12E-07	7.11E-07	7.10E-07	7.08E-07	7.03E-07	6.99E-07	6.94E-07	6.90E-07	6.85E-07	6.81E-07	6.76E-07
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 46

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
ge 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01
zn 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01

kr 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01
ga 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	3.89E-11	6.05E-14	5.49E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01
ge 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01
rb 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02
ge 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01
sr 87	3.07E-04	3.07E-04	3.07E-04	3.08E-04	3.11E-04	3.13E-04	3.15E-04	3.17E-04	3.19E-04	3.21E-04	3.23E-04
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 47

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
y 89m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sr 90	8.57E-03	7.30E-04	3.28E-09	6.62E-20	2.70E-41	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	2.23E-06	1.90E-07	8.52E-13	1.72E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02
nb 91	1.77E-10	1.60E-10	9.63E-11	3.47E-11	4.52E-12	5.89E-13	7.67E-14	9.98E-15	1.30E-15	1.69E-16	2.20E-17
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02
nb 92	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
nb 93	2.38E-02	3.01E-02	6.15E-02	1.24E-01	2.50E-01	3.76E-01	5.01E-01	6.26E-01	7.51E-01	8.76E-01	1.00E+00
nb 93m	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.45E-03	1.45E-03
br 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 48

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02
nb 94	1.23E-04	1.23E-04	1.21E-04	1.17E-04	1.09E-04	1.02E-04	9.50E-05	8.88E-05	8.29E-05	7.74E-05	7.23E-05
nb 94m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02
br 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02
nb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

mo 96	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02
kr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02
tc 98	1.37E-03	1.37E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03
rb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	2.30E+02	2.30E+02	2.30E+02	2.29E+02	2.28E+02	2.26E+02	2.25E+02	2.23E+02	2.22E+02	2.20E+02	2.19E+02
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	3.12E-01	3.87E-01	7.65E-01	1.52E+00	3.02E+00	4.51E+00	5.99E+00	7.46E+00	8.92E+00	1.04E+01	1.18E+01
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 49

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02
tc100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01
rb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02
sr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02
rh102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02
rh103m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
rh104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01
y105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 50

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.11E+01	5.11E+01	5.11E+01	5.11E+01	5.11E+01
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	2.19E-03	2.74E-03	5.47E-03	1.09E-02	2.18E-02	3.28E-02	4.37E-02	5.46E-02	6.55E-02	7.64E-02	8.73E-02
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pd108	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01
ag108	1.47E-14	8.49E-15	5.54E-16	2.36E-18	4.29E-23	7.79E-28	1.42E-32	2.57E-37	.00E+00	.00E+00	.00E+00
ag108m	4.75E-06	2.75E-06	1.80E-07	7.65E-10	1.39E-14	2.52E-19	4.59E-24	8.33E-29	1.51E-33	2.75E-38	4.54E-43
cd108	4.66E-05	4.67E-05	4.69E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01
ag109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00
ag110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 51

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
cd110	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00
nb111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02
cd113m	8.09E-11	5.93E-13	1.25E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02

in113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00
in114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05
mo115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01
in115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 52

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
sn115	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02
tc116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01
tc117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01

ru119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00
sn119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 53

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	3.03E-09	8.60E-10	1.58E-12	5.32E-18	6.03E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121m	6.96E-05	1.98E-05	3.62E-08	1.22E-13	1.38E-24	1.57E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb121	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02
rh123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00
te123	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04
te123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00
sb124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

te124	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02
pd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00
te125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	4.87E+00	4.87E+00	4.85E+00	4.82E+00	4.75E+00	4.69E+00	4.62E+00	4.56E+00	4.50E+00	4.43E+00	4.37E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 54

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
sb126	2.32E-07	2.31E-07	2.31E-07	2.29E-07	2.26E-07	2.23E-07	2.20E-07	2.17E-07	2.14E-07	2.11E-07	2.08E-07
sb126m	1.76E-09	1.76E-09	1.75E-09	1.74E-09	1.72E-09	1.69E-09	1.67E-09	1.65E-09	1.62E-09	1.60E-09	1.58E-09
te126	9.19E-02	9.53E-02	1.12E-01	1.46E-01	2.12E-01	2.77E-01	3.42E-01	4.06E-01	4.68E-01	5.30E-01	5.91E-01
xe126	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09
ag127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01
xe127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01
i128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01
cd129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01
xe129	2.08E-03	2.30E-03	3.41E-03	5.61E-03	1.00E-02	1.44E-02	1.88E-02	2.33E-02	2.77E-02	3.21E-02	3.65E-02
xe129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 55

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02
ba133	9.02E-20	1.24E-22	6.10E-37	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02
xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.76E+02	1.76E+02
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	5.95E-02	6.49E-02	9.16E-02	1.45E-01	2.52E-01	3.58E-01	4.65E-01	5.71E-01	6.78E-01	7.84E-01	8.91E-01

ba135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02
cs136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 56

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
sb137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	3.35E-02	3.32E-03	3.19E-08	2.94E-18	2.50E-38	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02
ba137m	5.11E-09	5.07E-10	4.87E-15	4.49E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02
la138	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03
sb139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02
ce139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02
pr140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02
nd141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ba142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02
pr142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00
i143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 57

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02
i144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02
i145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02
pm145	2.79E-11	5.55E-13	1.74E-21	1.71E-38	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02
pm146	3.12E-25	1.12E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03
xe147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01
cs148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pr148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
pm148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 58

0

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
sm148	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01
cs149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00
eu149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01
pm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01
eu150	9.29E-11	1.34E-11	8.38E-16	3.28E-24	5.02E-41	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	2.85E-01	1.32E-01	2.80E-03	1.26E-06	2.58E-13	5.26E-20	1.07E-26	2.19E-33	4.46E-40	.00E+00	.00E+00
eu151	5.93E+00	6.08E+00	6.21E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01
eu152	2.45E-11	1.35E-13	6.85E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02
la153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01
gd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pm154m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 59

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
sm154	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00
eu154	7.01E-14	2.19E-17	6.59E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	5.83E-26	2.15E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01
tb160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	16000.0 yr
dy161	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	1.89E-05	1.78E-05	1.34E-05	7.49E-06	2.36E-06	7.43E-07	2.34E-07	7.38E-08	2.32E-08	7.32E-09	2.30E-09
er166	1.55E-03	1.56E-03	1.56E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03
er167	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07
tm170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07
total	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03

1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 61

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
he 4	3.35E+01	3.54E+01	3.73E+01	3.90E+01	4.05E+01	4.20E+01	4.33E+01	4.46E+01	4.58E+01	4.79E+01	4.89E+01
tl206	4.85E-16	5.50E-16	6.14E-16	6.76E-16	7.36E-16	7.95E-16	8.53E-16	9.09E-16	9.64E-16	1.07E-15	1.12E-15
tl207	2.23E-11	2.48E-11	2.72E-11	2.96E-11	3.19E-11	3.42E-11	3.64E-11	3.85E-11	4.06E-11	4.46E-11	4.65E-11
tl208	5.88E-16	5.97E-16	6.07E-16	6.17E-16	6.27E-16	6.37E-16	6.48E-16	6.58E-16	6.69E-16	6.90E-16	7.01E-16

tl209	5.88E-13	7.13E-13	8.43E-13	9.77E-13	1.12E-12	1.26E-12	1.40E-12	1.54E-12	1.69E-12	1.98E-12	2.12E-12
pb206	2.31E-01	2.99E-01	3.76E-01	4.61E-01	5.55E-01	6.56E-01	7.65E-01	8.81E-01	1.01E+00	1.27E+00	1.42E+00
pb207	1.41E-02	1.77E-02	2.17E-02	2.60E-02	3.07E-02	3.58E-02	4.12E-02	4.70E-02	5.30E-02	6.61E-02	7.31E-02
pb208	4.82E-04	4.82E-04	4.83E-04	4.83E-04	4.83E-04	4.84E-04	4.84E-04	4.85E-04	4.85E-04	4.86E-04	4.86E-04
pb209	2.48E-09	3.01E-09	3.56E-09	4.13E-09	4.71E-09	5.30E-09	5.90E-09	6.51E-09	7.12E-09	8.34E-09	8.96E-09
pb210	1.05E-03	1.19E-03	1.32E-03	1.46E-03	1.59E-03	1.71E-03	1.84E-03	1.96E-03	2.08E-03	2.31E-03	2.42E-03
pb211	1.72E-10	1.92E-10	2.11E-10	2.29E-10	2.47E-10	2.65E-10	2.82E-10	2.98E-10	3.14E-10	3.45E-10	3.60E-10
pb212	3.49E-13	3.54E-13	3.60E-13	3.66E-13	3.72E-13	3.78E-13	3.84E-13	3.90E-13	3.96E-13	4.09E-13	4.16E-13
pb214	2.44E-09	2.76E-09	3.08E-09	3.39E-09	3.70E-09	3.99E-09	4.28E-09	4.57E-09	4.84E-09	5.38E-09	5.63E-09
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	2.67E-02	3.70E-02	4.93E-02	6.36E-02	8.01E-02	9.88E-02	1.20E-01	1.43E-01	1.68E-01	2.26E-01	2.58E-01
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	6.44E-07	7.30E-07	8.14E-07	8.97E-07	9.77E-07	1.06E-06	1.13E-06	1.21E-06	1.28E-06	1.42E-06	1.49E-06
bi211	1.02E-11	1.14E-11	1.25E-11	1.36E-11	1.46E-11	1.57E-11	1.67E-11	1.77E-11	1.86E-11	2.04E-11	2.13E-11
bi212	3.31E-14	3.36E-14	3.41E-14	3.47E-14	3.53E-14	3.58E-14	3.64E-14	3.70E-14	3.76E-14	3.88E-14	3.94E-14
bi213	5.91E-10	7.17E-10	8.48E-10	9.83E-10	1.12E-09	1.26E-09	1.41E-09	1.55E-09	1.69E-09	1.99E-09	2.13E-09
bi214	1.81E-09	2.05E-09	2.29E-09	2.52E-09	2.75E-09	2.97E-09	3.18E-09	3.39E-09	3.60E-09	3.99E-09	4.18E-09
po210	1.78E-05	2.02E-05	2.25E-05	2.48E-05	2.70E-05	2.91E-05	3.13E-05	3.33E-05	3.53E-05	3.92E-05	4.11E-05
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	1.13E-16	1.26E-16	1.38E-16	1.50E-16	1.62E-16	1.73E-16	1.84E-16	1.95E-16	2.06E-16	2.26E-16	2.36E-16
po212	1.74E-24	1.77E-24	1.79E-24	1.82E-24	1.85E-24	1.88E-24	1.91E-24	1.94E-24	1.98E-24	2.04E-24	2.07E-24
po213	8.89E-19	1.08E-18	1.27E-18	1.48E-18	1.69E-18	1.90E-18	2.11E-18	2.33E-18	2.55E-18	2.99E-18	3.20E-18
po214	2.49E-16	2.82E-16	3.15E-16	3.47E-16	3.78E-16	4.08E-16	4.38E-16	4.67E-16	4.95E-16	5.49E-16	5.75E-16
po215	1.44E-16	1.61E-16	1.76E-16	1.92E-16	2.07E-16	2.22E-16	2.36E-16	2.50E-16	2.63E-16	2.89E-16	3.01E-16
po216	1.34E-18	1.37E-18	1.39E-18	1.41E-18	1.43E-18	1.46E-18	1.48E-18	1.51E-18	1.53E-18	1.58E-18	1.60E-18
po218	2.87E-10	3.26E-10	3.63E-10	4.00E-10	4.36E-10	4.71E-10	5.05E-10	5.38E-10	5.71E-10	6.34E-10	6.64E-10
at217	7.11E-15	8.62E-15	1.02E-14	1.18E-14	1.35E-14	1.52E-14	1.69E-14	1.86E-14	2.04E-14	2.39E-14	2.57E-14
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	3.27E-13	3.64E-13	4.00E-13	4.35E-13	4.69E-13	5.02E-13	5.34E-13	5.66E-13	5.96E-13	6.55E-13	6.83E-13
rn220	5.25E-16	5.34E-16	5.42E-16	5.51E-16	5.60E-16	5.69E-16	5.78E-16	5.88E-16	5.97E-16	6.16E-16	6.26E-16
rn222	5.20E-07	5.89E-07	6.57E-07	7.23E-07	7.88E-07	8.51E-07	9.13E-07	9.74E-07	1.03E-06	1.15E-06	1.20E-06
fr221	6.59E-11	8.00E-11	9.46E-11	1.10E-10	1.25E-10	1.41E-10	1.57E-10	1.73E-10	1.89E-10	2.22E-10	2.38E-10
fr223	1.52E-12	1.69E-12	1.86E-12	2.02E-12	2.18E-12	2.33E-12	2.48E-12	2.63E-12	2.77E-12	3.04E-12	3.17E-12
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	8.31E-08	9.25E-08	1.02E-07	1.10E-07	1.19E-07	1.28E-07	1.36E-07	1.44E-07	1.51E-07	1.66E-07	1.73E-07
ra224	3.04E-12	3.09E-12	3.14E-12	3.19E-12	3.24E-12	3.30E-12	3.35E-12	3.40E-12	3.46E-12	3.57E-12	3.63E-12
ra225	2.92E-07	3.54E-07	4.19E-07	4.86E-07	5.54E-07	6.24E-07	6.94E-07	7.65E-07	8.37E-07	9.81E-07	1.05E-06
ra226	8.08E-02	9.16E-02	1.02E-01	1.13E-01	1.23E-01	1.32E-01	1.42E-01	1.51E-01	1.61E-01	1.78E-01	1.87E-01
ra228	3.29E-10	3.75E-10	4.21E-10	4.68E-10	5.15E-10	5.62E-10	6.10E-10	6.58E-10	7.06E-10	8.02E-10	8.50E-10
ac225	1.97E-07	2.39E-07	2.83E-07	3.28E-07	3.74E-07	4.21E-07	4.69E-07	5.17E-07	5.65E-07	6.63E-07	7.11E-07
ac227	5.89E-05	6.55E-05	7.19E-05	7.82E-05	8.43E-05	9.03E-05	9.61E-05	1.02E-04	1.07E-04	1.18E-04	1.23E-04
ac228	4.01E-14	4.57E-14	5.14E-14	5.71E-14	6.29E-14	6.86E-14	7.45E-14	8.03E-14	8.61E-14	9.79E-14	1.04E-13
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	1.37E-07	1.52E-07	1.67E-07	1.81E-07	1.96E-07	2.10E-07	2.23E-07	2.36E-07	2.49E-07	2.73E-07	2.85E-07
th228	5.91E-10	6.00E-10	6.10E-10	6.20E-10	6.30E-10	6.40E-10	6.51E-10	6.61E-10	6.72E-10	6.94E-10	7.05E-10
th229	5.78E-02	7.01E-02	8.29E-02	9.61E-02	1.10E-01	1.23E-01	1.37E-01	1.51E-01	1.66E-01	1.94E-01	2.08E-01
th230	4.48E+00	4.99E+00	5.48E+00	5.96E+00	6.43E+00	6.89E+00	7.34E+00	7.78E+00	8.20E+00	9.03E+00	9.42E+00
th231	2.95E-08	2.99E-08	3.02E-08	3.06E-08	3.09E-08	3.12E-08	3.14E-08	3.17E-08	3.20E-08	3.24E-08	3.26E-08

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 62

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
th232	8.17E-01	9.32E-01	1.05E+00	1.16E+00	1.28E+00	1.40E+00	1.52E+00	1.64E+00	1.76E+00	1.99E+00	2.11E+00
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06
pa231	9.01E-02	1.00E-01	1.10E-01	1.20E-01	1.29E-01	1.38E-01	1.47E-01	1.56E-01	1.64E-01	1.80E-01	1.88E-01
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	1.84E-05	1.83E-05	1.83E-05	1.83E-05	1.83E-05	1.83E-05	1.83E-05	1.83E-05	1.83E-05	1.82E-05	1.82E-05
pa234m	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10

pa234	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	1.79E-08	1.77E-08	1.75E-08	1.72E-08	1.70E-08	1.68E-08	1.66E-08	1.64E-08	1.62E-08	1.58E-08	1.57E-08
u233	2.59E+00	2.91E+00	3.23E+00	3.54E+00	3.85E+00	4.16E+00	4.46E+00	4.77E+00	5.07E+00	5.66E+00	5.95E+00
u234	1.07E+02	1.07E+02	1.06E+02	1.06E+02	1.05E+02	1.05E+02	1.04E+02	1.04E+02	1.03E+02	1.02E+02	1.02E+02
u235	7.26E+03	7.35E+03	7.43E+03	7.52E+03	7.59E+03	7.67E+03	7.73E+03	7.80E+03	7.86E+03	7.97E+03	8.03E+03
u236	1.95E+03	1.98E+03	1.99E+03	2.01E+03	2.02E+03	2.03E+03	2.04E+03	2.05E+03	2.05E+03	2.06E+03	2.06E+03
u237	6.26E-13	5.32E-13	4.52E-13	3.84E-13	3.26E-13	2.77E-13	2.35E-13	2.00E-13	1.70E-13	1.22E-13	1.04E-13
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	9.39E-19	1.05E-18	1.17E-18	1.28E-18	1.40E-18	1.51E-18	1.62E-18	1.74E-18	1.85E-18	2.07E-18	2.18E-18
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	3.37E-04	3.33E-04	3.29E-04	3.25E-04	3.21E-04	3.17E-04	3.13E-04	3.09E-04	3.06E-04	2.98E-04	2.95E-04
np237	5.40E+02	5.40E+02	5.40E+02	5.39E+02	5.39E+02	5.39E+02	5.38E+02	5.38E+02	5.38E+02	5.37E+02	5.37E+02
np238	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np239	1.93E-06	1.60E-06	1.32E-06	1.10E-06	9.08E-07	7.52E-07	6.23E-07	5.17E-07	4.28E-07	2.94E-07	2.43E-07
np240m	8.02E-21	9.00E-21	9.98E-21	1.10E-20	1.19E-20	1.29E-20	1.39E-20	1.48E-20	1.58E-20	1.77E-20	1.86E-20
np240	8.25E-23	9.26E-23	1.03E-22	1.13E-22	1.23E-22	1.33E-22	1.43E-22	1.52E-22	1.62E-22	1.82E-22	1.92E-22
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	7.55E-10	7.46E-10	7.37E-10	7.29E-10	7.20E-10	7.11E-10	7.03E-10	6.94E-10	6.86E-10	6.70E-10	6.62E-10
pu237	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	4.02E-35	2.16E-39	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu239	1.67E+03	1.57E+03	1.49E+03	1.40E+03	1.33E+03	1.25E+03	1.18E+03	1.12E+03	1.05E+03	9.39E+02	8.87E+02
pu240	1.24E+02	1.01E+02	8.14E+01	6.59E+01	5.34E+01	4.32E+01	3.50E+01	2.83E+01	2.29E+01	1.50E+01	1.22E+01
pu241	2.07E-05	1.76E-05	1.49E-05	1.27E-05	1.08E-05	9.14E-06	7.77E-06	6.60E-06	5.61E-06	4.04E-06	3.44E-06
pu242	6.88E+01	6.85E+01	6.83E+01	6.80E+01	6.78E+01	6.75E+01	6.73E+01	6.70E+01	6.68E+01	6.63E+01	6.60E+01
pu243	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.12E-15
pu244	4.76E-08	5.34E-08	5.92E-08	6.50E-08	7.08E-08	7.65E-08	8.22E-08	8.79E-08	9.36E-08	1.05E-07	1.10E-07
pu245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	6.61E-22	6.10E-22	5.63E-22	5.20E-22	4.80E-22	4.44E-22	4.10E-22	3.78E-22	3.49E-22	2.98E-22	2.75E-22
am239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	6.50E-04	5.52E-04	4.69E-04	3.99E-04	3.39E-04	2.88E-04	2.44E-04	2.08E-04	1.76E-04	1.28E-04	1.08E-04
am242m	2.99E-35	1.61E-39	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am242	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am243	2.24E+00	1.86E+00	1.54E+00	1.27E+00	1.06E+00	8.74E-01	7.24E-01	6.00E-01	4.97E-01	3.41E-01	2.83E-01
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	1.65E-24	1.52E-24	1.41E-24	1.30E-24	1.20E-24	1.11E-24	1.02E-24	9.45E-25	8.72E-25	7.44E-25	6.87E-25
cm241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 63

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
cm242	7.82E-38	4.07E-42	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm243	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	1.24E-02	1.06E-02	8.97E-03	7.62E-03	6.47E-03	5.50E-03	4.67E-03	3.97E-03	3.37E-03	2.43E-03	2.07E-03
cm246	2.88E-04	2.14E-04	1.60E-04	1.19E-04	8.90E-05	6.64E-05	4.96E-05	3.70E-05	2.76E-05	1.53E-05	1.14E-05
cm247	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05
cm248	1.59E-06	1.58E-06	1.58E-06	1.57E-06	1.56E-06	1.56E-06	1.55E-06	1.54E-06	1.54E-06	1.53E-06	1.52E-06
cm249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	1.57E-15	1.45E-15	1.34E-15	1.24E-15	1.14E-15	1.06E-15	9.76E-16	9.01E-16	8.32E-16	7.10E-16	6.55E-16
cm251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

bk249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	4.65E-24	4.29E-24	3.96E-24	3.66E-24	3.38E-24	3.12E-24	2.88E-24	2.66E-24	2.46E-24	2.10E-24	1.93E-24
bk251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	3.34E-22	6.40E-24	1.23E-25	2.35E-27	4.49E-29	8.59E-31	1.65E-32	3.15E-34	6.03E-36	2.21E-39	4.22E-41
cf250	1.66E-19	1.53E-19	1.41E-19	1.30E-19	1.20E-19	1.11E-19	1.03E-19	9.49E-20	8.76E-20	7.47E-20	6.90E-20
cf251	3.69E-15	7.88E-16	1.68E-16	3.60E-17	7.68E-18	1.64E-18	3.50E-19	7.48E-20	1.60E-20	7.29E-22	1.56E-22
cf252	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 64

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
h 3	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05
li 7	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06
be 9	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06
be 10	3.67E-05	3.67E-05	3.66E-05	3.66E-05	3.66E-05	3.65E-05	3.65E-05	3.65E-05	3.64E-05	3.64E-05	3.63E-05
c 14	1.08E-06	8.46E-07	6.64E-07	5.21E-07	4.09E-07	3.21E-07	2.52E-07	1.98E-07	1.55E-07	9.58E-08	7.52E-08
ni 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07
cu 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08
zn 68	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09
zn 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08
zn 70	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06
ga 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09
zn 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05
ge 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03
co 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03
ge 73m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

zn 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03
co 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02
ni 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 65

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
zn 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01
as 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04
ni 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01
se 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01
cu 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.00E+00	9.60E-01	9.21E-01	8.83E-01	8.47E-01	8.12E-01	7.78E-01	7.46E-01	7.16E-01	6.58E-01	6.31E-01
se 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	4.00E-01	4.42E-01	4.81E-01	5.19E-01	5.55E-01	5.90E-01	6.24E-01	6.56E-01	6.86E-01	7.44E-01	7.71E-01
br 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05
cu 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ga 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00
kr 81	6.76E-07	6.72E-07	6.68E-07	6.63E-07	6.59E-07	6.55E-07	6.50E-07	6.46E-07	6.42E-07	6.34E-07	6.30E-07
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 66

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
ge 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01
zn 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01
kr 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01
ga 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01
ge 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01
rb 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02
ge 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01
sr 87	3.23E-04	3.25E-04	3.27E-04	3.29E-04	3.31E-04	3.34E-04	3.36E-04	3.38E-04	3.40E-04	3.44E-04	3.46E-04
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 67

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
y 89m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02
nb 91	2.20E-17	2.87E-18	3.73E-19	4.86E-20	6.33E-21	8.24E-22	1.07E-22	1.40E-23	1.82E-24	3.08E-26	4.01E-27
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02
nb 92	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.38E+02	1.38E+02	1.38E+02	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.37E+02	1.36E+02
nb 93	1.00E+00	1.13E+00	1.25E+00	1.38E+00	1.50E+00	1.62E+00	1.75E+00	1.87E+00	2.00E+00	2.24E+00	2.37E+00

nb 93m	1.45E-03	1.45E-03	1.45E-03	1.45E-03	1.45E-03	1.45E-03	1.45E-03	1.44E-03	1.44E-03	1.44E-03	1.44E-03
br 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 68

0

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02
nb 94	7.23E-05	6.75E-05	6.31E-05	5.89E-05	5.50E-05	5.14E-05	4.80E-05	4.48E-05	4.19E-05	3.65E-05	3.41E-05
nb 94m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02
br 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02
nb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02
kr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02
tc 98	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03
rb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	2.19E+02	2.17E+02	2.16E+02	2.14E+02	2.13E+02	2.12E+02	2.10E+02	2.09E+02	2.08E+02	2.05E+02	2.03E+02
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	1.18E+01	1.32E+01	1.47E+01	1.61E+01	1.75E+01	1.89E+01	2.03E+01	2.16E+01	2.30E+01	2.57E+01	2.71E+01
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

y100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 69

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02
tc100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01
rb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02
sr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02
rh102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02
rh103m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
rh104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01
y105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02

1

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	5.11E+01	5.11E+01	5.11E+01	5.11E+01	5.11E+01	5.10E+01	5.10E+01	5.10E+01	5.10E+01	5.10E+01	5.10E+01
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	8.73E-02	9.82E-02	1.09E-01	1.20E-01	1.31E-01	1.42E-01	1.53E-01	1.64E-01	1.74E-01	1.96E-01	2.07E-01
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01
ag108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108m	4.54E-43	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd108	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01
ag109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00
ag110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 71

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams
initial 18000.0 yr 20000.0 yr 22000.0 yr 24000.0 yr 26000.0 yr 28000.0 yr 30000.0 yr 32000.0 yr 36000.0 yr 38000.0 yr

cd110	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00
nb111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02
cd113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
in113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00
in114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05
mo115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01
in115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 72

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
sn115	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02
tc116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

rh116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01
tc117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01
ru119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00
sn119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 73

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr	yr
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb121	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02
rh123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00
te123	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04
te123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00
sb124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02
pd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00
te125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	4.37E+00	4.31E+00	4.25E+00	4.20E+00	4.14E+00	4.08E+00	4.02E+00	3.97E+00	3.91E+00	3.81E+00	3.76E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 74

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
sb126	2.08E-07	2.05E-07	2.02E-07	1.99E-07	1.97E-07	1.94E-07	1.91E-07	1.89E-07	1.86E-07	1.81E-07	1.78E-07
sb126m	1.58E-09	1.56E-09	1.54E-09	1.52E-09	1.49E-09	1.47E-09	1.45E-09	1.43E-09	1.41E-09	1.38E-09	1.36E-09
te126	5.91E-01	6.52E-01	7.11E-01	7.70E-01	8.27E-01	8.84E-01	9.40E-01	9.96E-01	1.05E+00	1.16E+00	1.21E+00
xe126	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09
ag127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01
xe127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01
i128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01
cd129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01
xe129	3.65E-02	4.09E-02	4.53E-02	4.97E-02	5.41E-02	5.85E-02	6.29E-02	6.73E-02	7.17E-02	8.05E-02	8.49E-02
xe129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 75

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02
ba133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02
xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	1.76E+02	1.76E+02	1.76E+02	1.76E+02	1.76E+02	1.76E+02	1.76E+02	1.76E+02	1.75E+02	1.75E+02	1.75E+02
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	8.91E-01	9.97E-01	1.10E+00	1.21E+00	1.32E+00	1.42E+00	1.53E+00	1.63E+00	1.74E+00	1.95E+00	2.06E+00
ba135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02
cs136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 76

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
sb137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02
ba137m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02
la138	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03

sb139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02
ce139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02
pr140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02
nd141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02
pr142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00
i143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 77

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02
i144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02
i145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cs145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02
pm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02
pm146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03
xe147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01
cs148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
pm148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 78

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr
sm148	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01
cs149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00
eu149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01
pm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01
eu150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ce151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu151	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01
eu152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02
la153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01
gd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 79

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr	yr
sm154	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	
eu154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
gd154	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	
la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
eu155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
gd155	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
gd156	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	

eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01
tb160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 80

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	18000.0 yr	20000.0 yr	22000.0 yr	24000.0 yr	26000.0 yr	28000.0 yr	30000.0 yr	32000.0 yr	36000.0 yr	38000.0 yr	yr
dy161	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
dy162	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
dy163	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
dy164	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ho165	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	

ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	2.30E-09	7.26E-10	2.29E-10	7.20E-11	2.27E-11	7.14E-12	2.25E-12	7.08E-13	2.23E-13	2.21E-14	6.97E-15
er166	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03
er167	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07
tm170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07
total	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 81

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
he 4	4.89E+01	4.98E+01	5.19E+01	5.37E+01	5.52E+01	5.66E+01	5.78E+01	5.89E+01	6.33E+01	6.96E+01	7.18E+01
tl206	1.12E-15	1.17E-15	1.29E-15	1.40E-15	1.51E-15	1.61E-15	1.70E-15	1.79E-15	2.25E-15	2.72E-15	2.71E-15
tl207	4.65E-11	4.84E-11	5.27E-11	5.68E-11	6.06E-11	6.40E-11	6.72E-11	7.02E-11	8.33E-11	9.83E-11	9.99E-11
tl208	7.01E-16	7.12E-16	7.40E-16	7.68E-16	7.96E-16	8.25E-16	8.54E-16	8.84E-16	1.07E-15	1.74E-15	2.10E-15
tl209	2.12E-12	2.26E-12	2.62E-12	2.98E-12	3.33E-12	3.67E-12	4.01E-12	4.34E-12	6.15E-12	1.12E-11	1.21E-11
pb206	1.42E+00	1.57E+00	1.98E+00	2.42E+00	2.90E+00	3.42E+00	3.97E+00	4.54E+00	8.56E+00	2.54E+01	3.43E+01
pb207	7.31E-02	8.03E-02	9.97E-02	1.21E-01	1.43E-01	1.67E-01	1.92E-01	2.19E-01	3.96E-01	1.11E+00	1.49E+00
pb208	4.86E-04	4.87E-04	4.88E-04	4.89E-04	4.91E-04	4.92E-04	4.93E-04	4.95E-04	5.05E-04	5.51E-04	5.83E-04
pb209	8.96E-09	9.57E-09	1.11E-08	1.26E-08	1.41E-08	1.55E-08	1.69E-08	1.83E-08	2.60E-08	4.74E-08	5.12E-08
pb210	2.42E-03	2.53E-03	2.78E-03	3.03E-03	3.25E-03	3.47E-03	3.67E-03	3.85E-03	4.86E-03	5.86E-03	5.85E-03
pb211	3.60E-10	3.74E-10	4.08E-10	4.39E-10	4.69E-10	4.95E-10	5.20E-10	5.43E-10	6.45E-10	7.61E-10	7.72E-10
pb212	4.16E-13	4.22E-13	4.39E-13	4.55E-13	4.72E-13	4.89E-13	5.07E-13	5.24E-13	6.33E-13	1.03E-12	1.24E-12
pb214	5.63E-09	5.88E-09	6.48E-09	7.05E-09	7.58E-09	8.07E-09	8.54E-09	8.98E-09	1.13E-08	1.37E-08	1.36E-08
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	2.58E-01	2.93E-01	3.90E-01	5.00E-01	6.25E-01	7.63E-01	9.14E-01	1.08E+00	2.33E+00	9.35E+00	1.39E+01
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	1.49E-06	1.55E-06	1.71E-06	1.86E-06	2.00E-06	2.13E-06	2.26E-06	2.37E-06	2.99E-06	3.61E-06	3.60E-06
bi211	2.13E-11	2.22E-11	2.42E-11	2.60E-11	2.78E-11	2.94E-11	3.08E-11	3.22E-11	3.82E-11	4.51E-11	4.58E-11
bi212	3.94E-14	4.00E-14	4.16E-14	4.32E-14	4.48E-14	4.64E-14	4.80E-14	4.97E-14	6.00E-14	9.77E-14	1.18E-13
bi213	2.13E-09	2.28E-09	2.64E-09	3.00E-09	3.35E-09	3.69E-09	4.03E-09	4.36E-09	6.19E-09	1.13E-08	1.22E-08
bi214	4.18E-09	4.37E-09	4.81E-09	5.23E-09	5.63E-09	6.00E-09	6.34E-09	6.67E-09	8.41E-09	1.01E-08	1.01E-08
po210	4.11E-05	4.29E-05	4.73E-05	5.14E-05	5.53E-05	5.89E-05	6.23E-05	6.55E-05	8.26E-05	9.96E-05	9.94E-05
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	2.36E-16	2.45E-16	2.67E-16	2.88E-16	3.07E-16	3.25E-16	3.41E-16	3.56E-16	4.22E-16	4.98E-16	5.06E-16
po212	2.07E-24	2.10E-24	2.19E-24	2.27E-24	2.35E-24	2.44E-24	2.52E-24	2.61E-24	3.15E-24	5.13E-24	6.19E-24
po213	3.20E-18	3.42E-18	3.97E-18	4.50E-18	5.03E-18	5.55E-18	6.06E-18	6.55E-18	9.30E-18	1.70E-17	1.83E-17
po214	5.75E-16	6.01E-16	6.62E-16	7.20E-16	7.74E-16	8.25E-16	8.72E-16	9.17E-16	1.16E-15	1.39E-15	1.39E-15
po215	3.01E-16	3.13E-16	3.42E-16	3.68E-16	3.92E-16	4.15E-16	4.36E-16	4.55E-16	5.40E-16	6.37E-16	6.47E-16
po216	1.60E-18	1.63E-18	1.69E-18	1.76E-18	1.82E-18	1.89E-18	1.95E-18	2.02E-18	2.44E-18	3.97E-18	4.79E-18
po218	6.64E-10	6.93E-10	7.64E-10	8.31E-10	8.93E-10	9.52E-10	1.01E-09	1.06E-09	1.33E-09	1.61E-09	1.61E-09
at217	2.57E-14	2.74E-14	3.18E-14	3.61E-14	4.03E-14	4.44E-14	4.85E-14	5.25E-14	7.45E-14	1.36E-13	1.47E-13
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	6.83E-13	7.10E-13	7.74E-13	8.34E-13	8.89E-13	9.40E-13	9.87E-13	1.03E-12	1.22E-12	1.44E-12	1.47E-12
rn220	6.26E-16	6.36E-16	6.61E-16	6.86E-16	7.11E-16	7.37E-16	7.63E-16	7.89E-16	9.53E-16	1.55E-15	1.87E-15

rn222	1.20E-06	1.25E-06	1.38E-06	1.50E-06	1.62E-06	1.72E-06	1.82E-06	1.91E-06	2.41E-06	2.91E-06	2.90E-06
fr221	2.38E-10	2.54E-10	2.94E-10	3.34E-10	3.73E-10	4.12E-10	4.49E-10	4.86E-10	6.90E-10	1.26E-09	1.36E-09
fr223	3.17E-12	3.29E-12	3.59E-12	3.87E-12	4.13E-12	4.36E-12	4.58E-12	4.78E-12	5.68E-12	6.70E-12	6.80E-12
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	1.73E-07	1.80E-07	1.97E-07	2.12E-07	2.26E-07	2.39E-07	2.51E-07	2.62E-07	3.11E-07	3.67E-07	3.72E-07
ra224	3.63E-12	3.68E-12	3.83E-12	3.97E-12	4.12E-12	4.27E-12	4.42E-12	4.57E-12	5.52E-12	8.98E-12	1.08E-11
ra225	1.05E-06	1.13E-06	1.30E-06	1.48E-06	1.65E-06	1.82E-06	1.99E-06	2.15E-06	3.06E-06	5.58E-06	6.03E-06
ra226	1.87E-01	1.95E-01	2.15E-01	2.34E-01	2.51E-01	2.68E-01	2.83E-01	2.98E-01	3.76E-01	4.53E-01	4.52E-01
ra228	8.50E-10	8.98E-10	1.02E-09	1.14E-09	1.26E-09	1.38E-09	1.50E-09	1.62E-09	2.35E-09	4.77E-09	5.97E-09
ac225	7.11E-07	7.60E-07	8.81E-07	1.00E-06	1.12E-06	1.23E-06	1.34E-06	1.45E-06	2.06E-06	3.77E-06	4.07E-06
ac227	1.23E-04	1.28E-04	1.39E-04	1.50E-04	1.60E-04	1.69E-04	1.77E-04	1.85E-04	2.20E-04	2.60E-04	2.64E-04
ac228	1.04E-13	1.10E-13	1.24E-13	1.39E-13	1.54E-13	1.69E-13	1.83E-13	1.98E-13	2.87E-13	5.82E-13	7.29E-13
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	2.85E-07	2.96E-07	3.23E-07	3.48E-07	3.71E-07	3.92E-07	4.12E-07	4.30E-07	5.11E-07	6.02E-07	6.12E-07
th228	7.05E-10	7.16E-10	7.43E-10	7.72E-10	8.00E-10	8.29E-10	8.59E-10	8.88E-10	1.07E-09	1.75E-09	2.11E-09
th229	2.08E-01	2.23E-01	2.58E-01	2.93E-01	3.27E-01	3.61E-01	3.94E-01	4.26E-01	6.05E-01	1.10E+00	1.19E+00
th230	9.42E+00	9.81E+00	1.07E+01	1.16E+01	1.24E+01	1.32E+01	1.39E+01	1.46E+01	1.78E+01	2.16E+01	2.14E+01
th231	3.26E-08	3.28E-08	3.33E-08	3.37E-08	3.40E-08	3.43E-08	3.45E-08	3.48E-08	3.56E-08	3.61E-08	3.62E-08

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 82

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
th232	2.11E+00	2.23E+00	2.53E+00	2.84E+00	3.14E+00	3.44E+00	3.74E+00	4.04E+00	5.85E+00	1.19E+01	1.49E+01
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06
pa231	1.88E-01	1.95E-01	2.13E-01	2.30E-01	2.45E-01	2.59E-01	2.72E-01	2.84E-01	3.37E-01	3.97E-01	4.04E-01
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	1.82E-05	1.82E-05	1.82E-05	1.82E-05	1.81E-05	1.81E-05	1.81E-05	1.80E-05	1.79E-05	1.73E-05	1.70E-05
pa234m	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10
pa234	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	1.57E-08	1.55E-08	1.50E-08	1.46E-08	1.41E-08	1.37E-08	1.33E-08	1.29E-08	1.08E-08	5.90E-09	4.36E-09
u233	5.95E+00	6.24E+00	6.95E+00	7.64E+00	8.32E+00	8.98E+00	9.62E+00	1.03E+01	1.37E+01	2.22E+01	2.51E+01
u234	1.02E+02	1.02E+02	1.00E+02	9.94E+01	9.83E+01	9.73E+01	9.62E+01	9.52E+01	8.94E+01	7.33E+01	6.68E+01
u235	8.03E+03	8.07E+03	8.18E+03	8.28E+03	8.36E+03	8.43E+03	8.50E+03	8.55E+03	8.75E+03	8.89E+03	8.89E+03
u236	2.06E+03	2.06E+03	2.07E+03	2.07E+03	2.07E+03	2.07E+03	2.07E+03	2.07E+03	2.07E+03	2.06E+03	2.06E+03
u237	1.04E-13	8.84E-14	5.88E-14	3.91E-14	2.60E-14	1.73E-14	1.15E-14	7.65E-15	6.62E-16	1.90E-19	3.22E-21
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	2.18E-18	2.29E-18	2.57E-18	2.84E-18	3.10E-18	3.37E-18	3.63E-18	3.89E-18	5.40E-18	9.79E-18	1.17E-17
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	2.95E-04	2.91E-04	2.83E-04	2.74E-04	2.66E-04	2.58E-04	2.51E-04	2.43E-04	2.03E-04	1.11E-04	8.21E-05
np237	5.37E+02	5.36E+02	5.35E+02	5.34E+02	5.34E+02	5.33E+02	5.32E+02	5.31E+02	5.26E+02	5.09E+02	5.01E+02
np238	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np239	2.43E-07	2.02E-07	1.26E-07	7.87E-08	4.92E-08	3.07E-08	1.92E-08	1.20E-08	7.14E-10	7.13E-14	1.30E-14
np240m	1.86E-20	1.96E-20	2.19E-20	2.42E-20	2.65E-20	2.88E-20	3.10E-20	3.32E-20	4.60E-20	8.36E-20	9.96E-20
np240	1.92E-22	2.01E-22	2.25E-22	2.49E-22	2.73E-22	2.96E-22	3.19E-22	3.42E-22	4.74E-22	8.60E-22	1.02E-21
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	6.62E-10	6.54E-10	6.34E-10	6.15E-10	5.97E-10	5.79E-10	5.62E-10	5.46E-10	4.55E-10	2.49E-10	1.84E-10
pu237	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu239	8.87E+02	8.37E+02	7.25E+02	6.28E+02	5.44E+02	4.71E+02	4.08E+02	3.54E+02	1.49E+02	8.42E+00	2.00E+00
pu240	1.22E+01	9.85E+00	5.81E+00	3.42E+00	2.02E+00	1.19E+00	7.02E-01	4.14E-01	1.74E-02	4.50E-07	2.34E-09
pu241	3.44E-06	2.92E-06	1.94E-06	1.29E-06	8.59E-07	5.71E-07	3.80E-07	2.53E-07	2.19E-08	6.27E-12	1.06E-13
pu242	6.60E+01	6.58E+01	6.52E+01	6.46E+01	6.40E+01	6.34E+01	6.28E+01	6.22E+01	5.89E+01	4.89E+01	4.46E+01

pu243	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.11E-15
pu244	1.10E-07	1.16E-07	1.30E-07	1.44E-07	1.57E-07	1.71E-07	1.84E-07	1.97E-07	2.73E-07	4.96E-07	5.91E-07
pu245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	2.75E-22	2.54E-22	2.08E-22	1.70E-22	1.40E-22	1.14E-22	9.38E-23	7.68E-23	2.33E-23	4.33E-25	5.90E-26
am239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	1.08E-04	9.18E-05	5.86E-05	3.89E-05	2.59E-05	1.72E-05	1.15E-05	7.62E-06	6.59E-07	1.99E-10	3.20E-12
am242m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am242	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am243	2.83E-01	2.34E-01	1.46E-01	9.15E-02	5.72E-02	3.57E-02	2.23E-02	1.39E-02	8.30E-04	8.29E-08	1.52E-08
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	6.87E-25	6.34E-25	5.20E-25	4.26E-25	3.49E-25	2.86E-25	2.34E-25	1.92E-25	5.81E-26	1.08E-27	1.48E-28
cm241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 83

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
cm242	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm243	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	2.07E-03	1.75E-03	1.17E-03	7.76E-04	5.16E-04	3.43E-04	2.28E-04	1.52E-04	1.31E-05	3.77E-09	6.39E-11
cm246	1.14E-05	8.54E-06	4.10E-06	1.97E-06	9.48E-07	4.56E-07	2.19E-07	1.05E-07	1.30E-09	5.63E-16	3.85E-19
cm247	3.24E-05	3.24E-05	3.24E-05	3.23E-05	3.23E-05	3.23E-05	3.23E-05	3.23E-05	3.23E-05	3.21E-05	3.21E-05
cm248	1.52E-06	1.51E-06	1.50E-06	1.48E-06	1.47E-06	1.45E-06	1.44E-06	1.42E-06	1.34E-06	1.09E-06	9.86E-07
cm249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	6.55E-16	6.05E-16	4.96E-16	4.06E-16	3.33E-16	2.73E-16	2.23E-16	1.83E-16	5.54E-17	1.03E-18	1.41E-19
cm251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	1.93E-24	1.79E-24	1.46E-24	1.20E-24	9.83E-25	8.05E-25	6.60E-25	5.41E-25	1.64E-25	3.05E-27	4.15E-28
bk251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	4.22E-41	6.98E-43	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf250	6.90E-20	6.37E-20	5.22E-20	4.28E-20	3.50E-20	2.87E-20	2.35E-20	1.93E-20	5.83E-21	1.09E-22	1.48E-23
cf251	1.56E-22	3.32E-23	7.00E-25	1.48E-26	3.11E-28	6.56E-30	1.38E-31	2.91E-33	3.52E-43	.00E+00	.00E+00
cf252	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 84

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
h 3	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05
li 7	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06
be 9	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06
be 10	3.63E-05	3.63E-05	3.62E-05	3.61E-05	3.61E-05	3.60E-05	3.59E-05	3.58E-05	3.54E-05	3.39E-05	3.31E-05
c 14	7.52E-08	5.91E-08	3.23E-08	1.76E-08	9.62E-09	5.25E-09	2.87E-09	1.57E-09	4.15E-11	2.31E-16	5.45E-19
ni 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07

cu 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08
zn 68	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09
zn 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08
zn 70	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06
ga 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09
zn 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05
ge 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03
co 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03
ge 73m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03
co 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02
ni 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 85

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
zn 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01
as 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04
ni 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

se 77	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01
se 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01
cu 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	6.31E-01	6.05E-01	5.45E-01	4.90E-01	4.41E-01	3.97E-01	3.58E-01	3.22E-01	1.71E-01	2.10E-02	7.33E-03
se 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	7.71E-01	7.97E-01	8.57E-01	9.12E-01	9.61E-01	1.00E+00	1.04E+00	1.08E+00	1.23E+00	1.38E+00	1.39E+00
br 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05
cu 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00
kr 81	6.30E-07	6.26E-07	6.15E-07	6.06E-07	5.96E-07	5.86E-07	5.77E-07	5.67E-07	5.15E-07	3.72E-07	3.16E-07
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 86

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
ge 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01
zn 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01

kr 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01
ga 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01
ge 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01
rb 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02
ge 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01
sr 87	3.46E-04	3.48E-04	3.53E-04	3.59E-04	3.64E-04	3.69E-04	3.74E-04	3.80E-04	4.11E-04	5.16E-04	5.68E-04
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 87

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
y 89m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02
nb 91	4.01E-27	5.22E-28	3.19E-30	1.95E-32	1.19E-34	7.31E-37	4.47E-39	2.73E-41	.00E+00	.00E+00	.00E+00
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02
nb 92	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.27E-08	3.27E-08
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.36E+02	1.36E+02	1.36E+02	1.36E+02	1.35E+02	1.35E+02	1.35E+02	1.34E+02	1.33E+02	1.27E+02	1.24E+02
nb 93	2.37E+00	2.49E+00	2.80E+00	3.11E+00	3.42E+00	3.72E+00	4.03E+00	4.33E+00	6.15E+00	1.20E+01	1.49E+01
nb 93m	1.44E-03	1.44E-03	1.43E-03	1.43E-03	1.43E-03	1.42E-03	1.42E-03	1.42E-03	1.40E-03	1.34E-03	1.31E-03
br 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 88

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02
nb 94	3.41E-05	3.19E-05	2.69E-05	2.26E-05	1.91E-05	1.61E-05	1.36E-05	1.14E-05	4.11E-06	1.35E-07	2.45E-08
nb 94m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02
br 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02
nb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

mo 96	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02
kr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02
tc 98	1.36E-03	1.36E-03	1.36E-03	1.35E-03	1.35E-03	1.35E-03	1.35E-03	1.35E-03	1.34E-03	1.32E-03	1.31E-03
rb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	2.03E+02	2.02E+02	1.99E+02	1.96E+02	1.92E+02	1.89E+02	1.86E+02	1.83E+02	1.66E+02	1.20E+02	1.01E+02
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	2.71E+01	2.84E+01	3.17E+01	3.49E+01	3.81E+01	4.12E+01	4.43E+01	4.74E+01	6.45E+01	1.11E+02	1.29E+02
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 89

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02
tc100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01
rb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02
sr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02
rh102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02
rh103m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
rh104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01
y105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 90

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	5.10E+01	5.10E+01	5.09E+01	5.09E+01	5.09E+01	5.09E+01	5.08E+01	5.08E+01	5.06E+01	5.01E+01	4.98E+01
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	2.07E-01	2.18E-01	2.45E-01	2.72E-01	2.99E-01	3.27E-01	3.54E-01	3.81E-01	5.43E-01	1.08E+00	1.35E+00
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pd108	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01
ag108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd108	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01
ag109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00	9.64E+00
ag110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 91

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
cd110	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00
nb111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02
cd113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02

in113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00
in114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05
mo115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01
in115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 92

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
sn115	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02
tc116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01
tc117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01

ru119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00
sn119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 93

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb121	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02
rh123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00
te123	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04
te123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00
sb124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

te124	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02
pd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00
te125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	3.76E+00	3.70E+00	3.58E+00	3.46E+00	3.34E+00	3.22E+00	3.11E+00	3.01E+00	2.44E+00	1.22E+00	8.64E-01

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 94

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
sb126	1.78E-07	1.76E-07	1.70E-07	1.64E-07	1.59E-07	1.53E-07	1.48E-07	1.43E-07	1.16E-07	5.80E-08	4.10E-08
sb126m	1.36E-09	1.34E-09	1.29E-09	1.25E-09	1.21E-09	1.16E-09	1.12E-09	1.09E-09	8.83E-10	4.41E-10	3.12E-10
te126	1.21E+00	1.26E+00	1.39E+00	1.51E+00	1.63E+00	1.74E+00	1.85E+00	1.96E+00	2.52E+00	3.74E+00	4.10E+00
xe126	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09
ag127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01
xe127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01
i128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01
cd129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	4.99E+01	4.99E+01	4.98E+01	4.98E+01	4.98E+01	4.98E+01	4.98E+01	4.98E+01	4.97E+01	4.95E+01	4.94E+01
xe129	8.49E-02	8.93E-02	1.00E-01	1.11E-01	1.22E-01	1.33E-01	1.44E-01	1.55E-01	2.21E-01	4.40E-01	5.50E-01
xe129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 95

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02
ba133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02
xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01	2.97E+01
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	1.75E+02	1.75E+02	1.75E+02	1.75E+02	1.74E+02	1.74E+02	1.74E+02	1.73E+02	1.72E+02	1.67E+02	1.64E+02
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	2.06E+00	2.16E+00	2.43E+00	2.69E+00	2.95E+00	3.21E+00	3.48E+00	3.74E+00	5.30E+00	1.04E+01	1.29E+01

ba135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02
cs136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 96

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
sb137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02
ba137m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02
la138	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03
sb139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02
ce139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02
pr140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02
nd141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ba142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02
pr142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00
i143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 97

0

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02
i144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02
i145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02
pm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02
pm146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03
xe147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01
cs148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pr148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
pm148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 98

0

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
sm148	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01
cs149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00
eu149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01
pm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01
eu150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu151	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01
eu152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02
la153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01
gd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pm154m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 99

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
sm154	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00
eu154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01
tb160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	40000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
dy161	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02	8.26E-02
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	6.97E-15	2.20E-15	1.22E-16	6.81E-18	3.79E-19	2.11E-20	1.17E-21	6.54E-23	1.95E-30	.00E+00	.00E+00
er166	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03
er167	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07
tm170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07
total	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03

1 Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 101

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
he 4	7.18E+01	7.39E+01	8.21E+01	9.90E+01
tl206	2.71E-15	2.61E-15	2.01E-15	1.18E-15
tl207	9.99E-11	1.00E-10	1.01E-10	1.01E-10
tl208	2.10E-15	2.46E-15	3.99E-15	7.90E-15

tl209	1.21E-11	1.33E-11	1.59E-11	1.52E-11
pb206	3.43E+01	4.31E+01	7.35E+01	1.23E+02
pb207	1.49E+00	1.87E+00	3.42E+00	7.27E+00
pb208	5.83E-04	6.21E-04	8.35E-04	1.82E-03
pb209	5.12E-08	5.61E-08	6.74E-08	6.41E-08
pb210	5.85E-03	5.63E-03	4.33E-03	2.55E-03
pb211	7.72E-10	7.77E-10	7.79E-10	7.78E-10
pb212	1.24E-12	1.46E-12	2.37E-12	4.68E-12
pb214	1.36E-08	1.31E-08	1.01E-08	5.95E-09
bi208	.00E+00	.00E+00	.00E+00	.00E+00
bi209	1.39E+01	1.89E+01	4.26E+01	1.06E+02
bi210m	.00E+00	.00E+00	.00E+00	.00E+00
bi210	3.60E-06	3.47E-06	2.67E-06	1.57E-06
bi211	4.58E-11	4.60E-11	4.62E-11	4.61E-11
bi212	1.18E-13	1.39E-13	2.24E-13	4.44E-13
bi213	1.22E-08	1.34E-08	1.60E-08	1.53E-08
bi214	1.01E-08	9.74E-09	7.50E-09	4.42E-09
po210	9.94E-05	9.57E-05	7.37E-05	4.34E-05
po211m	.00E+00	.00E+00	.00E+00	.00E+00
po211	5.06E-16	5.09E-16	5.10E-16	5.10E-16
po212	6.19E-24	7.28E-24	1.18E-23	2.33E-23
po213	1.83E-17	2.01E-17	2.41E-17	2.30E-17
po214	1.39E-15	1.34E-15	1.03E-15	6.08E-16
po215	6.47E-16	6.50E-16	6.52E-16	6.52E-16
po216	4.79E-18	5.63E-18	9.13E-18	1.81E-17
po218	1.61E-09	1.55E-09	1.19E-09	7.01E-10
at217	1.47E-13	1.61E-13	1.93E-13	1.84E-13
rn218	.00E+00	.00E+00	.00E+00	.00E+00
rn219	1.47E-12	1.47E-12	1.48E-12	1.48E-12
rn220	1.87E-15	2.20E-15	3.57E-15	7.05E-15
rn222	2.90E-06	2.80E-06	2.15E-06	1.27E-06
fr221	1.36E-09	1.49E-09	1.79E-09	1.70E-09
fr223	6.80E-12	6.84E-12	6.86E-12	6.86E-12
ra222	.00E+00	.00E+00	.00E+00	.00E+00
ra223	3.72E-07	3.74E-07	3.75E-07	3.75E-07
ra224	1.08E-11	1.27E-11	2.06E-11	4.09E-11
ra225	6.03E-06	6.60E-06	7.92E-06	7.54E-06
ra226	4.52E-01	4.35E-01	3.35E-01	1.97E-01
ra228	5.97E-09	7.18E-09	1.20E-08	2.39E-08
ac225	4.07E-06	4.46E-06	5.35E-06	5.09E-06
ac227	2.64E-04	2.65E-04	2.66E-04	2.66E-04
ac228	7.29E-13	8.76E-13	1.46E-12	2.91E-12
th226	.00E+00	.00E+00	.00E+00	.00E+00
th227	6.12E-07	6.15E-07	6.17E-07	6.17E-07
th228	2.11E-09	2.48E-09	4.01E-09	7.94E-09
th229	1.19E+00	1.31E+00	1.57E+00	1.49E+00
th230	2.14E+01	2.06E+01	1.60E+01	9.46E+00
th231	3.62E-08	3.62E-08	3.62E-08	3.61E-08

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 102

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial300000. yr	500000. yr	999999. yr	
th232	1.49E+01	1.79E+01	2.98E+01	5.93E+01
th233	.00E+00	.00E+00	.00E+00	.00E+00
th234	6.42E-06	6.42E-06	6.42E-06	6.42E-06
pa231	4.04E-01	4.06E-01	4.07E-01	4.07E-01
pa232	.00E+00	.00E+00	.00E+00	.00E+00
pa233	1.70E-05	1.67E-05	1.57E-05	1.33E-05
pa234m	2.17E-10	2.17E-10	2.17E-10	2.17E-10

pa234	9.67E-11	9.67E-11	9.67E-11	9.67E-11
pa235	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00
u232	4.36E-09	3.23E-09	9.67E-10	4.75E-11
u233	2.51E+01	2.73E+01	3.16E+01	3.05E+01
u234	6.68E+01	6.12E+01	4.51E+01	2.91E+01
u235	8.89E+03	8.89E+03	8.89E+03	8.89E+03
u236	2.06E+03	2.06E+03	2.05E+03	2.01E+03
u237	3.22E-21	5.45E-23	4.48E-30	.00E+00
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05
u239	.00E+00	.00E+00	.00E+00	.00E+00
u240	1.17E-17	1.34E-17	1.87E-17	2.53E-17
u241	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00
np236	8.21E-05	6.08E-05	1.82E-05	8.93E-07
np237	5.01E+02	4.93E+02	4.62E+02	3.93E+02
np238	.00E+00	.00E+00	.00E+00	.00E+00
np239	1.30E-14	1.25E-14	1.24E-14	1.21E-14
np240m	9.96E-20	1.14E-19	1.59E-19	2.16E-19
np240	1.02E-21	1.17E-21	1.64E-21	2.22E-21
np241	.00E+00	.00E+00	.00E+00	.00E+00
pu236	1.84E-10	1.36E-10	4.08E-11	2.01E-12
pu237	.00E+00	.00E+00	.00E+00	.00E+00
pu238	.00E+00	.00E+00	.00E+00	.00E+00
pu239	2.00E+00	4.75E-01	1.51E-03	4.61E-08
pu240	2.34E-09	6.49E-11	7.61E-11	1.03E-10
pu241	1.06E-13	1.80E-15	1.48E-22	.00E+00
pu242	4.46E+01	4.06E+01	2.80E+01	1.11E+01
pu243	1.11E-15	1.11E-15	1.10E-15	1.08E-15
pu244	5.91E-07	6.77E-07	9.45E-07	1.28E-06
pu245	.00E+00	.00E+00	.00E+00	.00E+00
pu246	5.90E-26	8.06E-27	2.79E-30	.00E+00
am239	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00
am241	3.20E-12	5.42E-14	4.70E-21	9.14E-39
am242m	.00E+00	.00E+00	.00E+00	.00E+00
am242	.00E+00	.00E+00	.00E+00	.00E+00
am243	1.52E-08	1.45E-08	1.44E-08	1.41E-08
am244m	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00
am245	.00E+00	.00E+00	.00E+00	.00E+00
am246	1.48E-28	2.01E-29	6.97E-33	1.55E-41
cm241	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 103

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
cm242	.00E+00	.00E+00	.00E+00	.00E+00
cm243	.00E+00	.00E+00	.00E+00	.00E+00
cm244	.00E+00	.00E+00	.00E+00	.00E+00
cm245	6.39E-11	1.08E-12	8.90E-20	1.73E-37
cm246	3.85E-19	2.26E-21	9.53E-25	2.13E-33
cm247	3.21E-05	3.20E-05	3.17E-05	3.10E-05
cm248	9.86E-07	8.91E-07	5.92E-07	2.14E-07
cm249	.00E+00	.00E+00	.00E+00	.00E+00
cm250	1.41E-19	1.92E-20	6.65E-24	1.48E-32
cm251	.00E+00	.00E+00	.00E+00	.00E+00

bk249	.00E+00	.00E+00	.00E+00	.00E+00
bk250	4.15E-28	5.67E-29	1.96E-32	.00E+00
bk251	.00E+00	.00E+00	.00E+00	.00E+00
cf249	.00E+00	.00E+00	.00E+00	.00E+00
cf250	1.48E-23	2.02E-24	7.00E-28	1.56E-36
cf251	.00E+00	.00E+00	.00E+00	.00E+00
cf252	.00E+00	.00E+00	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00
cf254	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00
es254	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 104

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
h 3	.00E+00	.00E+00	.00E+00	.00E+00
li 6	7.49E-05	7.49E-05	7.49E-05	7.49E-05
li 7	2.88E-06	2.88E-06	2.88E-06	2.88E-06
be 9	5.54E-06	5.54E-06	5.54E-06	5.54E-06
be 10	3.31E-05	3.24E-05	2.97E-05	2.40E-05
c 14	5.45E-19	1.29E-21	3.98E-32	.00E+00
ni 66	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	1.75E-07	1.75E-07	1.75E-07	1.75E-07
cu 67	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	2.32E-08	2.32E-08	2.32E-08	2.32E-08
zn 68	2.07E-09	2.07E-09	2.07E-09	2.07E-09
zn 69	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	7.63E-08	7.63E-08	7.63E-08	7.63E-08
zn 70	2.03E-06	2.03E-06	2.03E-06	2.03E-06
ga 70	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	2.79E-09	2.79E-09	2.79E-09	2.79E-09
zn 71	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	2.00E-05	2.00E-05	2.00E-05	2.00E-05
ge 71	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	.00E+00	.00E+00	.00E+00	.00E+00
co 72	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	1.30E-03	1.30E-03	1.30E-03	1.30E-03
co 73	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	4.09E-03	4.09E-03	4.09E-03	4.09E-03
ge 73m	.00E+00	.00E+00	.00E+00	.00E+00
co 74	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	.00E+00	.00E+00	.00E+00	.00E+00

zn 74	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	3.49E-03	3.49E-03	3.49E-03	3.49E-03
co 75	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00
as 75	3.33E-02	3.33E-02	3.33E-02	3.33E-02
ni 76	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 105

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial300000. yr	500000. yr	999999. yr	
zn 76	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	1.02E-01	1.02E-01	1.02E-01	1.02E-01
as 76	.00E+00	.00E+00	.00E+00	.00E+00
se 76	6.31E-04	6.31E-04	6.31E-04	6.31E-04
ni 77	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00
se 77	2.33E-01	2.33E-01	2.33E-01	2.33E-01
se 77m	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00
se 78	7.25E-01	7.25E-01	7.25E-01	7.25E-01
cu 79	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00
se 79	7.33E-03	2.56E-03	3.83E-05	1.05E-09
se 79m	.00E+00	.00E+00	.00E+00	.00E+00
br 79	1.39E+00	1.40E+00	1.40E+00	1.40E+00
br 79m	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00
as 80	.00E+00	.00E+00	.00E+00	.00E+00
se 80	3.93E+00	3.93E+00	3.93E+00	3.93E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	1.50E-05	1.50E-05	1.50E-05	1.50E-05
cu 81	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00

ga 81	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	.00E+00	.00E+00	.00E+00	.00E+00
br 81	5.85E+00	5.85E+00	5.85E+00	5.85E+00
kr 81	3.16E-07	2.68E-07	1.40E-07	2.75E-08
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 106

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
ge 82	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	.00E+00	.00E+00	.00E+00	.00E+00
se 82	9.54E+00	9.54E+00	9.54E+00	9.54E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	1.22E-01	1.22E-01	1.22E-01	1.22E-01
zn 83	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	1.35E+01	1.35E+01	1.35E+01	1.35E+01
kr 83m	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	3.28E+01	3.28E+01	3.28E+01	3.28E+01
ga 85	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	.00E+00	.00E+00	.00E+00	.00E+00
kr 85m	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	3.46E+01	3.46E+01	3.46E+01	3.46E+01
ge 86	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00
br 86	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	5.55E+01	5.55E+01	5.55E+01	5.55E+01
rb 86	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	6.45E-02	6.45E-02	6.45E-02	6.45E-02
ge 87	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00

kr 87	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	7.25E+01	7.25E+01	7.25E+01	7.25E+01
sr 87	5.68E-04	6.20E-04	8.30E-04	1.35E-03
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 107

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	1.04E+02	1.04E+02	1.04E+02	1.04E+02
as 89	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	.00E+00	.00E+00	.00E+00	.00E+00
y 89	1.39E+02	1.39E+02	1.39E+02	1.39E+02
y 89m	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	.00E+00	.00E+00	.00E+00	.00E+00
y 90	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	1.70E+02	1.70E+02	1.70E+02	1.70E+02
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00
y 91	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.79E+02	1.79E+02	1.79E+02	1.79E+02
nb 91	.00E+00	.00E+00	.00E+00	.00E+00
se 92	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	1.89E+02	1.89E+02	1.89E+02	1.89E+02
nb 92	3.27E-08	3.26E-08	3.25E-08	3.22E-08
se 93	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.24E+02	1.21E+02	1.11E+02	8.82E+01
nb 93	1.49E+01	1.76E+01	2.81E+01	5.06E+01

nb 93m	1.31E-03	1.28E-03	1.17E-03	9.30E-04
br 94	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 108

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00
y 94	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	2.23E+02	2.23E+02	2.23E+02	2.23E+02
nb 94	2.45E-08	4.44E-09	4.80E-12	1.84E-19
nb 94m	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	2.24E+02	2.24E+02	2.24E+02	2.24E+02
br 96	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	2.32E+02	2.32E+02	2.32E+02	2.32E+02
nb 96	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	6.56E+00	6.56E+00	6.56E+00	6.56E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	2.17E+02	2.17E+02	2.17E+02	2.17E+02
kr 98	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	2.33E+02	2.33E+02	2.33E+02	2.33E+02
tc 98	1.31E-03	1.30E-03	1.26E-03	1.16E-03
rb 99	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00
y 99	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	1.01E+02	8.61E+01	4.46E+01	8.64E+00
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	1.29E+02	1.44E+02	1.86E+02	2.22E+02
rb100	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00

y100	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 109

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00
nb100	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	.00E+00	.00E+00	.00E+00	.00E+00
mo100	2.63E+02	2.63E+02	2.63E+02	2.63E+02
tc100	.00E+00	.00E+00	.00E+00	.00E+00
ru100	1.89E+01	1.89E+01	1.89E+01	1.89E+01
rb101	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00
ru101	2.18E+02	2.18E+02	2.18E+02	2.18E+02
sr102	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00
ru102	2.10E+02	2.10E+02	2.10E+02	2.10E+02
rh102	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00
sr103	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00
ru103	.00E+00	.00E+00	.00E+00	.00E+00
rh103	1.44E+02	1.44E+02	1.44E+02	1.44E+02
rh103m	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00
ru104	1.39E+02	1.39E+02	1.39E+02	1.39E+02
rh104	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00
pd104	4.10E+01	4.10E+01	4.10E+01	4.10E+01
y105	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00
pd105	1.01E+02	1.01E+02	1.01E+02	1.01E+02

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 110

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
y106	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00
ru106	.00E+00	.00E+00	.00E+00	.00E+00
rh106	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00
pd106	7.94E+01	7.94E+01	7.94E+01	7.94E+01
ag106	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00
pd107	4.98E+01	4.96E+01	4.85E+01	4.60E+01
pd107m	.00E+00	.00E+00	.00E+00	.00E+00
ag107	1.35E+00	1.61E+00	2.66E+00	5.18E+00
zr108	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00
pd108	3.25E+01	3.25E+01	3.25E+01	3.25E+01
ag108	.00E+00	.00E+00	.00E+00	.00E+00
ag108m	.00E+00	.00E+00	.00E+00	.00E+00
cd108	4.70E-05	4.70E-05	4.70E-05	4.70E-05
zr109	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00
ag109	2.19E+01	2.19E+01	2.19E+01	2.19E+01
ag109m	.00E+00	.00E+00	.00E+00	.00E+00
cd109	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00
pd110	9.64E+00	9.64E+00	9.64E+00	9.64E+00
ag110	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	.00E+00	.00E+00	.00E+00	.00E+00

1
Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 111

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr

cd110	5.76E+00	5.76E+00	5.76E+00	5.76E+00
nb111	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00
cd111	5.04E+00	5.04E+00	5.04E+00	5.04E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00
nb112	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00
pd112	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00
cd112	2.64E+00	2.64E+00	2.64E+00	2.64E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00
cd113	4.58E-02	4.58E-02	4.58E-02	4.58E-02
cd113m	.00E+00	.00E+00	.00E+00	.00E+00
in113	3.00E-02	3.00E-02	3.00E-02	3.00E-02
in113m	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00
ag114	.00E+00	.00E+00	.00E+00	.00E+00
cd114	2.93E+00	2.93E+00	2.93E+00	2.93E+00
in114	.00E+00	.00E+00	.00E+00	.00E+00
in114m	.00E+00	.00E+00	.00E+00	.00E+00
sn114	7.51E-05	7.51E-05	7.51E-05	7.51E-05
mo115	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00
pd115	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	.00E+00	.00E+00	.00E+00	.00E+00
in115	4.59E-01	4.59E-01	4.59E-01	4.59E-01
in115m	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 112

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial300000. yr	500000. yr	999999. yr	
sn115	4.57E-02	4.57E-02	4.57E-02	4.57E-02
tc116	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00

rh116	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00
cd116	1.31E+00	1.31E+00	1.31E+00	1.31E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00
sn116	4.77E-01	4.77E-01	4.77E-01	4.77E-01
tc117	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00
sn117	1.19E+00	1.19E+00	1.19E+00	1.19E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00
sn118	9.73E-01	9.73E-01	9.73E-01	9.73E-01
ru119	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00
sn119	1.03E+00	1.03E+00	1.03E+00	1.03E+00
sn119m	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00
sn120	1.01E+00	1.01E+00	1.01E+00	1.01E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 113

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial300000. yr	500000. yr	999999. yr	
pd121	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00
cd121	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00
sn121	.00E+00	.00E+00	.00E+00	.00E+00

sn121m	.00E+00	.00E+00	.00E+00	.00E+00
sb121	1.05E+00	1.05E+00	1.05E+00	1.05E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00
sn122	1.31E+00	1.31E+00	1.31E+00	1.31E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00
te122	4.68E-02	4.68E-02	4.68E-02	4.68E-02
rh123	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00
sn123	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00
sb123	1.23E+00	1.23E+00	1.23E+00	1.23E+00
te123	3.68E-04	3.68E-04	3.68E-04	3.68E-04
te123m	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00
sn124	2.20E+00	2.20E+00	2.20E+00	2.20E+00
sb124	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00
te124	3.98E-02	3.98E-02	3.98E-02	3.98E-02
pd125	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00
sb125	.00E+00	.00E+00	.00E+00	.00E+00
te125	2.68E+00	2.68E+00	2.68E+00	2.68E+00
te125m	.00E+00	.00E+00	.00E+00	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00
sn126	8.64E-01	6.11E-01	1.53E-01	4.77E-03

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 114

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
sb126	4.10E-08	2.90E-08	7.25E-09	2.27E-10
sb126m	3.12E-10	2.21E-10	5.52E-11	1.72E-12
te126	4.10E+00	4.35E+00	4.81E+00	4.96E+00
xe126	1.22E-09	1.22E-09	1.22E-09	1.22E-09
ag127	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00

sn127m	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00
te127	.00E+00	.00E+00	.00E+00	.00E+00
te127m	.00E+00	.00E+00	.00E+00	.00E+00
i127	1.12E+01	1.12E+01	1.12E+01	1.12E+01
xe127	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00
sb128	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00
te128	2.43E+01	2.43E+01	2.43E+01	2.43E+01
i128	.00E+00	.00E+00	.00E+00	.00E+00
xe128	3.97E-01	3.97E-01	3.97E-01	3.97E-01
cd129	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00
sn129	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00
te129	.00E+00	.00E+00	.00E+00	.00E+00
te129m	.00E+00	.00E+00	.00E+00	.00E+00
i129	4.94E+01	4.93E+01	4.89E+01	4.78E+01
xe129	5.50E-01	6.58E-01	1.09E+00	2.16E+00
xe129m	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00
te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02
i130	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00
xe131	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe131m	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 115

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial300000. yr	500000. yr	999999. yr	
cd132	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00
sn132	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00
i132	.00E+00	.00E+00	.00E+00	.00E+00
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02
cs132	.00E+00	.00E+00	.00E+00	.00E+00
ba132	4.90E-05	4.90E-05	4.90E-05	4.90E-05
in133	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00

sb133	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00
cs133	3.41E+02	3.41E+02	3.41E+02	3.41E+02
ba133	.00E+00	.00E+00	.00E+00	.00E+00
in134	.00E+00	.00E+00	.00E+00	.00E+00
sn134	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02
xe134m	.00E+00	.00E+00	.00E+00	.00E+00
cs134	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00
ba134	2.97E+01	2.97E+01	2.97E+01	2.97E+01
sn135	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00
cs135	1.64E+02	1.62E+02	1.52E+02	1.31E+02
cs135m	.00E+00	.00E+00	.00E+00	.00E+00
ba135	1.29E+01	1.54E+01	2.48E+01	4.61E+01
ba135m	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00
xe136	5.61E+02	5.61E+02	5.61E+02	5.61E+02
cs136	.00E+00	.00E+00	.00E+00	.00E+00
ba136	4.78E+00	4.78E+00	4.78E+00	4.78E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 116

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
sb137	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00
cs137	.00E+00	.00E+00	.00E+00	.00E+00
ba137	3.60E+02	3.60E+02	3.60E+02	3.60E+02
ba137m	.00E+00	.00E+00	.00E+00	.00E+00
sb138	.00E+00	.00E+00	.00E+00	.00E+00
te138	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00
ba138	3.65E+02	3.65E+02	3.65E+02	3.65E+02
la138	2.18E-03	2.18E-03	2.18E-03	2.18E-03

sb139	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00
la139	3.47E+02	3.47E+02	3.47E+02	3.47E+02
ce139	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00
i140	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00
ce140	3.67E+02	3.67E+02	3.67E+02	3.67E+02
pr140	.00E+00	.00E+00	.00E+00	.00E+00
te141	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00
ce141	.00E+00	.00E+00	.00E+00	.00E+00
pr141	3.21E+02	3.21E+02	3.21E+02	3.21E+02
nd141	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00
ba142	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00
ce142	3.23E+02	3.23E+02	3.23E+02	3.23E+02
pr142	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00
nd142	3.24E+00	3.24E+00	3.24E+00	3.24E+00
i143	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 117

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00
la143	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00
nd143	2.69E+02	2.69E+02	2.69E+02	2.69E+02
i144	.00E+00	.00E+00	.00E+00	.00E+00
xe144	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00
ba144	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00
ce144	.00E+00	.00E+00	.00E+00	.00E+00
pr144	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	.00E+00	.00E+00	.00E+00	.00E+00
nd144	3.42E+02	3.42E+02	3.42E+02	3.42E+02
i145	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00

cs145	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00
nd145	2.03E+02	2.03E+02	2.03E+02	2.03E+02
pm145	.00E+00	.00E+00	.00E+00	.00E+00
sm145	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00
ba146	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00
nd146	1.87E+02	1.87E+02	1.87E+02	1.87E+02
pm146	.00E+00	.00E+00	.00E+00	.00E+00
sm146	2.58E-03	2.58E-03	2.57E-03	2.57E-03
xe147	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00
pm147	.00E+00	.00E+00	.00E+00	.00E+00
sm147	8.97E+01	8.97E+01	8.97E+01	8.97E+01
cs148	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00
pr148	.00E+00	.00E+00	.00E+00	.00E+00
nd148	1.03E+02	1.03E+02	1.03E+02	1.03E+02
pm148	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 118

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
sm148	2.89E+01	2.89E+01	2.89E+01	2.89E+01
cs149	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00
nd149	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00
sm149	1.42E+00	1.42E+00	1.42E+00	1.42E+00
eu149	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00
ba150	.00E+00	.00E+00	.00E+00	.00E+00
la150	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00
nd150	4.85E+01	4.85E+01	4.85E+01	4.85E+01
pm150	.00E+00	.00E+00	.00E+00	.00E+00
sm150	8.04E+01	8.04E+01	8.04E+01	8.04E+01
eu150	.00E+00	.00E+00	.00E+00	.00E+00
ba151	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00

ce151	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00
sm151	.00E+00	.00E+00	.00E+00	.00E+00
eu151	6.22E+00	6.22E+00	6.22E+00	6.22E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00
nd152	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00
sm152	3.74E+01	3.74E+01	3.74E+01	3.74E+01
eu152	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	.00E+00	.00E+00	.00E+00	.00E+00
gd152	3.19E-02	3.19E-02	3.19E-02	3.19E-02
la153	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00
eu153	2.70E+01	2.70E+01	2.70E+01	2.70E+01
gd153	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 119

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
sm154	9.08E+00	9.08E+00	9.08E+00	9.08E+00
eu154	.00E+00	.00E+00	.00E+00	.00E+00
gd154	7.93E+00	7.93E+00	7.93E+00	7.93E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00
eu155	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00
gd155	3.18E+00	3.18E+00	3.18E+00	3.18E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00
nd156	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00
gd156	9.32E+00	9.32E+00	9.32E+00	9.32E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00

eu157	.00E+00	.00E+00	.00E+00	.00E+00
gd157	3.11E-02	3.11E-02	3.11E-02	3.11E-02
pr158	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.25E+00	3.25E+00	3.25E+00	3.25E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.03E-01	5.03E-01	5.03E-01	5.03E-01
nd160	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.25E-01	2.25E-01	2.25E-01	2.25E-01
tb160	.00E+00	.00E+00	.00E+00	.00E+00
dy160	3.93E-02	3.93E-02	3.93E-02	3.93E-02
nd161	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 120

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	300000. yr	500000. yr	999999. yr
dy161	8.26E-02	8.26E-02	8.26E-02	8.26E-02
pm162	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.62E-02	5.62E-02	5.62E-02	5.62E-02
sm163	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.66E-02	3.66E-02	3.66E-02	3.66E-02
sm164	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.00E-02	1.00E-02	1.00E-02	1.00E-02
sm165	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00
ho165	9.50E-03	9.50E-03	9.50E-03	9.50E-03
dy166	.00E+00	.00E+00	.00E+00	.00E+00

```
     ho166    .00E+00   .00E+00   .00E+00   .00E+00
     ho166m   .00E+00   .00E+00   .00E+00   .00E+00
     er166   1.57E-03  1.57E-03  1.57E-03  1.57E-03
     er167   2.44E-05  2.44E-05  2.44E-05  2.44E-05
     er167m   .00E+00   .00E+00   .00E+00   .00E+00
     er168   2.01E-05  2.01E-05  2.01E-05  2.01E-05
     yb168    .00E+00   .00E+00   .00E+00   .00E+00
     er169    .00E+00   .00E+00   .00E+00   .00E+00
     tm169   7.41E-07  7.41E-07  7.41E-07  7.41E-07
     yb169    .00E+00   .00E+00   .00E+00   .00E+00
     er170   7.89E-07  7.89E-07  7.89E-07  7.89E-07
     tm170    .00E+00   .00E+00   .00E+00   .00E+00
     tm170m   .00E+00   .00E+00   .00E+00   .00E+00
     yb170   4.62E-09  4.62E-09  4.62E-09  4.62E-09
     er171    .00E+00   .00E+00   .00E+00   .00E+00
     tm171    .00E+00   .00E+00   .00E+00   .00E+00
     yb171   1.05E-06  1.05E-06  1.05E-06  1.05E-06
     er172    .00E+00   .00E+00   .00E+00   .00E+00
     tm172    .00E+00   .00E+00   .00E+00   .00E+00
     yb172   6.73E-07  6.73E-07  6.73E-07  6.73E-07
   total     9.58E+03  9.58E+03  9.58E+03  9.58E+03
1  * normal termination of execution *
0                                     table of contents for material tables
0                                       case or subcase printed      page

                                                  1                   1
                                                  2                  21
                                                  3                  41
                                                  4                  61
                                                  5                  81
                                                  6                 101
0ndset          33
           21          4          1         27          6          0          0          0          0          0
            0          0          0          0          0          0         -1       1698        690        130
          880       7935          0          5         99          4         20         95         18         18
           18          0         71
0   35$ array      1 entries read
0    0t
   54$$ a8 1 e
    56$$ 0 7 a5 1 a13 -1 a15 3 0 4 e   5t
0   56$ array     20 entries read
0    5t
     l90   97344
     l116  60787
     l32   33663 nudata (library) storage size
     l44   33734
     l103  75921
   61** f1-20
   65$$ a4 1 2z 1 2z 1 5z 1 2z 1
    a25 1 2z 1 2z 1 5z 1 2z 1
    a46 1 2z 1 2z 1 5z 1 2z 1 e
0   60* array      7 entries read
0   65$ array     63 entries read
0    6t
     l140  66851
     used   100723 in size   150000
0jopt           12
            0          0          0          0          0          0          0          0          0          0
            0          0
0therm           4
```

```
  5.279960E-01 3.626268E-01 2.877356E+00 1.000000E-25
0non             5
          7935           20            6           18         1697
0mmn            19
             0            7            0            0            1            1            0            0            0            0
            21          100           -1            4            3            0            4            0            0
0tconst          5
  8.640000E+04  .000000E+00  .000000E+00  .000000E+00 5.000000E-02
0mzero           4
             0          689          129          879
0pow             3
   .000000E+00  .000000E+00  .000000E+00
0 linp           9
             6            0           51           26            2         3000         1000         1697            5
0 case or subcase    1  Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
    56$$ 0 -6 a10 1  e  t
0   56$ array     20 entries read
0   57* array      5 entries read
0    5t
     l90  102444
     l116  66199
     l32   33663 nudata (library) storage size
     l44   33734
     l103  81099
   61** f1-20
   65$$ a4 1 2z 1 2z 1 5z 1 2z 1
    a25 1 2z 1 2z 1 5z 1 2z 1
    a46 1 2z 1 2z 1 5z 1 2z 1 e
0   60* array     10 entries read
0   65$ array     63 entries read
0    6t
     l140  71957
     used   107068 in size   150000
0jopt           12
             0            0            0            0            0            0            0            0            0            0
             0            0
0therm           4
  5.279960E-01 3.626268E-01 2.877356E+00 1.000000E-25
0non             5
          7935           20            6           18         1697
0mmn            19
             0           10            0            0            1            1            0            0            0            7
            21          100            0            5            0            0            4            0            0
0tconst          5
  3.156000E+07 1.000000E+01 2.300000E+01  .000000E+00 5.000000E-02
0mzero           4
            18          689          129          879
0pow             3
   .000000E+00  .000000E+00  .000000E+00
0 linp           9
             6            0           51           26            2         3000         1000         1697            5
0 case or subcase    2  Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
0   56$ array     20 entries read
0   57* array      5 entries read
0    5t
     l90  102444
     l116  66199
     l32   33663 nudata (library) storage size
     l44   33734
     l103  81099
```

```
     61** f1-20
0   60* array     10 entries read
0   65$ array     63 entries read
0    6t
     l140  71957
     used   107068 in size   150000
0jopt            12
             0            0            0            0            0            0            0            0            0            0
             0            0
0therm           4
  5.279960E-01 3.626268E-01 2.877356E+00 1.000000E-25
0non             5
          7935           20            6           18         1697
0mmn            19
             0           10            0            0            1            1            0            0            0           10
            21          100            0            5            0            0            4            0            0
0tconst          5
  3.156000E+07 4.000000E+02 2.800000E+01  .000000E+00 5.000000E-02
0mzero           4
            21          689          129          879
0pow             3
   .000000E+00  .000000E+00  .000000E+00
0 linp           9
             6            0           51           26            2         3000         1000         1697            5
0 case or subcase    3  Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
0   56$ array     20 entries read
0   57* array      5 entries read
0    5t
     l90  102444
     l116  66199
     l32   33663 nudata (library) storage size
     l44   33734
     l103  81099
   61** f1-20
0   60* array     10 entries read
0   65$ array     63 entries read
0    6t
     l140  71957
     used   107068 in size   150000
0jopt            12
             0            0            0            0            0            0            0            0            0            0
             0            0
0therm           4
  5.279960E-01 3.626268E-01 2.877356E+00 1.000000E-25
0non             5
          7935           20            6           18         1697
0mmn            19
             0           10            0            0            1            1            0            0            0           10
            21          100            0            5            0            0            4            0            0
0tconst          5
  3.156000E+07 1.600000E+04 2.500000E+01  .000000E+00 5.000000E-02
0mzero           4
            21          689          129          879
0pow             3
   .000000E+00  .000000E+00  .000000E+00
0 linp           9
             6            0           51           26            2         3000         1000         1697            5
0 case or subcase    4  Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
0   56$ array     20 entries read
0   57* array      5 entries read
```

```
0    5t
     l90  102444
     l116  66199
     l32   33663 nudata (library) storage size
     l44   33734
     l103  81099
     61** f1-20
0   60* array     10 entries read
0   65$ array     63 entries read
0    6t
     l140  71957
     used   107068 in size   150000
0jopt            12
             0            0            0            0            0            0            0            0            0            0
             0            0
0therm           4
  5.279960E-01 3.626268E-01 2.877356E+00 1.000000E-25
0non             5
          7935           20            6           18         1697
0mmn            19
             0           10            0            0            1            1            0            0            0           10
            21          100            0            5            0            0            4            0            0
0tconst          5
  3.156000E+07 3.800000E+04 2.500000E+01  .000000E+00 5.000000E-02
0mzero           4
            21          689          129          879
0pow             3
   .000000E+00  .000000E+00  .000000E+00
0 linp           9
             6            0           51           26            2         3000         1000         1697            5
0 case or subcase    5  Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
0   56$ array     20 entries read
0   57* array      5 entries read
0    5t
     l90   90544
     l116  53571
     l32   33663 nudata (library) storage size
     l44   33734
     l103  69017
   61** f1-20
0   60* array      3 entries read
0   65$ array     63 entries read
0    6t
     l140  60057
     used    92263 in size   150000
0jopt            12
             0            0            0            0            0            0            0            0            0            0
             0            0
0therm           4
  5.279960E-01 3.626268E-01 2.877356E+00 1.000000E-25
0non             5
          7935           20            6           18         1697
0mmn            19
             0            3            0            0            1            1            0            0            0           10
            21          100            0            5            0            0            4            0            0
0tconst          5
  3.156000E+07 2.500000E+05 2.600000E+01  .000000E+00 5.000000E-02
0mzero           4
            21          689          129          879
0pow             3
```

```
   .000000E+00  .000000E+00  .000000E+00
0 linp          9
              6           0          51          26           2        3000        1000        1697           5
0 case or subcase    6  Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
    56$$ 0 -10 a10 1 e  t
0   56$ array     20 entries read
0    0t
```

SAS2H Number Density Worksheet:

Number Density = (mass/assembly) / (volume) * (Na) / (Aw) * correction to 96% density for fresh fuel
Avogadro's Number [Na] 0.602252
Atomic Weight [Aw]

Volume= Pi X .468122 X .468122 X 360.172 X 208
= 51575.24014

SAS2H UO2 density=10.206
U mass=.464kg
UO2 mass= 526.38 kg
Correction to 96% density
1.030928

Isotope List:

	Element	Symbol	Isotope	MCNP ID	Atomic Weight	ORIGINS ID
8	Oxygen	O	O-16	8016.50C	15.994915	
42	Molybdenum	Mo	nat.	42000.50C	95.94	
		Mo	Mo-95	42095.50C	94.905839	mo 95
43	Technetium	Tc	Tc-99*	43099.50C	98.90627501	tc 99
44	Ruthenium	Ru	Ru-101	44101.50C	100.905576	ru101
45	Rhodium	Rh	Rh-103	45103.50C	102.905511	rh103
47	Silver	Ag	Ag-109	47109.50C	108.904756	ag109
48	Cadmium	Cd	nat.	48000.50C	112.4	
55	Cesium	Cs	Cs-133	55133.50C	132.905355	cs133
		Cs	Cs-135	55135.50C	134.90577	cs135
60	Neodymium	Nd	Nd-143	60143.50C	142.909779	nd143
		Nd	Nd-145	60145.50C	144.912538	nd145
62	Samarium	Sm	Sm-147	62147.50C	146.914867	sm147
		Sm	Sm-149	62149.50C	148.91718	sm149
		Sm	Sm-150	62150.50C	149.917276	sm150
		Sm	Sm-151	62151.50C	150.919919	sm151
		Sm	Sm-152	62152.50C	151.919756	sm152
63	Europium	Eu	Eu-151	63151.55C	150.919838	eu151
		Eu	Eu-153	63153.55C	152.921242	eu153
		Eu	Eu-154	63154.50C	153.923053	eu154
64	Gadolinium	Gd	nat.	64000.35C	157.25	
		Gd	Gd-155	64155.50C	154.922664	gd155
		Gd	Gd-157	64157.50C	156.924025	gd157
72	Hafnium	Hf	nat.	72000.50C	178.49	
92	Uranium	U	U-233	92233.50C	233.039522	u233
		U	U-234	92234.50C	234.040904	u234
		U	U-235	92235.50C	235.043915	u235
		U	U-236	92236.50C	236.045637	u236
		U	U-238	92238.50C	238.05077	u238
93	Neptunium	Np	Np-237	93237.55C	237.048056	np237
94	Plutonium	Pu	Pu-238	94238.50C	238.049511	pu238
		Pu	Pu-239	94239.55C	239.052146	pu239
		Pu	Pu-240	94240.50C	240.053882	pu240
		Pu	Pu-241	94241.50C	241.056737	pu241
		Pu	Pu-242	94242.50C	242.058725	pu242
		Pu	Pu-243	94243.35C	243.061972	pu243
95	Americium	Am	Am-241	95241.50C	241.056714	am241
		Am	Am-242m	95242.50C	242.059502	am242m
		Am	Am-243	95243.50C	243.061367	am243
96	Curium	Cm	Cm-243	96243.35C	243.06137	cm243
		Cm	Cm-245	96245.35C	245.065371	cm245
		Cm	Cm-248	96248.35C	248.0722	cm248

Number Density = grams/assembly / Assembly Volume * Avagadro's Number / Atomic Weight
* (Density Correction to 96% TD) * (Isotopic Correction Factor)

For Time Effects Cases, the Isotopic Correction Factor is set to 1.0.

Time Effects Curve
BURNUP: PWR 20 GWd/MT
ENRICHMENT: 3.00%
DECAY TIME: 5 YEARS

PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
DECAY TIME: 5 YEARS
Volume 51575.24 pwr 3.0% 20 GW

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.31E+02	0.045%	1	98.90628	43099.50C	2.8116E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	7.38E+01	0.014%	1	146.9149	62147.50C	6.0472E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	5.97E+00	0.001%	1	150.9199	62151.50C	4.7620E-07
eu151	2.50E-01	0.000%	1	150.9198	63151.55C	1.9942E-08
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	1.69E+00	0.000%	1	154.9227	64155.50C	1.3132E-07
u233	1.20E-03	0.000%	1	233.0395	92233.50C	6.1989E-11
u234	8.17E+01	0.016%	1	234.0409	92234.50C	4.2024E-06
u235	6.30E+03	1.217%	1	235.0439	92235.50C	3.2267E-04
u236	1.41E+03	0.272%	1	236.0456	92236.50C	7.1910E-05
u238	4.42E+05	85.383%	1	238.0508	92238.50C	2.2352E-02
np237	1.29E+02	0.025%	1	237.0481	93237.55C	6.5512E-06
pu238	2.93E+01	0.006%	1	238.0495	94238.50C	1.4817E-06
pu239	2.63E+03	0.508%	1	239.0521	94239.55C	1.3244E-04
pu240	6.72E+02	0.130%	1	240.0539	94240.50C	3.3700E-05
pu241	3.18E+02	0.061%	1	241.0567	94241.50C	1.5881E-05
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	1.03E+02	0.020%	1	241.0567	95241.50C	5.1438E-06
am242m	4.21E-01	0.000%	1	242.0595	95242.50C	2.0938E-08
am243	1.01E+01	0.002%	1	243.0614	95243.50C	5.0023E-07
total	517670.442	100.00%			Total	7.005698E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29
Effective density = 10.03719

Time Effects Curve
BURNUP: PWR 20 GWd/MT
ENRICHMENT: 3.00%
DECAY TIME: 10 YEARS

PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
DECAY TIME: 10 YEARS
Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.049%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.31E+02	0.045%	1	98.90628	43099.50C	2.8116E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.54E+01	0.016%	1	146.9149	62147.50C	6.9977E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	5.74E+00	0.001%	1	150.9199	62151.50C	4.5786E-07
eu151	4.75E-01	0.000%	1	150.9198	63151.55C	3.7889E-08
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	2.47E+00	0.000%	1	154.9227	64155.50C	1.9193E-07

u233	1.40E-03	0.000%	1	233.0395	92233.50C	7.2321E-11
u234	8.28E+01	0.016%	1	234.0409	92234.50C	4.2590E-06
u235	6.30E+03	1.217%	1	235.0439	92235.50C	3.2267E-04
u236	1.41E+03	0.272%	1	236.0456	92236.50C	7.1910E-05
u238	4.42E+05	85.380%	1	238.0508	92238.50C	2.2352E-02
np237	1.30E+02	0.025%	1	237.0481	93237.55C	6.6019E-06
pu238	2.81E+01	0.005%	1	238.0495	94238.50C	1.4210E-06
pu239	2.63E+03	0.508%	1	239.0521	94239.55C	1.3244E-04
pu240	6.72E+02	0.130%	1	240.0539	94240.50C	3.3700E-05
pu241	2.50E+02	0.048%	1	241.0567	94241.50C	1.2485E-05
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	1.71E+02	0.033%	1	241.0567	95241.50C	8.5397E-06
am242m	4.11E-01	0.000%	1	242.0595	95242.50C	2.0440E-08
am243	1.01E+01	0.002%	1	243.0614	95243.50C	5.0023E-07
total	517683.707	100.00%			Total	7.005804E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03745

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 20 YEARS
DECAY TIME: 20 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.049%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.31E+02	0.045%	1	98.90628	43099.50C	2.8116E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.94E+01	0.017%	1	146.9149	62147.50C	7.3255E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	5.32E+00	0.001%	1	150.9199	62151.50C	4.2436E-07
eu151	9.01E-01	0.000%	1	150.9198	63151.55C	7.1869E-08
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.02E+00	0.001%	1	154.9227	64155.50C	2.3467E-07
u233	1.81E-03	0.000%	1	233.0395	92233.50C	9.3501E-11
u234	8.49E+01	0.016%	1	234.0409	92234.50C	4.3670E-06
u235	6.30E+03	1.217%	1	235.0439	92235.50C	3.2267E-04
u236	1.41E+03	0.272%	1	236.0456	92236.50C	7.1910E-05
u238	4.42E+05	85.380%	1	238.0508	92238.50C	2.2352E-02
np237	1.33E+02	0.026%	1	237.0481	93237.55C	6.7543E-06
pu238	2.60E+01	0.005%	1	238.0495	94238.50C	1.3148E-06
pu239	2.63E+03	0.508%	1	239.0521	94239.55C	1.3244E-04
pu240	6.71E+02	0.130%	1	240.0539	94240.50C	3.3650E-05
pu241	1.54E+02	0.030%	1	241.0567	94241.50C	7.6907E-06
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	2.63E+02	0.051%	1	241.0567	95241.50C	1.3134E-05
am242m	3.91E-01	0.000%	1	242.0595	95242.50C	1.9446E-08
am243	1.01E+01	0.002%	1	243.0614	95243.50C	5.0023E-07
total	517686.244	100.00%			Total	7.005831E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.0375

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 50 YEARS

DECAY TIME: 50 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.049%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.31E+02	0.045%	1	98.90628	43099.50C	2.8116E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	4.22E+00	0.001%	1	150.9199	62151.50C	3.3661E-07
eu151	2.00E+00	0.000%	1	150.9198	63151.55C	1.5953E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	3.16E-03	0.000%	1	233.0395	92233.50C	1.6324E-10
u234	9.03E+01	0.017%	1	234.0409	92234.50C	4.6447E-06
u235	6.30E+03	1.217%	1	235.0439	92235.50C	3.2267E-04
u236	1.42E+03	0.274%	1	236.0456	92236.50C	7.2420E-05
u238	4.42E+05	85.378%	1	238.0508	92238.50C	2.2352E-02
np237	1.49E+02	0.029%	1	237.0481	93237.55C	7.5669E-06
pu238	2.06E+01	0.004%	1	238.0495	94238.50C	1.0418E-06
pu239	2.63E+03	0.508%	1	239.0521	94239.55C	1.3244E-04
pu240	6.70E+02	0.129%	1	240.0539	94240.50C	3.3599E-05
pu241	3.62E+01	0.007%	1	241.0567	94241.50C	1.8078E-06
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	3.65E+02	0.071%	1	241.0567	95241.50C	1.8228E-05
am242m	3.38E-01	0.000%	1	242.0595	95242.50C	1.6810E-08
am243	1.00E+01	0.002%	1	243.0614	95243.50C	4.9528E-07
total	517695.751	100.00%			Total	7.005883E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29
Effective density = 10.03768

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 100 YEARS
DECAY TIME: 100 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.049%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.30E+02	0.044%	1	98.90628	43099.50C	2.7994E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	2.87E+00	0.001%	1	150.9199	62151.50C	2.2893E-07
eu151	3.35E+00	0.001%	1	150.9198	63151.55C	2.6722E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	5.76E-03	0.000%	1	233.0395	92233.50C	2.9755E-10
u234	9.69E+01	0.019%	1	234.0409	92234.50C	4.9842E-06
u235	6.31E+03	1.219%	1	235.0439	92235.50C	3.2318E-04

u236	1.42E+03	0.274%	1	236.0456	92236.50C	7.2420E-05
u238	4.42E+05	85.379%	1	238.0508	92238.50C	2.2352E-02
np237	1.78E+02	0.034%	1	237.0481	93237.55C	9.0396E-06
pu238	1.39E+01	0.003%	1	238.0495	94238.50C	7.0293E-07
pu239	2.62E+03	0.506%	1	239.0521	94239.55C	1.3194E-04
pu240	6.66E+02	0.129%	1	240.0539	94240.50C	3.3399E-05
pu241	3.23E+00	0.001%	1	241.0567	94241.50C	1.6131E-07
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	3.68E+02	0.071%	1	241.0567	95241.50C	1.8378E-05
am242m	2.64E-01	0.000%	1	242.0595	95242.50C	1.3129E-08
am243	9.99E+00	0.002%	1	243.0614	95243.50C	4.9478E-07
total	517689.6	100.00%			Total	7.005849E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03756

Time Effects Curve

BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 200 YEARS
DECAY TIME: 200 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.049%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.30E+02	0.044%	1	98.90628	43099.50C	2.7994E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	1.33E+00	0.000%	1	150.9199	62151.50C	1.0609E-07
eu151	4.89E+00	0.001%	1	150.9198	63151.55C	3.9006E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	1.23E-02	0.000%	1	233.0395	92233.50C	6.3539E-10
u234	1.04E+02	0.020%	1	234.0409	92234.50C	5.3494E-06
u235	6.31E+03	1.219%	1	235.0439	92235.50C	3.2318E-04
u236	1.43E+03	0.276%	1	236.0456	92236.50C	7.2930E-05
u238	4.42E+05	85.379%	1	238.0508	92238.50C	2.2352E-02
np237	2.32E+02	0.045%	1	237.0481	93237.55C	1.1782E-05
pu238	6.36E+00	0.001%	1	238.0495	94238.50C	3.2163E-07
pu239	2.62E+03	0.506%	1	239.0521	94239.55C	1.3194E-04
pu240	6.59E+02	0.127%	1	240.0539	94240.50C	3.3048E-05
pu241	2.58E-02	0.000%	1	241.0567	94241.50C	1.2884E-09
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	3.16E+02	0.061%	1	241.0567	95241.50C	1.5781E-05
am242m	1.62E-01	0.000%	1	242.0595	95242.50C	8.0567E-09
am243	9.90E+00	0.002%	1	243.0614	95243.50C	4.9033E-07
total	517690.77	100.00%			Total	7.005861E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03758

Time Effects Curve

BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 300 YEARS
DECAY TIME: 300 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density

O 16	62377.29	12.049%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.30E+02	0.044%	1	98.90628	43099.50C	2.7994E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	6.15E-01	0.000%	1	150.9199	62151.50C	4.9056E-08
eu151	5.60E+00	0.001%	1	150.9198	63151.55C	4.4669E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	2.04E-02	0.000%	1	233.0395	92233.50C	1.0538E-09
u234	1.08E+02	0.021%	1	234.0409	92234.50C	5.5552E-06
u235	6.32E+03	1.221%	1	235.0439	92235.50C	3.2369E-04
u236	1.43E+03	0.276%	1	236.0456	92236.50C	7.2930E-05
u238	4.42E+05	85.380%	1	238.0508	92238.50C	2.2352E-02
np237	2.78E+02	0.054%	1	237.0481	93237.55C	1.4118E-05
pu238	2.92E+00	0.001%	1	238.0495	94238.50C	1.4767E-07
pu239	2.61E+03	0.504%	1	239.0521	94239.55C	1.3144E-04
pu240	6.52E+02	0.126%	1	240.0539	94240.50C	3.2697E-05
pu241	2.80E-04	0.000%	1	241.0567	94241.50C	1.3983E-11
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	2.69E+02	0.052%	1	241.0567	95241.50C	1.3434E-05
am242m	9.88E-02	0.000%	1	242.0595	95242.50C	4.9136E-09
am243	9.80E+00	0.002%	1	243.0614	95243.50C	4.8537E-07
total	517683.144	100.00%			Total	7.005827E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03744

Time Effects Curve

BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM

ENRICHMENT: 3.00% DECAY TIME: 400 YEARS

DECAY TIME: 400 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.049%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.30E+02	0.044%	1	98.90628	43099.50C	2.7994E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	2.85E-01	0.000%	1	150.9199	62151.50C	2.2733E-08
eu151	5.93E+00	0.001%	1	150.9198	63151.55C	4.7301E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	2.99E-02	0.000%	1	233.0395	92233.50C	1.5446E-09
u234	1.09E+02	0.021%	1	234.0409	92234.50C	5.6066E-06
u235	6.33E+03	1.223%	1	235.0439	92235.50C	3.2421E-04
u236	1.44E+03	0.278%	1	236.0456	92236.50C	7.3440E-05
u238	4.42E+05	85.380%	1	238.0508	92238.50C	2.2352E-02
np237	3.17E+02	0.061%	1	237.0481	93237.55C	1.6099E-05

pu238	1.35E+00	0.000%	1	238.0495	94238.50C	6.8270E-08
pu239	2.60E+03	0.502%	1	239.0521	94239.55C	1.3093E-04
pu240	6.46E+02	0.125%	1	240.0539	94240.50C	3.2396E-05
pu241	7.54E-05	0.000%	1	241.0567	94241.50C	3.7655E-12
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	2.30E+02	0.044%	1	241.0567	95241.50C	1.1486E-05
am242m	6.05E-02	0.000%	1	242.0595	95242.50C	3.0088E-09
am243	9.71E+00	0.002%	1	243.0614	95243.50C	4.8092E-07
total	517686.455	100.00%			Total	7.005849E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.0375

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 500 YEARS
DECAY TIME: 500 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.049%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.30E+02	0.044%	1	98.90628	43099.50C	2.7994E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	1.32E-01	0.000%	1	150.9199	62151.50C	1.0529E-08
eu151	6.08E+00	0.001%	1	150.9198	63151.55C	4.8498E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	4.06E-02	0.000%	1	233.0395	92233.50C	2.0973E-09
u234	1.10E+02	0.021%	1	234.0409	92234.50C	5.6580E-06
u235	6.34E+03	1.225%	1	235.0439	92235.50C	3.2472E-04
u236	1.45E+03	0.280%	1	236.0456	92236.50C	7.3950E-05
u238	4.42E+05	85.379%	1	238.0508	92238.50C	2.2352E-02
np237	3.51E+02	0.068%	1	237.0481	93237.55C	1.7825E-05
pu238	6.24E-01	0.000%	1	238.0495	94238.50C	3.1556E-08
pu239	2.59E+03	0.500%	1	239.0521	94239.55C	1.3043E-04
pu240	6.39E+02	0.123%	1	240.0539	94240.50C	3.2045E-05
pu241	7.32E-05	0.000%	1	241.0567	94241.50C	3.6556E-12
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	1.96E+02	0.038%	1	241.0567	95241.50C	9.7882E-06
am242m	3.70E-02	0.000%	1	242.0595	95242.50C	1.8401E-09
am243	9.62E+00	0.002%	1	243.0614	95243.50C	4.7646E-07
total	517689.624	100.00%			Total	7.005870E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03756

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 1000 YEARS
DECAY TIME: 1000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.049%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.30E+02	0.044%	1	98.90628	43099.50C	2.7994E-05

ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	2.80E-03	0.000%	1	150.9199	62151.50C	2.2335E-10
eu151	6.21E+00	0.001%	1	150.9198	63151.55C	4.9535E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	1.06E-01	0.000%	1	233.0395	92233.50C	5.4757E-09
u234	1.11E+02	0.021%	1	234.0409	92234.50C	5.7095E-06
u235	6.37E+03	1.230%	1	235.0439	92235.50C	3.2625E-04
u236	1.48E+03	0.286%	1	236.0456	92236.50C	7.5480E-05
u238	4.42E+05	85.380%	1	238.0508	92238.50C	2.2352E-02
np237	4.57E+02	0.088%	1	237.0481	93237.55C	2.3208E-05
pu238	1.53E-02	0.000%	1	238.0495	94238.50C	7.7373E-10
pu239	2.56E+03	0.495%	1	239.0521	94239.55C	1.2892E-04
pu240	6.06E+02	0.117%	1	240.0539	94240.50C	3.0390E-05
pu241	7.03E-05	0.000%	1	241.0567	94241.50C	3.5108E-12
pu242	7.07E+01	0.014%	1	242.0587	94242.50C	3.5161E-06
am241	8.77E+01	0.017%	1	241.0567	95241.50C	4.3797E-06
am242m	3.17E-03	0.000%	1	242.0595	95242.50C	1.5765E-10
am243	9.18E+00	0.002%	1	243.0614	95243.50C	4.5467E-07
total	517684.207	100.00%			Total	7.005857E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03746

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 4000 YEARS
DECAY TIME: 4000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.28E+02	0.044%	1	98.90628	43099.50C	2.7751E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	2.58E-13	0.000%	1	150.9199	62151.50C	2.0580E-20
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	6.03E-01	0.000%	1	233.0395	92233.50C	3.1150E-08
u234	1.10E+02	0.021%	1	234.0409	92234.50C	5.6580E-06
u235	6.58E+03	1.271%	1	235.0439	92235.50C	3.3701E-04
u236	1.64E+03	0.317%	1	236.0456	92236.50C	8.3640E-05
u238	4.42E+05	85.382%	1	238.0508	92238.50C	2.2352E-02
np237	5.42E+02	0.105%	1	237.0481	93237.55C	2.7525E-05
pu238	1.67E-09	0.000%	1	238.0495	94238.50C	8.4453E-17
pu239	2.35E+03	0.454%	1	239.0521	94239.55C	1.1834E-04
pu240	4.41E+02	0.085%	1	240.0539	94240.50C	2.2115E-05

pu241	5.50E-05	0.000%	1	241.0567	94241.50C	2.7467E-12
pu242	7.03E+01	0.014%	1	242.0587	94242.50C	3.4962E-06
am241	7.18E-01	0.000%	1	241.0567	95241.50C	3.5857E-08
am242m	1.25E-09	0.000%	1	242.0595	95242.50C	6.2166E-17
am243	6.92E+00	0.001%	1	243.0614	95243.50C	3.4273E-07
total	517672.051	100.00%			Total	7.005821E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03722

Time Effects Curve

BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 8000 YEARS
DECAY TIME: 8000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.25E+02	0.043%	1	98.90628	43099.50C	2.7386E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	1.07E-26	0.000%	1	150.9199	62151.50C	8.5350E-34
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	1.28E+00	0.000%	1	233.0395	92233.50C	6.6122E-08
u234	1.09E+02	0.021%	1	234.0409	92234.50C	5.6066E-06
u235	6.83E+03	1.319%	1	235.0439	92235.50C	3.4981E-04
u236	1.79E+03	0.346%	1	236.0456	92236.50C	9.1290E-05
u238	4.42E+05	85.384%	1	238.0508	92238.50C	2.2352E-02
np237	5.42E+02	0.105%	1	237.0481	93237.55C	2.7525E-05
pu238	4.83E-18	0.000%	1	238.0495	94238.50C	2.4426E-25
pu239	2.10E+03	0.406%	1	239.0521	94239.55C	1.0575E-04
pu240	2.89E+02	0.056%	1	240.0539	94240.50C	1.4493E-05
pu241	3.97E-05	0.000%	1	241.0567	94241.50C	1.9826E-12
pu242	6.98E+01	0.013%	1	242.0587	94242.50C	3.4714E-06
am241	2.43E-03	0.000%	1	241.0567	95241.50C	1.2135E-10
am242m	3.60E-18	0.000%	1	242.0595	95242.50C	1.7904E-25
am243	4.75E+00	0.001%	1	243.0614	95243.50C	2.3526E-07
total	517683.342	100.00%			Total	7.005790E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03705

Time Effects Curve

BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 10000 YEARS
DECAY TIME: 10000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.23E+02	0.043%	1	98.90628	43099.50C	2.7142E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06

nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	2.19E-33	0.000%	1	150.9199	62151.50C	1.7469E-40
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	1.61E+00	0.000%	1	233.0395	92233.50C	8.3169E-08
u234	1.08E+02	0.021%	1	234.0409	92234.50C	5.5552E-06
u235	6.95E+03	1.343%	1	235.0439	92235.50C	3.5596E-04
u236	1.84E+03	0.355%	1	236.0456	92236.50C	9.3840E-05
u238	4.42E+05	85.385%	1	238.0508	92238.50C	2.2352E-02
np237	5.41E+02	0.105%	1	237.0481	93237.55C	2.7474E-05
pu238	2.60E-22	0.000%	1	238.0495	94238.50C	1.3148E-29
pu239	1.98E+03	0.382%	1	239.0521	94239.55C	9.9710E-05
pu240	2.34E+02	0.045%	1	240.0539	94240.50C	1.1735E-05
pu241	3.37E-05	0.000%	1	241.0567	94241.50C	1.6830E-12
pu242	6.96E+01	0.013%	1	242.0587	94242.50C	3.4614E-06
am241	1.11E-03	0.000%	1	241.0567	95241.50C	5.5433E-11
am242m	1.93E-22	0.000%	1	242.0595	95242.50C	9.5984E-30
am243	3.94E+00	0.001%	1	243.0614	95243.50C	1.9514E-07
total	517653.661	100.00%			Total	7.005741E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03686

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 14000 YEARS
DECAY TIME: 14000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.20E+02	0.042%	1	98.90628	43099.50C	2.6777E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	2.26E+00	0.000%	1	233.0395	92233.50C	1.1675E-07
u234	1.07E+02	0.021%	1	234.0409	92234.50C	5.5037E-06
u235	7.16E+03	1.383%	1	235.0439	92235.50C	3.6672E-04
u236	1.92E+03	0.371%	1	236.0456	92236.50C	9.7920E-05
u238	4.42E+05	85.386%	1	238.0508	92238.50C	2.2352E-02
np237	5.41E+02	0.105%	1	237.0481	93237.55C	2.7474E-05
pu238	7.49E-31	0.000%	1	238.0495	94238.50C	3.7877E-38
pu239	1.77E+03	0.342%	1	239.0521	94239.55C	8.9135E-05
pu240	1.53E+02	0.030%	1	240.0539	94240.50C	7.6727E-06
pu241	2.43E-05	0.000%	1	241.0567	94241.50C	1.2135E-12
pu242	6.91E+01	0.013%	1	242.0587	94242.50C	3.4365E-06
am241	7.66E-04	0.000%	1	241.0567	95241.50C	3.8254E-11

am242m	5.57E-31	0.000%	1	242.0595	95242.50C	2.7701E-38
am243	2.70E+00	0.001%	1	243.0614	95243.50C	1.3373E-07
total	517647.571	100.00%			Total	7.005714E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03675

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 18000 YEARS
DECAY TIME: 18000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.17E+02	0.042%	1	98.90628	43099.50C	2.6412E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	2.91E+00	0.001%	1	233.0395	92233.50C	1.5032E-07
u234	1.07E+02	0.021%	1	234.0409	92234.50C	5.5037E-06
u235	7.35E+03	1.420%	1	235.0439	92235.50C	3.7645E-04
u236	1.98E+03	0.383%	1	236.0456	92236.50C	1.0098E-04
u238	4.42E+05	85.387%	1	238.0508	92238.50C	2.2352E-02
np237	5.40E+02	0.104%	1	237.0481	93237.55C	2.7423E-05
pu238	2.16E-39	0.000%	1	238.0495	94238.50C	1.0923E-46
pu239	1.57E+03	0.303%	1	239.0521	94239.55C	7.9063E-05
pu240	1.01E+02	0.020%	1	240.0539	94240.50C	5.0650E-06
pu241	1.76E-05	0.000%	1	241.0567	94241.50C	8.7894E-13
pu242	6.85E+01	0.013%	1	242.0587	94242.50C	3.4067E-06
am241	5.52E-04	0.000%	1	241.0567	95241.50C	2.7567E-11
am242m	1.61E-39	0.000%	1	242.0595	95242.50C	8.0070E-47
am243	1.86E+00	0.000%	1	243.0614	95243.50C	9.2122E-08
total	517640.781	100.00%			Total	7.005680E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03661

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 22000 YEARS
DECAY TIME: 22000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.051%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.14E+02	0.041%	1	98.90628	43099.50C	2.6047E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06

sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	3.54E+00	0.001%	1	233.0395	92233.50C	1.8287E-07
u234	1.06E+02	0.020%	1	234.0409	92234.50C	5.4523E-06
u235	7.52E+03	1.453%	1	235.0439	92235.50C	3.8515E-04
u236	2.01E+03	0.388%	1	236.0456	92236.50C	1.0251E-04
u238	4.42E+05	85.389%	1	238.0508	92238.50C	2.2352E-02
np237	5.39E+02	0.104%	1	237.0481	93237.55C	2.7373E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	1.40E+03	0.270%	1	239.0521	94239.55C	7.0502E-05
pu240	6.59E+01	0.013%	1	240.0539	94240.50C	3.3048E-06
pu241	1.27E-05	0.000%	1	241.0567	94241.50C	6.3423E-13
pu242	6.80E+01	0.013%	1	242.0587	94242.50C	3.3818E-06
am241	3.99E-04	0.000%	1	241.0567	95241.50C	1.9926E-11
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	1.27E+00	0.000%	1	243.0614	95243.50C	6.2900E-08
total	517630.22	100.00%			Total	7.005623E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03641

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 26000 YEARS
DECAY TIME: 26000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.051%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.12E+02	0.041%	1	98.90628	43099.50C	2.5803E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	4.16E+00	0.001%	1	233.0395	92233.50C	2.1490E-07
u234	1.05E+02	0.020%	1	234.0409	92234.50C	5.4009E-06
u235	7.67E+03	1.482%	1	235.0439	92235.50C	3.9284E-04
u236	2.03E+03	0.392%	1	236.0456	92236.50C	1.0353E-04
u238	4.42E+05	85.390%	1	238.0508	92238.50C	2.2352E-02
np237	5.39E+02	0.104%	1	237.0481	93237.55C	2.7373E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	1.25E+03	0.241%	1	239.0521	94239.55C	6.2948E-05
pu240	4.32E+01	0.008%	1	240.0539	94240.50C	2.1664E-06
pu241	9.14E-06	0.000%	1	241.0567	94241.50C	4.5645E-13
pu242	6.75E+01	0.013%	1	242.0587	94242.50C	3.3570E-06
am241	2.88E-04	0.000%	1	241.0567	95241.50C	1.4383E-11
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	8.74E-01	0.000%	1	243.0614	95243.50C	4.3287E-08
total	517624.244	100.00%			Total	7.005593E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29
Effective density = 10.03629

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 30000 YEARS
DECAY TIME: 30000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.051%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.09E+02	0.040%	1	98.90628	43099.50C	2.5438E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	4.77E+00	0.001%	1	233.0395	92233.50C	2.4641E-07
u234	1.04E+02	0.020%	1	234.0409	92234.50C	5.3494E-06
u235	7.80E+03	1.507%	1	235.0439	92235.50C	3.9949E-04
u236	2.05E+03	0.396%	1	236.0456	92236.50C	1.0455E-04
u238	4.42E+05	85.390%	1	238.0508	92238.50C	2.2352E-02
np237	5.38E+02	0.104%	1	237.0481	93237.55C	2.7322E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	1.12E+03	0.216%	1	239.0521	94239.55C	5.6401E-05
pu240	2.83E+01	0.005%	1	240.0539	94240.50C	1.4192E-06
pu241	6.60E-06	0.000%	1	241.0567	94241.50C	3.2960E-13
pu242	6.70E+01	0.013%	1	242.0587	94242.50C	3.3321E-06
am241	2.08E-04	0.000%	1	241.0567	95241.50C	1.0387E-11
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	6.00E-01	0.000%	1	243.0614	95243.50C	2.9717E-08
total	517624.18	100.00%			Total	7.005584E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29
Effective density = 10.03629

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 36000 YEARS
DECAY TIME: 36000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.051%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	2.05E+02	0.040%	1	98.90628	43099.50C	2.4951E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00

eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	5.66E+00	0.001%	1	233.0395	92233.50C	2.9238E-07
u234	1.02E+02	0.020%	1	234.0409	92234.50C	5.2465E-06
u235	7.97E+03	1.540%	1	235.0439	92235.50C	4.0820E-04
u236	2.06E+03	0.398%	1	236.0456	92236.50C	1.0506E-04
u238	4.42E+05	85.394%	1	238.0508	92238.50C	2.2352E-02
np237	5.37E+02	0.104%	1	237.0481	93237.55C	2.7271E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	9.39E+02	0.181%	1	239.0521	94239.55C	4.7287E-05
pu240	1.50E+01	0.003%	1	240.0539	94240.50C	7.5223E-07
pu241	4.04E-06	0.000%	1	241.0567	94241.50C	2.0176E-13
pu242	6.63E+01	0.013%	1	242.0587	94242.50C	3.2973E-06
am241	1.28E-04	0.000%	1	241.0567	95241.50C	6.3923E-12
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	3.41E-01	0.000%	1	243.0614	95243.50C	1.6889E-08
total	517602.811	100.00%			Total	7.005463E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03588

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 45000 YEARS
DECAY TIME: 45000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.051%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	1.99E+02	0.038%	1	98.90628	43099.50C	2.4221E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	6.95E+00	0.001%	1	233.0395	92233.50C	3.5902E-07
u234	1.00E+02	0.019%	1	234.0409	92234.50C	5.1437E-06
u235	8.18E+03	1.580%	1	235.0439	92235.50C	4.1896E-04
u236	2.07E+03	0.400%	1	236.0456	92236.50C	1.0557E-04
u238	4.42E+05	85.396%	1	238.0508	92238.50C	2.2352E-02
np237	5.35E+02	0.103%	1	237.0481	93237.55C	2.7170E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	7.25E+02	0.140%	1	239.0521	94239.55C	3.6510E-05
pu240	5.81E+00	0.001%	1	240.0539	94240.50C	2.9136E-07
pu241	1.94E-06	0.000%	1	241.0567	94241.50C	9.6883E-14
pu242	6.52E+01	0.013%	1	242.0587	94242.50C	3.2426E-06
am241	5.86E-05	0.000%	1	241.0567	95241.50C	2.9265E-12
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	1.46E-01	0.000%	1	243.0614	95243.50C	7.2311E-09
total	517589.616	100.00%			Total	7.005373E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03562

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 60000 YEARS
DECAY TIME: 60000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.052%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	1.89E+02	0.037%	1	98.90628	43099.50C	2.3004E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	8.98E+00	0.002%	1	233.0395	92233.50C	4.6389E-07
u234	9.73E+01	0.019%	1	234.0409	92234.50C	5.0048E-06
u235	8.43E+03	1.629%	1	235.0439	92235.50C	4.3176E-04
u236	2.07E+03	0.400%	1	236.0456	92236.50C	1.0557E-04
u238	4.42E+05	85.400%	1	238.0508	92238.50C	2.2352E-02
np237	5.33E+02	0.103%	1	237.0481	93237.55C	2.7068E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	4.71E+02	0.091%	1	239.0521	94239.55C	2.3719E-05
pu240	1.19E+00	0.000%	1	240.0539	94240.50C	5.9677E-08
pu241	5.71E-07	0.000%	1	241.0567	94241.50C	2.8516E-14
pu242	6.34E+01	0.012%	1	242.0587	94242.50C	3.1531E-06
am241	1.72E-05	0.000%	1	241.0567	95241.50C	8.5896E-13
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	3.57E-02	0.000%	1	243.0614	95243.50C	1.7681E-09
total	517566.416	100.00%			Total	7.005206E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29
Effective density = 10.03517

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 100000 YEARS
DECAY TIME: 100000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.053%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	1.66E+02	0.032%	1	98.90628	43099.50C	2.0205E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06

gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	1.37E+01	0.003%	1	233.0395	92233.50C	7.0771E-07
u234	8.94E+01	0.017%	1	234.0409	92234.50C	4.5984E-06
u235	8.75E+03	1.691%	1	235.0439	92235.50C	4.4815E-04
u236	2.07E+03	0.400%	1	236.0456	92236.50C	1.0557E-04
u238	4.42E+05	85.406%	1	238.0508	92238.50C	2.2352E-02
np237	5.26E+02	0.102%	1	237.0481	93237.55C	2.6713E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	1.49E+02	0.029%	1	239.0521	94239.55C	7.5034E-06
pu240	1.74E-02	0.000%	1	240.0539	94240.50C	8.7258E-10
pu241	2.19E-08	0.000%	1	241.0567	94241.50C	1.0937E-15
pu242	5.89E+01	0.011%	1	242.0587	94242.50C	2.9293E-06
am241	6.59E-07	0.000%	1	241.0567	95241.50C	3.2910E-14
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	8.30E-04	0.000%	1	243.0614	95243.50C	4.1108E-11
total	517525.528	100.00%			Total	7.004864E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03438

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 250000 YEARS
DECAY TIME: 250000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.056%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	1.01E+02	0.020%	1	98.90628	43099.50C	1.2293E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	2.51E+01	0.005%	1	233.0395	92233.50C	1.2966E-06
u234	6.68E+01	0.013%	1	234.0409	92234.50C	3.4360E-06
u235	8.89E+03	1.718%	1	235.0439	92235.50C	4.5532E-04
u236	2.06E+03	0.398%	1	236.0456	92236.50C	1.0506E-04
u238	4.42E+05	85.428%	1	238.0508	92238.50C	2.2352E-02
np237	5.01E+02	0.097%	1	237.0481	93237.55C	2.5443E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	2.00E+00	0.000%	1	239.0521	94239.55C	1.0072E-07
pu240	2.34E-09	0.000%	1	240.0539	94240.50C	1.1735E-16
pu241	1.06E-13	0.000%	1	241.0567	94241.50C	5.2936E-21
pu242	4.46E+01	0.009%	1	242.0587	94242.50C	2.2181E-06
am241	3.20E-12	0.000%	1	241.0567	95241.50C	1.5981E-19
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	1.52E-08	0.000%	1	243.0614	95243.50C	7.5282E-16
total	517393.01	100.00%			Total	7.003743E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03181

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM

ENRICHMENT: 3.00% DECAY TIME: 500000 YEARS
DECAY TIME: 500000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.059%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	4.46E+01	0.009%	1	98.90628	43099.50C	5.4285E-06
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	3.16E+01	0.006%	1	233.0395	92233.50C	1.6324E-06
u234	4.51E+01	0.009%	1	234.0409	92234.50C	2.3198E-06
u235	8.89E+03	1.719%	1	235.0439	92235.50C	4.5532E-04
u236	2.05E+03	0.396%	1	236.0456	92236.50C	1.0455E-04
u238	4.42E+05	85.451%	1	238.0508	92238.50C	2.2352E-02
np237	4.62E+02	0.089%	1	237.0481	93237.55C	2.3462E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	1.51E-03	0.000%	1	239.0521	94239.55C	7.6041E-11
pu240	7.61E-11	0.000%	1	240.0539	94240.50C	3.8163E-18
pu241	1.48E-22	0.000%	1	241.0567	94241.50C	7.3911E-30
pu242	2.80E+01	0.005%	1	242.0587	94242.50C	1.3925E-06
am241	4.70E-21	0.000%	1	241.0567	95241.50C	2.3472E-28
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	1.44E-08	0.000%	1	243.0614	95243.50C	7.1320E-16
total	517253.812	100.00%			Total	7.002636E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29
Effective density = 10.02911

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 999999 YEARS
DECAY TIME: 999999 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.063%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	8.64E+00	0.002%	1	98.90628	43099.50C	1.0516E-06
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	3.05E+01	0.006%	1	233.0395	92233.50C	1.5756E-06
u234	2.91E+01	0.006%	1	234.0409	92234.50C	1.4968E-06

u235	8.89E+03	1.719%	1	235.0439	92235.50C	4.5532E-04
u236	2.01E+03	0.389%	1	236.0456	92236.50C	1.0251E-04
u238	4.42E+05	85.481%	1	238.0508	92238.50C	2.2352E-02
np237	3.93E+02	0.076%	1	237.0481	93237.55C	1.9958E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	4.61E-08	0.000%	1	239.0521	94239.55C	2.3215E-15
pu240	1.03E-10	0.000%	1	240.0539	94240.50C	5.1653E-18
pu241	0.00E+00	0.000%	1	241.0567	94241.50C	0.0000E+00
pu242	1.11E+01	0.002%	1	242.0587	94242.50C	5.5204E-07
am241	9.14E-39	0.000%	1	241.0567	95241.50C	4.5645E-46
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	1.41E-08	0.000%	1	243.0614	95243.50C	6.9834E-16
total	517074.85	100.00%			Total	7.001472E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.02564

Time Effects Curve

BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 70000 YEARS
DECAY TIME: 70000 YEARS Volume 51575.24 pwr 3.0% 20 GWd/MT

ISOTOPE	GRAMS/Ass	%		Aw	MCNP ID	Number Density
O 16	62377.29	12.052%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584	42095.50C	2.8413E-05
tc 99	1.83E+02	0.035%	1	98.90628	43099.50C	2.2274E-05
ru101	2.18E+02	0.042%	1	100.9056	44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055	45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048	47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098	60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125	60145.50C	1.6864E-05
sm147	8.97E+01	0.017%	1	146.9149	62147.50C	7.3501E-06
sm149	1.42E+00	0.000%	1	148.9172	62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173	62150.50C	6.4561E-06
sm151	0.00E+00	0.000%	1	150.9199	62151.50C	0.0000E+00
eu151	6.22E+00	0.001%	1	150.9198	63151.55C	4.9615E-07
sm152	3.74E+01	0.007%	1	151.9198	62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212	63153.55C	2.1255E-06
gd155	3.18E+00	0.001%	1	154.9227	64155.50C	2.4710E-07
u233	1.03E+01	0.002%	1	233.0395	92233.50C	5.3208E-07
u234	9.52E+01	0.018%	1	234.0409	92234.50C	4.8968E-06
u235	8.55E+03	1.652%	1	235.0439	92235.50C	4.3791E-04
u236	2.07E+03	0.400%	1	236.0456	92236.50C	1.0557E-04
u238	4.42E+05	85.401%	1	238.0508	92238.50C	2.2352E-02
np237	5.31E+02	0.103%	1	237.0481	93237.55C	2.6966E-05
pu238	0.00E+00	0.000%	1	238.0495	94238.50C	0.0000E+00
pu239	3.54E+02	0.068%	1	239.0521	94239.55C	1.7827E-05
pu240	4.14E-01	0.000%	1	240.0539	94240.50C	2.0761E-08
pu241	2.53E-07	0.000%	1	241.0567	94241.50C	1.2635E-14
pu242	6.22E+01	0.012%	1	242.0587	94242.50C	3.0934E-06
am241	7.62E-06	0.000%	1	241.0567	95241.50C	3.8054E-13
am242m	0.00E+00	0.000%	1	242.0595	95242.50C	0.0000E+00
am243	1.39E-02	0.000%	1	243.0614	95243.50C	6.8844E-10
total	517558.638	100.00%			Total	7.005135E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
= 62377.29

Effective density = 10.03502

Time Effects Curve
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 1 YEARS
DECAY TIME: 1 YEARS Volume 51575.24 pwr 3.0% 20 G

ISOTOPE	GRAMS/As	%		Aw		MCNP ID	MCNP ID Density
O 16	62377.29	12.050%	1	15.99492		8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	1	94.90584		42095.50C	2.8413E-05
tc 99	2.31E+02	0.045%	1	98.90628		43099.50C	2.8116E-05
ru101	2.18E+02	0.042%	1	100.9056		44101.50C	2.6008E-05
rh103	1.44E+02	0.028%	1	102.9055		45103.50C	1.6846E-05
ag109	2.19E+01	0.004%	1	108.9048		47109.50C	2.4208E-06
nd143	2.69E+02	0.052%	1	142.9098		60143.50C	2.2660E-05
nd145	2.03E+02	0.039%	1	144.9125		60145.50C	1.6864E-05
sm147	4.40E+01	0.009%	1	146.9149		62147.50C	3.6054E-06
sm149	1.42E+00	0.000%	1	148.9172		62149.50C	1.1479E-07
sm150	8.04E+01	0.016%	1	149.9173		62150.50C	6.4561E-06
sm151	6.15E+00	0.001%	1	150.9199		62151.50C	4.9056E-07
eu151	6.30E-02	0.000%	1	150.9198		63151.55C	5.0253E-09
sm152	3.74E+01	0.007%	1	151.9198		62152.50C	2.9636E-06
eu153	2.70E+01	0.005%	1	152.9212		63153.55C	2.1255E-06
gd155	4.83E-01	0.000%	1	154.9227		64155.50C	3.7532E-08
u233	1.02E-03	0.000%	1	233.0395		92233.50C	5.2691E-11
u234	8.08E+01	0.016%	1	234.0409		92234.50C	4.1561E-06
u235	6.30E+03	1.217%	1	235.0439		92235.50C	3.2267E-04
u236	1.41E+03	0.272%	1	236.0456		92236.50C	7.1910E-05
u238	4.42E+05	85.388%	1	238.0508		92238.50C	2.2352E-02
np237	1.28E+02	0.025%	1	237.0481		93237.55C	6.5004E-06
pu238	2.96E+01	0.006%	1	238.0495		94238.50C	1.4969E-06
pu239	2.63E+03	0.508%	1	239.0521		94239.55C	1.3244E-04
pu240	6.72E+02	0.130%	1	240.0539		94240.50C	3.3700E-05
pu241	3.86E+02	0.075%	1	241.0567		94241.50C	1.9277E-05
pu242	7.08E+01	0.014%	1	242.0587		94242.50C	3.5211E-06
am241	3.61E+01	0.007%	1	241.0567		95241.50C	1.8028E-06
am242m	4.30E-01	0.000%	1	242.0595		95242.50C	2.1385E-08
am243	1.01E+01	0.002%	1	243.0614		95243.50C	5.0023E-07
total	517638.94	100.00%				Total	7.005442E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
62377.29
Effective density = 10.03658

Best Estimate fbuc
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 5 YEARS
DECAY TIME: 5 YEARS Volume 51575.24 pwr 3.0% 20 G

ISOTOPE	GRAMS/	%	% best f	Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	1	15.99492	8016.50C	4.6947E-02
mo 95	2.24E+02	0.043%	0.641	94.90584	42095.50C	1.8213E-05
tc 99	2.31E+02	0.045%	0.641	98.90628	43099.50C	1.8022E-05
ru101	2.18E+02	0.042%	0.641	100.9056	44101.50C	1.6671E-05
rh103	1.44E+02	0.028%	0.641	102.9055	45103.50C	1.0798E-05
ag109	2.19E+01	0.004%	0.641	108.9048	47109.50C	1.5517E-06
nd143	2.69E+02	0.052%	0.97314	142.9098	60143.50C	2.2051E-05
nd145	2.03E+02	0.039%	0.99166	144.9125	60145.50C	1.6723E-05
sm147	7.38E+01	0.014%	0.931	146.9149	62147.50C	5.6300E-06
sm149	1.42E+00	0.000%	0.58	148.9172	62149.50C	6.6579E-08
sm150	8.04E+01	0.016%	0.885	149.9173	62150.50C	5.7136E-06
sm151	5.97E+00	0.001%	0.689	150.9199	62151.50C	3.2810E-07
eu151	2.50E-01	0.000%	0.689	150.9198	63151.55C	1.3740E-08
sm152	3.74E+01	0.007%	0.817	151.9198	62152.50C	2.4213E-06
eu153	2.70E+01	0.005%	0.91258	152.9212	63153.55C	1.9397E-06
gd155	1.69E+00	0.000%	0.3475	154.9227	64155.50C	4.5634E-08
u233	1.20E-03	0.000%	1.515	233.0395	92233.50C	9.3914E-11
u234	8.17E+01	0.016%	0.634	234.0409	92234.50C	2.6643E-06
u235	6.30E+03	1.217%	1.108	235.0439	92235.50C	3.5752E-04
u236	1.41E+03	0.272%	0.959	236.0456	92236.50C	6.8962E-05
u238	4.42E+05	85.383%	0.993	238.0508	92238.50C	2.2196E-02
np237	1.29E+02	0.025%	0.66	237.0481	93237.55C	4.3238E-06
pu238	2.93E+01	0.006%	0.843	238.0495	94238.50C	1.2491E-06
pu239	2.63E+03	0.508%	1.026	239.0521	94239.55C	1.3589E-04
pu240	6.72E+02	0.130%	1	240.0539	94240.50C	3.3700E-05
pu241	3.18E+02	0.061%	1.012	241.0567	94241.50C	1.6071E-05
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	1.03E+02	0.020%	0.71582	241.0567	95241.50C	3.6820E-06
am242m	4.21E-01	0.000%	1	242.0595	95242.50C	2.0938E-08
am243	1.01E+01	0.002%	1	243.0614	95243.50C	5.0023E-07
total	517670.4	100.00%			Total	6.989112E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
62377.29
Effective density = 10.03719

Vienna Actinide Only Burnup Credit fbucs Vienna Actinide Only Burnup Credit fbucs
BURNUP: PWR 20 GWd/MT PWR B&W 15x15, 3.00% , Burnup 20 GWd/MTHM
ENRICHMENT: 3.00% DECAY TIME: 5 YEARS
DECAY TIME: 5 YEARS Volume 51575.24 pwr 3.0% 20 G

ISOTOPE	GRAMS/	%	% best f	Aw	MCNP ID	Number Density
O 16	62377.29	12.050%	1	15.99492	8016.50C	4.6947E-02
u234	8.17E+01	0.016%	0.509	234.0409	92234.50C	2.1390E-06
u235	6.30E+03	1.217%	1.115	235.0439	92235.50C	3.5978E-04
u236	1.41E+03	0.272%	0.955	236.0456	92236.50C	6.8674E-05
u238	4.42E+05	85.383%	0.99	238.0508	92238.50C	2.2129E-02
pu238	2.93E+01	0.006%	0.829	238.0495	94238.50C	1.2283E-06
pu239	2.63E+03	0.508%	1.033	239.0521	94239.55C	1.3681E-04
pu240	6.72E+02	0.130%	1	240.0539	94240.50C	3.3700E-05
pu241	3.18E+02	0.061%	1.016	241.0567	94241.50C	1.6135E-05
pu242	7.08E+01	0.014%	1	242.0587	94242.50C	3.5211E-06
am241	1.03E+02	0.020%	0.583	241.0567	95241.50C	2.9988E-06
total	515992.1	99.68%			Total	6.970076E-02

oxygen mass/assembly = 464000 g UO / (1-11.8503E-2) * 11.8503E-2 fraction of O in UO2
62377.29
Effective density = 10.00465

```
=sas2h    parm='halt09,skipcellwt,skipshipdata'
SAS2H: Babcock Wilcox 15x15, 3.00wt%, 20gwd/mtu burn High Temp
27burnuplib    latticecell
'
'  mixtures of fuel-pin-unit-cell:
'   den=mass UO2/ Volume assembly = 526377.3 g/5.157524E4
uo2 1 den=10.2060 1 975 92235 3.00 92234 0.0240 92236 0.0138 92238 96.9622 end
kr-83     1 0 1-20 975 end
kr-85     1 0 1-20 975 end
sr-90     1 0 1-20 975 end
 y-89     1 0 1-20 975 end
mo-95     1 0 1-20 975 end
zr-93     1 0 1-20 975 end
zr-94     1 0 1-20 975 end
zr-95     1 0 1-20 975 end
nb-94     1 0 1-20 975 end
tc-99     1 0 1-20 975 end
rh-103    1 0 1-20 975 end
rh-105    1 0 1-20 975 end
ru-101    1 0 1-20 975 end
ru-106    1 0 1-20 975 end
pd-105    1 0 1-20 975 end
pd-108    1 0 1-20 975 end
ag-109    1 0 1-20 975 end
sb-124    1 0 1-20 975 end
xe-131    1 0 1-20 975 end
xe-132    1 0 1-20 975 end
xe-135    1 0 1-20 975 end
xe-136    1 0 1-20 975 end
cs-134    1 0 1-20 975 end
cs-135    1 0 1-20 975 end
cs-137    1 0 1-20 975 end
ba-136    1 0 1-20 975 end
la-139    1 0 1-20 975 end
pr-141    1 0 1-20 975 end
pr-143    1 0 1-20 975 end
ce-144    1 0 1-20 975 end
nd-143    1 0 1-20 975 end
nd-145    1 0 1-20 975 end
pm-147    1 0 1-20 975 end
pm-148    1 0 1-20 975 end
nd-147    1 0 1-20 975 end
sm-147    1 0 1-20 975 end
sm-149    1 0 1-20 975 end
sm-150    1 0 1-20 975 end
sm-151    1 0 1-20 975 end
sm-152    1 0 1-20 975 end
gd-155    1 0 1-20 975 end
eu-153    1 0 1-20 975 end
eu-154    1 0 1-20 975 end
eu-155    1 0 1-20 975 end
zircalloy 2   1.0  650 end
h2o       3 den=0.6272 1 607.6 end
arbm-bormod 0.6272 1 1 0 0 5000 100 3 552.6e-6 607.6 end
'
' 1050 ppm boron
' - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
end comp
'
' - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
'
'  fuel-pin-cell geometry:
'
squarepitch  1.44272  0.936244 1 3 1.0922 2 0.95758 0 end
'
' - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
'
'
'  assembly and cycle parameters:
'
```

```
npin/assm=208 fuelngth=360.172 ncycles=9 nlib/cyc=1
printlevel=5 inplevel=2 numztotal=4  end
3 0.63246 2 0.67310 3 0.814 500 2.961
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=7.25 burn=160 down=0
power=4.976-5 burn=1. down=0. bfrac=0. h2ofrac=1.594 temkcyc=373 end
   end
end
```

```
=origens
0$$  a8 26 a11 71 e
1$$ 1  1t
 b&w 15x15, 3.0%/20 Decay
3$$ 21 0 1 e
'   3$$ 21 0 1  a33  -88
2t
35$$ 0  t
'  54$$ a8 1 e
'   56$$ 0 7 a5 1 a13 -1 a15 3 0 4 e   5t
56$$ 0 7 a13 -1 a15 3 0 4 e   5t
Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay
per B&W assembly, 0.409 mthm for grams
60**  0 1 90 365.25 730.5 1826.25  3652.5
'  61** f1-20
'  65$$ a4 1 2z 1 2z 1 5z 1 2z 1
'   a25 1 2z 1 2z 1 5z 1 2z 1
'   a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
'   56$$ 0 -6 a10 1  e  t
56$$ 0 10 a10 7 a14 5 a17 4 e  57** 10  e  5t
60**  15 20 30 50 100 150 200 250 300 400
'  61** f1-20
'  65$$ a4 1 2z 1 2z 1 5z 1 2z 1
'   a25 1 2z 1 2z 1 5z 1 2z 1
'   a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e  57** 400  e  5t
60**  500 1+3 2+3 4+3 6+3 8+3 1+4 1.2+4 1.4+4 1.5+4
'    61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e  57** 1.5+4  e  5t
60**  1.6+4 1.7+4 1.8+4 1.9+4 2.0+4 2.1+4 2.2+4 2.3+4 2.4+4 2.5+4
'  61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e  57** 2.5+4  e  5t
60**  3.5+4 4.5+4 5+4 5.5+4 6+4 6.5+4 7+4 1+5 2+5 2.5+5
'    61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 3 a10 10 a14 5 a17 4 e  57** 2.5+5  e  5t
60**  3+5 5+5 999999
'  61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
'   56$$ 0 -10 a10 1 e  t
56$$ f0  t
end
```

Decay Only *** Summary of Activity output from S3020ucfo1.out dated 3/12/96

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 4

0

nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
he 4	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tl206	1.20E-15	1.20E-15	1.20E-15	1.21E-15	1.39E-15	1.85E-15	2.70E-15	7.71E-15	2.82E-14
tl207	5.12E-07	5.12E-07	5.12E-07	5.13E-07	6.08E-07	9.53E-07	1.34E-06	2.50E-06	4.37E-06
tl208	3.10E-04	3.10E-04	3.10E-04	3.17E-04	3.91E-04	6.77E-04	1.10E-03	2.28E-03	3.34E-03
tl209	8.55E-10	8.55E-10	8.55E-10	8.68E-10	1.79E-10	1.66E-10	1.84E-10	2.44E-10	3.60E-10
pb206	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb207	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb209	4.13E-08	4.13E-08	4.13E-08	3.94E-08	8.52E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08
pb210	9.27E-10	9.27E-10	9.27E-10	9.29E-10	1.06E-09	1.40E-09	2.05E-09	5.84E-09	2.13E-08
pb211	5.13E-07	5.13E-07	5.13E-07	5.15E-07	6.10E-07	9.56E-07	1.35E-06	2.51E-06	4.38E-06
pb212	8.62E-04	8.62E-04	8.62E-04	8.62E-04	1.09E-03	1.88E-03	3.07E-03	6.33E-03	9.29E-03
pb214	1.20E-08	1.20E-08	1.20E-08	1.20E-08	1.34E-08	1.85E-08	2.71E-08	6.48E-08	1.68E-07
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	9.11E-10	9.11E-10	9.11E-10	9.13E-10	1.06E-09	1.40E-09	2.05E-09	5.84E-09	2.13E-08
bi211	5.13E-07	5.13E-07	5.13E-07	5.15E-07	6.10E-07	9.56E-07	1.35E-06	2.51E-06	4.38E-06
bi212	8.62E-04	8.62E-04	8.62E-04	8.81E-04	1.09E-03	1.88E-03	3.07E-03	6.33E-03	9.29E-03
bi213	4.07E-08	4.07E-08	4.07E-08	4.13E-08	8.52E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08
bi214	1.20E-08	1.20E-08	1.20E-08	1.20E-08	1.34E-08	1.85E-08	2.71E-08	6.48E-08	1.68E-07
po210	5.83E-10	5.83E-10	5.83E-10	5.85E-10	7.29E-10	1.11E-09	1.67E-09	4.95E-09	2.13E-08
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	1.41E-09	1.41E-09	1.41E-09	1.42E-09	1.68E-09	2.63E-09	3.71E-09	6.89E-09	1.20E-08
po212	5.52E-04	5.52E-04	5.52E-04	5.64E-04	6.97E-04	1.21E-03	1.96E-03	4.06E-03	5.95E-03
po213	3.99E-08	3.99E-08	3.99E-08	4.05E-08	8.34E-09	7.72E-09	8.58E-09	1.14E-08	1.68E-08
po214	2.82E-08	2.82E-08	2.82E-08	2.76E-08	1.42E-08	1.85E-08	2.71E-08	6.48E-08	1.68E-07
po215	5.14E-07	5.14E-07	5.14E-07	5.15E-07	6.10E-07	9.56E-07	1.35E-06	2.51E-06	4.38E-06
po216	8.62E-04	8.62E-04	8.62E-04	8.62E-04	1.09E-03	1.88E-03	3.07E-03	6.33E-03	9.29E-03
po218	1.20E-08	1.20E-08	1.20E-08	1.20E-08	1.34E-08	1.85E-08	2.71E-08	6.48E-08	1.68E-07
at217	4.15E-08	4.15E-08	4.15E-08	4.13E-08	8.52E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08
rn218	1.62E-08	1.62E-08	1.62E-08	1.57E-08	8.07E-10	8.38E-14	4.33E-19	.00E+00	.00E+00
rn219	5.14E-07	5.14E-07	5.14E-07	5.15E-07	6.10E-07	9.56E-07	1.35E-06	2.51E-06	4.38E-06
rn220	8.62E-04	8.62E-04	8.62E-04	8.62E-04	1.09E-03	1.88E-03	3.07E-03	6.33E-03	9.29E-03
rn222	1.19E-08	1.19E-08	1.19E-08	1.19E-08	1.34E-08	1.85E-08	2.71E-08	6.48E-08	1.68E-07
fr221	4.15E-08	4.15E-08	4.15E-08	4.13E-08	8.52E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08
fr223	7.71E-09	7.71E-09	7.71E-09	7.73E-09	9.06E-09	1.32E-08	1.85E-08	3.45E-08	6.03E-08
ra222	1.62E-08	1.62E-08	1.62E-08	1.57E-08	8.07E-10	8.38E-14	4.33E-19	.00E+00	.00E+00
ra223	5.14E-07	5.14E-07	5.14E-07	5.15E-07	6.10E-07	9.56E-07	1.35E-06	2.51E-06	4.38E-06
ra224	8.62E-04	8.62E-04	8.62E-04	8.62E-04	1.09E-03	1.88E-03	3.07E-03	6.33E-03	9.29E-03
ra225	3.96E-08	3.96E-08	3.96E-08	3.81E-08	7.68E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08
ra226	1.20E-08	1.20E-08	1.20E-08	1.20E-08	1.34E-08	1.85E-08	2.71E-08	6.48E-08	1.68E-07
ra228	1.30E-12	1.30E-12	1.30E-12	1.30E-12	1.54E-12	2.46E-12	4.00E-12	1.05E-11	2.58E-11
ac225	4.15E-08	4.15E-08	4.15E-08	4.13E-08	8.52E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08
ac227	5.59E-07	5.59E-07	5.59E-07	5.60E-07	6.56E-07	9.54E-07	1.35E-06	2.50E-06	4.37E-06
ac228	1.29E-12	1.29E-12	1.29E-12	1.30E-12	1.54E-12	2.46E-12	4.00E-12	1.05E-11	2.58E-11
th226	1.62E-08	1.62E-08	1.62E-08	1.57E-08	8.07E-10	8.38E-14	4.33E-19	.00E+00	.00E+00
th227	5.23E-07	5.23E-07	5.23E-07	5.24E-07	6.19E-07	9.42E-07	1.33E-06	2.47E-06	4.32E-06
th228	8.61E-04	8.61E-04	8.61E-04	8.63E-04	1.08E-03	1.88E-03	3.06E-03	6.33E-03	9.28E-03
th229	7.04E-09	7.04E-09	7.04E-09	7.04E-09	7.24E-09	7.88E-09	8.77E-09	1.16E-08	1.71E-08
th230	1.29E-05	1.29E-05	1.29E-05	1.29E-05	1.40E-05	1.75E-05	2.21E-05	3.61E-05	5.96E-05
th231	1.90E-01	1.90E-01	1.90E-01	1.06E-01	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02

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0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
th232	9.24E-12	9.24E-12	9.24E-12	9.26E-12	1.04E-11	1.38E-11	1.83E-11	3.18E-11	5.44E-11
th233	2.00E-08	2.00E-08	2.00E-08	7.27E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa231	1.30E-05	1.30E-05	1.30E-05	1.30E-05	1.31E-05	1.33E-05	1.36E-05	1.45E-05	1.59E-05
pa232	6.01E-02	6.01E-02	6.01E-02	3.54E-02	1.26E-22	.00E+00	.00E+00	.00E+00	.00E+00
pa233	8.71E-02	8.71E-02	8.71E-02	8.72E-02	9.01E-02	9.05E-02	9.05E-02	9.08E-02	9.15E-02
pa234m	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa234	2.45E-04	2.45E-04	2.45E-04	1.98E-04	1.93E-04	1.94E-04	1.93E-04	1.93E-04	1.93E-04
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	1.62E-08	1.62E-08	1.62E-08	1.57E-08	8.07E-10	8.37E-14	4.33E-19	.00E+00	.00E+00
u231	1.32E-06	1.32E-06	1.32E-06	1.12E-06	4.71E-13	.00E+00	.00E+00	.00E+00	.00E+00
u232	3.23E-03	3.23E-03	3.23E-03	3.24E-03	3.71E-03	5.01E-03	6.38E-03	8.86E-03	1.02E-02
u233	9.38E-06	9.38E-06	9.38E-06	9.39E-06	9.48E-06	9.82E-06	1.03E-05	1.15E-05	1.35E-05
u234	5.01E-01	5.01E-01	5.01E-01	5.01E-01	5.01E-01	5.02E-01	5.04E-01	5.08E-01	5.15E-01
u235	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02
u236	9.14E-02	9.14E-02	9.14E-02	9.14E-02	9.14E-02	9.14E-02	9.14E-02	9.15E-02	9.15E-02
u237	1.34E+05	1.34E+05	1.34E+05	1.21E+05	1.40E+01	9.54E-01	9.09E-01	7.87E-01	6.18E-01
u238	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
u239	2.99E+01	2.99E+01	2.99E+01	1.01E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	1.85E-17	1.85E-17	1.85E-17	1.91E-17	3.27E-17	7.43E-17	1.30E-16	2.95E-16	5.72E-16
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	4.48E-03	4.48E-03	4.48E-03	4.47E-03	3.83E-03	2.36E-03	1.25E-03	1.83E-04	7.52E-06
np236m	8.00E-01	8.00E-01	8.00E-01	3.82E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	4.85E-06	4.85E-06	4.85E-06	4.85E-06	4.85E-06	4.88E-06	4.88E-06	4.88E-06	4.88E-06
np237	8.93E-02	8.93E-02	8.93E-02	8.94E-02	9.04E-02	9.05E-02	9.05E-02	9.08E-02	9.15E-02
np238	3.13E+04	3.13E+04	3.13E+04	2.26E+04	2.03E-02	2.03E-02	2.02E-02	1.99E-02	1.94E-02
np239	3.27E+06	3.27E+06	3.27E+06	2.43E+06	2.01E+00	2.01E+00	2.01E+00	2.01E+00	2.01E+00
np240m	1.91E-17	1.91E-17	1.91E-17	1.91E-17	3.27E-17	7.43E-17	1.30E-16	2.95E-16	5.72E-16
np240	2.46E-02	2.46E-02	2.46E-02	2.45E-09	3.92E-20	8.92E-20	1.56E-19	3.55E-19	6.86E-19
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	2.05E-01	2.05E-01	2.05E-01	2.05E-01	1.93E-01	1.62E-01	1.27E-01	6.21E-02	1.88E-02
pu237	1.34E-01	1.34E-01	1.34E-01	1.32E-01	3.36E-02	4.92E-04	1.81E-06	9.03E-14	6.11E-26
pu238	4.75E+02	4.75E+02	4.75E+02	4.76E+02	4.90E+02	5.08E+02	5.11E+02	5.01E+02	4.82E+02
pu239	1.62E+02	1.62E+02	1.62E+02	1.63E+02	1.63E+02	1.63E+02	1.63E+02	1.63E+02	1.63E+02
pu240	1.53E+02	1.53E+02	1.53E+02	1.53E+02	1.53E+02	1.53E+02	1.53E+02	1.53E+02	1.53E+02
pu241	4.19E+04	4.19E+04	4.19E+04	4.19E+04	4.14E+04	3.99E+04	3.80E+04	3.29E+04	2.58E+04
pu242	2.80E-01	2.80E-01	2.80E-01	2.80E-01	2.80E-01	2.80E-01	2.80E-01	2.80E-01	2.80E-01
pu243	9.15E+02	9.15E+02	9.15E+02	3.19E+01	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09
pu244	1.91E-17	1.91E-17	1.91E-17	1.92E-17	3.27E-17	7.44E-17	1.30E-16	2.96E-16	5.73E-16
pu245	1.90E-13	1.90E-13	1.90E-13	3.89E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	1.51E-16	1.51E-16	1.51E-16	1.46E-16	6.15E-17	6.12E-17	6.12E-17	6.12E-17	6.12E-17
am239	8.26E-05	8.26E-05	8.26E-05	2.04E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	2.45E-02	2.45E-02	2.45E-02	1.76E-02	4.08E-15	.00E+00	.00E+00	.00E+00	.00E+00
am241	5.87E+01	5.87E+01	5.87E+01	5.89E+01	7.51E+01	1.24E+02	1.86E+02	3.55E+02	5.85E+02
am242m	4.53E+00	4.53E+00	4.53E+00	4.53E+00	4.52E+00	4.50E+00	4.48E+00	4.42E+00	4.31E+00
am242	5.65E+03	5.65E+03	5.65E+03	2.00E+03	4.50E+00	4.48E+00	4.46E+00	4.40E+00	4.29E+00
am243	2.01E+00	2.01E+00	2.01E+00	2.01E+00	2.01E+00	2.01E+00	2.01E+00	2.01E+00	2.01E+00
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	9.14E+02	9.14E+02	9.14E+02	1.76E+02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	3.72E-10	3.72E-10	3.72E-10	3.71E-10	3.06E-10	1.68E-10	7.63E-11	7.11E-12	1.36E-13
am246	1.51E-16	1.51E-16	1.51E-16	1.46E-16	6.15E-17	6.12E-17	6.12E-17	6.12E-17	6.12E-17
cm241	1.00E-05	1.00E-05	1.00E-05	9.81E-06	1.50E-06	4.46E-09	1.98E-12	1.74E-22	.00E+00

1

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d

cm242	8.61E+03	8.61E+03	8.61E+03	8.58E+03	5.89E+03	1.83E+03	3.89E+02	7.29E+00	3.55E+00
cm243	3.11E+00	3.11E+00	3.11E+00	3.11E+00	3.09E+00	3.04E+00	2.96E+00	2.78E+00	2.44E+00
cm244	1.23E+02	1.23E+02	1.23E+02	1.23E+02	1.22E+02	1.18E+02	1.14E+02	1.01E+02	8.38E+01
cm245	7.87E-03	7.87E-03	7.87E-03	7.87E-03	7.87E-03	7.87E-03	7.87E-03	7.87E-03	7.87E-03
cm246	9.21E-04	9.21E-04	9.21E-04	9.21E-04	9.21E-04	9.21E-04	9.21E-04	9.21E-04	9.20E-04
cm247	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09
cm248	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09
cm249	1.00E-09	1.00E-09	1.00E-09	1.81E-11	5.68E-13	1.27E-17	8.51E-24	.00E+00	.00E+00
cm250	2.45E-16	2.45E-16	2.45E-16	2.45E-16	2.45E-16	2.45E-16	2.45E-16	2.45E-16	2.45E-16
cm251	2.24E-20	2.24E-20	2.24E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	2.56E-05	2.56E-05	2.56E-05	2.56E-05	2.11E-05	1.16E-05	5.26E-06	4.90E-07	9.39E-09
bk250	1.25E-07	1.25E-07	1.25E-07	7.14E-10	5.29E-12	2.68E-12	1.06E-12	6.73E-14	7.16E-16
bk251	4.36E-14	4.36E-14	4.36E-14	4.28E-14	8.79E-15	6.60E-17	1.00E-19	3.49E-28	.00E+00
cf249	1.18E-08	1.18E-08	1.18E-08	1.20E-08	2.32E-08	4.68E-08	6.25E-08	7.40E-08	7.45E-08
cf250	1.90E-07	1.90E-07	1.90E-07	1.90E-07	1.88E-07	1.80E-07	1.71E-07	1.46E-07	1.12E-07
cf251	1.35E-09	1.35E-09	1.35E-09	1.35E-09	1.35E-09	1.35E-09	1.35E-09	1.35E-09	1.34E-09
cf252	1.35E-07	1.35E-07	1.35E-07	1.35E-07	1.27E-07	1.04E-07	8.01E-08	3.65E-08	9.84E-09
cf253	6.06E-09	6.06E-09	6.06E-09	5.83E-09	1.83E-10	4.07E-15	2.74E-21	.00E+00	.00E+00
cf254	7.31E-13	7.31E-13	7.31E-13	7.23E-13	2.61E-13	1.11E-14	1.70E-16	5.99E-22	4.79E-31
cf255	1.57E-18	1.57E-18	1.57E-18	2.39E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	4.86E-09	4.86E-09	4.86E-09	4.89E-09	9.33E-10	1.66E-13	8.05E-19	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	6.63E-12	6.63E-12	6.63E-12	6.61E-12	5.29E-12	2.65E-12	1.06E-12	6.72E-14	6.81E-16
es255	4.35E-14	4.35E-14	4.35E-14	4.27E-14	8.79E-15	6.59E-17	1.00E-19	3.48E-28	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	3.49E+06	3.49E+06	3.49E+06	2.63E+06	4.83E+04	4.28E+04	3.95E+04	3.42E+04	2.73E+04

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 24

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHM for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
h 3	1.31E+02	1.31E+02	1.31E+02	1.31E+02	1.29E+02	1.24E+02	1.17E+02	9.91E+01	7.48E+01
li 6	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 7	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 9	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 10	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07
c 14	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05	3.33E-05
ni 66	3.70E-04	3.70E-04	3.70E-04	2.73E-04	4.58E-16	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	3.70E-04	3.70E-04	3.70E-04	2.73E-04	4.59E-16	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 67	4.59E-05	4.59E-05	4.59E-05	3.51E-05	1.40E-15	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 68	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69	5.92E-05	5.92E-05	5.92E-05	1.77E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	5.51E-05	5.51E-05	5.51E-05	1.65E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 70	6.03E-11	6.03E-11	6.03E-11	1.83E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71	7.31E-08	7.31E-08	7.31E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	6.82E-04	6.82E-04	6.82E-04	1.02E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71	1.21E-07	1.21E-07	1.21E-07	1.14E-07	5.17E-10	2.93E-17	7.11E-27	.00E+00	.00E+00
ge 71m	4.43E-13	4.43E-13	4.43E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	1.03E-07	1.03E-07	1.03E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	5.96E-06	5.96E-06	5.96E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	1.70E-05	1.70E-05	1.70E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	2.24E+00	2.24E+00	2.24E+00	1.56E+00	2.32E-14	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	2.79E+00	2.79E+00	2.79E+00	2.11E+00	3.34E-14	.00E+00	.00E+00	.00E+00	.00E+00

ge 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 73	5.65E-08	5.65E-08	5.65E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	6.07E-06	6.07E-06	6.07E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	3.54E-05	3.54E-05	3.54E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	6.17E-05	6.17E-05	6.17E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	2.98E-01	2.98E-01	2.98E-01	9.74E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73m	2.94E-01	2.94E-01	2.94E-01	9.61E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	1.12E-08	1.12E-08	1.12E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	3.98E-06	3.98E-06	3.98E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	4.44E-05	4.44E-05	4.44E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	1.52E-04	1.52E-04	1.52E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	4.76E-05	4.76E-05	4.76E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 75	2.28E-09	2.28E-09	2.28E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	1.77E-06	1.77E-06	1.77E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	5.62E-05	5.62E-05	5.62E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	3.52E-04	3.52E-04	3.52E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	4.31E-04	4.31E-04	4.31E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	8.11E-04	8.11E-04	8.11E-04	4.78E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	2.34E-05	2.34E-05	2.34E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 76	7.07E-07	7.07E-07	7.07E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	4.54E-05	4.54E-05	4.54E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 25

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtihm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
zn 76	7.74E-04	7.74E-04	7.74E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	1.16E-03	1.16E-03	1.16E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 76	1.38E+00	1.38E+00	1.38E+00	7.32E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 77	1.67E-07	1.67E-07	1.67E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	2.69E-05	2.69E-05	2.69E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	9.49E-04	9.49E-04	9.49E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	2.42E-03	2.42E-03	2.42E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	3.13E+01	3.13E+01	3.13E+01	7.19E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	2.48E-03	2.48E-03	2.48E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	2.99E+02	2.99E+02	2.99E+02	2.00E+02	5.62E-15	.00E+00	.00E+00	.00E+00	.00E+00
se 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77m	9.56E-01	9.56E-01	9.56E-01	6.40E-01	1.80E-17	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	3.48E-08	3.48E-08	3.48E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	1.08E-05	1.08E-05	1.08E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	1.21E-03	1.21E-03	1.21E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	5.41E-03	5.41E-03	5.41E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	2.50E-02	2.50E-02	2.50E-02	2.97E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	2.39E-01	2.39E-01	2.39E-01	7.87E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 79	2.69E-06	2.69E-06	2.69E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	5.81E-04	5.81E-04	5.81E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	5.40E-03	5.40E-03	5.40E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	1.59E-02	1.59E-02	1.59E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	1.72E-02	1.72E-02	1.72E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01
se 79m	1.71E-02	1.71E-02	1.71E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79m	6.07E-09	6.07E-09	6.07E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	4.70E-08	4.70E-08	4.70E-08	2.92E-08	1.28E-26	.00E+00	.00E+00	.00E+00	.00E+00

cu 80	3.13E-07	3.13E-07	3.13E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	2.20E-04	2.20E-04	2.20E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	4.35E-03	4.35E-03	4.35E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	3.90E-02	3.90E-02	3.90E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	4.54E-02	4.54E-02	4.54E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80	8.13E-04	8.13E-04	8.13E-04	1.89E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	7.59E-04	7.59E-04	7.59E-04	1.76E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 81	3.17E-08	3.17E-08	3.17E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	5.00E-05	5.00E-05	5.00E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	2.75E-03	2.75E-03	2.75E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	4.12E-02	4.12E-02	4.12E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	6.56E-02	6.56E-02	6.56E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	6.91E-02	6.91E-02	6.91E-02	1.97E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	4.97E-03	4.97E-03	4.97E-03	1.34E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 81	1.48E-08	1.48E-08	1.48E-08	1.48E-08	1.48E-08	1.48E-08	1.48E-08	1.48E-08	1.48E-08
kr 81m	7.32E-09	7.32E-09	7.32E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	1.12E-05	1.12E-05	1.12E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	1.74E-03	1.74E-03	1.74E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
ge 82	3.95E-02	3.95E-02	3.95E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	6.45E-02	6.45E-02	6.45E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	2.50E-02	2.50E-02	2.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82	2.69E+02	2.69E+02	2.69E+02	1.68E+02	1.03E-16	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	2.42E-03	2.42E-03	2.42E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 83	5.72E-07	5.72E-07	5.72E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	2.07E-04	2.07E-04	2.07E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	1.76E-02	1.76E-02	1.76E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	1.03E-01	1.03E-01	1.03E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	7.80E-02	7.80E-02	7.80E-02	2.85E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	8.25E-02	8.25E-02	8.25E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	2.58E+01	2.58E+01	2.58E+01	2.52E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83m	9.83E+01	9.83E+01	9.83E+01	1.17E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	1.68E-03	1.68E-03	1.68E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	1.16E-02	1.16E-02	1.16E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	7.56E-02	7.56E-02	7.56E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	3.00E-01	3.00E-01	3.00E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	3.08E-01	3.08E-01	3.08E-01	7.98E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	8.25E-03	8.25E-03	8.25E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 85	3.30E-06	3.30E-06	3.30E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	2.00E-03	2.00E-03	2.00E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	4.37E-02	4.37E-02	4.37E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	1.42E-01	1.42E-01	1.42E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	1.24E-01	1.24E-01	1.24E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	3.43E-01	3.43E-01	3.43E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	2.61E+03	2.61E+03	2.61E+03	2.61E+03	2.57E+03	2.45E+03	2.29E+03	1.89E+03	1.37E+03
kr 85m	1.24E+03	1.24E+03	1.24E+03	3.02E+01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 86	4.26E-04	4.26E-04	4.26E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	2.45E-02	2.45E-02	2.45E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

se 86	3.39E-01	3.39E-01	3.39E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	4.18E-01	4.18E-01	4.18E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	7.95E-02	7.95E-02	7.95E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86	2.10E+02	2.10E+02	2.10E+02	2.02E+02	7.37E+00	2.63E-04	3.31E-10	6.59E-28	.00E+00
rb 86m	1.21E-04	1.21E-04	1.21E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 87	3.56E-03	3.56E-03	3.56E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	1.43E-02	1.43E-02	1.43E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	1.99E-01	1.99E-01	1.99E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	5.45E-01	5.45E-01	5.45E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	9.03E-01	9.03E-01	9.03E-01	1.90E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06
sr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 87m	1.90E-03	1.90E-03	1.90E-03	5.13E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	6.29E-06	6.29E-06	6.29E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	6.31E-03	6.31E-03	6.31E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	1.07E-01	1.07E-01	1.07E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 27

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
br 88	5.28E-01	5.28E-01	5.28E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	3.99E+02	3.99E+02	3.99E+02	1.14E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	4.46E+02	4.46E+02	4.46E+02	1.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 89	1.15E-04	1.15E-04	1.15E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	3.76E-02	3.76E-02	3.76E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	3.67E-01	3.67E-01	3.67E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	1.19E+00	1.19E+00	1.19E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	1.29E+00	1.29E+00	1.29E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	1.90E+05	1.90E+05	1.90E+05	1.87E+05	5.52E+04	1.27E+03	8.48E+00	2.53E-06	3.38E-17
y 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89m	1.76E+01	1.76E+01	1.76E+01	1.74E+01	5.14E+00	1.18E-01	7.88E-04	2.36E-10	3.15E-21
as 90	1.11E-06	1.11E-06	1.11E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	8.32E-03	8.32E-03	8.32E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	1.99E-01	1.99E-01	1.99E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	1.28E+00	1.28E+00	1.28E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	1.18E+00	1.18E+00	1.18E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	3.74E-01	3.74E-01	3.74E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	2.29E+04	2.29E+04	2.29E+04	2.29E+04	2.28E+04	2.24E+04	2.18E+04	2.03E+04	1.79E+04
y 90	2.33E+04	2.33E+04	2.33E+04	2.32E+04	2.28E+04	2.24E+04	2.19E+04	2.03E+04	1.79E+04
y 90m	2.17E-03	2.17E-03	2.17E-03	1.18E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	8.43E-04	8.43E-04	8.43E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	6.56E-02	6.56E-02	6.56E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	8.77E-01	8.77E-01	8.77E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	1.56E+00	1.56E+00	1.56E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	4.26E+04	4.26E+04	4.26E+04	7.41E+03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	2.47E+05	2.47E+05	2.47E+05	2.44E+05	8.52E+04	3.27E+03	4.31E+01	9.93E-05	3.99E-14
y 91m	2.70E+04	2.70E+04	2.70E+04	4.71E+03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	1.54E-09	1.54E-09	1.54E-09	1.54E-09	1.54E-09	1.54E-09	1.54E-09	1.53E-09	1.53E-09
se 92	6.98E-05	6.98E-05	6.98E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	1.12E-02	1.12E-02	1.12E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	4.67E-01	4.67E-01	4.67E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	1.38E+00	1.38E+00	1.38E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	5.60E+02	5.60E+02	5.60E+02	1.21E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

y 92	8.23E+03	8.23E+03	8.23E+03	8.75E+01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12
se 93	5.26E-07	5.26E-07	5.26E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	3.09E-03	3.09E-03	3.09E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	1.60E-01	1.60E-01	1.60E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	1.14E+00	1.14E+00	1.14E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	2.00E+00	2.00E+00	2.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	3.85E+04	3.85E+04	3.85E+04	7.42E+03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93m	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.97E-02	3.99E-02	5.29E-02	8.87E-02	1.39E-01
br 94	1.61E-04	1.61E-04	1.61E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	7.33E-02	7.33E-02	7.33E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	5.88E-01	5.88E-01	5.88E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 28

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
sr 94	1.99E+00	1.99E+00	1.99E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	2.15E+00	2.15E+00	2.15E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05
rb 94m	7.24E-07	7.24E-07	7.24E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	1.82E-06	1.82E-06	1.82E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	6.91E-03	6.91E-03	6.91E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	2.85E-01	2.85E-01	2.85E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	1.78E+00	1.78E+00	1.78E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	2.23E+00	2.23E+00	2.23E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	3.30E+05	3.30E+05	3.30E+05	3.27E+05	1.25E+05	6.33E+03	1.21E+02	8.54E-04	2.21E-12
rb 95	3.35E+05	3.35E+05	3.35E+05	3.35E+05	2.09E+05	1.37E+04	2.76E+02	1.88E-03	4.85E-12
rb 95m	3.83E+03	3.83E+03	3.83E+03	3.80E+03	1.47E+03	7.45E+01	1.43E+00	1.00E-05	2.59E-14
mo 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 96	4.06E-07	4.06E-07	4.06E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	1.20E-03	1.20E-03	1.20E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	7.10E-02	7.10E-02	7.10E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	1.30E+00	1.30E+00	1.30E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	2.15E+00	2.15E+00	2.15E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	1.77E+02	1.77E+02	1.77E+02	8.70E+01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 97	1.62E-05	1.62E-05	1.62E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	1.95E-02	1.95E-02	1.95E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	6.59E-01	6.59E-01	6.59E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	1.76E+00	1.76E+00	1.76E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	1.19E+05	1.19E+05	1.19E+05	4.44E+04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	1.28E+05	1.28E+05	1.28E+05	4.46E+04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97m	1.13E+05	1.13E+05	1.13E+05	4.21E+04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 98	5.78E-06	5.78E-06	5.78E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	1.96E-03	1.96E-03	1.96E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	2.70E-01	2.70E-01	2.70E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	1.31E+00	1.31E+00	1.31E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	2.32E+00	2.32E+00	2.32E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	2.33E+00	2.33E+00	2.33E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98m	1.82E-02	1.82E-02	1.82E-02	6.44E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 98	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06
rb 99	5.79E-05	5.79E-05	5.79E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sr 99	1.05E-01	1.05E-01	1.05E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	8.23E-01	8.23E-01	8.23E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	2.27E+00	2.27E+00	2.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	1.47E+00	1.47E+00	1.47E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	1.01E+00	1.01E+00	1.01E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	2.84E+05	2.84E+05	2.84E+05	2.21E+05	3.92E-05	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	3.93E+00	3.93E+00	3.93E+00	3.94E+00	3.95E+00	3.95E+00	3.95E+00	3.95E+00	3.95E+00
tc 99m	2.73E+05	2.73E+05	2.73E+05	2.13E+05	3.79E-05	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	1.77E-05	1.77E-05	1.77E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	1.37E-02	1.37E-02	1.37E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	2.62E-01	2.62E-01	2.62E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 29

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nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
zr100	2.24E+00	2.24E+00	2.24E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	2.43E+00	2.43E+00	2.43E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	1.95E-01	1.95E-01	1.95E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc100	3.88E-01	3.88E-01	3.88E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	1.43E-07	1.43E-07	1.43E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	2.06E-03	2.06E-03	2.06E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	1.32E-01	1.32E-01	1.32E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	1.29E+00	1.29E+00	1.29E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	2.16E+00	2.16E+00	2.16E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	2.27E+00	2.27E+00	2.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	2.28E+00	2.28E+00	2.28E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr102	3.50E-04	3.50E-04	3.50E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	6.14E-02	6.14E-02	6.14E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	8.93E-01	8.93E-01	8.93E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	1.82E+00	1.82E+00	1.82E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	2.14E+00	2.14E+00	2.14E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	2.14E+00	2.14E+00	2.14E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	2.19E-03	2.19E-03	2.19E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh102	2.62E-01	2.62E-01	2.62E-01	2.62E-01	2.47E-01	2.07E-01	1.63E-01	7.94E-02	2.40E-02
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	2.83E-06	2.83E-06	2.83E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	1.83E-02	1.83E-02	1.83E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	3.27E-01	3.27E-01	3.27E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	1.33E+00	1.33E+00	1.33E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	2.05E+00	2.05E+00	2.05E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	2.09E+00	2.09E+00	2.09E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	2.97E+05	2.97E+05	2.97E+05	2.92E+05	6.06E+04	4.70E+02	7.44E-01	2.95E-09	2.93E-23
rh103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103m	2.96E+05	2.96E+05	2.96E+05	2.91E+05	6.05E+04	4.69E+02	7.42E-01	2.94E-09	2.92E-23
sr104	8.91E-07	8.91E-07	8.91E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	5.07E-04	5.07E-04	5.07E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	9.55E-02	9.55E-02	9.55E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	5.99E-01	5.99E-01	5.99E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	1.59E+00	1.59E+00	1.59E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	1.67E+00	1.67E+00	1.67E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104	8.34E-01	8.34E-01	8.34E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	6.09E-02	6.09E-02	6.09E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

y105	6.30E-06	6.30E-06	6.30E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	2.78E-02	2.78E-02	2.78E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	2.38E-01	2.38E-01	2.38E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	1.15E+00	1.15E+00	1.15E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	1.37E+00	1.37E+00	1.37E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	4.88E+03	4.88E+03	4.88E+03	1.15E+02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	1.40E+05	1.40E+05	1.40E+05	8.81E+04	5.77E-14	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	1.39E+03	1.39E+03	1.39E+03	3.28E+01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 30

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
y106	1.13E-07	1.13E-07	1.13E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	1.28E-03	1.28E-03	1.28E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	4.44E-02	4.44E-02	4.44E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	6.21E-01	6.21E-01	6.21E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	9.49E-01	9.49E-01	9.49E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	1.12E+05	1.12E+05	1.12E+05	1.11E+05	9.43E+04	5.64E+04	2.86E+04	3.70E+03	1.23E+02
rh106	1.12E+05	1.12E+05	1.12E+05	1.11E+05	9.43E+04	5.64E+04	2.86E+04	3.70E+03	1.23E+02
rh106m	7.06E-01	7.06E-01	7.06E-01	3.27E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag106	1.37E-12	1.37E-12	1.37E-12	1.19E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	1.03E-09	1.03E-09	1.03E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	1.26E-05	1.26E-05	1.26E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	7.84E-03	7.84E-03	7.84E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	2.46E-01	2.46E-01	2.46E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	6.38E-01	6.38E-01	6.38E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	7.72E-01	7.72E-01	7.72E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	7.74E-01	7.74E-01	7.74E-01	1.00E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02
pd107m	2.22E-03	2.22E-03	2.22E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr108	5.09E-07	5.09E-07	5.09E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	2.41E-04	2.41E-04	2.41E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	3.49E-02	3.49E-02	3.49E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	2.14E-01	2.14E-01	2.14E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	4.87E-01	4.87E-01	4.87E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	4.95E-01	4.95E-01	4.95E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	8.11E-03	8.11E-03	8.11E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108	9.67E-05	9.67E-05	9.67E-05	9.56E-05	9.54E-05	9.50E-05	9.45E-05	9.30E-05	9.05E-05
ag108m	1.10E-03	1.10E-03	1.10E-03	1.10E-03	1.10E-03	1.09E-03	1.09E-03	1.07E-03	1.04E-03
cd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr109	3.65E-10	3.65E-10	3.65E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	9.56E-06	9.56E-06	9.56E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	3.65E-03	3.65E-03	3.65E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	7.18E-02	7.18E-02	7.18E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	3.33E-01	3.33E-01	3.33E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	3.88E-01	3.88E-01	3.88E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	1.94E-01	1.94E-01	1.94E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	1.86E+04	1.86E+04	1.86E+04	5.51E+03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	1.86E-03	1.86E-03	1.86E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109m	1.86E+04	1.86E+04	1.86E+04	5.52E+03	7.43E-05	4.92E-05	2.85E-05	5.51E-06	3.57E-07
cd109	8.51E-05	8.51E-05	8.51E-05	8.49E-05	7.43E-05	4.92E-05	2.85E-05	5.51E-06	3.57E-07
nb110	3.81E-07	3.81E-07	3.81E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	3.80E-04	3.80E-04	3.80E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	1.09E-02	1.09E-02	1.09E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ru110	1.03E-01	1.03E-01	1.03E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	1.80E-02	1.80E-02	1.80E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	1.21E-01	1.21E-01	1.21E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110	6.83E+00	6.83E+00	6.83E+00	6.67E+00	5.21E+00	2.43E+00	8.81E-01	4.21E-02	2.65E-04
ag110m	4.92E+02	4.92E+02	4.92E+02	4.91E+02	3.83E+02	1.79E+02	6.48E+01	3.10E+00	1.95E-02

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 31

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nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
cd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb111	2.67E-09	2.67E-09	2.67E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	3.33E-05	3.33E-05	3.33E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	2.08E-03	2.08E-03	2.08E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	3.38E-02	3.38E-02	3.38E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	6.76E-02	6.76E-02	6.76E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	1.83E+01	1.83E+01	1.83E+01	8.84E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	2.32E+01	2.32E+01	2.32E+01	1.13E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	9.60E+03	9.60E+03	9.60E+03	8.75E+03	2.22E+00	1.68E-11	2.92E-26	.00E+00	.00E+00
ag111m	2.27E+01	2.27E+01	2.27E+01	1.10E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111m	5.75E-05	5.75E-05	5.75E-05	6.92E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb112	9.13E-11	9.13E-11	9.13E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	4.31E-06	4.31E-06	4.31E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	3.36E-04	3.36E-04	3.36E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	1.12E-02	1.12E-02	1.12E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	2.71E-02	2.71E-02	2.71E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	2.22E+03	2.22E+03	2.22E+03	1.01E+03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	2.60E+03	2.60E+03	2.60E+03	1.18E+03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo113	8.04E-08	8.04E-08	8.04E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	7.67E-05	7.67E-05	7.67E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	3.50E-03	3.50E-03	3.50E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	1.29E-02	1.29E-02	1.29E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	1.94E-02	1.94E-02	1.94E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	1.24E+02	1.24E+02	1.24E+02	5.62E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	3.78E-03	3.78E-03	3.78E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14
cd113m	6.30E+00	6.30E+00	6.30E+00	6.30E+00	6.22E+00	5.99E+00	5.71E+00	4.92E+00	3.85E+00
in113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113m	1.50E-10	1.50E-10	1.50E-10	6.61E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	4.01E-08	4.01E-08	4.01E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	1.16E-05	1.16E-05	1.16E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	1.26E-03	1.26E-03	1.26E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	6.58E-03	6.58E-03	6.58E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	1.54E-02	1.54E-02	1.54E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	1.60E-02	1.60E-02	1.60E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114	2.06E-01	2.06E-01	2.06E-01	2.03E-01	5.83E-02	1.24E-03	7.44E-06	1.62E-12	1.28E-23
in114m	2.15E-01	2.15E-01	2.15E-01	2.12E-01	6.09E-02	1.29E-03	7.78E-06	1.69E-12	1.34E-23
sn114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo115	1.75E-10	1.75E-10	1.75E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	3.93E-07	3.93E-07	3.93E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	2.85E-04	2.85E-04	2.85E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	2.69E-03	2.69E-03	2.69E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	9.34E-03	9.34E-03	9.34E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	7.40E-03	7.40E-03	7.40E-03	1.62E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	3.10E-03	3.10E-03	3.10E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	1.11E+03	1.11E+03	1.11E+03	8.15E+02	7.69E-10	.00E+00	.00E+00	.00E+00	.00E+00

cd115m	6.73E+01	6.73E+01	6.73E+01	6.63E+01	1.66E+01	2.30E-01	7.89E-04	3.16E-11	1.49E-23
in115	3.20E-12	3.20E-12	3.20E-12	3.21E-12	3.23E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12
in115m	1.21E+03	1.21E+03	1.21E+03	8.89E+02	1.84E-03	2.55E-05	8.71E-08	3.50E-15	1.64E-27

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 32

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nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
sn115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc116	1.65E-07	1.65E-07	1.65E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	9.28E-05	9.28E-05	9.28E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	1.34E-03	1.34E-03	1.34E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	1.03E-02	1.03E-02	1.03E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	1.18E-02	1.18E-02	1.18E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	1.49E-03	1.49E-03	1.49E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116	1.65E-03	1.65E-03	1.65E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	6.20E-03	6.20E-03	6.20E-03	6.13E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc117	2.02E-09	2.02E-09	2.02E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	1.46E-05	1.46E-05	1.46E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	5.21E-04	5.21E-04	5.21E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	6.95E-03	6.95E-03	6.95E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	6.17E-03	6.17E-03	6.17E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	6.17E-03	6.17E-03	6.17E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	1.99E+00	1.99E+00	1.99E+00	2.50E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	2.55E+00	2.55E+00	2.55E+00	1.81E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	8.25E+00	8.25E+00	8.25E+00	2.95E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	7.32E+00	7.32E+00	7.32E+00	1.24E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117m	7.76E+00	7.76E+00	7.76E+00	7.37E+00	7.90E-02	6.38E-08	5.25E-16	.00E+00	.00E+00
tc118	5.98E-11	5.98E-11	5.98E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	2.36E-06	2.36E-06	2.36E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	1.24E-04	1.24E-04	1.24E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	3.32E-03	3.32E-03	3.32E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	5.72E-03	5.72E-03	5.72E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	4.06E-03	4.06E-03	4.06E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	1.00E-02	1.00E-02	1.00E-02	2.42E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	1.00E-02	1.00E-02	1.00E-02	2.42E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	1.30E-05	1.30E-05	1.30E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru119	3.02E-07	3.02E-07	3.02E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	4.28E-05	4.28E-05	4.28E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	1.69E-03	1.69E-03	1.69E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	6.48E-03	6.48E-03	6.48E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	7.00E-03	7.00E-03	7.00E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	3.37E-03	3.37E-03	3.37E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	4.39E-03	4.39E-03	4.39E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	6.34E-03	6.34E-03	6.34E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119m	8.56E+00	8.56E+00	8.56E+00	8.54E+00	6.92E+00	3.61E+00	1.52E+00	1.14E-01	1.52E-03
ru120	3.84E-08	3.84E-08	3.84E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	9.89E-06	9.89E-06	9.89E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	9.45E-04	9.45E-04	9.45E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	4.36E-03	4.36E-03	4.36E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	9.80E-03	9.80E-03	9.80E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	9.97E-03	9.97E-03	9.97E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	1.76E-04	1.76E-04	1.76E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh121	2.72E-06	2.72E-06	2.72E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 33

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mthm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
pd121	3.95E-04	3.95E-04	3.95E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	3.12E-03	3.12E-03	3.12E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	9.79E-03	9.79E-03	9.79E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	9.46E-04	9.46E-04	9.46E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	9.98E-03	9.98E-03	9.98E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	8.45E+02	8.45E+02	8.45E+02	4.57E+02	4.47E-01	4.43E-01	4.38E-01	4.21E-01	3.96E-01
sn121m	5.78E-01	5.78E-01	5.78E-01	5.78E-01	5.77E-01	5.71E-01	5.64E-01	5.43E-01	5.10E-01
sb121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh122	3.00E-07	3.00E-07	3.00E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	1.30E-04	1.30E-04	1.30E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	1.61E-03	1.61E-03	1.61E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	1.05E-02	1.05E-02	1.05E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	1.17E-02	1.17E-02	1.17E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	1.21E-03	1.21E-03	1.21E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122	1.02E+02	1.02E+02	1.02E+02	7.87E+01	9.42E-09	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	9.05E-05	9.05E-05	9.05E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh123	2.55E-08	2.55E-08	2.55E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	2.26E-05	2.26E-05	2.26E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	6.40E-04	6.40E-04	6.40E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	6.74E-03	6.74E-03	6.74E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	8.66E-03	8.66E-03	8.66E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	2.36E-03	2.36E-03	2.36E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	1.29E+02	1.29E+02	1.29E+02	1.28E+02	7.94E+01	1.81E+01	2.55E+00	7.14E-03	3.96E-07
sn123m	1.13E-02	1.13E-02	1.13E-02	1.75E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te123	7.02E-14	7.02E-14	7.02E-14	7.03E-14	7.67E-14	8.44E-14	8.61E-14	8.63E-14	8.63E-14
te123m	6.10E-01	6.10E-01	6.10E-01	6.07E-01	3.62E-01	7.36E-02	8.87E-03	1.56E-05	3.96E-10
pd124	1.22E-05	1.22E-05	1.22E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	4.91E-04	4.91E-04	4.91E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	1.04E-02	1.04E-02	1.04E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	1.95E-02	1.95E-02	1.95E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124	9.48E+01	9.48E+01	9.48E+01	9.37E+01	3.36E+01	1.41E+00	2.11E-02	6.98E-08	5.14E-17
sb124m	1.66E-05	1.66E-05	1.66E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd125	2.93E-06	2.93E-06	2.93E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	2.21E-04	2.21E-04	2.21E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	6.43E-03	6.43E-03	6.43E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	1.11E-02	1.11E-02	1.11E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	8.50E-03	8.50E-03	8.50E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	8.84E+02	8.84E+02	8.84E+02	8.22E+02	1.37E+00	3.47E-09	1.36E-20	.00E+00	.00E+00
sn125m	2.01E-02	2.01E-02	2.01E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	1.94E+03	1.94E+03	1.94E+03	1.94E+03	1.83E+03	1.51E+03	1.17E+03	5.46E+02	1.54E+02
te125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125m	4.19E+02	4.19E+02	4.19E+02	4.20E+02	4.27E+02	3.68E+02	2.86E+02	1.33E+02	3.75E+01
pd126	6.66E-07	6.66E-07	6.66E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	9.69E-05	9.69E-05	9.69E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	7.50E-03	7.50E-03	7.50E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	2.60E-02	2.60E-02	2.60E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 34

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
sb126	6.04E+01	6.04E+01	6.04E+01	5.71E+01	4.13E-01	1.94E-02	1.94E-02	1.94E-02	1.94E-02
sb126m	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01
te126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag127	5.37E-05	5.37E-05	5.37E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	5.71E-03	5.71E-03	5.71E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	2.32E-02	2.32E-02	2.32E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	2.32E-02	2.32E-02	2.32E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	2.48E+00	2.48E+00	2.48E+00	9.01E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	6.18E-02	6.18E-02	6.18E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	1.40E+04	1.40E+04	1.40E+04	1.17E+04	1.29E-03	3.84E-25	.00E+00	.00E+00	.00E+00
te127	1.53E+04	1.53E+04	1.53E+04	1.34E+04	1.58E+03	2.75E+02	2.70E+01	2.54E-02	2.30E-07
te127m	2.78E+03	2.78E+03	2.78E+03	2.77E+03	1.62E+03	2.81E+02	2.75E+01	2.59E-02	2.35E-07
i127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe127	4.03E-03	4.03E-03	4.03E-03	3.95E-03	7.26E-04	3.84E-06	3.66E-09	3.18E-18	.00E+00
ag128	2.58E-05	2.58E-05	2.58E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	5.32E-03	5.32E-03	5.32E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	4.16E-02	4.16E-02	4.16E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	1.90E-01	1.90E-01	1.90E-01	8.80E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	4.82E+02	4.82E+02	4.82E+02	7.60E+01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	2.02E-01	2.02E-01	2.02E-01	1.07E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i128	7.94E-03	7.94E-03	7.94E-03	3.54E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd129	2.65E-03	2.65E-03	2.65E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	4.79E-02	4.79E-02	4.79E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	1.67E-01	1.67E-01	1.67E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	1.63E-01	1.63E-01	1.63E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	1.45E+03	1.45E+03	1.45E+03	3.31E+01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	9.20E+03	9.20E+03	9.20E+03	7.47E+03	1.18E+03	4.06E+00	2.16E-03	3.29E-13	1.43E-29
te129m	1.18E+04	1.18E+04	1.18E+04	1.16E+04	1.85E+03	6.32E+00	3.37E-03	5.14E-13	2.23E-29
i129	8.75E-03	8.75E-03	8.75E-03	8.75E-03	8.81E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03
xe129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe129m	2.18E+00	2.18E+00	2.18E+00	2.02E+00	1.96E-03	9.36E-13	4.01E-25	.00E+00	.00E+00
cd130	9.79E-04	9.79E-04	9.79E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	3.47E-02	3.47E-02	3.47E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	4.51E-01	4.51E-01	4.51E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	1.44E-01	1.44E-01	1.44E-01	1.53E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	6.04E-01	6.04E-01	6.04E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130	6.69E+02	6.69E+02	6.69E+02	1.74E+02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	9.20E-03	9.20E-03	9.20E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd131	1.52E-04	1.52E-04	1.52E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	1.50E-02	1.50E-02	1.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	3.83E-01	3.83E-01	3.83E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	1.06E+00	1.06E+00	1.06E+00	1.52E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	5.02E+03	5.02E+03	5.02E+03	2.88E+03	1.06E-18	.00E+00	.00E+00	.00E+00	.00E+00
te131m	2.23E+04	2.23E+04	2.23E+04	1.28E+04	4.72E-18	.00E+00	.00E+00	.00E+00	.00E+00
i131	1.82E+05	1.82E+05	1.82E+05	1.68E+05	7.93E+01	3.93E-09	8.31E-23	.00E+00	.00E+00
xe131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131m	2.14E+03	2.14E+03	2.14E+03	2.12E+03	3.17E+01	3.64E-06	2.09E-15	.00E+00	.00E+00

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0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
cd132	1.85E-05	1.85E-05	1.85E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

in132	4.01E-03	4.01E-03	4.01E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	3.09E-01	3.09E-01	3.09E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	6.30E-01	6.30E-01	6.30E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	6.08E-01	6.08E-01	6.08E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	2.27E+05	2.27E+05	2.27E+05	1.84E+05	1.10E-03	.00E+00	.00E+00	.00E+00	.00E+00
i132	2.34E+05	2.34E+05	2.34E+05	1.89E+05	1.13E-03	.00E+00	.00E+00	.00E+00	.00E+00
xe132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs132	5.49E+00	5.49E+00	5.49E+00	4.93E+00	3.61E-04	5.88E-17	.00E+00	.00E+00	.00E+00
ba132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in133	1.28E-04	1.28E-04	1.28E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	8.44E-02	8.44E-02	8.44E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	8.69E-01	8.69E-01	8.69E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	1.50E+00	1.50E+00	1.50E+00	4.20E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	1.24E+00	1.24E+00	1.24E+00	1.86E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	1.86E+05	1.86E+05	1.86E+05	8.36E+04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	2.11E-01	2.11E-01	2.11E-01	1.90E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	3.78E+05	3.78E+05	3.78E+05	3.48E+05	2.88E+00	4.53E-16	.00E+00	.00E+00	.00E+00
xe133m	1.14E+04	1.14E+04	1.14E+04	9.29E+03	6.33E-09	.00E+00	.00E+00	.00E+00	.00E+00
cs133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba133	6.44E-06	6.44E-06	6.44E-06	6.44E-06	6.34E-06	6.03E-06	5.65E-06	4.63E-06	3.33E-06
in134	2.14E-05	2.14E-05	2.14E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	1.43E-02	1.43E-02	1.43E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	1.59E-01	1.59E-01	1.59E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	1.16E-01	1.16E-01	1.16E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	2.44E+00	2.44E+00	2.44E+00	1.04E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	3.08E+00	3.08E+00	3.08E+00	7.16E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	2.67E-01	2.67E-01	2.67E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134m	5.57E-02	5.57E-02	5.57E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	2.69E+04	2.69E+04	2.69E+04	2.69E+04	2.48E+04	1.93E+04	1.38E+04	5.02E+03	9.34E+02
cs134m	1.76E+01	1.76E+01	1.76E+01	5.79E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn135	1.23E-03	1.23E-03	1.23E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	7.30E-02	7.30E-02	7.30E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	1.31E+00	1.31E+00	1.31E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	3.04E+04	3.04E+04	3.04E+04	2.42E+03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	1.13E+05	1.13E+05	1.13E+05	2.47E+04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	4.97E+03	4.97E+03	4.97E+03	3.95E+02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01
cs135m	1.87E-02	1.87E-02	1.87E-02	1.24E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135m	1.46E+01	1.46E+01	1.46E+01	8.18E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	1.08E-04	1.08E-04	1.08E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	1.15E-02	1.15E-02	1.15E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	5.86E-01	5.86E-01	5.86E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	1.20E+00	1.20E+00	1.20E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	5.86E-01	5.86E-01	5.86E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs136	9.29E+03	9.29E+03	9.29E+03	8.81E+03	8.11E+01	4.10E-05	1.81E-13	.00E+00	.00E+00
ba136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136m	1.04E+03	1.04E+03	1.04E+03	9.87E+02	9.09E+00	4.59E-06	2.03E-14	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 36

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHM for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
sb137	1.11E-02	1.11E-02	1.11E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	1.98E-01	1.98E-01	1.98E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	1.28E+00	1.28E+00	1.28E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	2.51E+00	2.51E+00	2.51E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cs137	3.01E+04	3.01E+04	3.01E+04	3.01E+04	2.99E+04	2.94E+04	2.87E+04	2.68E+04	2.39E+04
ba137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137m	2.84E+04	2.84E+04	2.84E+04	2.84E+04	2.83E+04	2.78E+04	2.71E+04	2.53E+04	2.26E+04
sb138	1.59E-04	1.59E-04	1.59E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	4.82E-02	4.82E-02	4.82E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	6.48E-01	6.48E-01	6.48E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	2.35E+00	2.35E+00	2.35E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	2.55E+00	2.55E+00	2.55E+00	1.52E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	1.08E-01	1.08E-01	1.08E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la138	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11
sb139	1.21E-05	1.21E-05	1.21E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	7.63E-03	7.63E-03	7.63E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	3.15E-01	3.15E-01	3.15E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	1.75E+00	1.75E+00	1.75E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	2.38E+00	2.38E+00	2.38E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	5.47E+00	5.47E+00	5.47E+00	4.37E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce139	2.12E-02	2.12E-02	2.12E-02	2.11E-02	1.34E-02	3.36E-03	5.34E-04	2.14E-06	2.17E-10
pr139	2.51E-05	2.51E-05	2.51E-05	5.78E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	1.12E-03	1.12E-03	1.12E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	8.03E-02	8.03E-02	8.03E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	1.21E+00	1.21E+00	1.21E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	2.13E+00	2.13E+00	2.13E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	3.36E+05	3.36E+05	3.36E+05	3.18E+05	2.52E+03	8.05E-04	1.93E-12	.00E+00	.00E+00
la140	3.59E+05	3.59E+05	3.59E+05	3.48E+05	2.91E+03	9.27E-04	2.22E-12	.00E+00	.00E+00
ce140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr140	2.61E-05	2.61E-05	2.61E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	1.34E-05	1.34E-05	1.34E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	1.08E-02	1.08E-02	1.08E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	4.67E-01	4.67E-01	4.67E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	1.63E+00	1.63E+00	1.63E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	2.22E+00	2.22E+00	2.22E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	5.07E+03	5.07E+03	5.07E+03	7.28E+01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	3.21E+05	3.21E+05	3.21E+05	3.15E+05	4.71E+04	1.33E+02	5.50E-02	3.90E-12	4.74E-29
pr141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd141	6.27E-06	6.27E-06	6.27E-06	7.84E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	5.27E-06	5.27E-06	5.27E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	2.91E-03	2.91E-03	2.91E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	1.85E-01	1.85E-01	1.85E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	9.41E-01	9.41E-01	9.41E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	2.11E+00	2.11E+00	2.11E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	8.45E+00	8.45E+00	8.45E+00	1.52E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06
pr142	2.96E+03	2.96E+03	2.96E+03	1.24E+03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i143	3.48E-05	3.48E-05	3.48E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 37

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
xe143	2.78E-02	2.78E-02	2.78E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	4.77E-01	4.77E-01	4.77E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	1.80E+00	1.80E+00	1.80E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	2.08E+00	2.08E+00	2.08E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	1.85E+05	1.85E+05	1.85E+05	1.12E+05	3.66E-15	.00E+00	.00E+00	.00E+00	.00E+00
pr143	2.92E+05	2.92E+05	2.92E+05	2.85E+05	3.15E+03	2.45E-03	1.92E-11	.00E+00	.00E+00
nd143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

i144	1.40E-06	1.40E-06	1.40E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	5.96E-03	5.96E-03	5.96E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	1.39E-01	1.39E-01	1.39E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	1.40E+00	1.40E+00	1.40E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	1.84E+00	1.84E+00	1.84E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	2.72E+05	2.72E+05	2.72E+05	2.72E+05	2.19E+05	1.12E+05	4.61E+04	3.21E+03	3.77E+01
pr144	2.72E+05	2.72E+05	2.72E+05	2.72E+05	2.19E+05	1.12E+05	4.61E+04	3.21E+03	3.77E+01
pr144m	3.81E+03	3.81E+03	3.81E+03	3.80E+03	3.06E+03	1.57E+03	6.45E+02	4.49E+01	5.28E-01
nd144	3.05E-10	3.05E-10	3.05E-10	3.05E-10	3.25E-10	3.64E-10	3.89E-10	4.06E-10	4.06E-10
i145	4.38E-08	4.38E-08	4.38E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	6.02E-04	6.02E-04	6.02E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	3.42E-02	3.42E-02	3.42E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	6.22E-01	6.22E-01	6.22E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	1.27E+00	1.27E+00	1.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	1.42E+00	1.42E+00	1.42E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	1.30E+04	1.30E+04	1.30E+04	8.04E+02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm145	1.10E-02	1.10E-02	1.10E-02	1.11E-02	1.31E-02	1.73E-02	1.98E-02	2.00E-02	1.67E-02
sm145	2.46E-01	2.46E-01	2.46E-01	2.46E-01	2.05E-01	1.17E-01	5.55E-02	5.95E-03	1.44E-04
xe146	5.41E-05	5.41E-05	5.41E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	7.53E-03	7.53E-03	7.53E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	3.22E-01	3.22E-01	3.22E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	8.26E-01	8.26E-01	8.26E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	1.13E+00	1.13E+00	1.13E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	1.14E+00	1.14E+00	1.14E+00	2.90E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm146	8.29E-01	8.29E-01	8.29E-01	8.29E-01	8.04E-01	7.32E-01	6.45E-01	4.43E-01	2.37E-01
sm146	4.64E-08	4.64E-08	4.64E-08	4.64E-08	4.68E-08	4.81E-08	4.97E-08	5.34E-08	5.71E-08
xe147	1.70E-07	1.70E-07	1.70E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	1.69E-04	1.69E-04	1.69E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	5.40E-02	5.40E-02	5.40E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	3.55E-01	3.55E-01	3.55E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	8.50E-01	8.50E-01	8.50E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	8.96E-01	8.96E-01	8.96E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	1.23E+05	1.23E+05	1.23E+05	1.15E+05	4.19E+02	1.19E-05	1.16E-15	.00E+00	.00E+00
pm147	5.37E+04	5.37E+04	5.37E+04	5.37E+04	5.16E+04	4.23E+04	3.25E+04	1.47E+04	3.92E+03
sm147	6.95E-07	6.95E-07	6.95E-07	6.96E-07	7.81E-07	1.01E-06	1.25E-06	1.69E-06	1.96E-06
cs148	3.09E-05	3.09E-05	3.09E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	1.07E-02	1.07E-02	1.07E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	1.12E-01	1.12E-01	1.12E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	5.99E-01	5.99E-01	5.99E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	6.93E-01	6.93E-01	6.93E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148	2.58E+04	2.58E+04	2.58E+04	2.28E+04	9.38E+01	9.22E-01	2.00E-03	2.06E-11	1.00E-24
pm148m	8.01E+03	8.01E+03	8.01E+03	7.88E+03	1.77E+03	1.74E+01	3.79E-02	3.90E-10	1.90E-23

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 38

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nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
sm148	8.66E-12	8.66E-12	8.66E-12	8.67E-12	8.80E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12
cs149	2.54E-07	2.54E-07	2.54E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	1.20E-03	1.20E-03	1.20E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	3.21E-02	3.21E-02	3.21E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	3.09E-01	3.09E-01	3.09E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	4.78E-01	4.78E-01	4.78E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	5.38E+00	5.38E+00	5.38E+00	3.49E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	7.39E+04	7.39E+04	7.39E+04	5.41E+04	4.17E-08	.00E+00	.00E+00	.00E+00	.00E+00
sm149	2.96E-13	2.96E-13	2.96E-13	3.09E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13
eu149	3.54E-07	3.54E-07	3.54E-07	3.51E-07	1.81E-07	2.33E-08	1.53E-09	4.38E-13	5.41E-19

cs150	3.25E-08	3.25E-08	3.25E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	1.08E-04	1.08E-04	1.08E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	5.38E-03	5.38E-03	5.38E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	1.38E-01	1.38E-01	1.38E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	2.95E-01	2.95E-01	2.95E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm150	9.33E-01	9.33E-01	9.33E-01	1.88E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu150	1.43E-05	1.43E-05	1.43E-05	1.43E-05	1.42E-05	1.40E-05	1.37E-05	1.29E-05	1.18E-05
ba151	1.09E-06	1.09E-06	1.09E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	9.13E-04	9.13E-04	9.13E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	3.94E-02	3.94E-02	3.94E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	1.53E-01	1.53E-01	1.53E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	2.57E-01	2.57E-01	2.57E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	2.12E+04	2.12E+04	2.12E+04	1.18E+04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	1.62E+02	1.62E+02	1.62E+02	1.63E+02	1.63E+02	1.62E+02	1.61E+02	1.57E+02	1.51E+02
eu151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba152	5.82E-09	5.82E-09	5.82E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	1.24E-05	1.24E-05	1.24E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	4.48E-03	4.48E-03	4.48E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	4.94E-02	4.94E-02	4.94E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	1.71E-01	1.71E-01	1.71E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	1.78E-01	1.78E-01	1.78E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	6.29E-03	6.29E-03	6.29E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152	4.68E+00	4.68E+00	4.68E+00	4.68E+00	4.62E+00	4.45E+00	4.22E+00	3.61E+00	2.78E+00
eu152m	9.33E+00	9.33E+00	9.33E+00	1.56E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	5.34E-13	5.34E-13	5.34E-13	5.35E-13	5.37E-13	5.43E-13	5.50E-13	5.71E-13	6.00E-13
la153	7.27E-06	7.27E-06	7.27E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	1.84E-03	1.84E-03	1.84E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	2.12E-02	2.12E-02	2.12E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	9.74E-02	9.74E-02	9.74E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	1.18E-01	1.18E-01	1.18E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	4.57E+04	4.57E+04	4.57E+04	3.19E+04	4.07E-10	.00E+00	.00E+00	.00E+00	.00E+00
eu153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd153	2.51E+00	2.51E+00	2.51E+00	2.51E+00	1.94E+00	8.81E-01	3.09E-01	1.33E-02	7.05E-05
la154	1.90E-07	1.90E-07	1.90E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	1.88E-04	1.88E-04	1.88E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	4.02E-03	4.02E-03	4.02E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	4.77E-02	4.77E-02	4.77E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	6.03E-02	6.03E-02	6.03E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	1.26E-02	1.26E-02	1.26E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 39

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nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtihm for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
sm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu154	1.97E+03	1.97E+03	1.97E+03	1.97E+03	1.95E+03	1.82E+03	1.68E+03	1.32E+03	8.81E+02
gd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la155	9.35E-10	9.35E-10	9.35E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	1.62E-05	1.62E-05	1.62E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	8.82E-04	8.82E-04	8.82E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	1.64E-02	1.64E-02	1.64E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	3.78E-02	3.78E-02	3.78E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	4.59E-02	4.59E-02	4.59E-02	1.73E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	1.54E+03	1.54E+03	1.54E+03	1.54E+03	1.48E+03	1.33E+03	1.14E+03	7.34E+02	3.50E+02
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce156	1.26E-06	1.26E-06	1.26E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pr156	1.26E-04	1.26E-04	1.26E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	5.76E-03	5.76E-03	5.76E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	1.88E-02	1.88E-02	1.88E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	7.18E+02	7.18E+02	7.18E+02	1.22E+02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	1.66E+04	1.66E+04	1.66E+04	1.59E+04	2.73E+02	9.55E-04	5.49E-11	.00E+00	.00E+00
gd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce157	5.99E-08	5.99E-08	5.99E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	1.90E-05	1.90E-05	1.90E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	1.42E-03	1.42E-03	1.42E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	8.27E-03	8.27E-03	8.27E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	1.78E-02	1.78E-02	1.78E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	1.03E+03	1.03E+03	1.03E+03	3.43E+02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr158	9.90E-07	9.90E-07	9.90E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	2.36E-04	2.36E-04	2.36E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	2.17E-03	2.17E-03	2.17E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	9.07E-03	9.07E-03	9.07E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	1.02E-02	1.02E-02	1.02E-02	4.12E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr159	4.03E-08	4.03E-08	4.03E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	2.09E-05	2.09E-05	2.09E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	4.86E-04	4.86E-04	4.86E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	3.64E-03	3.64E-03	3.64E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	5.11E-03	5.11E-03	5.11E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	3.61E+02	3.61E+02	3.61E+02	1.47E+02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd160	1.23E-06	1.23E-06	1.23E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	5.38E-05	5.38E-05	5.38E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	1.07E-03	1.07E-03	1.07E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	2.06E-03	2.06E-03	2.06E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb160	9.97E+01	9.97E+01	9.97E+01	9.87E+01	4.21E+01	3.01E+00	9.06E-02	2.48E-06	6.19E-14
dy160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd161	4.71E-08	4.71E-08	4.71E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	6.09E-06	6.09E-06	6.09E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	2.26E-04	2.26E-04	2.26E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	7.86E-04	7.86E-04	7.86E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	1.10E-03	1.10E-03	1.10E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	1.53E+02	1.53E+02	1.53E+02	1.39E+02	1.82E-02	1.79E-14	2.08E-30	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 40

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nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHM for grams

	charge	discharge	.0 d	1.0 d	90.0 d	365.3 d	730.5 d	1826.3 d	3652.5 d
dy161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm162	3.20E-07	3.20E-07	3.20E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	3.26E-05	3.26E-05	3.26E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	1.98E-04	1.98E-04	1.98E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	4.70E-04	4.70E-04	4.70E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	4.79E-04	4.79E-04	4.79E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	7.51E-04	7.51E-04	7.51E-04	4.32E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm163	2.54E-06	2.54E-06	2.54E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	3.88E-05	3.88E-05	3.88E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	1.66E-04	1.66E-04	1.66E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	1.91E-04	1.91E-04	1.91E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm164	1.66E-07	1.66E-07	1.66E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	4.55E-06	4.55E-06	4.55E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

gd164	4.92E-05	4.92E-05	4.92E-05	5.01E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	6.90E-05	6.90E-05	6.90E-05	5.82E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm165	7.46E-09	7.46E-09	7.46E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	4.90E-07	4.90E-07	4.90E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	1.06E-05	1.06E-05	1.06E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	2.36E-05	2.36E-05	2.36E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	2.05E-02	2.05E-02	2.05E-02	1.65E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	1.31E-04	1.31E-04	1.31E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy166	4.93E-01	4.93E-01	4.93E-01	4.02E-01	5.31E-09	.00E+00	.00E+00	.00E+00	.00E+00
ho166	2.53E+00	2.53E+00	2.53E+00	1.56E+00	7.91E-09	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	4.27E-05	4.27E-05	4.27E-05	4.27E-05	4.27E-05	4.27E-05	4.27E-05	4.26E-05	4.25E-05
er166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167m	1.29E-10	1.29E-10	1.29E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	9.37E-04	9.37E-04	9.37E-04	8.71E-04	1.23E-06	1.89E-15	3.79E-27	.00E+00	.00E+00
tm169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170	5.77E-06	5.77E-06	5.77E-06	5.74E-06	3.55E-06	8.06E-07	1.12E-07	3.06E-10	1.62E-14
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er171	1.53E-04	1.53E-04	1.53E-04	1.67E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	7.42E-04	7.42E-04	7.42E-04	7.42E-04	6.79E-04	5.17E-04	3.61E-04	1.22E-04	2.01E-05
yb171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er172	6.25E-04	6.25E-04	6.25E-04	4.46E-04	4.05E-17	.00E+00	.00E+00	.00E+00	.00E+00
tm172	8.76E-04	8.76E-04	8.76E-04	7.98E-04	1.82E-13	.00E+00	.00E+00	.00E+00	.00E+00
yb172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	7.20E+06	7.20E+06	7.20E+06	6.07E+06	1.48E+06	5.36E+05	3.03E+05	1.31E+05	9.05E+04

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 44

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
he 4	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tl206	2.82E-14	7.02E-14	1.41E-13	3.88E-13	1.43E-12	8.23E-12	2.20E-11	4.34E-11	7.26E-11	1.10E-10	2.07E-10
tl207	4.37E-06	6.17E-06	7.92E-06	1.13E-05	1.77E-05	3.26E-05	4.70E-05	6.14E-05	7.57E-05	9.01E-05	1.19E-04
tl208	3.34E-03	3.63E-03	3.80E-03	3.32E-03	2.73E-03	1.66E-03	1.01E-03	6.15E-04	3.74E-04	2.28E-04	8.46E-05
tl209	3.60E-10	4.93E-10	6.45E-10	1.01E-09	1.96E-09	5.89E-09	1.23E-08	2.16E-08	3.42E-08	5.03E-08	9.43E-08
pb206	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb207	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb209	1.71E-08	2.35E-08	3.07E-08	4.79E-08	9.36E-08	2.80E-07	5.86E-07	1.03E-06	1.63E-06	2.39E-06	4.49E-06
pb210	2.13E-08	5.32E-08	1.06E-07	2.94E-07	1.09E-06	6.23E-06	1.67E-05	3.29E-05	5.50E-05	8.30E-05	1.57E-04
pb211	4.38E-06	6.19E-06	7.95E-06	1.13E-05	1.77E-05	3.26E-05	4.72E-05	6.16E-05	7.59E-05	9.03E-05	1.19E-04
pb212	9.29E-03	1.01E-02	1.00E-02	9.24E-03	7.60E-03	4.62E-03	2.81E-03	1.71E-03	1.04E-03	6.34E-04	2.35E-04
pb214	1.68E-07	3.22E-07	5.28E-07	1.10E-06	2.87E-06	1.12E-05	2.52E-05	4.52E-05	7.11E-05	1.03E-04	1.84E-04
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	2.13E-08	5.32E-08	1.06E-07	2.94E-07	1.09E-06	6.23E-06	1.67E-05	3.29E-05	5.50E-05	8.30E-05	1.57E-04
bi211	4.38E-06	6.19E-06	7.95E-06	1.13E-05	1.77E-05	3.26E-05	4.72E-05	6.16E-05	7.59E-05	9.03E-05	1.19E-04
bi212	9.29E-03	1.01E-02	1.00E-02	9.24E-03	7.60E-03	4.62E-03	2.81E-03	1.71E-03	1.04E-03	6.34E-04	2.35E-04
bi213	1.71E-08	2.35E-08	3.07E-08	4.79E-08	9.36E-08	2.80E-07	5.86E-07	1.03E-06	1.63E-06	2.39E-06	4.49E-06
bi214	1.68E-07	3.22E-07	5.28E-07	1.10E-06	2.87E-06	1.12E-05	2.52E-05	4.52E-05	7.11E-05	1.03E-04	1.84E-04
po210	2.13E-08	5.32E-08	1.07E-07	2.94E-07	1.09E-06	6.23E-06	1.67E-05	3.29E-05	5.50E-05	8.30E-05	1.57E-04

pa211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa211	1.20E-08	1.70E-08	2.18E-08	3.11E-08	4.87E-08	8.98E-08	1.30E-07	1.69E-07	2.09E-07	2.48E-07	3.27E-07
pa212	5.95E-03	6.46E-03	6.42E-03	5.92E-03	4.87E-03	2.96E-03	1.80E-03	1.10E-03	6.67E-04	4.06E-04	1.51E-04
pa213	1.68E-08	2.30E-08	3.01E-08	4.69E-08	9.16E-08	2.74E-07	5.74E-07	1.01E-06	1.59E-06	2.34E-06	4.40E-06
pa214	1.68E-07	3.22E-07	5.28E-07	1.10E-06	2.87E-06	1.12E-05	2.52E-05	4.52E-05	7.11E-05	1.03E-04	1.84E-04
pa215	4.38E-06	6.19E-06	7.95E-06	1.13E-05	1.77E-05	3.26E-05	4.72E-05	6.16E-05	7.59E-05	9.03E-05	1.19E-04
pa216	9.29E-03	1.01E-02	1.00E-02	9.24E-03	7.60E-03	4.62E-03	2.81E-03	1.71E-03	1.04E-03	6.34E-04	2.35E-04
pa218	1.68E-07	3.23E-07	5.28E-07	1.10E-06	2.87E-06	1.12E-05	2.53E-05	4.52E-05	7.11E-05	1.03E-04	1.84E-04
at217	1.71E-08	2.35E-08	3.07E-08	4.79E-08	9.36E-08	2.80E-07	5.86E-07	1.08E-06	1.63E-06	2.39E-06	4.49E-06
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	4.38E-06	6.19E-06	7.95E-06	1.13E-05	1.77E-05	3.26E-05	4.72E-05	6.16E-05	7.59E-05	9.03E-05	1.19E-04
rn220	9.29E-03	1.01E-02	1.00E-02	9.24E-03	7.60E-03	4.62E-03	2.81E-03	1.71E-03	1.04E-03	6.34E-04	2.35E-04
rn222	1.68E-07	3.23E-07	5.28E-07	1.10E-06	2.87E-06	1.12E-05	2.53E-05	4.52E-05	7.11E-05	1.03E-04	1.84E-04
fr221	1.71E-08	2.35E-08	3.07E-08	4.79E-08	9.36E-08	2.80E-07	5.86E-07	1.08E-06	1.63E-06	2.39E-06	4.49E-06
fr223	6.03E-08	8.53E-08	1.09E-07	1.56E-07	2.44E-07	4.50E-07	6.50E-07	8.49E-07	1.05E-06	1.25E-06	1.64E-06
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	4.38E-06	6.19E-06	7.95E-06	1.13E-05	1.77E-05	3.26E-05	4.72E-05	6.16E-05	7.59E-05	9.03E-05	1.19E-04
ra224	9.29E-03	1.01E-02	1.00E-02	9.24E-03	7.60E-03	4.62E-03	2.81E-03	1.71E-03	1.04E-03	6.34E-04	2.35E-04
ra225	1.71E-08	2.35E-08	3.07E-08	4.79E-08	9.36E-08	2.80E-07	5.86E-07	1.08E-06	1.63E-06	2.39E-06	4.49E-06
ra226	1.68E-07	3.23E-07	5.28E-07	1.10E-06	2.87E-06	1.12E-05	2.53E-05	4.52E-05	7.11E-05	1.03E-04	1.84E-04
ra228	2.58E-11	4.43E-11	6.47E-11	1.08E-10	1.98E-10	4.24E-10	6.51E-10	8.78E-10	1.11E-09	1.33E-09	1.83E-09
ac225	1.71E-08	2.35E-08	3.07E-08	4.79E-08	9.36E-08	2.80E-07	5.86E-07	1.08E-06	1.63E-06	2.39E-06	4.49E-06
ac227	4.37E-06	6.18E-06	7.93E-06	1.13E-05	1.77E-05	3.26E-05	4.71E-05	6.15E-05	7.59E-05	9.03E-05	1.19E-04
ac228	2.58E-11	4.43E-11	6.47E-11	1.08E-10	1.98E-10	4.24E-10	6.51E-10	8.78E-10	1.11E-09	1.33E-09	1.83E-09
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	4.32E-06	6.10E-06	7.84E-06	1.12E-05	1.75E-05	3.22E-05	4.65E-05	6.07E-05	7.49E-05	8.91E-05	1.17E-04
th228	9.28E-03	1.01E-02	1.00E-02	9.24E-03	7.60E-03	4.62E-03	2.81E-03	1.71E-03	1.04E-03	6.34E-04	2.35E-04
th229	1.71E-08	2.35E-08	3.07E-08	4.79E-08	9.36E-08	2.80E-07	5.86E-07	1.08E-06	1.63E-06	2.39E-06	4.49E-06
th230	5.96E-05	8.34E-05	1.08E-04	1.57E-04	2.58E-04	5.26E-04	8.10E-04	1.10E-03	1.40E-03	1.71E-03	2.33E-03
th231	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.37E-02	1.37E-02	1.37E-02	1.37E-02

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 45

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nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
th232	5.44E-11	7.69E-11	9.95E-11	1.45E-10	2.35E-10	4.61E-10	6.88E-10	9.16E-10	1.14E-09	1.37E-09	1.83E-09
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa231	1.59E-05	1.74E-05	1.88E-05	2.17E-05	2.74E-05	4.18E-05	5.62E-05	7.06E-05	8.49E-05	9.93E-05	1.28E-04
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	9.15E-02	9.26E-02	9.40E-02	9.72E-02	1.05E-01	1.26E-01	1.45E-01	1.64E-01	1.81E-01	1.96E-01	2.24E-01
pa234m	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa234	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	1.02E-02	1.02E-02	9.87E-03	9.00E-03	7.38E-03	4.49E-03	2.73E-03	1.66E-03	1.01E-03	6.17E-04	2.29E-04
u233	1.35E-05	1.55E-05	1.75E-05	2.17E-05	3.04E-05	5.55E-05	8.50E-05	1.19E-04	1.56E-04	1.97E-04	2.89E-04
u234	5.15E-01	5.22E-01	5.28E-01	5.40E-01	5.62E-01	6.03E-01	6.30E-01	6.49E-01	6.62E-01	6.70E-01	6.80E-01
u235	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.36E-02	1.37E-02	1.37E-02	1.37E-02	1.37E-02
u236	9.15E-02	9.15E-02	9.15E-02	9.16E-02	9.17E-02	9.19E-02	9.21E-02	9.23E-02	9.26E-02	9.28E-02	9.32E-02
u237	6.18E-01	4.85E-01	3.81E-01	2.35E-01	8.95E-02	7.99E-03	7.14E-04	6.39E-05	5.88E-06	6.92E-07	1.86E-07
u238	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	5.72E-16	8.48E-16	1.12E-15	1.68E-15	2.78E-15	5.55E-15	8.31E-15	1.11E-14	1.38E-14	1.66E-14	2.21E-14
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	7.52E-06	3.08E-07	1.26E-08	2.11E-11	5.94E-17	7.99E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	4.88E-06	4.88E-06	4.88E-06	4.88E-06	4.88E-06	4.88E-06	4.88E-06	4.88E-06	4.88E-06	4.88E-06	4.87E-06
np237	9.15E-02	9.26E-02	9.40E-02	9.72E-02	1.05E-01	1.26E-01	1.45E-01	1.64E-01	1.81E-01	1.96E-01	2.24E-01

np238	1.94E-02	1.89E-02	1.85E-02	1.76E-02	1.59E-02	1.25E-02	9.74E-03	7.62E-03	5.96E-03	4.66E-03	2.85E-03
np239	2.01E+00	2.01E+00	2.01E+00	2.01E+00	2.00E+00	2.00E+00	1.99E+00	1.98E+00	1.97E+00	1.96E+00	1.94E+00
np240m	5.72E-16	8.48E-16	1.12E-15	1.68E-15	2.78E-15	5.55E-15	8.31E-15	1.11E-14	1.38E-14	1.66E-14	2.21E-14
np240	6.86E-19	1.02E-18	1.35E-18	2.01E-18	3.34E-18	6.66E-18	9.97E-18	1.33E-17	1.66E-17	1.99E-17	2.66E-17
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	1.88E-02	5.69E-03	1.72E-03	1.58E-04	1.76E-06	4.35E-07	4.34E-07	4.34E-07	4.34E-07	4.34E-07	4.34E-07
pu237	6.11E-26	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	4.82E+02	4.64E+02	4.46E+02	4.12E+02	3.52E+02	2.38E+02	1.61E+02	1.09E+02	7.38E+01	5.00E+01	2.31E+01
pu239	1.63E+02	1.63E+02	1.63E+02	1.63E+02	1.63E+02	1.63E+02	1.63E+02	1.62E+02	1.62E+02	1.62E+02	1.62E+02
pu240	1.53E+02	1.52E+02	1.52E+02	1.52E+02	1.52E+02	1.51E+02	1.51E+02	1.50E+02	1.49E+02	1.48E+02	1.47E+02
pu241	2.58E+04	2.08E+04	1.59E+04	9.83E+03	3.74E+03	3.34E+02	2.98E+01	2.67E+00	2.46E-01	2.85E-02	7.80E-03
pu242	2.80E-01	2.80E-01	2.80E-01	2.80E-01	2.80E-01	2.80E-01	2.80E-01	2.80E-01	2.80E-01	2.80E-01	2.80E-01
pu243	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09
pu244	5.73E-16	8.49E-16	1.13E-15	1.68E-15	2.79E-15	5.55E-15	8.32E-15	1.11E-14	1.39E-14	1.66E-14	2.22E-14
pu245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	6.12E-17	6.12E-17	6.12E-17	6.12E-17	6.11E-17	6.10E-17	6.09E-17	6.07E-17	6.06E-17	6.05E-17	6.03E-17
am239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	5.85E+02	7.64E+02	9.01E+02	1.09E+03	1.25E+03	1.26E+03	1.17E+03	1.08E+03	1.00E+03	9.24E+02	7.87E+02
am242m	4.31E+00	4.20E+00	4.10E+00	3.91E+00	3.54E+00	2.77E+00	2.16E+00	1.69E+00	1.32E+00	1.04E+00	6.33E-01
am242	4.29E+00	4.19E+00	4.08E+00	3.89E+00	3.52E+00	2.76E+00	2.16E+00	1.69E+00	1.32E+00	1.03E+00	6.31E-01
am243	2.01E+00	2.01E+00	2.01E+00	2.01E+00	2.00E+00	2.00E+00	1.99E+00	1.98E+00	1.97E+00	1.96E+00	1.94E+00
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	1.36E-13	2.61E-15	4.99E-17	1.83E-20	2.46E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	6.12E-17	6.12E-17	6.12E-17	6.12E-17	6.11E-17	6.10E-17	6.09E-17	6.07E-17	6.06E-17	6.05E-17	6.03E-17
cm241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 46

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nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
cm242	3.55E+00	3.46E+00	3.38E+00	3.22E+00	2.91E+00	2.28E+00	1.78E+00	1.39E+00	1.09E+00	8.53E-01	5.21E-01
cm243	2.44E+00	2.16E+00	1.91E+00	1.50E+00	9.22E-01	2.73E-01	8.10E-02	2.40E-02	7.12E-03	2.11E-03	1.85E-04
cm244	8.38E+01	6.92E+01	5.71E+01	3.89E+01	1.81E+01	2.67E+00	3.93E-01	5.79E-02	8.54E-03	1.26E-03	2.73E-05
cm245	7.87E-03	7.86E-03	7.86E-03	7.85E-03	7.84E-03	7.81E-03	7.78E-03	7.74E-03	7.71E-03	7.68E-03	7.62E-03
cm246	9.20E-04	9.19E-04	9.19E-04	9.17E-04	9.15E-04	9.08E-04	9.01E-04	8.95E-04	8.88E-04	8.82E-04	8.69E-04
cm247	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09
cm248	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09	6.96E-09
cm249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	2.45E-16	2.45E-16	2.45E-16	2.45E-16	2.44E-16	2.44E-16	2.43E-16	2.43E-16	2.42E-16	2.42E-16	2.41E-16
cm251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	9.39E-09	1.80E-10	3.44E-12	1.26E-15	1.69E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	7.16E-16	4.12E-17	3.43E-17	3.42E-17	3.42E-17	3.42E-17	3.41E-17	3.40E-17	3.39E-17	3.39E-17	3.37E-17
bk251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	7.45E-08	7.38E-08	7.31E-08	7.16E-08	6.89E-08	6.24E-08	5.65E-08	5.12E-08	4.64E-08	4.20E-08	3.45E-08
cf250	1.12E-07	8.59E-08	6.59E-08	3.88E-08	1.34E-08	9.49E-10	6.71E-11	4.74E-12	3.35E-13	2.37E-14	1.52E-16
cf251	1.34E-09	1.34E-09	1.33E-09	1.32E-09	1.30E-09	1.25E-09	1.21E-09	1.16E-09	1.12E-09	1.07E-09	9.94E-10
cf252	9.84E-09	2.65E-09	7.16E-10	5.21E-11	2.75E-13	5.61E-19	1.14E-24	2.33E-30	.00E+00	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	4.79E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	6.81E-16	6.90E-18	7.00E-20	7.18E-24	6.85E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	2.73E+04	2.19E+04	1.77E+04	1.17E+04	5.69E+03	2.16E+03	1.69E+03	1.52E+03	1.40E+03	1.29E+03	1.13E+03

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 64

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
h 3	7.48E+01	5.65E+01	4.27E+01	2.43E+01	7.90E+00	4.75E-01	2.86E-02	1.72E-03	1.03E-04	6.21E-06	2.25E-08
li 6	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 7	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 9	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 10	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07	8.26E-07
c 14	3.33E-05	3.32E-05	3.32E-05	3.32E-05	3.31E-05	3.29E-05	3.27E-05	3.25E-05	3.23E-05	3.21E-05	3.17E-05
ni 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 68	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 65

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
zn 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.91E-01	1.91E-01	1.91E-01
se 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 81	1.48E-08	1.48E-08	1.48E-08	1.48E-08	1.48E-08	1.48E-08	1.48E-08	1.48E-08	1.48E-08	1.48E-08	1.48E-08
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 66

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHM for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
ge 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

as 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	1.37E+03	9.90E+02	7.17E+02	3.75E+02	1.09E+02	4.06E+00	1.60E-01	6.31E-03	2.49E-04	9.82E-06	1.53E-08
kr 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06
sr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 67

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	3.38E-17	4.51E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89m	3.15E-21	4.56E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	1.79E+04	1.59E+04	1.40E+04	1.10E+04	6.70E+03	1.96E+03	5.71E+02	1.67E+02	4.86E+01	1.42E+01	1.21E+00
y 90	1.79E+04	1.59E+04	1.40E+04	1.10E+04	6.70E+03	1.96E+03	5.71E+02	1.67E+02	4.86E+01	1.42E+01	1.21E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	3.99E-14	1.60E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	1.53E-09	1.52E-09	1.51E-09	1.50E-09	1.47E-09	1.39E-09	1.32E-09	1.26E-09	1.20E-09	1.14E-09	1.03E-09
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93m	1.39E-01	1.80E-01	2.12E-01	2.60E-01	3.11E-01	3.45E-01	3.48E-01	3.49E-01	3.49E-01	3.49E-01	3.49E-01
br 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 68

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.34E-05	2.33E-05	2.33E-05	2.32E-05	2.32E-05	2.32E-05	2.31E-05
rb 94m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	2.21E-12	5.69E-21	1.47E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	4.86E-12	1.25E-20	3.23E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	2.59E-14	6.69E-23	1.60E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 98	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06
rb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	3.95E+00	3.95E+00	3.95E+00	3.94E+00	3.94E+00	3.94E+00	3.94E+00	3.94E+00	3.94E+00	3.94E+00	3.94E+00
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 69

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

mo101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh102	2.40E-02	7.28E-03	2.20E-03	2.02E-04	1.69E-06	1.09E-11	7.04E-17	4.54E-22	2.93E-27	2.28E-32	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	2.93E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103m	2.92E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 70

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	1.23E+02	4.07E+00	1.35E-01	1.48E-04	1.79E-10	2.89E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	1.23E+02	4.07E+00	1.35E-01	1.48E-04	1.79E-10	2.89E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108	9.05E-05	8.80E-05	8.57E-05	8.11E-05	7.27E-05	5.54E-05	4.21E-05	3.21E-05	2.44E-05	1.85E-05	1.08E-05
ag108m	1.04E-03	1.01E-03	9.85E-04	9.32E-04	8.36E-04	6.36E-04	4.84E-04	3.69E-04	2.81E-04	2.14E-04	1.24E-04
cd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109m	3.57E-07	2.31E-08	1.50E-09	6.30E-12	1.11E-16	1.45E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	3.57E-07	2.31E-08	1.50E-09	6.30E-12	1.11E-16	1.45E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110	2.65E-04	1.67E-06	1.05E-08	4.15E-13	6.51E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	1.95E-02	1.23E-04	7.72E-07	3.05E-11	4.79E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 71

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
cd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14
cd113m	3.85E+00	3.01E+00	2.36E+00	1.44E+00	5.39E-01	4.61E-02	3.95E-03	3.38E-04	2.90E-05	2.48E-06	1.82E-08
in113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114	1.28E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	1.34E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	1.49E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12
in115m	1.64E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 72

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
sn115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

in117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119m	1.52E-03	2.02E-05	2.68E-07	4.75E-11	1.49E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 73

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	3.96E-01	3.72E-01	3.49E-01	3.08E-01	2.39E-01	1.27E-01	6.78E-02	3.61E-02	1.92E-02	1.02E-02	2.90E-03
sn121m	5.10E-01	4.79E-01	4.49E-01	3.96E-01	3.08E-01	1.64E-01	8.74E-02	4.65E-02	2.48E-02	1.32E-02	3.74E-03
sb121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

in123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	3.96E-07	2.19E-11	1.21E-15	3.73E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te123	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14
te123m	3.96E-10	1.01E-14	2.57E-19	1.67E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124	5.14E-17	3.78E-26	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	1.54E+02	4.31E+01	1.21E+01	9.56E-01	5.96E-03	1.82E-08	5.59E-14	1.71E-19	5.24E-25	1.60E-30	.00E+00
te125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125m	3.75E+01	1.05E+01	2.96E+00	2.34E-01	1.45E-03	4.45E-09	1.36E-14	4.18E-20	1.28E-25	3.88E-31	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.38E-01	1.38E-01	1.38E-01

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 74

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
sb126	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02	1.94E-02
sb126m	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.39E-01	1.38E-01	1.38E-01	1.38E-01
te126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	2.30E-07	2.08E-12	1.88E-17	1.54E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	2.35E-07	2.12E-12	1.92E-17	1.57E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	1.43E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	2.23E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03
xe129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 75

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba133	3.33E-06	2.40E-06	1.73E-06	8.93E-07	2.39E-07	8.86E-09	3.29E-10	1.22E-11	4.52E-13	1.68E-14	2.31E-17
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	9.34E+02	1.74E+02	3.24E+01	1.12E+00	1.35E-03	6.78E-11	3.39E-18	1.70E-25	.00E+00	.00E+00	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 76

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
sb137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	2.39E+04	2.13E+04	1.90E+04	1.50E+04	9.48E+03	2.99E+03	9.40E+02	2.96E+02	9.33E+01	2.94E+01	2.91E+00
ba137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137m	2.26E+04	2.01E+04	1.79E+04	1.42E+04	8.95E+03	2.82E+03	8.88E+02	2.80E+02	8.81E+01	2.77E+01	2.75E+00
sb138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la138	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11
sb139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce139	2.17E-10	2.19E-14	2.22E-18	2.27E-26	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

te141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	4.74E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06
pr142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 77

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	3.77E+01	4.44E-01	5.22E-03	7.22E-07	1.38E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	3.77E+01	4.44E-01	5.22E-03	7.22E-07	1.38E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	5.28E-01	6.21E-03	7.31E-05	1.01E-08	1.94E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10
i145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm145	1.67E-02	1.37E-02	1.13E-02	7.63E-03	3.48E-03	4.92E-04	6.94E-05	9.80E-06	1.38E-06	1.95E-07	3.89E-09
sm145	1.44E-04	3.47E-06	8.39E-08	4.90E-11	1.67E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm146	2.37E-01	1.26E-01	6.76E-02	1.93E-02	1.57E-03	2.98E-06	5.65E-09	1.07E-11	2.03E-14	3.85E-17	1.38E-22
sm146	5.71E-08	5.91E-08	6.02E-08	6.11E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08

xe147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	3.92E+03	1.05E+03	2.79E+02	1.99E+01	1.01E-01	1.84E-07	3.37E-13	6.17E-19	1.13E-24	2.05E-30	.00E+00
sm147	1.96E-06	2.03E-06	2.05E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06
cs148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148	1.00E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	1.90E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 78

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
sm148	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12
cs149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13
eu149	5.41E-19	6.68E-25	8.21E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu150	1.18E-05	1.07E-05	9.69E-06	7.98E-06	5.42E-06	2.06E-06	7.82E-07	2.97E-07	1.13E-07	4.29E-08	6.18E-09
ba151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	1.51E+02	1.45E+02	1.40E+02	1.30E+02	1.11E+02	7.55E+01	5.14E+01	3.50E+01	2.38E+01	1.62E+01	7.49E+00
eu151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152	2.78E+00	2.15E+00	1.65E+00	9.84E-01	3.48E-01	2.58E-02	1.92E-03	1.42E-04	1.06E-05	7.84E-07	4.32E-09
eu152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	6.00E-13	6.22E-13	6.39E-13	6.62E-13	6.84E-13	6.95E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13

la153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd153	7.05E-05	3.74E-07	1.98E-09	5.55E-14	4.36E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 79

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtihm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
sm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu154	8.81E+02	5.88E+02	3.93E+02	1.75E+02	3.49E+01	6.18E-01	1.09E-02	1.93E-04	3.42E-06	6.05E-08	1.89E-11
gd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	3.50E+02	1.67E+02	7.96E+01	1.81E+01	9.36E-01	5.69E-04	3.46E-07	2.10E-10	1.28E-13	7.77E-17	2.87E-23
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb160	6.19E-14	1.54E-21	3.83E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B BBW 15x15, 3.00wt%, 20gwd/mtu decay fission products page 80

0 nuclide radioactivity, curies

basis =per BBW assembly, 0.409 mthm for grams

	initial	15.0 yr	20.0 yr	30.0 yr	50.0 yr	100.0 yr	150.0 yr	200.0 yr	250.0 yr	300.0 yr	400.0 yr
dy161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	4.25E-05	4.24E-05	4.22E-05	4.20E-05	4.15E-05	4.03E-05	3.92E-05	3.81E-05	3.70E-05	3.59E-05	3.39E-05
er166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170	1.62E-14	8.61E-19	4.56E-23	1.37E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	2.01E-05	3.30E-06	5.44E-07	1.47E-08	1.08E-11	1.56E-19	2.26E-27	.00E+00	.00E+00	.00E+00	.00E+00
yb171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	9.05E+04	7.63E+04	6.66E+04	5.19E+04	3.21E+04	9.80E+03	3.03E+03	9.49E+02	3.08E+02	1.07E+02	2.09E+01	

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 84

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
he 4	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tl206	2.07E-10	3.35E-10	1.48E-09	5.34E-09	1.70E-08	3.12E-08	4.62E-08	6.13E-08	7.63E-08	9.11E-08	9.83E-08
tl207	1.19E-04	1.47E-04	2.99E-04	5.82E-04	1.14E-03	1.69E-03	2.22E-03	2.75E-03	3.26E-03	3.76E-03	4.01E-03
tl208	8.46E-05	3.14E-05	3.74E-07	1.58E-07	1.60E-07	1.62E-07	1.64E-07	1.66E-07	1.69E-07	1.71E-07	1.73E-07
tl209	9.43E-08	1.56E-07	7.77E-07	3.86E-06	1.75E-05	4.01E-05	7.00E-05	1.06E-04	1.47E-04	1.92E-04	2.16E-04
pb206	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb207	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb209	4.49E-06	7.42E-06	3.70E-05	1.84E-04	8.35E-04	1.91E-03	3.33E-03	5.05E-03	7.00E-03	9.15E-03	1.03E-02
pb210	1.57E-04	2.54E-04	1.12E-03	4.05E-03	1.29E-02	2.36E-02	3.50E-02	4.65E-02	5.78E-02	6.90E-02	7.45E-02
pb211	1.19E-04	1.48E-04	3.00E-04	5.84E-04	1.14E-03	1.69E-03	2.23E-03	2.75E-03	3.27E-03	3.77E-03	4.02E-03
pb212	2.35E-04	8.74E-05	1.04E-06	4.39E-07	4.44E-07	4.50E-07	4.56E-07	4.63E-07	4.70E-07	4.77E-07	4.81E-07
pb214	1.84E-04	2.89E-04	1.12E-03	4.05E-03	1.29E-02	2.36E-02	3.50E-02	4.65E-02	5.78E-02	6.90E-02	7.45E-02
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	1.57E-04	2.54E-04	1.12E-03	4.05E-03	1.29E-02	2.36E-02	3.50E-02	4.65E-02	5.78E-02	6.90E-02	7.45E-02
bi211	1.19E-04	1.48E-04	3.00E-04	5.84E-04	1.14E-03	1.69E-03	2.23E-03	2.75E-03	3.27E-03	3.77E-03	4.02E-03
bi212	2.35E-04	8.74E-05	1.04E-06	4.39E-07	4.44E-07	4.50E-07	4.56E-07	4.63E-07	4.70E-07	4.77E-07	4.81E-07
bi213	4.49E-06	7.42E-06	3.70E-05	1.84E-04	8.35E-04	1.91E-03	3.33E-03	5.05E-03	7.00E-03	9.15E-03	1.03E-02
bi214	1.84E-04	2.89E-04	1.12E-03	4.05E-03	1.29E-02	2.36E-02	3.50E-02	4.65E-02	5.78E-02	6.90E-02	7.45E-02
po210	1.57E-04	2.54E-04	1.12E-03	4.05E-03	1.29E-02	2.36E-02	3.50E-02	4.65E-02	5.78E-02	6.90E-02	7.45E-02
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	3.27E-07	4.06E-07	8.24E-07	1.61E-06	3.14E-06	4.65E-06	6.13E-06	7.57E-06	8.99E-06	1.04E-05	1.10E-05
po212	1.51E-04	5.60E-05	6.67E-07	2.81E-07	2.84E-07	2.88E-07	2.92E-07	2.96E-07	3.01E-07	3.05E-07	3.08E-07
po213	4.40E-06	7.27E-06	3.62E-05	1.80E-04	8.18E-04	1.87E-03	3.26E-03	4.94E-03	6.85E-03	8.96E-03	1.01E-02
po214	1.84E-04	2.89E-04	1.12E-03	4.05E-03	1.29E-02	2.36E-02	3.50E-02	4.65E-02	5.78E-02	6.90E-02	7.45E-02
po215	1.19E-04	1.48E-04	3.00E-04	5.84E-04	1.14E-03	1.69E-03	2.23E-03	2.75E-03	3.27E-03	3.77E-03	4.02E-03
po216	2.35E-04	8.74E-05	1.04E-06	4.39E-07	4.44E-07	4.50E-07	4.56E-07	4.63E-07	4.70E-07	4.77E-07	4.81E-07
po218	1.84E-04	2.89E-04	1.12E-03	4.05E-03	1.29E-02	2.37E-02	3.50E-02	4.65E-02	5.78E-02	6.90E-02	7.45E-02
at217	4.49E-06	7.42E-06	3.70E-05	1.84E-04	8.35E-04	1.91E-03	3.33E-03	5.05E-03	7.00E-03	9.15E-03	1.03E-02
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	1.19E-04	1.48E-04	3.00E-04	5.84E-04	1.14E-03	1.69E-03	2.23E-03	2.75E-03	3.27E-03	3.77E-03	4.02E-03
rn220	2.35E-04	8.74E-05	1.04E-06	4.39E-07	4.44E-07	4.50E-07	4.56E-07	4.63E-07	4.70E-07	4.77E-07	4.81E-07
rn222	1.84E-04	2.89E-04	1.12E-03	4.05E-03	1.29E-02	2.37E-02	3.50E-02	4.65E-02	5.78E-02	6.90E-02	7.45E-02
fr221	4.49E-06	7.42E-06	3.70E-05	1.84E-04	8.35E-04	1.91E-03	3.33E-03	5.05E-03	7.00E-03	9.15E-03	1.03E-02
fr223	1.64E-06	2.04E-06	4.14E-06	8.06E-06	1.58E-05	2.33E-05	3.08E-05	3.80E-05	4.51E-05	5.20E-05	5.54E-05
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	1.19E-04	1.48E-04	3.00E-04	5.84E-04	1.14E-03	1.69E-03	2.23E-03	2.75E-03	3.27E-03	3.77E-03	4.02E-03
ra224	2.35E-04	8.74E-05	1.04E-06	4.39E-07	4.44E-07	4.50E-07	4.56E-07	4.63E-07	4.70E-07	4.77E-07	4.81E-07
ra225	4.49E-06	7.42E-06	3.70E-05	1.84E-04	8.35E-04	1.91E-03	3.33E-03	5.05E-03	7.00E-03	9.15E-03	1.03E-02
ra226	1.84E-04	2.89E-04	1.12E-03	4.05E-03	1.29E-02	2.37E-02	3.50E-02	4.65E-02	5.78E-02	6.90E-02	7.45E-02
ra228	1.83E-09	2.29E-09	4.63E-09	9.45E-09	1.96E-08	3.04E-08	4.16E-08	5.32E-08	6.51E-08	7.73E-08	8.35E-08
ac225	4.49E-06	7.42E-06	3.70E-05	1.84E-04	8.35E-04	1.91E-03	3.33E-03	5.05E-03	7.00E-03	9.15E-03	1.03E-02
ac227	1.19E-04	1.48E-04	3.00E-04	5.84E-04	1.14E-03	1.69E-03	2.23E-03	2.75E-03	3.27E-03	3.77E-03	4.02E-03
ac228	1.83E-09	2.29E-09	4.63E-09	9.45E-09	1.96E-08	3.04E-08	4.16E-08	5.32E-08	6.51E-08	7.73E-08	8.35E-08
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	1.17E-04	1.46E-04	2.96E-04	5.76E-04	1.13E-03	1.67E-03	2.20E-03	2.72E-03	3.22E-03	3.72E-03	3.96E-03
th228	2.35E-04	8.74E-05	1.04E-06	4.39E-07	4.44E-07	4.50E-07	4.56E-07	4.63E-07	4.70E-07	4.77E-07	4.81E-07
th229	4.49E-06	7.42E-06	3.70E-05	1.84E-04	8.35E-04	1.91E-03	3.33E-03	5.05E-03	7.00E-03	9.15E-03	1.03E-02

th230	2.33E-03	2.96E-03	6.09E-03	1.23E-02	2.46E-02	3.66E-02	4.83E-02	5.97E-02	7.09E-02	8.18E-02	8.71E-02
th231	1.37E-02	1.37E-02	1.38E-02	1.39E-02	1.42E-02	1.45E-02	1.48E-02	1.50E-02	1.53E-02	1.55E-02	1.56E-02

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 85

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
th232	1.83E-09	2.29E-09	4.63E-09	9.45E-09	1.96E-08	3.04E-08	4.16E-08	5.32E-08	6.51E-08	7.73E-08	8.35E-08
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa231	1.28E-04	1.57E-04	3.00E-04	5.84E-04	1.14E-03	1.69E-03	2.23E-03	2.75E-03	3.27E-03	3.77E-03	4.01E-03
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	2.24E-01	2.47E-01	3.22E-01	3.71E-01	3.82E-01	3.82E-01	3.82E-01	3.82E-01	3.82E-01	3.81E-01	3.81E-01
pa234m	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa234	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	2.29E-04	8.50E-05	1.02E-06	4.30E-07	4.24E-07	4.19E-07	4.14E-07	4.09E-07	4.04E-07	4.00E-07	3.97E-07
u233	2.89E-04	3.91E-04	1.02E-03	2.55E-03	5.81E-03	9.08E-03	1.23E-02	1.55E-02	1.87E-02	2.18E-02	2.34E-02
u234	6.80E-01	6.84E-01	6.88E-01	6.86E-01	6.83E-01	6.80E-01	6.77E-01	6.74E-01	6.71E-01	6.68E-01	6.67E-01
u235	1.37E-02	1.37E-02	1.38E-02	1.39E-02	1.42E-02	1.45E-02	1.48E-02	1.50E-02	1.53E-02	1.55E-02	1.56E-02
u236	9.32E-02	9.36E-02	9.57E-02	9.96E-02	1.06E-01	1.12E-01	1.16E-01	1.19E-01	1.22E-01	1.24E-01	1.25E-01
u237	1.86E-07	1.81E-07	1.74E-07	1.60E-07	1.36E-07	1.16E-07	9.81E-08	8.34E-08	7.08E-08	6.02E-08	5.54E-08
u238	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	2.21E-14	2.76E-14	5.53E-14	1.10E-13	2.20E-13	3.30E-13	4.39E-13	5.47E-13	6.55E-13	7.63E-13	8.17E-13
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	4.87E-06	4.87E-06	4.86E-06	4.83E-06	4.77E-06	4.71E-06	4.66E-06	4.60E-06	4.54E-06	4.49E-06	4.46E-06
np237	2.24E-01	2.47E-01	3.22E-01	3.71E-01	3.82E-01	3.82E-01	3.82E-01	3.82E-01	3.82E-01	3.81E-01	3.81E-01
np238	2.85E-03	1.74E-03	1.49E-04	1.09E-06	5.88E-11	3.16E-15	1.70E-19	9.11E-24	4.89E-28	2.28E-32	.00E+00
np239	1.94E+00	1.92E+00	1.83E+00	1.67E+00	1.38E+00	1.15E+00	9.49E-01	7.85E-01	6.52E-01	5.40E-01	4.91E-01
np240m	2.21E-14	2.76E-14	5.53E-14	1.10E-13	2.20E-13	3.30E-13	4.39E-13	5.47E-13	6.55E-13	7.63E-13	8.17E-13
np240	2.66E-17	3.32E-17	6.63E-17	1.32E-16	2.64E-16	3.96E-16	5.26E-16	6.57E-16	7.85E-16	9.16E-16	9.80E-16
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	4.34E-07	4.33E-07	4.32E-07	4.30E-07	4.24E-07	4.19E-07	4.14E-07	4.09E-07	4.04E-07	4.00E-07	3.97E-07
pu237	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	2.31E+01	1.07E+01	2.62E-01	2.98E-04	2.87E-08	1.54E-12	8.28E-17	4.45E-21	2.39E-25	1.28E-29	4.56E-32
pu239	1.62E+02	1.61E+02	1.59E+02	1.54E+02	1.46E+02	1.38E+02	1.30E+02	1.23E+02	1.16E+02	1.10E+02	1.06E+02
pu240	1.47E+02	1.45E+02	1.38E+02	1.24E+02	1.00E+02	8.11E+01	6.57E+01	5.32E+01	4.31E+01	3.49E+01	3.14E+01
pu241	7.80E-03	7.57E-03	7.27E-03	6.70E-03	5.69E-03	4.83E-03	4.11E-03	3.49E-03	2.96E-03	2.52E-03	2.32E-03
pu242	2.80E-01	2.80E-01	2.80E-01	2.79E-01	2.78E-01	2.77E-01	2.76E-01	2.75E-01	2.74E-01	2.73E-01	2.73E-01
pu243	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09
pu244	2.22E-14	2.77E-14	5.53E-14	1.11E-13	2.21E-13	3.30E-13	4.39E-13	5.48E-13	6.56E-13	7.64E-13	8.18E-13
pu245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	6.03E-17	6.00E-17	5.88E-17	5.65E-17	5.22E-17	4.82E-17	4.45E-17	4.11E-17	3.80E-17	3.51E-17	3.37E-17
am239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	7.87E+02	6.71E+02	3.01E+02	6.06E+01	2.46E+00	1.05E-01	8.33E-03	3.80E-03	3.10E-03	2.63E-03	2.42E-03
am242m	6.33E-01	3.87E-01	3.32E-02	2.43E-04	1.31E-08	7.01E-13	3.77E-17	2.02E-21	1.09E-25	5.84E-30	4.56E-32
am242	6.31E-01	3.86E-01	3.30E-02	2.42E-04	1.30E-08	6.98E-13	3.75E-17	2.01E-21	1.08E-25	5.82E-30	4.56E-32
am243	1.94E+00	1.92E+00	1.83E+00	1.67E+00	1.38E+00	1.15E+00	9.49E-01	7.86E-01	6.52E-01	5.40E-01	4.91E-01
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	6.03E-17	6.00E-17	5.88E-17	5.65E-17	5.22E-17	4.82E-17	4.45E-17	4.11E-17	3.80E-17	3.51E-17	3.37E-17
cm241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 86

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtihm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
cm242	5.21E-01	3.19E-01	2.73E-02	2.00E-04	1.08E-08	5.79E-13	3.11E-17	1.67E-21	8.98E-26	4.81E-30	4.56E-32
cm243	1.85E-04	1.63E-05	8.51E-11	2.33E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm244	2.73E-05	5.93E-07	2.86E-15	6.85E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	7.62E-03	7.56E-03	7.26E-03	6.69E-03	5.68E-03	4.83E-03	4.10E-03	3.48E-03	2.96E-03	2.51E-03	2.32E-03
cm246	8.69E-04	8.56E-04	7.96E-04	6.87E-04	5.13E-04	3.83E-04	2.85E-04	2.13E-04	1.59E-04	1.18E-04	1.02E-04
cm247	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09
cm248	6.96E-09	6.96E-09	6.95E-09	6.94E-09	6.91E-09	6.88E-09	6.85E-09	6.82E-09	6.80E-09	6.77E-09	6.75E-09
cm249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	2.41E-16	2.40E-16	2.35E-16	2.26E-16	2.09E-16	1.93E-16	1.78E-16	1.64E-16	1.52E-16	1.40E-16	1.35E-16
cm251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	3.37E-17	3.36E-17	3.29E-17	3.17E-17	2.92E-17	2.70E-17	2.49E-17	2.30E-17	2.13E-17	1.96E-17	1.89E-17
bk251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	3.45E-08	2.83E-08	1.05E-08	1.44E-09	2.79E-11	5.33E-13	1.02E-14	1.95E-16	3.74E-18	7.16E-20	9.91E-21
cf250	1.52E-16	3.42E-17	3.29E-17	3.17E-17	2.92E-17	2.70E-17	2.49E-17	2.30E-17	2.13E-17	1.96E-17	1.89E-17
cf251	9.94E-10	9.20E-10	6.26E-10	2.89E-10	6.17E-11	1.32E-11	2.82E-12	6.01E-13	1.28E-13	2.74E-14	1.27E-14
cf252	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	1.13E+03	9.95E+02	6.04E+02	3.44E+02	2.54E+02	2.24E+02	2.00E+02	1.80E+02	1.63E+02	1.49E+02	1.42E+02

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 104

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtihm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
h 3	2.25E-08	8.13E-11	5.03E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 7	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 9	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 10	8.26E-07	8.26E-07	8.25E-07	8.25E-07	8.24E-07	8.24E-07	8.23E-07	8.22E-07	8.21E-07	8.21E-07	8.20E-07
c 14	3.17E-05	3.13E-05	2.95E-05	2.61E-05	2.05E-05	1.61E-05	1.27E-05	9.93E-06	7.80E-06	6.12E-06	5.42E-06
ni 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 68	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ni 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 105

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
zn 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.91E-01	1.90E-01	1.88E-01	1.84E-01	1.77E-01	1.70E-01	1.63E-01	1.56E-01	1.50E-01	1.43E-01	1.40E-01

se 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 81	1.48E-08	1.47E-08	1.47E-08	1.47E-08	1.46E-08	1.45E-08	1.44E-08	1.43E-08	1.42E-08	1.41E-08	1.41E-08
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
ge 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	1.53E-08	2.37E-11	2.16E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

kr 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06
sr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 107

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	1.21E+00	1.03E-01	4.63E-07	9.34E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	1.21E+00	1.03E-01	4.63E-07	9.34E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	1.03E-09	9.26E-10	5.56E-10	2.01E-10	2.61E-11	3.40E-12	4.43E-13	5.77E-14	7.51E-15	9.78E-16	3.53E-16
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 92	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.48E-01	3.48E-01	3.48E-01	3.47E-01	3.47E-01	3.47E-01	3.47E-01
nb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 93m	3.49E-01	3.49E-01	3.49E-01	3.49E-01	3.48E-01	3.48E-01	3.48E-01	3.47E-01	3.47E-01	3.47E-01	3.47E-01
br 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B 88W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 108

0 nuclide radioactivity, curies

basis =per 88W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 94	2.31E-05	2.30E-05	2.26E-05	2.19E-05	2.04E-05	1.91E-05	1.78E-05	1.66E-05	1.55E-05	1.45E-05	1.40E-05
nb 94m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

rb 98m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 98	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06
rb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	3.94E+00	3.94E+00	3.93E+00	3.92E+00	3.89E+00	3.87E+00	3.84E+00	3.82E+00	3.79E+00	3.77E+00	3.76E+00
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 109

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ru104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 110

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108	1.08E-05	6.24E-06	4.07E-07	1.74E-09	3.15E-14	5.73E-19	1.04E-23	1.89E-28	.00E+00	.00E+00	.00E+00
ag108m	1.24E-04	7.17E-05	4.68E-06	2.00E-08	3.62E-13	6.58E-18	1.20E-22	2.17E-27	4.56E-32	.00E+00	.00E+00
cd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 111

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
cd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14
cd113m	1.82E-08	1.33E-10	2.82E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12
in115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 112

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
sn115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

in120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 113

0

nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	2.90E-03	8.24E-04	1.51E-06	5.05E-12	5.77E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121m	3.74E-03	1.06E-03	1.95E-06	6.56E-12	7.44E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te123	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14
te123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn126	1.38E-01	1.38E-01	1.38E-01	1.37E-01	1.35E-01	1.33E-01	1.31E-01	1.29E-01	1.28E-01	1.26E-01	1.25E-01

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 114

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
sb126	1.94E-02	1.94E-02	1.93E-02	1.92E-02	1.89E-02	1.86E-02	1.84E-02	1.81E-02	1.79E-02	1.76E-02	1.75E-02
sb126m	1.38E-01	1.38E-01	1.38E-01	1.37E-01	1.35E-01	1.33E-01	1.31E-01	1.29E-01	1.28E-01	1.26E-01	1.25E-01
te126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.82E-03	8.81E-03
xe129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba133	2.31E-17	3.17E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01	2.03E-01	2.03E-01	2.03E-01	2.03E-01
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr

sb137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	2.91E+00	2.89E-01	2.77E-06	2.56E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137m	2.75E+00	2.73E-01	2.62E-06	2.41E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la138	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11
sb139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06
pr142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 117

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

la143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10
i145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm145	3.85E-09	7.74E-11	2.43E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm146	1.38E-22	4.97E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08
xe147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06
cs148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 118

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
sm148	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12
cs149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

nd149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13
eu149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu150	6.18E-09	8.92E-10	5.58E-14	2.18E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	7.49E+00	3.47E+00	7.37E-02	3.33E-05	6.79E-12	1.38E-18	2.82E-25	6.85E-32	.00E+00	.00E+00	.00E+00
eu151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152	4.32E-09	2.38E-11	1.21E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13
la153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 119

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
sm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu154	1.85E-11	5.93E-15	2.28E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

eu155	2.87E-23	1.06E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B BBW 15x15, 3.00wt%, 20gwd/mtu decay fission products page 120

0 nuclide radioactivity, curies

basis =per BBW assembly, 0.409 mtHM for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
dy161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	3.39E-05	3.20E-05	2.40E-05	1.35E-05	4.24E-06	1.33E-06	4.20E-07	1.32E-07	4.17E-08	1.31E-08	7.37E-09
er166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	2.09E+01	9.60E+00	5.43E+00	5.33E+00	5.30E+00	5.26E+00	5.22E+00	5.18E+00	5.15E+00	5.11E+00	5.10E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 124

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
he 4	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tl206	9.83E-08	1.05E-07	1.13E-07	1.20E-07	1.27E-07	1.33E-07	1.40E-07	1.47E-07	1.53E-07	1.60E-07	1.66E-07
tl207	4.01E-03	4.25E-03	4.49E-03	4.73E-03	4.96E-03	5.19E-03	5.42E-03	5.64E-03	5.87E-03	6.09E-03	6.30E-03
tl208	1.73E-07	1.74E-07	1.76E-07	1.77E-07	1.78E-07	1.80E-07	1.81E-07	1.83E-07	1.84E-07	1.86E-07	1.87E-07
tl209	2.16E-04	2.41E-04	2.66E-04	2.92E-04	3.18E-04	3.45E-04	3.72E-04	4.00E-04	4.28E-04	4.56E-04	4.85E-04
pb206	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb207	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb209	1.03E-02	1.15E-02	1.27E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.04E-02	2.17E-02	2.31E-02
pb210	7.45E-02	7.99E-02	8.53E-02	9.08E-02	9.59E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
pb211	4.02E-03	4.26E-03	4.50E-03	4.74E-03	4.97E-03	5.20E-03	5.43E-03	5.66E-03	5.88E-03	6.10E-03	6.32E-03
pb212	4.81E-07	4.84E-07	4.88E-07	4.92E-07	4.96E-07	5.00E-07	5.04E-07	5.08E-07	5.13E-07	5.17E-07	5.21E-07
pb214	7.45E-02	7.99E-02	8.53E-02	9.08E-02	9.59E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

bi210	7.45E-02	7.99E-02	8.53E-02	9.06E-02	9.59E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
bi211	4.02E-03	4.26E-03	4.50E-03	4.74E-03	4.97E-03	5.20E-03	5.43E-03	5.66E-03	5.88E-03	6.10E-03	6.32E-03
bi212	4.81E-07	4.84E-07	4.88E-07	4.92E-07	4.96E-07	5.00E-07	5.04E-07	5.08E-07	5.13E-07	5.17E-07	5.21E-07
bi213	1.03E-02	1.15E-02	1.27E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.04E-02	2.17E-02	2.31E-02
bi214	7.45E-02	7.99E-02	8.53E-02	9.06E-02	9.59E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
po210	7.45E-02	7.99E-02	8.53E-02	9.06E-02	9.59E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	1.10E-05	1.17E-05	1.24E-05	1.30E-05	1.37E-05	1.43E-05	1.49E-05	1.56E-05	1.62E-05	1.68E-05	1.74E-05
po212	3.08E-07	3.10E-07	3.13E-07	3.15E-07	3.18E-07	3.20E-07	3.23E-07	3.26E-07	3.28E-07	3.31E-07	3.34E-07
po213	1.01E-02	1.12E-02	1.24E-02	1.36E-02	1.48E-02	1.61E-02	1.74E-02	1.86E-02	1.99E-02	2.13E-02	2.26E-02
po214	7.45E-02	7.99E-02	8.53E-02	9.06E-02	9.59E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
po215	4.02E-03	4.26E-03	4.50E-03	4.74E-03	4.97E-03	5.20E-03	5.43E-03	5.66E-03	5.88E-03	6.10E-03	6.32E-03
po216	4.81E-07	4.84E-07	4.88E-07	4.92E-07	4.96E-07	5.00E-07	5.04E-07	5.08E-07	5.13E-07	5.17E-07	5.21E-07
po218	7.45E-02	8.00E-02	8.53E-02	9.06E-02	9.59E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
at217	1.03E-02	1.15E-02	1.27E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.04E-02	2.17E-02	2.31E-02
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	4.02E-03	4.26E-03	4.50E-03	4.74E-03	4.97E-03	5.20E-03	5.43E-03	5.66E-03	5.88E-03	6.10E-03	6.32E-03
rn220	4.81E-07	4.84E-07	4.88E-07	4.92E-07	4.96E-07	5.00E-07	5.04E-07	5.08E-07	5.13E-07	5.17E-07	5.21E-07
rn222	7.45E-02	8.00E-02	8.53E-02	9.06E-02	9.59E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
fr221	1.03E-02	1.15E-02	1.27E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.04E-02	2.17E-02	2.31E-02
fr223	5.54E-05	5.88E-05	6.21E-05	6.54E-05	6.86E-05	7.18E-05	7.50E-05	7.81E-05	8.12E-05	8.42E-05	8.72E-05
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	4.02E-03	4.26E-03	4.50E-03	4.74E-03	4.97E-03	5.20E-03	5.43E-03	5.66E-03	5.88E-03	6.10E-03	6.32E-03
ra224	4.81E-07	4.84E-07	4.88E-07	4.92E-07	4.96E-07	5.00E-07	5.04E-07	5.08E-07	5.13E-07	5.17E-07	5.21E-07
ra225	1.03E-02	1.15E-02	1.27E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.04E-02	2.17E-02	2.31E-02
ra226	7.45E-02	8.00E-02	8.53E-02	9.06E-02	9.59E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
ra228	8.35E-08	8.97E-08	9.59E-08	1.02E-07	1.09E-07	1.15E-07	1.21E-07	1.28E-07	1.34E-07	1.41E-07	1.47E-07
ac225	1.03E-02	1.15E-02	1.27E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.04E-02	2.17E-02	2.31E-02
ac227	4.02E-03	4.26E-03	4.50E-03	4.74E-03	4.97E-03	5.20E-03	5.43E-03	5.66E-03	5.88E-03	6.10E-03	6.32E-03
ac228	8.35E-08	8.97E-08	9.59E-08	1.02E-07	1.09E-07	1.15E-07	1.21E-07	1.28E-07	1.34E-07	1.41E-07	1.47E-07
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	3.96E-03	4.20E-03	4.44E-03	4.67E-03	4.90E-03	5.13E-03	5.36E-03	5.58E-03	5.80E-03	6.02E-03	6.23E-03
th228	4.81E-07	4.84E-07	4.88E-07	4.92E-07	4.96E-07	5.00E-07	5.04E-07	5.08E-07	5.13E-07	5.17E-07	5.21E-07
th229	1.03E-02	1.15E-02	1.27E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.04E-02	2.17E-02	2.31E-02
th230	8.71E-02	9.24E-02	9.77E-02	1.03E-01	1.08E-01	1.13E-01	1.18E-01	1.23E-01	1.28E-01	1.33E-01	1.37E-01
th231	1.56E-02	1.57E-02	1.58E-02	1.59E-02	1.60E-02	1.61E-02	1.62E-02	1.63E-02	1.63E-02	1.64E-02	1.65E-02

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 125

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr	yr
th232	8.35E-08	8.97E-08	9.59E-08	1.02E-07	1.09E-07	1.15E-07	1.21E-07	1.28E-07	1.34E-07	1.41E-07	1.47E-07	
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
th234	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	
pa231	4.01E-03	4.26E-03	4.50E-03	4.74E-03	4.97E-03	5.20E-03	5.43E-03	5.66E-03	5.88E-03	6.10E-03	6.32E-03	
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pa233	3.81E-01	3.81E-01	3.81E-01	3.81E-01	3.81E-01	3.81E-01	3.80E-01	3.80E-01	3.80E-01	3.80E-01	3.80E-01	
pa234m	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	
pa234	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
u232	3.97E-07	3.95E-07	3.92E-07	3.90E-07	3.88E-07	3.85E-07	3.83E-07	3.81E-07	3.79E-07	3.76E-07	3.74E-07	
u233	2.34E-02	2.50E-02	2.66E-02	2.80E-02	2.96E-02	3.11E-02	3.26E-02	3.41E-02	3.56E-02	3.71E-02	3.86E-02	
u234	6.67E-01	6.65E-01	6.64E-01	6.62E-01	6.61E-01	6.60E-01	6.58E-01	6.57E-01	6.55E-01	6.54E-01	6.52E-01	
u235	1.56E-02	1.57E-02	1.58E-02	1.59E-02	1.60E-02	1.61E-02	1.62E-02	1.63E-02	1.63E-02	1.64E-02	1.65E-02	
u236	1.25E-01	1.26E-01	1.27E-01	1.28E-01	1.28E-01	1.29E-01	1.30E-01	1.30E-01	1.30E-01	1.31E-01	1.31E-01	
u237	5.54E-08	5.11E-08	4.71E-08	4.34E-08	4.00E-08	3.69E-08	3.40E-08	3.13E-08	2.89E-08	2.66E-08	2.45E-08	
u238	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	

u240	8.17E-13	8.70E-13	9.24E-13	9.77E-13	1.03E-12	1.08E-12	1.14E-12	1.19E-12	1.24E-12	1.29E-12	1.35E-12
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	4.46E-06	4.44E-06	4.41E-06	4.38E-06	4.36E-06	4.33E-06	4.30E-06	4.28E-06	4.25E-06	4.23E-06	4.20E-06
np237	3.81E-01	3.81E-01	3.81E-01	3.81E-01	3.81E-01	3.81E-01	3.80E-01	3.80E-01	3.80E-01	3.80E-01	3.80E-01
np238	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np239	4.91E-01	4.47E-01	4.07E-01	3.71E-01	3.37E-01	3.07E-01	2.79E-01	2.54E-01	2.32E-01	2.11E-01	1.92E-01
np240m	8.17E-13	8.70E-13	9.24E-13	9.77E-13	1.03E-12	1.08E-12	1.14E-12	1.19E-12	1.24E-12	1.29E-12	1.35E-12
np240	9.80E-16	1.04E-15	1.11E-15	1.17E-15	1.24E-15	1.30E-15	1.36E-15	1.43E-15	1.49E-15	1.55E-15	1.62E-15
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	3.97E-07	3.95E-07	3.92E-07	3.90E-07	3.88E-07	3.85E-07	3.83E-07	3.81E-07	3.78E-07	3.76E-07	3.74E-07
pu237	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	4.56E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu239	1.06E+02	1.03E+02	1.01E+02	9.77E+01	9.50E+01	9.23E+01	8.97E+01	8.71E+01	8.47E+01	8.23E+01	8.00E+01
pu240	3.14E+01	2.82E+01	2.54E+01	2.28E+01	2.06E+01	1.85E+01	1.66E+01	1.50E+01	1.35E+01	1.21E+01	1.09E+01
pu241	2.32E-03	2.14E-03	1.97E-03	1.82E-03	1.67E-03	1.54E-03	1.42E-03	1.31E-03	1.21E-03	1.11E-03	1.03E-03
pu242	2.73E-01	2.72E-01	2.72E-01	2.71E-01	2.71E-01	2.70E-01	2.70E-01	2.69E-01	2.69E-01	2.68E-01	2.68E-01
pu243	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09
pu244	8.18E-13	8.71E-13	9.25E-13	9.78E-13	1.03E-12	1.08E-12	1.14E-12	1.19E-12	1.24E-12	1.30E-12	1.35E-12
pu245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	3.37E-17	3.24E-17	3.11E-17	2.99E-17	2.87E-17	2.76E-17	2.65E-17	2.55E-17	2.45E-17	2.35E-17	2.26E-17
am239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	2.42E-03	2.23E-03	2.05E-03	1.89E-03	1.74E-03	1.61E-03	1.48E-03	1.36E-03	1.26E-03	1.16E-03	1.07E-03
am242m	4.56E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am242	4.56E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am243	4.91E-01	4.47E-01	4.07E-01	3.71E-01	3.37E-01	3.07E-01	2.79E-01	2.54E-01	2.32E-01	2.11E-01	1.92E-01
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	3.37E-17	3.24E-17	3.11E-17	2.99E-17	2.87E-17	2.76E-17	2.65E-17	2.55E-17	2.45E-17	2.35E-17	2.26E-17
cm241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 126

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cm242	4.56E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm243	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	2.32E-03	2.13E-03	1.97E-03	1.81E-03	1.67E-03	1.54E-03	1.42E-03	1.31E-03	1.21E-03	1.11E-03	1.02E-03
cm246	1.02E-04	8.84E-05	7.63E-05	6.59E-05	5.69E-05	4.92E-05	4.25E-05	3.67E-05	3.17E-05	2.74E-05	2.36E-05
cm247	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09
cm248	6.75E-09	6.74E-09	6.73E-09	6.71E-09	6.70E-09	6.69E-09	6.67E-09	6.66E-09	6.65E-09	6.63E-09	6.62E-09
cm249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	1.35E-16	1.29E-16	1.24E-16	1.20E-16	1.15E-16	1.10E-16	1.06E-16	1.02E-16	9.80E-17	9.41E-17	9.05E-17
cm251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	1.89E-17	1.81E-17	1.74E-17	1.67E-17	1.61E-17	1.55E-17	1.49E-17	1.43E-17	1.37E-17	1.32E-17	1.27E-17
bk251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	9.91E-21	1.37E-21	1.90E-22	2.62E-23	3.63E-24	5.02E-25	6.95E-26	9.61E-27	1.33E-27	1.84E-28	2.55E-29
cf250	1.85E-17	1.81E-17	1.74E-17	1.67E-17	1.61E-17	1.55E-17	1.49E-17	1.43E-17	1.37E-17	1.32E-17	1.27E-17
cf251	1.27E-14	5.86E-15	2.71E-15	1.25E-15	5.78E-16	2.67E-16	1.23E-16	5.71E-17	2.64E-17	1.22E-17	5.63E-18
cf252	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

es254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	1.42E+02	1.36E+02	1.30E+02	1.25E+02	1.20E+02	1.15E+02	1.10E+02	1.06E+02	1.02E+02	9.86E+01	9.51E+01

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 144

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
h 3	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 7	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 9	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 10	8.20E-07	8.20E-07	8.20E-07	8.19E-07	8.19E-07	8.19E-07	8.18E-07	8.18E-07	8.18E-07	8.17E-07	8.17E-07
c 14	5.42E-06	4.81E-06	4.26E-06	3.77E-06	3.34E-06	2.96E-06	2.62E-06	2.33E-06	2.06E-06	1.83E-06	1.62E-06
ni 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 68	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

as 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 145

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
zn 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.40E-01	1.37E-01	1.35E-01	1.32E-01	1.29E-01	1.26E-01	1.24E-01	1.21E-01	1.19E-01	1.16E-01	1.14E-01
se 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 81	1.41E-08	1.40E-08	1.40E-08	1.39E-08	1.39E-08	1.38E-08	1.38E-08	1.38E-08	1.37E-08	1.37E-08	1.36E-08
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 146

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
ge 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06
sr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 147

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	3.53E-16	1.27E-16	4.59E-17	1.66E-17	5.98E-18	2.16E-18	7.78E-19	2.81E-19	1.01E-19	3.66E-20	1.32E-20
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12	3.65E-12
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	3.47E-01	3.46E-01	3.46E-01	3.46E-01	3.46E-01	3.46E-01	3.46E-01	3.46E-01	3.45E-01	3.45E-01	3.45E-01
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93m	3.47E-01	3.46E-01	3.46E-01	3.46E-01	3.46E-01	3.46E-01	3.46E-01	3.46E-01	3.45E-01	3.45E-01	3.45E-01
br 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

y 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	1.40E-05	1.36E-05	1.31E-05	1.27E-05	1.22E-05	1.18E-05	1.14E-05	1.10E-05	1.07E-05	1.03E-05	9.97E-06
rb 94m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 98	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06
rb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	3.76E+00	3.74E+00	3.73E+00	3.72E+00	3.71E+00	3.69E+00	3.68E+00	3.67E+00	3.66E+00	3.65E+00	3.63E+00
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 149

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtihm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

tc100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 150

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 151

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14
cd113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12
in115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 152

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sn115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

rh117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 153

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sb122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te123	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14
te123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	1.25E-01	1.24E-01	1.23E-01	1.22E-01	1.22E-01	1.21E-01	1.20E-01	1.19E-01	1.18E-01	1.17E-01	1.17E-01

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 154

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sb126	1.75E-02	1.74E-02	1.73E-02	1.71E-02	1.70E-02	1.69E-02	1.68E-02	1.67E-02	1.66E-02	1.64E-02	1.63E-02
sb126m	1.25E-01	1.24E-01	1.23E-01	1.22E-01	1.22E-01	1.21E-01	1.20E-01	1.19E-01	1.18E-01	1.17E-01	1.17E-01
te126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sb128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	8.81E-03	8.81E-03	8.81E-03	8.81E-03	8.81E-03	8.81E-03	8.81E-03	8.81E-03	8.81E-03	8.81E-03	8.81E-03
xe129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 155

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mthm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	2.03E-01	2.03E-01	2.03E-01	2.03E-01	2.03E-01	2.03E-01	2.03E-01	2.03E-01	2.03E-01	2.03E-01	2.03E-01
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 156

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtihm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sb137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la138	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11
sb139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

i140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06
pr142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 157

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10
i145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ba146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08
xe147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06
cs148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 158

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtrm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sm148	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12
cs149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13
eu149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

nd152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13	6.96E-13
la153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 159

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 160

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mthm for grams

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
dy161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	7.37E-09	4.14E-09	2.32E-09	1.30E-09	7.31E-10	4.10E-10	2.30E-10	1.29E-10	7.25E-11	4.07E-11	2.28E-11
er166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

er170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	5.10E+00	5.08E+00	5.06E+00	5.04E+00	5.03E+00	5.01E+00	4.99E+00	4.98E+00	4.96E+00	4.94E+00	4.93E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 164

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mthm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
he 4	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tl206	1.66E-07	2.27E-07	2.81E-07	3.05E-07	3.28E-07	3.50E-07	3.70E-07	3.89E-07	4.90E-07	5.91E-07	5.90E-07
tl207	6.30E-03	8.31E-03	1.00E-02	1.08E-02	1.15E-02	1.22E-02	1.28E-02	1.34E-02	1.59E-02	1.87E-02	1.90E-02
tl208	1.87E-07	2.03E-07	2.19E-07	2.27E-07	2.36E-07	2.44E-07	2.53E-07	2.62E-07	3.16E-07	5.14E-07	6.21E-07
tl209	4.85E-04	7.78E-04	1.07E-03	1.22E-03	1.36E-03	1.50E-03	1.64E-03	1.77E-03	2.52E-03	4.59E-03	4.96E-03
pb206	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb207	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb209	2.31E-02	3.71E-02	5.11E-02	5.80E-02	6.49E-02	7.15E-02	7.81E-02	8.45E-02	1.20E-01	2.19E-01	2.36E-01
pb210	1.26E-01	1.72E-01	2.13E-01	2.31E-01	2.48E-01	2.66E-01	2.80E-01	2.94E-01	3.71E-01	4.48E-01	4.47E-01
pb211	6.32E-03	8.33E-03	1.01E-02	1.09E-02	1.16E-02	1.22E-02	1.28E-02	1.34E-02	1.59E-02	1.88E-02	1.91E-02
pb212	5.21E-07	5.64E-07	6.10E-07	6.33E-07	6.56E-07	6.80E-07	7.04E-07	7.28E-07	8.80E-07	1.43E-06	1.73E-06
pb214	1.26E-01	1.72E-01	2.13E-01	2.31E-01	2.49E-01	2.66E-01	2.80E-01	2.94E-01	3.71E-01	4.48E-01	4.47E-01
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	1.26E-01	1.72E-01	2.13E-01	2.31E-01	2.48E-01	2.66E-01	2.80E-01	2.94E-01	3.71E-01	4.48E-01	4.47E-01
bi211	6.32E-03	8.33E-03	1.01E-02	1.09E-02	1.16E-02	1.22E-02	1.28E-02	1.34E-02	1.59E-02	1.88E-02	1.91E-02
bi212	5.21E-07	5.64E-07	6.10E-07	6.33E-07	6.56E-07	6.80E-07	7.04E-07	7.28E-07	8.80E-07	1.43E-06	1.73E-06
bi213	2.31E-02	3.71E-02	5.11E-02	5.80E-02	6.49E-02	7.15E-02	7.81E-02	8.45E-02	1.20E-01	2.19E-01	2.36E-01
bi214	1.26E-01	1.72E-01	2.13E-01	2.31E-01	2.49E-01	2.66E-01	2.80E-01	2.94E-01	3.71E-01	4.48E-01	4.47E-01
po210	1.26E-01	1.72E-01	2.13E-01	2.31E-01	2.48E-01	2.66E-01	2.80E-01	2.94E-01	3.71E-01	4.48E-01	4.47E-01
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	1.74E-05	2.29E-05	2.77E-05	2.98E-05	3.18E-05	3.36E-05	3.53E-05	3.69E-05	4.38E-05	5.17E-05	5.25E-05
po212	3.34E-07	3.62E-07	3.91E-07	4.05E-07	4.20E-07	4.36E-07	4.51E-07	4.67E-07	5.63E-07	9.17E-07	1.11E-06
po213	2.26E-02	3.63E-02	5.01E-02	5.68E-02	6.35E-02	7.00E-02	7.64E-02	8.27E-02	1.17E-01	2.14E-01	2.31E-01
po214	1.26E-01	1.72E-01	2.13E-01	2.31E-01	2.48E-01	2.66E-01	2.80E-01	2.94E-01	3.71E-01	4.48E-01	4.47E-01
po215	6.32E-03	8.33E-03	1.01E-02	1.09E-02	1.16E-02	1.22E-02	1.28E-02	1.34E-02	1.59E-02	1.88E-02	1.91E-02
po216	5.21E-07	5.64E-07	6.10E-07	6.33E-07	6.56E-07	6.80E-07	7.04E-07	7.28E-07	8.80E-07	1.43E-06	1.73E-06
po218	1.26E-01	1.72E-01	2.13E-01	2.31E-01	2.49E-01	2.66E-01	2.80E-01	2.94E-01	3.71E-01	4.48E-01	4.47E-01
at217	2.31E-02	3.71E-02	5.11E-02	5.81E-02	6.49E-02	7.15E-02	7.81E-02	8.45E-02	1.20E-01	2.19E-01	2.36E-01
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	6.32E-03	8.33E-03	1.01E-02	1.09E-02	1.16E-02	1.22E-02	1.28E-02	1.34E-02	1.59E-02	1.88E-02	1.91E-02
rn220	5.21E-07	5.64E-07	6.10E-07	6.33E-07	6.56E-07	6.80E-07	7.04E-07	7.28E-07	8.80E-07	1.43E-06	1.73E-06
rn222	1.26E-01	1.72E-01	2.13E-01	2.31E-01	2.49E-01	2.66E-01	2.80E-01	2.94E-01	3.71E-01	4.48E-01	4.47E-01
fr221	2.31E-02	3.71E-02	5.11E-02	5.81E-02	6.49E-02	7.15E-02	7.81E-02	8.45E-02	1.20E-01	2.19E-01	2.36E-01
fr223	8.72E-05	1.15E-04	1.39E-04	1.50E-04	1.60E-04	1.69E-04	1.77E-04	1.85E-04	2.20E-04	2.59E-04	2.63E-04
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	6.32E-03	8.33E-03	1.01E-02	1.09E-02	1.16E-02	1.22E-02	1.28E-02	1.34E-02	1.59E-02	1.88E-02	1.91E-02
ra224	5.21E-07	5.64E-07	6.10E-07	6.33E-07	6.56E-07	6.80E-07	7.04E-07	7.28E-07	8.80E-07	1.43E-06	1.73E-06
ra225	2.31E-02	3.71E-02	5.11E-02	5.81E-02	6.49E-02	7.15E-02	7.81E-02	8.45E-02	1.20E-01	2.19E-01	2.36E-01
ra226	1.26E-01	1.72E-01	2.13E-01	2.31E-01	2.49E-01	2.66E-01	2.80E-01	2.94E-01	3.71E-01	4.48E-01	4.47E-01

ra228	1.47E-07	2.12E-07	2.78E-07	3.11E-07	3.44E-07	3.77E-07	4.10E-07	4.43E-07	6.42E-07	1.30E-06	1.63E-06
ac225	2.31E-02	3.71E-02	5.11E-02	5.81E-02	6.49E-02	7.15E-02	7.81E-02	8.45E-02	1.20E-01	2.19E-01	2.36E-01
ac227	6.32E-03	8.33E-03	1.01E-02	1.09E-02	1.16E-02	1.22E-02	1.28E-02	1.34E-02	1.59E-02	1.88E-02	1.91E-02
ac228	1.47E-07	2.12E-07	2.78E-07	3.11E-07	3.44E-07	3.77E-07	4.10E-07	4.43E-07	6.42E-07	1.30E-06	1.63E-06
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	6.23E-03	8.22E-03	9.93E-03	1.07E-02	1.14E-02	1.21E-02	1.27E-02	1.32E-02	1.57E-02	1.85E-02	1.88E-02
th228	5.21E-07	5.64E-07	6.10E-07	6.33E-07	6.56E-07	6.80E-07	7.04E-07	7.28E-07	8.80E-07	1.43E-06	1.73E-06
th229	2.31E-02	3.71E-02	5.11E-02	5.81E-02	6.49E-02	7.15E-02	7.81E-02	8.45E-02	1.20E-01	2.19E-01	2.36E-01
th230	1.37E-01	1.82E-01	2.22E-01	2.39E-01	2.56E-01	2.72E-01	2.87E-01	3.01E-01	3.67E-01	4.45E-01	4.41E-01
th231	1.65E-02	1.72E-02	1.77E-02	1.79E-02	1.81E-02	1.82E-02	1.84E-02	1.85E-02	1.89E-02	1.92E-02	1.92E-02

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 165

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtrm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
th232	1.47E-07	2.12E-07	2.78E-07	3.11E-07	3.44E-07	3.77E-07	4.10E-07	4.43E-07	6.42E-07	1.30E-06	1.63E-06
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa231	6.32E-03	8.33E-03	1.01E-02	1.08E-02	1.16E-02	1.22E-02	1.28E-02	1.34E-02	1.59E-02	1.88E-02	1.91E-02
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	3.80E-01	3.79E-01	3.78E-01	3.77E-01	3.76E-01	3.76E-01	3.75E-01	3.74E-01	3.71E-01	3.59E-01	3.53E-01
pa234m	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa234	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	3.74E-07	3.52E-07	3.31E-07	3.22E-07	3.12E-07	3.03E-07	2.94E-07	2.85E-07	2.38E-07	1.30E-07	9.63E-08
u233	3.86E-02	5.31E-02	6.70E-02	7.37E-02	8.02E-02	8.66E-02	9.28E-02	9.89E-02	1.32E-01	2.14E-01	2.42E-01
u234	6.52E-01	6.38E-01	6.25E-01	6.18E-01	6.12E-01	6.05E-01	5.99E-01	5.92E-01	5.56E-01	4.56E-01	4.16E-01
u235	1.65E-02	1.72E-02	1.77E-02	1.79E-02	1.81E-02	1.82E-02	1.84E-02	1.85E-02	1.89E-02	1.92E-02	1.92E-02
u236	1.31E-01	1.33E-01	1.34E-01	1.34E-01	1.34E-01	1.34E-01	1.34E-01	1.34E-01	1.34E-01	1.34E-01	1.33E-01
u237	2.45E-08	1.08E-08	4.80E-09	3.19E-09	2.12E-09	1.41E-09	9.39E-10	6.25E-10	5.41E-11	1.55E-14	2.63E-16
u238	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	1.35E-12	1.87E-12	2.38E-12	2.63E-12	2.88E-12	3.12E-12	3.36E-12	3.61E-12	5.00E-12	9.07E-12	1.08E-11
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	4.20E-06	3.96E-06	3.72E-06	3.61E-06	3.51E-06	3.40E-06	3.30E-06	3.20E-06	2.67E-06	1.46E-06	1.08E-06
np237	3.80E-01	3.79E-01	3.78E-01	3.77E-01	3.76E-01	3.76E-01	3.75E-01	3.74E-01	3.71E-01	3.59E-01	3.53E-01
np238	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np239	1.92E-01	7.49E-02	2.92E-02	1.83E-02	1.14E-02	7.13E-03	4.46E-03	2.79E-03	1.66E-04	1.66E-08	3.08E-09
np240m	1.35E-12	1.87E-12	2.38E-12	2.63E-12	2.88E-12	3.12E-12	3.36E-12	3.61E-12	5.00E-12	9.07E-12	1.08E-11
np240	1.62E-15	2.24E-15	2.85E-15	3.15E-15	3.45E-15	3.75E-15	4.04E-15	4.33E-15	6.00E-15	1.09E-14	1.30E-14
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	3.74E-07	3.52E-07	3.31E-07	3.22E-07	3.12E-07	3.03E-07	2.94E-07	2.85E-07	2.38E-07	1.30E-07	9.63E-08
pu237	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu239	8.00E+01	6.00E+01	4.50E+01	3.90E+01	3.38E+01	2.93E+01	2.53E+01	2.19E+01	9.26E+00	5.22E-01	1.24E-01
pu240	1.09E+01	3.79E+00	1.32E+00	7.78E-01	4.59E-01	2.70E-01	1.59E-01	9.40E-02	3.95E-03	1.02E-07	5.30E-10
pu241	1.03E-03	4.54E-04	2.01E-04	1.34E-04	8.88E-05	5.91E-05	3.93E-05	2.61E-05	2.26E-06	6.49E-10	1.10E-11
pu242	2.68E-01	2.63E-01	2.58E-01	2.56E-01	2.53E-01	2.51E-01	2.49E-01	2.46E-01	2.33E-01	1.93E-01	1.76E-01
pu243	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.92E-09	2.91E-09	2.90E-09
pu244	1.35E-12	1.87E-12	2.38E-12	2.63E-12	2.88E-12	3.13E-12	3.37E-12	3.61E-12	5.01E-12	9.08E-12	1.08E-11
pu245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	2.26E-17	1.52E-17	1.02E-17	8.35E-18	6.84E-18	5.61E-18	4.60E-18	3.77E-18	1.14E-18	2.12E-20	2.89E-21
am239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	1.07E-03	4.54E-04	2.01E-04	1.34E-04	8.89E-05	5.91E-05	3.93E-05	2.61E-05	2.26E-06	6.84E-10	1.10E-11
am242m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

am242	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am243	1.92E-01	7.49E-02	2.92E-02	1.83E-02	1.14E-02	7.13E-03	4.46E-03	2.79E-03	1.66E-04	1.66E-08	3.03E-09
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	2.26E-17	1.52E-17	1.02E-17	8.35E-18	6.84E-18	5.61E-18	4.60E-18	3.77E-18	1.14E-18	2.12E-20	2.89E-21
cm241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 166

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHM for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
cm242	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm243	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	1.02E-03	4.53E-04	2.00E-04	1.33E-04	8.87E-05	5.90E-05	3.92E-05	2.61E-05	2.26E-06	6.48E-10	1.10E-11
cm246	2.36E-05	5.46E-06	1.26E-06	6.06E-07	2.91E-07	1.40E-07	6.73E-08	3.24E-08	3.99E-10	1.73E-16	1.18E-19
cm247	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.92E-09	2.91E-09	2.90E-09
cm248	6.62E-09	6.48E-09	6.35E-09	6.29E-09	6.23E-09	6.16E-09	6.10E-09	6.04E-09	5.68E-09	4.63E-09	4.18E-09
cm249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	9.05E-17	6.07E-17	4.08E-17	3.34E-17	2.74E-17	2.24E-17	1.84E-17	1.51E-17	4.56E-18	8.48E-20	1.16E-20
cm251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	1.27E-17	8.50E-18	5.71E-18	4.68E-18	3.83E-18	3.14E-18	2.57E-18	2.11E-18	6.38E-19	1.19E-20	1.62E-21
bk251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	2.55E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf250	1.27E-17	8.50E-18	5.71E-18	4.68E-18	3.83E-18	3.14E-18	2.57E-18	2.11E-18	6.38E-19	1.19E-20	1.62E-21
cf251	5.63E-18	2.50E-21	1.11E-24	2.34E-26	4.94E-28	1.04E-29	2.28E-31	.00E+00	.00E+00	.00E+00	.00E+00
cf252	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	9.51E+01	6.84E+01	5.14E+01	4.50E+01	3.97E+01	3.52E+01	3.14E+01	2.81E+01	1.64E+01	9.12E+00	8.81E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 184

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHM for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
h 3	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 7	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 9	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 10	8.17E-07	8.13E-07	8.10E-07	8.08E-07	8.06E-07	8.05E-07	8.03E-07	8.01E-07	7.91E-07	7.57E-07	7.41E-07
c 14	1.62E-06	4.82E-07	1.44E-07	7.85E-08	4.29E-08	2.34E-08	1.28E-08	6.98E-09	1.85E-10	1.03E-15	2.43E-18
ni 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 68	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

zn 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 185

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHM for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
zn 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ge 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.14E-01	9.22E-02	7.47E-02	6.73E-02	6.06E-02	5.45E-02	4.91E-02	4.42E-02	2.35E-02	2.88E-03	1.01E-03
se 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 81	1.36E-08	1.32E-08	1.28E-08	1.26E-08	1.23E-08	1.22E-08	1.20E-08	1.18E-08	1.07E-08	7.70E-09	6.55E-09
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B 88W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 186

0 nuclide radioactivity, curies
basis =per 88W assembly, 0.409 mtm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
ge 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

br 84m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06	6.21E-06
sr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 187

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	1.32E-20	4.94E-25	1.85E-29	1.14E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	3.65E-12	3.64E-12	3.64E-12	3.64E-12	3.64E-12	3.64E-12	3.64E-12	3.64E-12	3.64E-12	3.63E-12	3.63E-12
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	3.45E-01	3.43E-01	3.42E-01	3.41E-01	3.40E-01	3.40E-01	3.39E-01	3.38E-01	3.34E-01	3.19E-01	3.12E-01
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93m	3.45E-01	3.43E-01	3.42E-01	3.41E-01	3.40E-01	3.40E-01	3.39E-01	3.38E-01	3.34E-01	3.19E-01	3.12E-01
br 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 188

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	9.97E-06	7.08E-06	5.03E-06	4.24E-06	3.58E-06	3.02E-06	2.54E-06	2.14E-06	7.70E-07	2.53E-08	4.59E-09
rb 94m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

nb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 98	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.17E-06	1.17E-06	1.17E-06	1.17E-06	1.15E-06	1.14E-06
rb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	3.63E+00	3.52E+00	3.40E+00	3.35E+00	3.29E+00	3.24E+00	3.19E+00	3.14E+00	2.84E+00	2.05E+00	1.74E+00
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 189

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ru103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B 88W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 190

0 nuclide radioactivity, curies

basis =per 88W assembly, 0.409 mthm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	2.63E-02	2.62E-02	2.62E-02	2.62E-02	2.62E-02	2.62E-02	2.61E-02	2.61E-02	2.60E-02	2.58E-02	2.56E-02
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 191

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
cd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14	1.56E-14
cd113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ag114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12
in115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay — fission products — page 192

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mthm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
sn115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

in119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 193

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te123	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14	8.63E-14
te123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	1.17E-01	1.09E-01	1.02E-01	9.81E-02	9.47E-02	9.15E-02	8.84E-02	8.54E-02	6.95E-02	3.47E-02	2.45E-02

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 194

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtihm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
sb126	1.63E-02	1.52E-02	1.42E-02	1.37E-02	1.33E-02	1.28E-02	1.24E-02	1.20E-02	9.71E-03	4.85E-03	3.43E-03
sb126m	1.17E-01	1.09E-01	1.02E-01	9.81E-02	9.47E-02	9.15E-02	8.84E-02	8.54E-02	6.95E-02	3.47E-02	2.45E-02
te126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	8.81E-03	8.81E-03	8.80E-03	8.80E-03	8.80E-03	8.80E-03	8.80E-03	8.79E-03	8.78E-03	8.74E-03	8.72E-03
xe129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 195

0 nuclide radioactivity, curies

basis =per B&W assembly, 0.409 mtHM for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	2.03E-01	2.02E-01	2.01E-01	2.01E-01	2.01E-01	2.00E-01	2.00E-01	2.00E-01	1.98E-01	1.92E-01	1.85E-01
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

xe136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 196

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
sb137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la138	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11	5.39E-11
sb139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06	7.76E-06
pr142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

i143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtihm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10	4.06E-10
i145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.14E-08	6.13E-08
xe147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06	2.06E-06
cs148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
sm148	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12	8.82E-12
cs149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13	3.41E-13
eu149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	6.98E-13	6.98E-13	6.98E-13	6.98E-13	6.98E-13	6.98E-13	6.98E-13	6.98E-13	6.98E-13	6.98E-13	6.98E-13
la153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHm for grams
initial 35000. yr 45000. yr 50000. yr 55000. yr 60000. yr 65000. yr 70000. yr 100000. yr 200000. yr 250000. yr

sm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 200

0 nuclide radioactivity, curies
basis =per B&W assembly, 0.409 mtHM for grams

	initial	35000. yr	45000. yr	50000. yr	55000. yr	60000. yr	65000. yr	70000. yr	100000. yr	200000. yr	250000. yr
dy161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	2.28E-11	7.08E-14	2.19E-16	1.22E-17	6.80E-19	3.79E-20	2.11E-21	1.17E-22	3.49E-30	.00E+00	.00E+00
er166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	4.95E+00	4.77E+00	4.62E+00	4.54E+00	4.47E+00	4.40E+00	4.34E+00	4.27E+00	3.91E+00	2.99E+00	2.64E+00

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```
=origens
0$$  a8 26 a11 71 e
1$$ 1  1t
 b&w 15x15, 3.0%/20 Decay
3$$ 21 0 1  e
'   3$$ 21 0 1  a33  -88
2t
35$$ 0  t
'  54$$ a8 1 e
'   56$$ 0 7 a5 1 a13 -1 a15 3 0 4 e   5t
56$$ 0 7 a13 -1 a15 3 0 4 e   5t
Part C 10000 year criticality at 2.182 kw/package
B&W 15x15, 3.00wt%, 20gwd/mtu /per assembly basis
60**  0 1 90 365.25 730.5 1826.25  3652.5
'  61** f1-20
'  65$$ a4 1 2z 1 2z 1 5z 1 2z 1
'   a25 1 2z 1 2z 1 5z 1 2z 1
'   a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
'   56$$ 0 -6 a10 1  e  t
56$$ 0 10 a10 7 a14 5 a17 4 e  57** 10  e  5t
60**  15 20 30 50 100 150 200 250 300 400
'  61** f1-20
'  65$$ a4 1 2z 1 2z 1 5z 1 2z 1
'   a25 1 2z 1 2z 1 5z 1 2z 1
'   a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e  57** 400  e  5t
60**  500 1+3 2+3 4+3 6+3 8+3 1+4 1.2+4 1.4+4 1.5+4
'   61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 10 10 0 a10 10 a14 5 a17 4 1 e  57** 1.5+4  e  5t
58**  1.039-4 1.039-4 1.039-4 1.039-4 1.039-4 1.039-4 1.039-4 1.039-4
      1.039-4 1.039-4
60**  1.6+4 1.7+4 1.8+4 1.9+4 2.0+4 2.1+4 2.2+4 2.3+4 2.4+4 2.5+4
'  61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
66$$  0 0 0 0 2 0 0 0 2  e
6t
56$$ 0 10  a10 10 a14 5 a17 4 1 e  57** 2.5+4  e  5t
60**  2.503+4 2.6+4 3.5+4 4.5+4 6.5+4 8.5+4 9.5+4 1.05+5 1.15+5 1.25+5
'   61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 4 a10 10 a14 5 a17 4 e  57** 1.25+5  e  5t
60**  2.5+5 5+5 7.5+5 999999
'  61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
'   56$$ 0 -10 a10 1 e  t
56$$ f0  t
end
```

```
=origens
0$$  a8 26 a11 71 e
1$$ 1  1t
 b&w 15x15, 3.0%/20 Decay
3$$ 21 0 1  e
'   3$$ 21 0 1  a33  -88
2t
35$$ 0  t
'  54$$ a8 1 e
'   56$$ 0 7 a5 1 a13 -1 a15 3 0 4 e   5t
56$$ 0 7 a13 -1 a15 3 0 4 e   5t
Part D 1000 year criticality at 2.182 kw/package
B&W 15x15, 3.00wt%, 20gwd/mtu /per assembly basis
60**  0 1 90 365.25 730.5 1826.25  3652.5
'  61** f1-20
'  65$$ a4 1 2z 1 2z 1 5z 1 2z 1
'   a25 1 2z 1 2z 1 5z 1 2z 1
'   a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
'   56$$ 0 -6 a10 1  e  t
56$$ 0 10 a10 7 a14 5 a17 4 e  57** 10  e  5t
60**  15 20 30 50 100 150 200 250 300 400
'  61** f1-20
'  65$$ a4 1 2z 1 2z 1 5z 1 2z 1
'   a25 1 2z 1 2z 1 5z 1 2z 1
'   a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0.0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e  57** 400  e  5t
60**  500 1+3 2+3 4+3 6+3 8+3 1+4 1.2+4 1.4+4 1.5+4
'    61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 1 1 0 a10 10 a14 5 a17 4 1 e  57** 1.5+4  e  5t
58**  1.039-4
60**  1.6+4
'  61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
66$$  0 0 0 0 2 0 0 0 2  e
6t
56$$ 0 10 a10 1 a14 5 a17 4 1 e  57** 1.6+4  e  5t
60**  1.6030+4 1.7+4 1.8+4 1.9+4 2.0+4 2.1+4 2.2+4 2.3+4 2.4+4 2.5+4
'  61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
66$$  0 0 0 0 2 0 0 0 2  e
6t
56$$ 0 10  a10 10 a14 5 a17 4 1 e  57** 2.5+4  e  5t
60**  3.5+4 4.5+4 5.5+4 6.5+4 7.5+4 8.5+4 9.5+4 1.05+5 1.15+5 1.25+5
'    61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 4 a10 10 a14 5 a17 4 e  57** 1.25+5  e  5t
60**  2.5+5 5+5 7.5+5 999999
'  61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
'   56$$ 0 -10 a10 1 e  t
56$$ f0  t
end
```

```
=origens
0$$  a8 26 a11 71 e
1$$ 1  1t
 b&w 15x15, 3.0%/20 Decay
3$$ 21 0 1  e
'   3$$ 21 0 1  a33  -88
2t
35$$ 0  t
'  54$$ a8 1 e
'   56$$ 0 7 a5 1 a13 -1 a15 3 0 4 e   5t
56$$ 0 7 a13 -1 a15 3 0 4 e   5t
Part E 5000 year criticality at 2.182 kw/package
B&W 15x15, 3.00wt%, 20gwd/mtu /per assembly basis
60**  0 1 90 365.25 730.5 1826.25  3652.5
'  61** f1-20
'  65$$ a4 1 2z 1 2z 1 5z 1 2z 1
'   a25 1 2z 1 2z 1 5z 1 2z 1
'   a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
'   56$$ 0 -6 a10 1  e  t
56$$ 0 10 a10 7 a14 5 a17 4 e  57** 10  e  5t
60**  15 20 30 50 100 150 200 250 300 400
'  61** f1-20
'  65$$ a4 1 2z 1 2z 1 5z 1 2z 1
'   a25 1 2z 1 2z 1 5z 1 2z 1
'   a46 1 2z 1 2z 1 5z 1 2z 1 e
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 10 a10 10 a14 5 a17 4 e  57** 400  e  5t
60**  500 1+3 2+3 4+3 6+3 8+3 1+4 1.2+4 1.4+4 1.5+4
'    61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 5 5 0 a10 10 a14 5 a17 4 1 e  57** 1.5+4  e  5t
58**  1.039-4 1.039-4 1.039-4 1.039-4 1.039-4
60**  1.6+4 1.7+4 1.8+4 1.9+4 2.0+4
'  61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
66$$  0 0 0 0 2 0 0 0 2  e
6t
56$$ 0 6 a10 5 a14 5 a17 4 1 e  57** 2.0+4  e  5t
60**  2.0030+4 2.1+4 2.2+4 2.3+4 2.4+4 2.5+4
'  61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
66$$  0 0 0 0 2 0 0 0 2  e
6t
56$$ 0 10  a10 6 a14 5 a17 4 1 e  57** 2.5+4  e  5t
60**  3.5+4 4.5+4 5.5+4 6.5+4 7.5+4 8.5+4 9.5+4 1.05+5 1.15+5 1.25+5
'    61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
56$$ 0 4 a10 10 a14 5 a17 4 e  57** 1.25+5  e  5t
60**  2.5+5 5+5 7.5+5 999999
'  61** f1-20
65$$ a25 1 0 0 1 0 0 0 a46 1 0 0 1 0 0 0 e
6t
'   56$$ 0 -10 a10 1 e  t
56$$ f0  t
end
```

Part D 1000 year criticality at 2.182 kw/package actinides page 145
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec
0
nuclide radioactivity, curies
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
he 4	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tl206	1.05E-07	1.06E-07	1.12E-07	1.19E-07	1.26E-07	1.33E-07	1.40E-07	1.47E-07	1.54E-07	1.60E-07	1.67E-07
tl207	4.93E-03	4.93E-03	5.15E-03	5.37E-03	5.59E-03	5.81E-03	6.02E-03	6.23E-03	6.44E-03	6.65E-03	6.85E-03
tl208	2.30E-04	1.77E-04	1.94E-07	1.84E-07	1.85E-07	1.87E-07	1.88E-07	1.89E-07	1.91E-07	1.92E-07	1.94E-07
tl209	2.40E-04	2.41E-04	2.65E-04	2.91E-04	3.17E-04	3.44E-04	3.71E-04	3.99E-04	4.27E-04	4.55E-04	4.84E-04
pb206	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb207	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb209	1.14E-02	1.15E-02	1.26E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.03E-02	2.17E-02	2.30E-02
pb210	7.99E-02	7.99E-02	8.52E-02	9.05E-02	9.57E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
pb211	4.94E-03	4.94E-03	5.16E-03	5.39E-03	5.61E-03	5.82E-03	6.04E-03	6.25E-03	6.46E-03	6.67E-03	6.87E-03
pb212	6.41E-04	4.91E-04	5.40E-07	5.11E-07	5.15E-07	5.19E-07	5.23E-07	5.27E-07	5.31E-07	5.35E-07	5.40E-07
pb214	7.99E-02	8.00E-02	8.52E-02	9.05E-02	9.58E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	7.99E-02	7.99E-02	8.52E-02	9.05E-02	9.57E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
bi211	4.94E-03	4.94E-03	5.16E-03	5.39E-03	5.61E-03	5.82E-03	6.04E-03	6.25E-03	6.46E-03	6.67E-03	6.87E-03
bi212	6.41E-04	4.91E-04	5.40E-07	5.11E-07	5.15E-07	5.19E-07	5.23E-07	5.27E-07	5.31E-07	5.35E-07	5.40E-07
bi213	1.14E-02	1.15E-02	1.26E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.03E-02	2.17E-02	2.30E-02
bi214	7.99E-02	8.00E-02	8.52E-02	9.05E-02	9.58E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
po210	7.99E-02	7.99E-02	8.52E-02	9.05E-02	9.57E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	1.36E-05	1.36E-05	1.42E-05	1.48E-05	1.54E-05	1.60E-05	1.66E-05	1.72E-05	1.78E-05	1.83E-05	1.89E-05
po212	4.11E-04	3.15E-04	3.46E-07	3.28E-07	3.30E-07	3.33E-07	3.35E-07	3.38E-07	3.40E-07	3.43E-07	3.46E-07
po213	1.12E-02	1.12E-02	1.24E-02	1.36E-02	1.48E-02	1.60E-02	1.73E-02	1.86E-02	1.99E-02	2.12E-02	2.26E-02
po214	7.99E-02	8.00E-02	8.52E-02	9.05E-02	9.57E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
po215	4.94E-03	4.94E-03	5.16E-03	5.39E-03	5.61E-03	5.82E-03	6.04E-03	6.25E-03	6.46E-03	6.67E-03	6.87E-03
po216	6.41E-04	4.91E-04	5.40E-07	5.11E-07	5.15E-07	5.19E-07	5.23E-07	5.27E-07	5.31E-07	5.35E-07	5.40E-07
po218	7.99E-02	8.01E-02	8.52E-02	9.05E-02	9.58E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
at217	1.14E-02	1.15E-02	1.26E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.03E-02	2.17E-02	2.30E-02
rn218	5.04E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	4.94E-03	4.94E-03	5.16E-03	5.39E-03	5.61E-03	5.82E-03	6.04E-03	6.25E-03	6.46E-03	6.67E-03	6.87E-03
rn220	6.41E-04	4.91E-04	5.40E-07	5.11E-07	5.15E-07	5.19E-07	5.23E-07	5.27E-07	5.31E-07	5.35E-07	5.40E-07
rn222	7.99E-02	8.01E-02	8.52E-02	9.05E-02	9.58E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
fr221	1.14E-02	1.15E-02	1.26E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.03E-02	2.17E-02	2.30E-02
fr223	6.82E-05	6.88E-05	7.13E-05	7.43E-05	7.74E-05	8.04E-05	8.33E-05	8.63E-05	8.91E-05	9.20E-05	9.48E-05
ra222	5.04E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	4.94E-03	4.94E-03	5.16E-03	5.39E-03	5.61E-03	5.82E-03	6.04E-03	6.25E-03	6.46E-03	6.67E-03	6.87E-03
ra224	6.41E-04	4.91E-04	5.40E-07	5.11E-07	5.15E-07	5.19E-07	5.23E-07	5.27E-07	5.31E-07	5.35E-07	5.40E-07
ra225	1.14E-02	1.15E-02	1.26E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.03E-02	2.17E-02	2.30E-02
ra226	7.99E-02	8.01E-02	8.52E-02	9.05E-02	9.58E-02	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
ra228	8.97E-08	8.98E-08	9.59E-08	1.02E-07	1.09E-07	1.15E-07	1.21E-07	1.28E-07	1.34E-07	1.41E-07	1.47E-07
ac225	1.14E-02	1.15E-02	1.26E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.03E-02	2.17E-02	2.30E-02
ac227	4.94E-03	4.94E-03	5.16E-03	5.39E-03	5.61E-03	5.82E-03	6.04E-03	6.25E-03	6.46E-03	6.67E-03	6.87E-03
ac228	8.97E-08	8.98E-08	9.59E-08	1.02E-07	1.09E-07	1.15E-07	1.21E-07	1.28E-07	1.34E-07	1.41E-07	1.47E-07
th226	5.04E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	4.87E-03	4.88E-03	5.09E-03	5.31E-03	5.53E-03	5.74E-03	5.96E-03	6.16E-03	6.37E-03	6.57E-03	6.78E-03
th228	6.41E-04	4.91E-04	5.40E-07	5.11E-07	5.15E-07	5.19E-07	5.23E-07	5.27E-07	5.31E-07	5.35E-07	5.40E-07
th229	1.14E-02	1.15E-02	1.26E-02	1.39E-02	1.51E-02	1.64E-02	1.77E-02	1.90E-02	2.03E-02	2.17E-02	2.30E-02
th230	9.22E-02	9.23E-02	9.75E-02	1.03E-01	1.08E-01	1.13E-01	1.18E-01	1.23E-01	1.28E-01	1.33E-01	1.38E-01
th231	4.96E-02	1.56E-02	1.57E-02	1.58E-02	1.59E-02	1.60E-02	1.61E-02	1.62E-02	1.63E-02	1.64E-02	1.64E-02

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Part D 1000 year criticality at 2.182 kw/package actinides page 146
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16000.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
th232	8.97E-08	8.98E-08	9.59E-08	1.02E-07	1.09E-07	1.15E-07	1.21E-07	1.28E-07	1.34E-07	1.41E-07	1.47E-07
th233	4.06E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa231	4.94E-03	4.94E-03	5.16E-03	5.38E-03	5.60E-03	5.82E-03	6.03E-03	6.25E-03	6.46E-03	6.66E-03	6.87E-03
pa232	5.90E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	3.82E-01	3.82E-01	3.82E-01	3.82E-01	3.82E-01	3.82E-01	3.82E-01	3.81E-01	3.81E-01	3.81E-01	3.81E-01
pa234m	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa234	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	5.04E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	1.29E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	6.41E-04	4.78E-04	4.43E-07	4.09E-07	4.07E-07	4.04E-07	4.02E-07	3.99E-07	3.97E-07	3.95E-07	3.92E-07
u233	2.48E-02	2.49E-02	2.64E-02	2.79E-02	2.95E-02	3.10E-02	3.25E-02	3.40E-02	3.56E-02	3.71E-02	3.85E-02
u234	6.71E-01	6.72E-01	6.71E-01	6.70E-01	6.68E-01	6.67E-01	6.65E-01	6.64E-01	6.62E-01	6.61E-01	6.59E-01
u235	1.56E-02	1.56E-02	1.57E-02	1.58E-02	1.59E-02	1.60E-02	1.61E-02	1.62E-02	1.63E-02	1.64E-02	1.64E-02
u236	1.27E-01	1.27E-01	1.27E-01	1.28E-01	1.29E-01	1.29E-01	1.30E-01	1.30E-01	1.31E-01	1.31E-01	1.32E-01
u237	2.86E+00	1.83E-05	4.64E-08	4.28E-08	3.94E-08	3.63E-08	3.35E-08	3.09E-08	2.84E-08	2.62E-08	2.42E-08
u238	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
u239	6.56E+01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	8.71E-13	8.73E-13	9.27E-13	9.82E-13	1.04E-12	1.09E-12	1.15E-12	1.20E-12	1.26E-12	1.31E-12	1.37E-12
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	5.34E-07	2.52E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	1.08E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	4.65E-06	4.65E-06	4.63E-06	4.60E-06	4.57E-06	4.54E-06	4.52E-06	4.49E-06	4.46E-06	4.43E-06	4.41E-06
np237	3.82E-01	3.82E-01	3.82E-01	3.82E-01	3.82E-01	3.82E-01	3.82E-01	3.81E-01	3.81E-01	3.81E-01	3.81E-01
np238	2.88E+00	7.72E-06	6.56E-08	4.81E-10	3.52E-12	2.58E-14	1.89E-16	1.39E-18	1.02E-20	7.45E-23	5.46E-25
np239	6.60E+01	4.78E-01	4.36E-01	3.97E-01	3.61E-01	3.29E-01	2.99E-01	2.72E-01	2.48E-01	2.26E-01	2.05E-01
np240m	8.71E-13	8.73E-13	9.27E-13	9.82E-13	1.04E-12	1.09E-12	1.15E-12	1.20E-12	1.26E-12	1.31E-12	1.37E-12
np240	1.01E-06	1.05E-15	1.11E-15	1.18E-15	1.25E-15	1.31E-15	1.38E-15	1.44E-15	1.51E-15	1.57E-15	1.64E-15
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	5.00E-05	4.53E-07	4.12E-07	4.09E-07	4.07E-07	4.04E-07	4.02E-07	3.99E-07	3.97E-07	3.95E-07	3.92E-07
pu237	6.29E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	2.89E+00	2.28E+00	1.08E-03	4.88E-07	8.28E-10	5.06E-12	3.67E-14	2.69E-16	1.97E-18	1.44E-20	1.06E-22
pu239	1.04E+02	1.04E+02	1.01E+02	9.83E+01	9.56E+01	9.29E+01	9.02E+01	8.77E+01	8.52E+01	8.28E+01	8.05E+01
pu240	2.94E+01	2.93E+01	2.65E+01	2.38E+01	2.14E+01	1.93E+01	1.73E+01	1.56E+01	1.40E+01	1.26E+01	1.14E+01
pu241	3.24E+00	7.63E-01	1.94E-03	1.79E-03	1.66E-03	1.52E-03	1.40E-03	1.29E-03	1.19E-03	1.10E-03	1.01E-03
pu242	2.71E-01	2.71E-01	2.71E-01	2.70E-01	2.70E-01	2.69E-01	2.69E-01	2.68E-01	2.68E-01	2.67E-01	2.67E-01
pu243	3.71E-01	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09
pu244	8.72E-13	8.74E-13	9.28E-13	9.83E-13	1.04E-12	1.09E-12	1.15E-12	1.20E-12	1.26E-12	1.31E-12	1.37E-12
pu245	7.69E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	3.24E-17	3.23E-17	3.11E-17	2.99E-17	2.87E-17	2.76E-17	2.65E-17	2.55E-17	2.45E-17	2.35E-17	2.26E-17
am239	2.10E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	2.10E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	2.59E+00	2.55E+00	5.45E-01	1.11E-01	2.37E-02	6.02E-03	2.35E-03	1.52E-03	1.27E-03	1.15E-03	1.05E-03
am242m	1.99E-03	1.72E-03	1.46E-05	1.07E-07	7.83E-10	5.74E-12	4.20E-14	3.08E-16	2.26E-18	1.65E-20	1.21E-22
am242	1.36E-02	1.71E-03	1.45E-05	1.06E-07	7.79E-10	5.71E-12	4.18E-14	3.07E-16	2.25E-18	1.65E-20	1.21E-22
am243	4.79E-01	4.78E-01	4.36E-01	3.97E-01	3.61E-01	3.29E-01	2.99E-01	2.72E-01	2.48E-01	2.26E-01	2.05E-01
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	1.70E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	7.97E-13	1.41E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	3.24E-17	3.23E-17	3.11E-17	2.99E-17	2.87E-17	2.76E-17	2.65E-17	2.55E-17	2.45E-17	2.35E-17	2.26E-17
cm241	2.31E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cm242	1.13E-02	1.41E-03	1.20E-05	8.79E-08	6.44E-10	4.72E-12	3.46E-14	2.54E-16	1.86E-18	1.36E-20	9.99E-23
cm243	4.32E-09	2.08E-09	1.18E-19	3.24E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm244	1.70E-02	5.37E-03	3.95E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	2.10E-03	2.10E-03	1.94E-03	1.79E-03	1.65E-03	1.52E-03	1.40E-03	1.29E-03	1.19E-03	1.09E-03	1.01E-03
cm246	9.65E-05	9.61E-05	8.34E-05	7.20E-05	6.22E-05	5.37E-05	4.64E-05	4.01E-05	3.46E-05	2.99E-05	2.58E-05
cm247	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09	2.93E-09
cm248	7.00E-09	7.00E-09	6.99E-09	6.97E-09	6.96E-09	6.95E-09	6.93E-09	6.92E-09	6.90E-09	6.89E-09	6.87E-09
cm249	1.97E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	1.29E-16	1.29E-16	1.24E-16	1.20E-16	1.15E-16	1.10E-16	1.06E-16	1.02E-16	9.80E-17	9.41E-17	9.05E-17
cm251	3.10E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	1.97E-09	9.70E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	2.74E-14	1.81E-17	1.74E-17	1.67E-17	1.61E-17	1.55E-17	1.49E-17	1.43E-17	1.37E-17	1.32E-17	1.27E-17
bk251	3.10E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	1.66E-09	1.57E-09	2.31E-10	3.20E-11	4.42E-12	6.12E-13	8.46E-14	1.17E-14	1.62E-15	2.24E-16	3.10E-17
cf250	1.84E-12	3.75E-13	1.74E-17	1.67E-17	1.61E-17	1.55E-17	1.49E-17	1.43E-17	1.37E-17	1.32E-17	1.27E-17
cf251	6.15E-15	6.01E-15	2.84E-15	1.31E-15	6.07E-16	2.80E-16	1.30E-16	5.99E-17	2.77E-17	1.28E-17	5.91E-18
cf252	1.50E-16	5.79E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	1.37E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	5.70E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	1.37E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	1.82E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	2.84E+02	1.43E+02	1.32E+02	1.26E+02	1.21E+02	1.16E+02	1.12E+02	1.08E+02	1.03E+02	9.97E+01	9.61E+01

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Part D 1000 year criticality at 2.182 kw/package fission products page 165

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
h 3	1.06E-02	1.95E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 7	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 9	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 10	8.23E-07	8.23E-07	8.23E-07	8.23E-07	8.22E-07	8.22E-07	8.22E-07	8.21E-07	8.21E-07	8.21E-07	8.20E-07
c 14	4.95E-06	4.91E-06	4.37E-06	3.87E-06	3.43E-06	3.04E-06	2.69E-06	2.39E-06	2.11E-06	1.87E-06	1.66E-06
ni 66	6.18E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	6.21E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 67	7.90E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 68	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69	2.71E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	2.20E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 70	1.01E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71	1.29E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	5.51E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71	1.46E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	7.28E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	2.01E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	1.16E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	3.20E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

zn 72	4.10E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	4.11E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 73	1.20E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	1.31E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	7.32E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	1.25E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	1.27E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73m	1.25E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	2.48E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	9.13E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	9.75E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	3.23E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	9.96E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 75	5.05E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	4.15E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	1.30E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	7.93E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	9.56E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	9.62E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	5.11E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 76	1.65E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	1.09E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part D 1000 year criticality at 2.182 kw/package fission products page 166

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
zn 76	1.84E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	2.70E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 76	3.72E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 77	3.67E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	6.31E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	2.24E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	5.51E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	2.10E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	5.65E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	6.57E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77m	2.16E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	7.29E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	2.36E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	2.74E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	1.18E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	1.95E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	1.98E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 79	5.93E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	1.38E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	1.30E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	3.49E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	3.78E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.38E-01	1.38E-01	1.35E-01	1.33E-01	1.30E-01	1.27E-01	1.24E-01	1.22E-01	1.19E-01	1.17E-01	1.14E-01
se 79m	3.74E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

br 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79m	1.06E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	5.21E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	6.60E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	4.82E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	9.60E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	9.00E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	1.03E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80	9.41E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	2.34E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 81	6.62E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	1.08E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	6.19E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	9.54E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	1.47E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	1.55E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	1.08E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 81	1.44E-08	1.44E-08	1.44E-08	1.43E-08	1.43E-08	1.43E-08	1.42E-08	1.42E-08	1.41E-08	1.41E-08	1.40E-08	
kr 81m	1.06E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	2.58E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	4.42E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 167

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
ge 82	9.38E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	1.52E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	5.77E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82	5.89E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	4.95E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 83	1.19E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	4.48E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	4.06E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	2.44E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	1.79E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	1.95E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	3.85E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83m	3.85E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	4.80E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	2.68E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	1.78E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	7.11E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	7.30E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	1.88E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 85	7.03E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	4.57E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	1.06E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	3.43E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	3.02E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	8.26E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	1.81E-01	2.60E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

kr 85m	8.27E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 86	9.69E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	6.12E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	8.36E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	1.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	1.85E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86	3.95E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	3.12E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 87	1.02E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	3.83E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	4.96E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	1.33E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	1.67E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06
sr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 87m	1.15E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	1.64E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	1.76E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	2.60E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 168
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
br 88	1.31E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	2.34E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	2.40E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 89	2.52E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	9.23E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	8.99E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	2.96E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	3.16E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	3.18E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89m	2.97E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	2.34E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	2.00E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	4.77E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	3.19E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	2.93E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	8.91E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	3.84E+00	1.83E+00	7.74E-11	1.56E-21	2.28E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	3.84E+00	1.83E+00	7.74E-11	1.56E-21	2.28E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	7.00E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	1.92E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	1.65E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	2.19E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	3.78E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	4.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	4.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	2.33E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	7.72E-11	7.49E-11	2.79E-11	1.01E-11	3.63E-12	1.31E-12	4.72E-13	1.70E-13	6.15E-14	2.22E-14	8.00E-15

se 92	1.53E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	2.72E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	1.16E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	3.30E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	4.17E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	4.21E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	7.92E-12	7.92E-12	7.92E-12	7.92E-12	7.92E-12	7.92E-12	7.92E-12	7.92E-12	7.92E-12	7.92E-12	7.92E-12	7.92E-12
se 93	1.09E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	5.46E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	3.91E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	2.64E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	4.59E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	3.11E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	3.48E-01	3.48E-01	3.48E-01	3.48E-01	3.47E-01	3.47E-01	3.47E-01	3.47E-01	3.47E-01	3.47E-01	3.47E-01	3.46E-01
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93m	3.48E-01	3.48E-01	3.48E-01	3.48E-01	3.47E-01	3.47E-01	3.47E-01	3.47E-01	3.47E-01	3.47E-01	3.47E-01	3.46E-01
br 94	3.38E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	1.74E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	1.34E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 169

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.88E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sr 94	4.50E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	4.85E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	1.91E-05	1.91E-05	1.85E-05	1.78E-05	1.72E-05	1.67E-05	1.61E-05	1.56E-05	1.50E-05	1.45E-05	1.40E-05
rb 94m	1.69E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	3.73E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	1.41E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	6.40E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	4.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	4.96E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	5.04E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	5.08E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	5.59E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 96	8.37E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	2.55E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	1.61E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	2.93E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	4.73E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 96	1.28E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 97	3.31E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	4.81E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	1.49E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	3.85E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	4.68E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	4.71E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	4.45E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 98	1.18E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	3.97E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	5.91E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	2.85E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

zr 98	4.91E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	4.94E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	3.36E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 98	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06
nb 99	1.17E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	2.53E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	1.81E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	4.77E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	3.09E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	2.11E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	5.26E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	3.76E+00	3.76E+00	3.75E+00	3.73E+00	3.72E+00	3.71E+00	3.70E+00	3.68E+00	3.67E+00	3.66E+00	3.65E+00	
tc 99m	4.63E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	3.54E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	2.75E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	5.28E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 170
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr	
zr100	4.78E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
nb100	5.13E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
nb100m	3.50E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
mo100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tc100	8.03E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ru100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
nb101	2.91E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sr101	4.41E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
y101	3.00E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zr101	2.67E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
nb101	4.44E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
mo101	4.66E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tc101	4.66E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ru101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sr102	8.17E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
y102	1.57E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zr102	1.90E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
nb102	3.66E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
mo102	4.23E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tc102	4.24E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tc102m	3.97E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ru102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rh102	1.34E-05	1.03E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sr103	5.67E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
y103	4.80E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zr103	6.53E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
nb103	2.53E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
mo103	3.81E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
tc103	3.89E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ru103	3.91E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rh103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rh103m	3.90E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
sr104	1.78E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
y104	9.40E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
zr104	1.76E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	

rh104	1.04E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	2.76E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	2.90E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104	2.06E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	1.50E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y105	1.19E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	6.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	4.00E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	1.88E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	2.22E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	2.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	2.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	6.39E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 171

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
y106	2.12E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	2.06E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	5.85E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	9.07E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	1.39E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	1.55E+00	2.06E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	1.55E+00	2.06E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	6.94E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag106	1.71E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	1.93E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	2.02E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	9.37E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	3.21E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	8.65E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	1.07E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	1.08E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	2.64E-02	2.64E-02	2.64E-02	2.64E-02	2.64E-02	2.64E-02	2.64E-02	2.64E-02	2.64E-02	2.64E-02	2.64E-02
pd107m	7.93E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr108	8.35E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	2.69E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	3.66E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	2.54E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	6.41E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	6.54E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	1.26E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108	1.84E-04	1.64E-07	8.22E-10	3.50E-12	1.49E-14	6.37E-17	2.71E-19	1.16E-21	4.93E-24	2.10E-26	8.93E-29
ag108m	2.22E-06	1.88E-06	9.45E-09	4.03E-11	1.72E-13	7.32E-16	3.12E-18	1.33E-20	5.66E-23	2.41E-25	1.03E-27
cd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr109	6.74E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	1.17E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	3.86E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	8.58E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	4.56E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	5.43E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	2.71E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pd109	6.28E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	3.41E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109m	6.28E-01	5.68E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	7.67E-09	5.68E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb110	5.34E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	4.26E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	1.11E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	1.29E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	2.68E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	1.56E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110	2.93E-01	9.75E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	1.16E-02	7.17E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 172
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb111	4.86E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	4.59E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	2.24E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	4.12E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	9.05E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	9.77E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	5.20E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	9.85E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	9.81E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111m	1.30E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb112	1.82E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	7.54E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	4.47E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	1.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	3.86E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	4.89E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	4.90E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo113	1.57E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	1.23E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	5.10E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	1.91E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	2.94E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	2.87E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	5.77E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14
cd113m	6.66E-04	1.52E-04	2.98E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113m	3.31E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	8.05E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	2.10E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	2.14E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	1.08E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	2.55E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	2.65E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114	7.17E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	5.40E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo115	3.61E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	7.82E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	5.30E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	4.67E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	1.62E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	1.28E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	5.36E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	1.81E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	8.43E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12
in115m	1.81E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 173

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sn115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc116	3.36E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	1.87E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	2.59E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	1.95E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	2.21E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	2.64E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116	3.48E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	1.31E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc117	4.15E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	2.93E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	9.91E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	1.27E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	1.09E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	1.09E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	1.91E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	4.33E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	1.42E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	1.75E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117m	1.09E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	1.23E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	4.78E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	2.36E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	6.07E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	1.05E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	7.47E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	1.83E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	1.83E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	2.19E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru119	6.33E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	9.18E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	3.63E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	1.29E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	1.32E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	5.98E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	7.77E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	1.19E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn119m	1.47E-04	8.13E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	7.90E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	1.98E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	1.86E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	8.22E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	1.81E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	1.84E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	3.04E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh121	5.54E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 174

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
pd121	7.91E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	6.00E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	1.83E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	1.67E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	1.86E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	2.01E-02	1.15E-04	5.63E-10	1.90E-15	6.38E-21	2.15E-26	6.85E-32	.00E+00	.00E+00	.00E+00	.00E+00
sn121m	2.15E-04	1.48E-04	7.25E-10	2.44E-15	8.23E-21	2.77E-26	9.13E-32	.00E+00	.00E+00	.00E+00	.00E+00
sb121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh122	6.13E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	2.62E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	3.11E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	1.97E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	2.18E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	2.13E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122	1.89E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	1.89E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh123	5.22E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	4.57E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	1.23E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	1.26E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	1.58E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	4.32E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	1.83E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	2.11E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te123	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14
te123m	1.19E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	2.51E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	9.84E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	2.02E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	3.66E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124	1.50E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	3.19E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd125	6.15E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	4.73E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	1.31E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	2.09E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	1.57E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	1.19E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	3.71E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sb125	4.91E-02	2.42E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125m	1.13E-02	5.91E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	1.36E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	1.91E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	1.45E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	4.69E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	1.25E-01	1.25E-01	1.24E-01	1.23E-01	1.22E-01	1.21E-01	1.21E-01	1.20E-01	1.19E-01	1.18E-01	1.17E-01	

1

Part D 1000 year criticality at 2.182 kw/package fission products page 175
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sb126	1.80E-02	1.75E-02	1.73E-02	1.72E-02	1.71E-02	1.70E-02	1.69E-02	1.68E-02	1.66E-02	1.65E-02	1.64E-02
sb126m	1.26E-01	1.25E-01	1.24E-01	1.23E-01	1.22E-01	1.21E-01	1.21E-01	1.20E-01	1.19E-01	1.18E-01	1.17E-01
te126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag127	1.04E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	1.08E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	4.23E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	4.23E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	8.25E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	1.12E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	2.06E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	2.05E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	3.60E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe127	6.49E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	5.29E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	1.10E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	8.62E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	3.74E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	3.73E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	3.93E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i128	1.70E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd129	5.45E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	9.90E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	3.25E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	3.43E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	8.51E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	8.06E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	1.62E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	8.85E-03	8.85E-03	8.85E-03	8.85E-03	8.85E-03	8.85E-03	8.85E-03	8.85E-03	8.85E-03	8.85E-03	8.85E-03
xe129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe129m	3.70E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	2.06E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	7.77E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	9.54E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	2.83E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	1.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130	4.09E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	2.17E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd131	3.14E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	3.21E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	7.97E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sb131	2.23E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	2.35E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	5.06E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	2.76E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131m	3.02E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 176

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =BBW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cd132	3.84E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	8.71E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	6.38E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	1.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	1.30E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	3.98E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	4.04E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs132	8.96E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in133	2.61E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	1.78E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	1.89E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	3.18E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	2.62E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	5.80E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	4.18E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	5.82E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	1.79E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba133	5.23E-10	7.25E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	4.35E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	2.91E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	3.53E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	2.40E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	5.33E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	6.50E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	4.97E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134m	1.04E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	1.06E+00	4.43E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	8.08E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn135	2.50E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	1.52E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	2.75E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	5.47E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	5.91E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	1.15E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	2.05E-01	2.05E-01	2.05E-01	2.05E-01	2.05E-01	2.05E-01	2.05E-01	2.04E-01	2.04E-01	2.04E-01	2.04E-01
cs135m	1.75E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135m	1.27E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	2.21E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	2.35E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	1.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	2.58E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	1.23E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

xe136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs136	1.41E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136m	1.58E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 177

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =BBW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sb137	3.02E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	4.23E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	2.70E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	5.24E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	5.50E+00	2.75E+00	5.07E-10	4.67E-20	4.31E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137m	5.19E+00	2.60E+00	4.78E-10	4.41E-20	4.06E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	3.21E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	9.84E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	1.35E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	5.05E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	5.42E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	2.04E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la138	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11
sb139	2.47E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	1.57E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	7.21E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	3.86E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	5.10E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	5.22E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce139	3.18E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	1.64E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	2.38E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	1.70E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	2.73E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	4.59E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	5.17E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	5.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr140	5.70E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	2.75E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	2.21E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	1.04E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	3.53E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	4.78E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	4.80E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	4.80E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd141	7.33E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	9.99E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	5.19E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	4.04E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	2.06E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	4.57E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	4.71E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06
pr142	1.18E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

rd142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i143	7.16E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 178

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
xe143	5.88E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	1.08E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	3.98E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	4.56E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	4.59E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	4.59E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i144	2.87E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	1.24E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	3.01E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	3.17E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	4.07E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	4.15E+00	1.10E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	4.15E+00	1.10E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	5.83E-02	1.54E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10
i145	9.05E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	1.21E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	7.07E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	1.38E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	2.78E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	3.09E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	3.09E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm145	1.98E-05	6.38E-06	2.03E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	1.93E-05	3.83E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	1.11E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	1.70E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	7.42E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	1.83E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	2.42E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	2.44E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm146	3.96E-07	9.20E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	6.29E-08	6.29E-08	6.29E-08	6.29E-08	6.29E-08	6.29E-08	6.29E-08	6.29E-08	6.29E-08	6.29E-08	6.29E-08
xe147	3.52E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	3.44E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	1.12E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	7.56E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	1.80E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	1.89E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	1.90E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	1.90E+00	6.95E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06
cs148	6.28E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	2.19E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	2.33E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	1.26E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	1.44E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148	2.13E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	2.20E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 179

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sm148	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12
cs149	5.21E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	2.42E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	6.49E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	6.41E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	9.63E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	1.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	1.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13
eu149	1.66E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	6.66E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	2.19E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	1.04E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	2.72E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	5.73E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm150	3.29E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu150	2.04E-06	1.14E-06	7.96E-15	3.12E-23	1.14E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	2.22E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	1.76E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	7.44E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	2.88E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	4.83E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	4.89E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	7.92E-01	6.29E-01	3.58E-04	1.62E-07	7.30E-11	3.30E-14	1.49E-17	6.72E-21	3.03E-24	1.37E-27	6.16E-31
eu151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba152	4.72E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	1.44E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	7.00E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	8.58E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	3.11E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	3.22E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	1.10E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152	6.61E-01	1.39E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	3.59E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	3.53E-12	3.53E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12
la153	1.45E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	3.48E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	3.74E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	1.73E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	2.09E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	9.44E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd153	4.73E-04	1.04E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	3.77E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	3.51E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	6.47E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	7.82E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	9.93E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	2.11E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu154	4.64E-01	4.12E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la155	1.91E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	3.10E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	1.43E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	2.54E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	5.97E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	7.38E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	7.40E-02	8.70E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce156	2.42E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	1.92E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	8.00E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	2.71E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	4.32E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	4.37E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce157	1.17E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	3.06E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	1.85E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	1.06E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	2.48E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	2.60E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr158	1.64E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	3.12E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	2.49E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	1.19E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	1.37E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr159	7.06E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	2.86E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	4.95E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	4.32E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	6.49E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	8.25E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd160	1.88E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	5.44E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	1.22E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	2.64E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb160	1.78E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd161	7.81E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	6.55E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	2.32E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	9.68E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	1.46E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	1.47E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1
Part D 1000 year criticality at 2.182 kw/package fission products page 181
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
dy161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm162	4.41E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	3.80E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	2.57E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	6.66E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	6.80E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	1.41E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm163	2.92E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	4.81E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	2.34E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	2.74E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm164	2.16E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	5.48E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	6.94E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	1.01E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm165	1.13E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	5.93E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	1.48E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	3.49E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	4.18E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	3.16E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy166	6.35E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	5.97E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	4.00E-07	3.93E-07	2.25E-07	1.26E-07	7.07E-08	3.97E-08	2.23E-08	1.25E-08	7.02E-09	3.94E-09	2.21E-09
er166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167m	2.09E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	1.09E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170	6.89E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er171	1.48E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	1.51E-08	3.00E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er172	8.74E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	9.20E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	5.29E+02	1.49E+01	5.08E+00	5.06E+00	5.05E+00	5.03E+00	5.01E+00	5.00E+00	4.98E+00	4.96E+00	4.95E+00

1

Part D 1000 year criticality at 2.182 kw/package actinides page 185

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
he 4	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tl206	1.67E-07	2.28E-07	2.82E-07	3.30E-07	3.72E-07	4.09E-07	4.42E-07	4.70E-07	4.94E-07	5.15E-07	5.32E-07
tl207	6.85E-03	8.74E-03	1.04E-02	1.18E-02	1.30E-02	1.40E-02	1.49E-02	1.56E-02	1.63E-02	1.68E-02	1.72E-02

tl208	1.94E-07	2.09E-07	2.25E-07	2.42E-07	2.59E-07	2.76E-07	2.94E-07	3.12E-07	3.30E-07	3.49E-07	3.68E-07
tl209	4.84E-04	7.77E-04	1.07E-03	1.36E-03	1.64E-03	1.91E-03	2.16E-03	2.40E-03	2.64E-03	2.86E-03	3.07E-03
pb206	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb207	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb209	2.30E-02	3.70E-02	5.11E-02	6.49E-02	7.81E-02	9.08E-02	1.03E-01	1.14E-01	1.26E-01	1.36E-01	1.46E-01
pb210	1.26E-01	1.73E-01	2.14E-01	2.50E-01	2.82E-01	3.10E-01	3.35E-01	3.56E-01	3.74E-01	3.90E-01	4.03E-01
pb211	6.87E-03	8.77E-03	1.04E-02	1.18E-02	1.31E-02	1.41E-02	1.50E-02	1.57E-02	1.63E-02	1.68E-02	1.72E-02
pb212	5.40E-07	5.82E-07	6.27E-07	6.73E-07	7.20E-07	7.68E-07	8.18E-07	8.68E-07	9.19E-07	9.72E-07	1.02E-06
pb214	1.26E-01	1.73E-01	2.14E-01	2.50E-01	2.82E-01	3.10E-01	3.35E-01	3.56E-01	3.74E-01	3.90E-01	4.03E-01
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	1.26E-01	1.73E-01	2.14E-01	2.50E-01	2.82E-01	3.10E-01	3.35E-01	3.56E-01	3.74E-01	3.90E-01	4.03E-01
bi211	6.87E-03	8.77E-03	1.04E-02	1.18E-02	1.31E-02	1.41E-02	1.50E-02	1.57E-02	1.63E-02	1.68E-02	1.72E-02
bi212	5.40E-07	5.82E-07	6.27E-07	6.73E-07	7.20E-07	7.68E-07	8.18E-07	8.68E-07	9.19E-07	9.72E-07	1.02E-06
bi213	2.30E-02	3.70E-02	5.11E-02	6.49E-02	7.81E-02	9.08E-02	1.03E-01	1.14E-01	1.26E-01	1.36E-01	1.46E-01
bi214	1.26E-01	1.73E-01	2.14E-01	2.50E-01	2.82E-01	3.10E-01	3.35E-01	3.56E-01	3.74E-01	3.90E-01	4.03E-01
po210	1.26E-01	1.73E-01	2.14E-01	2.50E-01	2.82E-01	3.10E-01	3.35E-01	3.56E-01	3.74E-01	3.90E-01	4.03E-01
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	1.89E-05	2.41E-05	2.86E-05	3.26E-05	3.59E-05	3.87E-05	4.11E-05	4.31E-05	4.48E-05	4.62E-05	4.74E-05
po212	3.46E-07	3.73E-07	4.01E-07	4.31E-07	4.61E-07	4.92E-07	5.24E-07	5.56E-07	5.89E-07	6.22E-07	6.56E-07
po213	2.26E-02	3.62E-02	5.00E-02	6.35E-02	7.66E-02	8.89E-02	1.01E-01	1.12E-01	1.23E-01	1.33E-01	1.43E-01
po214	1.26E-01	1.73E-01	2.14E-01	2.50E-01	2.82E-01	3.10E-01	3.35E-01	3.56E-01	3.74E-01	3.90E-01	4.03E-01
po215	6.87E-03	8.77E-03	1.04E-02	1.18E-02	1.31E-02	1.41E-02	1.50E-02	1.57E-02	1.63E-02	1.68E-02	1.72E-02
po216	5.40E-07	5.82E-07	6.27E-07	6.73E-07	7.20E-07	7.68E-07	8.18E-07	8.68E-07	9.19E-07	9.72E-07	1.02E-06
po218	1.26E-01	1.73E-01	2.14E-01	2.50E-01	2.82E-01	3.10E-01	3.35E-01	3.56E-01	3.74E-01	3.90E-01	4.03E-01
at217	2.30E-02	3.70E-02	5.11E-02	6.49E-02	7.81E-02	9.08E-02	1.03E-01	1.15E-01	1.26E-01	1.36E-01	1.46E-01
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	6.87E-03	8.77E-03	1.04E-02	1.18E-02	1.31E-02	1.41E-02	1.50E-02	1.57E-02	1.63E-02	1.68E-02	1.72E-02
rn220	5.40E-07	5.82E-07	6.27E-07	6.73E-07	7.20E-07	7.68E-07	8.18E-07	8.68E-07	9.19E-07	9.72E-07	1.02E-06
rn222	1.26E-01	1.73E-01	2.14E-01	2.50E-01	2.82E-01	3.10E-01	3.35E-01	3.56E-01	3.74E-01	3.90E-01	4.03E-01
fr221	2.30E-02	3.70E-02	5.11E-02	6.49E-02	7.81E-02	9.08E-02	1.03E-01	1.15E-01	1.26E-01	1.36E-01	1.46E-01
fr223	9.48E-05	1.21E-04	1.44E-04	1.63E-04	1.80E-04	1.94E-04	2.06E-04	2.16E-04	2.25E-04	2.32E-04	2.38E-04
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	6.87E-03	8.77E-03	1.04E-02	1.18E-02	1.31E-02	1.41E-02	1.50E-02	1.57E-02	1.63E-02	1.68E-02	1.72E-02
ra224	5.40E-07	5.82E-07	6.27E-07	6.73E-07	7.20E-07	7.68E-07	8.18E-07	8.68E-07	9.19E-07	9.72E-07	1.02E-06
ra225	2.30E-02	3.70E-02	5.11E-02	6.49E-02	7.81E-02	9.08E-02	1.03E-01	1.15E-01	1.26E-01	1.36E-01	1.46E-01
ra226	1.26E-01	1.73E-01	2.14E-01	2.50E-01	2.82E-01	3.10E-01	3.35E-01	3.56E-01	3.74E-01	3.90E-01	4.03E-01
ra228	1.47E-07	2.13E-07	2.79E-07	3.45E-07	4.12E-07	4.78E-07	5.44E-07	6.11E-07	6.77E-07	7.44E-07	8.10E-07
ac225	2.30E-02	3.70E-02	5.11E-02	6.49E-02	7.81E-02	9.08E-02	1.03E-01	1.15E-01	1.26E-01	1.36E-01	1.46E-01
ac227	6.87E-03	8.77E-03	1.04E-02	1.18E-02	1.31E-02	1.41E-02	1.50E-02	1.57E-02	1.63E-02	1.68E-02	1.72E-02
ac228	1.47E-07	2.13E-07	2.79E-07	3.45E-07	4.12E-07	4.78E-07	5.44E-07	6.11E-07	6.77E-07	7.44E-07	8.10E-07
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	6.78E-03	8.65E-03	1.03E-02	1.17E-02	1.29E-02	1.39E-02	1.47E-02	1.55E-02	1.61E-02	1.66E-02	1.70E-02
th228	5.40E-07	5.82E-07	6.27E-07	6.73E-07	7.20E-07	7.68E-07	8.18E-07	8.68E-07	9.19E-07	9.72E-07	1.02E-06
th229	2.30E-02	3.70E-02	5.11E-02	6.49E-02	7.81E-02	9.08E-02	1.03E-01	1.15E-01	1.26E-01	1.36E-01	1.46E-01
th230	1.38E-01	1.83E-01	2.23E-01	2.58E-01	2.89E-01	3.16E-01	3.40E-01	3.61E-01	3.78E-01	3.93E-01	4.06E-01
th231	1.64E-02	1.71E-02	1.76E-02	1.80E-02	1.83E-02	1.85E-02	1.87E-02	1.88E-02	1.89E-02	1.90E-02	1.90E-02

1

Part D 1000 year criticality at 2.182 kw/package actinides page 186
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
th232	1.47E-07	2.13E-07	2.79E-07	3.45E-07	4.12E-07	4.78E-07	5.44E-07	6.11E-07	6.77E-07	7.44E-07	8.10E-07
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa231	6.87E-03	8.78E-03	1.04E-02	1.18E-02	1.30E-02	1.41E-02	1.49E-02	1.57E-02	1.63E-02	1.68E-02	1.72E-02
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pa233	3.81E-01	3.80E-01	3.79E-01	3.77E-01	3.76E-01	3.75E-01	3.74E-01	3.72E-01	3.71E-01	3.70E-01	3.69E-01
pa234m	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa234	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	3.92E-07	3.69E-07	3.48E-07	3.27E-07	3.08E-07	2.90E-07	2.73E-07	2.57E-07	2.42E-07	2.28E-07	2.15E-07
u233	3.85E-02	5.31E-02	6.70E-02	8.03E-02	9.29E-02	1.05E-01	1.16E-01	1.27E-01	1.38E-01	1.48E-01	1.57E-01
u234	6.59E-01	6.45E-01	6.31E-01	6.18E-01	6.05E-01	5.92E-01	5.80E-01	5.68E-01	5.56E-01	5.45E-01	5.34E-01
u235	1.64E-02	1.71E-02	1.76E-02	1.80E-02	1.83E-02	1.85E-02	1.87E-02	1.88E-02	1.89E-02	1.90E-02	1.90E-02
u236	1.32E-01	1.34E-01	1.34E-01	1.35E-01	1.35E-01	1.35E-01	1.35E-01	1.35E-01	1.35E-01	1.34E-01	1.34E-01
u237	2.42E-08	1.07E-08	4.73E-09	2.09E-09	9.25E-10	4.09E-10	1.81E-10	8.01E-11	3.54E-11	1.57E-11	6.93E-12
u238	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	1.37E-12	1.91E-12	2.44E-12	2.95E-12	3.46E-12	3.96E-12	4.45E-12	4.93E-12	5.39E-12	5.85E-12	6.30E-12
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	4.41E-06	4.15E-06	3.91E-06	3.68E-06	3.46E-06	3.26E-06	3.07E-06	2.89E-06	2.72E-06	2.56E-06	2.41E-06
np237	3.81E-01	3.80E-01	3.79E-01	3.77E-01	3.76E-01	3.75E-01	3.74E-01	3.72E-01	3.71E-01	3.70E-01	3.69E-01
np238	5.46E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np239	2.05E-01	8.02E-02	3.13E-02	1.22E-02	4.78E-03	1.86E-03	7.28E-04	2.84E-04	1.11E-04	4.33E-05	1.69E-05
np240m	1.37E-12	1.91E-12	2.44E-12	2.95E-12	3.46E-12	3.96E-12	4.45E-12	4.93E-12	5.39E-12	5.85E-12	6.30E-12
np240	1.64E-15	2.29E-15	2.92E-15	3.55E-15	4.16E-15	4.75E-15	5.34E-15	5.91E-15	6.47E-15	7.02E-15	7.56E-15
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	3.92E-07	3.69E-07	3.48E-07	3.27E-07	3.08E-07	2.90E-07	2.73E-07	2.57E-07	2.42E-07	2.28E-07	2.15E-07
pu237	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	1.06E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu239	8.05E+01	6.04E+01	4.53E+01	3.40E+01	2.55E+01	1.91E+01	1.43E+01	1.08E+01	8.07E+00	6.06E+00	4.54E+00
pu240	1.14E+01	3.95E+00	1.37E+00	4.78E-01	1.66E-01	5.78E-02	2.01E-02	6.99E-03	2.43E-03	8.45E-04	2.94E-04
pu241	1.01E-03	4.47E-04	1.98E-04	8.75E-05	3.87E-05	1.71E-05	7.57E-06	3.35E-06	1.48E-06	6.55E-07	2.90E-07
pu242	2.67E-01	2.62E-01	2.57E-01	2.53E-01	2.48E-01	2.43E-01	2.39E-01	2.34E-01	2.30E-01	2.26E-01	2.22E-01
pu243	2.93E-09	2.92E-09	2.92E-09	2.92E-09	2.92E-09	2.92E-09	2.92E-09	2.92E-09	2.92E-09	2.91E-09	2.91E-09
pu244	1.37E-12	1.91E-12	2.44E-12	2.96E-12	3.47E-12	3.96E-12	4.45E-12	4.93E-12	5.40E-12	5.85E-12	6.31E-12
pu245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	2.26E-17	1.52E-17	1.02E-17	6.84E-18	4.60E-18	3.09E-18	2.07E-18	1.39E-18	9.34E-19	6.27E-19	4.21E-19
am239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	1.05E-03	4.47E-04	1.98E-04	8.75E-05	3.87E-05	1.71E-05	7.57E-06	3.35E-06	1.48E-06	6.55E-07	2.90E-07
am242m	1.21E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am242	1.21E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am243	2.05E-01	8.02E-02	3.13E-02	1.22E-02	4.78E-03	1.86E-03	7.28E-04	2.84E-04	1.11E-04	4.33E-05	1.69E-05
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	2.26E-17	1.52E-17	1.02E-17	6.84E-18	4.60E-18	3.09E-18	2.07E-18	1.39E-18	9.34E-19	6.27E-19	4.21E-19
cm241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package actinides page 187

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0

nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
cm242	9.99E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm243	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	1.01E-03	4.46E-04	1.97E-04	8.73E-05	3.86E-05	1.71E-05	7.56E-06	3.34E-06	1.48E-06	6.54E-07	2.89E-07
cm246	2.58E-05	5.96E-06	1.38E-06	3.18E-07	7.35E-08	1.70E-08	3.92E-09	9.07E-10	2.09E-10	4.84E-11	1.12E-11
cm247	2.93E-09	2.92E-09	2.92E-09	2.92E-09	2.92E-09	2.92E-09	2.92E-09	2.92E-09	2.92E-09	2.91E-09	2.91E-09
cm248	6.87E-09	6.74E-09	6.60E-09	6.47E-09	6.34E-09	6.21E-09	6.08E-09	5.96E-09	5.84E-09	5.72E-09	5.61E-09

cm249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	9.05E-17	6.07E-17	4.08E-17	2.74E-17	1.84E-17	1.23E-17	8.29E-18	5.56E-18	3.73E-18	2.51E-18	1.68E-18
cm251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	1.27E-17	8.50E-18	5.71E-18	3.83E-18	2.57E-18	1.73E-18	1.16E-18	7.79E-19	5.23E-19	3.51E-19	2.36E-19
bk251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	3.10E-17	7.97E-26	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf250	1.27E-17	8.50E-18	5.71E-18	3.83E-18	2.57E-18	1.73E-18	1.16E-18	7.79E-19	5.23E-19	3.51E-19	2.36E-19
cf251	5.91E-18	2.63E-21	1.17E-24	5.18E-28	2.28E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf252	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	9.61E+01	6.90E+01	5.17E+01	4.00E+01	3.16E+01	2.55E+01	2.10E+01	1.77E+01	1.53E+01	1.35E+01	1.22E+01

1

Part D 1000 year criticality at 2.182 kw/package fission products page 205

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
h 3	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 7	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 9	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 10	8.20E-07	8.17E-07	8.13E-07	8.10E-07	8.06E-07	8.03E-07	7.99E-07	7.96E-07	7.92E-07	7.89E-07	7.85E-07
c 14	1.66E-06	4.95E-07	1.48E-07	4.40E-08	1.31E-08	3.92E-09	1.17E-09	3.48E-10	1.04E-10	3.10E-11	9.23E-12
ni 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 68	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ga 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
zn 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.14E-01	9.27E-02	7.52E-02	6.09E-02	4.94E-02	4.00E-02	3.24E-02	2.63E-02	2.13E-02	1.73E-02	1.40E-02
se 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

as 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 81	1.40E-08	1.36E-08	1.31E-08	1.27E-08	1.23E-08	1.19E-08	1.15E-08	1.12E-08	1.08E-08	1.05E-08	1.01E-08
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 207
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
ge 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

kr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06	6.23E-06
sr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 208
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	8.00E-15	2.99E-19	1.12E-23	4.19E-28	2.28E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

nb 92	7.92E-12	7.91E-12	7.91E-12	7.91E-12	7.91E-12	7.91E-12	7.91E-12	7.91E-12	7.90E-12	7.90E-12	7.90E-12
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	3.46E-01	3.45E-01	3.43E-01	3.42E-01	3.40E-01	3.39E-01	3.37E-01	3.36E-01	3.34E-01	3.33E-01	3.31E-01
nb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 93m	3.46E-01	3.45E-01	3.43E-01	3.42E-01	3.40E-01	3.39E-01	3.37E-01	3.36E-01	3.34E-01	3.33E-01	3.31E-01
br 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 209

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =BBW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 94	1.40E-05	9.98E-06	7.09E-06	5.04E-06	3.58E-06	2.55E-06	1.81E-06	1.29E-06	9.14E-07	6.50E-07	4.62E-07
nb 94m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 98	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.17E-06	1.17E-06
rb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

y 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	3.66E+00	3.53E+00	3.42E+00	3.31E+00	3.20E+00	3.10E+00	3.00E+00	2.90E+00	2.81E+00	2.72E+00	2.63E+00
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 210

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

y105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products * page 211
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	2.64E-02	2.63E-02	2.63E-02	2.63E-02	2.63E-02	2.62E-02	2.62E-02	2.62E-02	2.61E-02	2.61E-02	2.61E-02
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108	8.95E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108m	1.03E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 212

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
cd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14	1.42E-14
cd113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ag115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12	3.24E-12
in115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 213
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sn115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

in120m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 214

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =BBW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te123	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14	8.71E-14
te123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn126	1.17E-01	1.09E-01	1.02E-01	9.52E-02	8.88E-02	8.29E-02	7.73E-02	7.22E-02	6.73E-02	6.28E-02	5.86E-02

1

Part D 1000 year criticality at 2.182 kw/package fission products page 215
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sb126	1.64E-02	1.53E-02	1.43E-02	1.33E-02	1.24E-02	1.16E-02	1.08E-02	1.01E-02	9.43E-03	8.79E-03	8.21E-03
sb126m	1.17E-01	1.09E-01	1.02E-01	9.52E-02	8.88E-02	8.29E-02	7.73E-02	7.22E-02	6.73E-02	6.28E-02	5.86E-02
te126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	8.85E-03	8.84E-03	8.84E-03	8.84E-03	8.83E-03	8.83E-03	8.82E-03	8.82E-03	8.82E-03	8.81E-03	8.81E-03
xe129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part D 1000 year criticality at 2.182 kw/package fission products page 216
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec
0
nuclide radioactivity, curies
basis =BW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	2.04E-01	2.04E-01	2.03E-01	2.02E-01	2.02E-01	2.01E-01	2.01E-01	2.00E-01	1.99E-01	1.99E-01	1.98E-01
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part D 1000 year criticality at 2.182 kw/package fission products page 217
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec

0

nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sb137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la138	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11	5.41E-11
sb139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06	7.79E-06
pr142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part D 1000 year criticality at 2.182 kw/package fission products page 218
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0

nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10	4.08E-10
i145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	6.29E-08	6.29E-08	6.29E-08	6.29E-08	6.29E-08	6.29E-08	6.28E-08	6.28E-08	6.28E-08	6.28E-08	6.28E-08
xe147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06	2.07E-06
cs148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part D 1000 year criticality at 2.182 kw/package fission products page 219
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sm148	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12	8.87E-12

cs149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13	2.83E-13
eu149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	6.16E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	3.56E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12	3.56E-12
la153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 220

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 221

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795ZE+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
dy161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	2.21E-09	6.85E-12	2.12E-14	6.58E-17	2.04E-19	6.32E-22	1.96E-24	6.07E-27	1.88E-29	6.85E-32	.00E+00
er166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	4.95E+00	4.79E+00	4.64E+00	4.49E+00	4.36E+00	4.23E+00	4.10E+00	3.99E+00	3.87E+00	3.77E+00	3.66E+00

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Part E 5000 year criticality at 2.182 kw/package actinides page 145
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
he 4	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tl206	1.33E-07	1.33E-07	1.39E-07	1.46E-07	1.53E-07	1.60E-07	1.67E-07
tl207	8.82E-03	8.83E-03	8.97E-03	9.11E-03	9.26E-03	9.40E-03	9.54E-03
tl208	4.07E-04	3.11E-04	2.36E-07	2.17E-07	2.19E-07	2.20E-07	2.21E-07
tl209	3.42E-04	3.43E-04	3.69E-04	3.96E-04	4.23E-04	4.51E-04	4.79E-04
pb206	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb207	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pb209	1.63E-02	1.63E-02	1.76E-02	1.89E-02	2.02E-02	2.15E-02	2.28E-02
pb210	1.00E-01	1.00E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
pb211	8.85E-03	8.85E-03	8.99E-03	9.14E-03	9.28E-03	9.43E-03	9.57E-03
pb212	1.13E-03	8.67E-04	6.58E-07	6.05E-07	6.08E-07	6.12E-07	6.16E-07
pb214	1.00E-01	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	1.00E-01	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
bi211	8.85E-03	8.85E-03	8.99E-03	9.14E-03	9.28E-03	9.43E-03	9.57E-03
bi212	1.13E-03	8.67E-04	6.58E-07	6.05E-07	6.08E-07	6.12E-07	6.16E-07
bi213	1.63E-02	1.63E-02	1.76E-02	1.89E-02	2.02E-02	2.15E-02	2.28E-02
bi214	1.00E-01	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
po210	1.00E-01	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	2.43E-05	2.44E-05	2.47E-05	2.51E-05	2.55E-05	2.59E-05	2.63E-05
po212	7.26E-04	5.55E-04	4.22E-07	3.87E-07	3.90E-07	3.92E-07	3.95E-07
po213	1.60E-02	1.60E-02	1.72E-02	1.85E-02	1.97E-02	2.10E-02	2.23E-02
po214	1.00E-01	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
po215	8.85E-03	8.85E-03	8.99E-03	9.14E-03	9.28E-03	9.43E-03	9.57E-03
po216	1.13E-03	8.67E-04	6.58E-07	6.05E-07	6.08E-07	6.12E-07	6.16E-07
po218	1.00E-01	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
at217	1.63E-02	1.63E-02	1.76E-02	1.89E-02	2.02E-02	2.15E-02	2.28E-02
rn218	9.09E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	8.85E-03	8.85E-03	8.99E-03	9.14E-03	9.28E-03	9.43E-03	9.57E-03
rn220	1.13E-03	8.67E-04	6.58E-07	6.05E-07	6.08E-07	6.12E-07	6.16E-07
rn222	1.00E-01	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
fr221	1.63E-02	1.63E-02	1.76E-02	1.89E-02	2.02E-02	2.15E-02	2.28E-02
fr223	1.22E-04	1.22E-04	1.24E-04	1.26E-04	1.28E-04	1.30E-04	1.32E-04
ra222	9.09E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	8.85E-03	8.85E-03	8.99E-03	9.14E-03	9.28E-03	9.43E-03	9.57E-03
ra224	1.13E-03	8.67E-04	6.58E-07	6.05E-07	6.08E-07	6.12E-07	6.16E-07
ra225	1.63E-02	1.63E-02	1.76E-02	1.89E-02	2.02E-02	2.15E-02	2.28E-02
ra226	1.00E-01	1.01E-01	1.06E-01	1.11E-01	1.16E-01	1.21E-01	1.26E-01
ra228	1.15E-07	1.15E-07	1.21E-07	1.28E-07	1.34E-07	1.41E-07	1.48E-07
ac225	1.63E-02	1.63E-02	1.76E-02	1.89E-02	2.02E-02	2.15E-02	2.28E-02
ac227	8.85E-03	8.85E-03	8.99E-03	9.14E-03	9.28E-03	9.43E-03	9.57E-03
ac228	1.15E-07	1.15E-07	1.21E-07	1.28E-07	1.34E-07	1.41E-07	1.48E-07
th226	9.09E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	8.73E-03	8.73E-03	8.87E-03	9.01E-03	9.16E-03	9.30E-03	9.44E-03
th228	1.13E-03	8.67E-04	6.58E-07	6.05E-07	6.08E-07	6.12E-07	6.16E-07
th229	1.63E-02	1.63E-02	1.76E-02	1.89E-02	2.02E-02	2.15E-02	2.28E-02
th230	1.12E-01	1.12E-01	1.17E-01	1.23E-01	1.28E-01	1.33E-01	1.38E-01
th231	5.80E-02	1.58E-02	1.59E-02	1.60E-02	1.60E-02	1.61E-02	1.62E-02

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Part E 5000 year criticality at 2.182 kw/package actinides page 146
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
th232	1.15E-07	1.15E-07	1.21E-07	1.28E-07	1.34E-07	1.41E-07	1.48E-07
th233	5.33E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa231	8.84E-03	8.85E-03	8.99E-03	9.13E-03	9.28E-03	9.42E-03	9.56E-03
pa232	1.08E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	3.85E-01	3.85E-01	3.85E-01	3.85E-01	3.85E-01	3.85E-01	3.85E-01
pa234m	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa234	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	9.09E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

u231	1.62E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	1.13E-03	8.43E-04	5.35E-07	4.77E-07	4.74E-07	4.71E-07	4.68E-07
u233	3.05E-02	3.06E-02	3.21E-02	3.36E-02	3.51E-02	3.66E-02	3.81E-02
u234	6.95E-01	6.95E-01	6.94E-01	6.92E-01	6.91E-01	6.89E-01	6.88E-01
u235	1.58E-02	1.58E-02	1.59E-02	1.60E-02	1.60E-02	1.61E-02	1.62E-02
u236	1.31E-01	1.31E-01	1.31E-01	1.32E-01	1.33E-01	1.33E-01	1.33E-01
u237	3.01E+00	1.48E-05	3.15E-08	2.90E-08	2.67E-08	2.46E-08	2.27E-08
u238	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
u239	6.70E+01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	1.11E-12	1.11E-12	1.17E-12	1.24E-12	1.30E-12	1.36E-12	1.42E-12
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	5.50E-07	2.60E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	1.06E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	5.42E-06	5.42E-06	5.39E-06	5.36E-06	5.33E-06	5.29E-06	5.26E-06
np237	3.85E-01	3.85E-01	3.85E-01	3.85E-01	3.85E-01	3.85E-01	3.85E-01
np238	2.97E+00	9.25E-06	7.85E-08	5.76E-10	4.22E-12	3.09E-14	2.27E-16
np239	6.74E+01	4.39E-01	4.01E-01	3.65E-01	3.32E-01	3.02E-01	2.75E-01
np240m	1.11E-12	1.11E-12	1.17E-12	1.24E-12	1.30E-12	1.36E-12	1.42E-12
np240	1.06E-06	1.33E-15	1.41E-15	1.48E-15	1.56E-15	1.63E-15	1.71E-15
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	5.16E-05	5.22E-07	4.80E-07	4.77E-07	4.74E-07	4.71E-07	4.68E-07
pu237	5.91E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	2.98E+00	2.35E+00	1.12E-03	5.19E-07	9.68E-10	6.05E-12	4.39E-14
pu239	9.56E+01	9.56E+01	9.29E+01	9.03E+01	8.78E+01	8.53E+01	8.29E+01
pu240	2.33E+01	2.32E+01	2.10E+01	1.89E+01	1.70E+01	1.53E+01	1.37E+01
pu241	2.63E+00	6.18E-01	1.32E-03	1.21E-03	1.12E-03	1.03E-03	9.50E-04
pu242	2.67E-01	2.67E-01	2.66E-01	2.66E-01	2.65E-01	2.65E-01	2.64E-01
pu243	3.73E-01	2.90E-09	2.90E-09	2.90E-09	2.90E-09	2.90E-09	2.90E-09
pu244	1.11E-12	1.11E-12	1.17E-12	1.24E-12	1.30E-12	1.36E-12	1.43E-12
pu245	1.00E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	2.76E-17	2.76E-17	2.65E-17	2.55E-17	2.45E-17	2.35E-17	2.26E-17
am239	2.21E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	2.21E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	2.67E+00	2.61E+00	5.56E-01	1.13E-01	2.37E-02	5.60E-03	1.90E-03
am242m	2.38E-03	2.05E-03	1.75E-05	1.28E-07	9.37E-10	6.87E-12	5.04E-14
am242	1.46E-02	2.05E-03	1.74E-05	1.27E-07	9.33E-10	6.84E-12	5.01E-14
am243	4.41E-01	4.39E-01	4.01E-01	3.65E-01	3.32E-01	3.02E-01	2.75E-01
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	1.59E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	1.03E-12	1.64E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	2.76E-17	2.76E-17	2.65E-17	2.55E-17	2.45E-17	2.35E-17	2.26E-17
cm241	2.59E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package actinides page 147
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cm242	1.21E-02	1.69E-03	1.44E-05	1.05E-07	7.72E-10	5.66E-12	4.15E-14
cm243	4.74E-09	2.28E-09	1.30E-19	3.54E-30	.00E+00	.00E+00	.00E+00
cm244	1.59E-02	5.05E-03	3.71E-19	.00E+00	.00E+00	.00E+00	.00E+00
cm245	1.43E-03	1.42E-03	1.31E-03	1.21E-03	1.12E-03	1.03E-03	9.48E-04
cm246	7.45E-05	7.42E-05	6.44E-05	5.56E-05	4.80E-05	4.15E-05	3.58E-05
cm247	2.90E-09	2.90E-09	2.90E-09	2.90E-09	2.90E-09	2.90E-09	2.90E-09
cm248	7.99E-09	7.99E-09	7.98E-09	7.96E-09	7.94E-09	7.93E-09	7.91E-09
cm249	2.30E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	1.10E-16	1.10E-16	1.06E-16	1.02E-16	9.80E-17	9.41E-17	9.05E-17
cm251	2.70E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	2.30E-09	1.13E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	3.26E-14	1.54E-17	1.49E-17	1.43E-17	1.37E-17	1.32E-17	1.27E-17

bk251	2.71E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	2.24E-09	2.11E-09	3.10E-10	4.29E-11	5.94E-12	8.22E-13	1.14E-13
cf250	2.53E-12	5.14E-13	1.49E-17	1.43E-17	1.37E-17	1.32E-17	1.27E-17
cf251	2.17E-15	2.12E-15	1.00E-15	4.64E-16	2.14E-16	9.91E-17	4.58E-17
cf252	5.42E-17	2.09E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	5.05E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	2.28E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	5.03E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	6.85E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	2.72E+02	1.29E+02	1.19E+02	1.14E+02	1.09E+02	1.05E+02	1.01E+02

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Part E 5000 year criticality at 2.182 kw/package fission products page 165
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =BBW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
h 3	1.05E-02	1.95E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 7	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 9	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 10	8.35E-07	8.35E-07	8.35E-07	8.35E-07	8.34E-07	8.34E-07	8.34E-07
c 14	3.47E-06	3.46E-06	3.07E-06	2.72E-06	2.41E-06	2.14E-06	1.89E-06
ni 66	5.95E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	5.98E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 67	7.69E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 68	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69	2.58E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	2.09E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 70	9.52E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71	1.23E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	5.28E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71	1.37E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	6.85E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	2.01E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	1.14E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	3.12E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	3.98E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	3.99E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 73	1.22E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	1.32E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	7.26E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	1.23E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	1.25E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73m	1.23E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	2.53E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	9.25E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cu 74	9.75E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	3.21E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	9.86E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 75	5.16E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	4.23E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	1.32E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	7.94E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	9.55E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	9.61E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	5.10E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 76	1.69E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	1.11E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 166

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =BBW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
zn 76	1.86E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	2.72E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 76	3.86E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 77	3.76E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	6.43E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	2.26E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	5.54E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	2.10E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	5.67E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	6.59E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77m	2.17E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	7.45E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	2.41E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	2.77E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	1.18E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	1.94E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	1.97E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 79	6.07E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	1.41E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	1.32E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	3.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	3.78E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.30E-01	1.30E-01	1.27E-01	1.25E-01	1.22E-01	1.20E-01	1.17E-01
se 79m	3.74E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79m	1.01E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	2.53E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	6.74E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	4.91E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	9.67E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	9.06E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	1.03E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80	1.16E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	2.87E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cu 81	6.76E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	1.10E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	6.29E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	9.63E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	1.48E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	1.55E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	1.07E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 81	2.24E-08	2.24E-08	2.23E-08	2.23E-08	2.22E-08	2.21E-08	2.20E-08
kr 81m	5.32E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	2.65E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	4.54E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 167
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
ge 82	9.55E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	1.54E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	5.82E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82	6.02E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	5.11E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 83	1.21E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	4.58E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	4.14E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	2.48E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	1.80E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	1.98E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	3.90E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83m	3.90E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	4.95E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	2.75E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	1.82E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	7.21E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	7.40E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	1.88E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 85	7.19E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	4.68E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	1.09E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	3.49E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	3.07E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	8.38E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	1.83E-01	2.63E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85m	8.39E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 86	9.95E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	6.27E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	8.53E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	1.04E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	1.87E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86	4.08E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	3.24E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 87	1.05E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

as 87	3.95E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	5.07E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	1.35E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	1.70E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	6.33E-06	6.33E-06	6.33E-06	6.33E-06	6.33E-06	6.33E-06	6.33E-06
sr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 87m	1.21E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	1.69E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	1.82E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	2.67E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 168

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=1.897&E+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88# 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
br 88	1.34E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	2.38E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	2.44E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 89	2.58E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	9.46E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	9.17E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	3.01E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	3.21E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	3.23E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89m	3.02E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	2.35E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	2.05E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	4.85E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	3.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	2.99E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	9.01E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	3.90E+00	1.86E+00	7.87E-11	1.59E-21	2.28E-32	.00E+00	.00E+00
y 90	3.91E+00	1.86E+00	7.87E-11	1.59E-21	2.28E-32	.00E+00	.00E+00
y 90m	7.27E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	1.97E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	1.69E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	2.24E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	3.85E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	4.08E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	4.08E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	2.37E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	1.48E-10	1.43E-10	5.33E-11	1.92E-11	6.94E-12	2.50E-12	9.03E-13
se 92	1.57E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	2.79E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	1.18E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	3.36E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	4.22E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	4.26E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	2.80E-11	2.80E-11	2.80E-11	2.80E-11	2.80E-11	2.80E-11	2.80E-11
se 93	1.11E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	5.43E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	4.00E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	2.67E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sr 93	4.63E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	3.14E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	3.53E-01	3.53E-01	3.53E-01	3.52E-01	3.52E-01	3.52E-01	3.52E-01
nb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 93m	3.53E-01	3.53E-01	3.53E-01	3.52E-01	3.52E-01	3.52E-01	3.52E-01
br 94	3.46E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	1.79E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	1.36E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 169

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =BBW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sr 94	4.54E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	4.88E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 94	4.15E-05	4.14E-05	4.01E-05	3.87E-05	3.74E-05	3.62E-05	3.49E-05
nb 94m	2.16E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	3.82E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	1.44E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	6.50E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	4.08E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	4.99E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	5.07E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	5.06E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	5.63E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 96	8.56E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	2.61E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 96	1.64E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	2.96E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	4.76E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 96	1.22E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 97	3.38E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	4.94E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	1.52E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	3.88E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	4.70E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	4.72E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	4.46E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 98	1.20E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	4.06E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	6.02E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	2.87E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	4.91E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	4.95E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	3.25E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 98	1.23E-06	1.23E-06	1.23E-06	1.23E-06	1.23E-06	1.23E-06	1.23E-06
nb 99	1.20E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	2.59E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	1.83E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	4.78E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	3.09E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	2.11E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	5.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

tc 99	3.77E+00	3.77E+00	3.75E+00	3.74E+00	3.73E+00	3.72E+00	3.71E+00
tc 99m	4.64E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100	3.62E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	2.81E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	5.32E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package fission products page 170

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
zr100	4.80E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	5.14E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	3.39E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc100	8.22E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	2.98E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	4.52E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	3.06E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	2.68E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	4.44E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	4.65E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	4.65E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr102	8.38E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	1.61E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	1.93E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	3.65E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	4.21E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	4.22E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	3.82E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh102	1.39E-05	1.07E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	5.79E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	4.94E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	6.60E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	2.51E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	3.76E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	3.83E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	3.85E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103m	3.84E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	1.81E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	9.59E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	1.78E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	1.03E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	2.70E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	2.84E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104	2.12E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	1.55E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y105	1.21E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	6.66E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	3.97E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	1.84E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	2.16E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ru105	2.18E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	2.18E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	6.20E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 171

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =68w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
y106	2.16E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	2.10E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	5.79E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	8.82E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	1.34E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	1.49E+00	1.98E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	1.49E+00	1.98E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	6.55E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag106	2.18E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	1.97E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	2.06E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	9.33E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	3.12E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	8.25E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	1.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	1.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	2.68E-02	2.68E-02	2.68E-02	2.68E-02	2.68E-02	2.68E-02	2.68E-02
pd107m	8.24E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr108	8.52E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	2.71E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	3.60E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	2.43E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	6.08E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	6.20E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	1.19E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108	2.35E-04	1.70E-07	8.54E-10	3.64E-12	1.55E-14	6.61E-17	2.82E-19
ag108m	2.30E-06	1.96E-06	9.82E-09	4.18E-11	1.78E-13	7.60E-16	3.24E-18
cd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr109	6.88E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	1.19E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	3.81E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	8.18E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	4.31E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	5.13E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	2.56E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	6.01E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	3.37E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109m	6.01E-01	1.74E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	2.35E-08	1.74E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	5.44E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	4.30E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	1.08E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	1.23E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	2.53E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	1.49E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ag110	3.03E-01	1.01E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	1.20E-02	7.41E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 172
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =BBW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb111	4.97E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	4.67E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	2.21E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	3.96E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	8.63E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	9.32E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	4.92E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	9.40E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	9.36E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111m	1.39E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb112	1.86E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	7.70E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	4.50E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	1.47E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	3.72E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	4.70E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	4.71E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo113	1.60E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	1.25E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	5.13E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	1.88E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	2.87E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	2.79E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	5.62E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	1.08E-14	1.08E-14	1.08E-14	1.08E-14	1.08E-14	1.08E-14	1.08E-14
cd113m	6.61E-04	1.51E-04	2.98E-25	.00E+00	.00E+00	.00E+00	.00E+00
in113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113m	3.11E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	8.22E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	2.15E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	2.16E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	1.06E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	2.48E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	2.58E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114	7.45E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	5.61E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo115	3.69E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	7.99E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	5.39E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	4.66E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	1.59E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	1.25E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	5.24E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	1.77E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	8.30E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12
in115m	1.77E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 173

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sn115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc116	3.43E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	1.91E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	2.60E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	1.92E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	2.18E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	2.54E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116	3.56E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	1.34E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc117	4.24E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	2.99E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	9.97E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	1.25E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	1.06E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	1.06E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	1.86E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	4.19E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	1.38E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	1.70E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117m	1.11E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	1.26E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	4.88E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	2.40E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	6.05E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	1.04E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	7.35E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	1.79E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	1.79E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	2.08E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru119	6.46E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	9.35E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	3.66E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	1.27E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	1.30E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	5.83E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	7.58E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	1.17E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119m	1.48E-04	8.19E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	8.07E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	2.02E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	1.89E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	8.18E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	1.78E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	1.80E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	2.90E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh121	5.66E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897BE+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =BBW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
pd121	8.05E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	6.00E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	1.80E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	1.60E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	1.83E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	1.97E-02	1.10E-04	5.40E-10	1.82E-15	6.13E-21	2.06E-26	6.85E-32
sn121m	2.07E-04	1.42E-04	6.96E-10	2.34E-15	7.90E-21	2.66E-26	9.13E-32
sb121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh122	6.26E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	2.67E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	3.11E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	1.94E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	2.14E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	2.04E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122	1.96E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	1.96E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh123	5.34E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	4.67E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	1.25E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	1.24E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	1.55E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	4.24E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	1.81E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	2.07E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te123	9.02E-14	9.02E-14	9.02E-14	9.02E-14	9.02E-14	9.02E-14	9.02E-14
te123m	1.26E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	2.56E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	9.91E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	1.99E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	3.58E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124	1.56E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	3.20E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd125	6.28E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	4.79E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	1.29E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	2.04E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	1.52E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	1.17E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	3.60E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	4.78E-02	2.36E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125m	1.10E-02	5.76E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	1.39E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	1.99E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	1.44E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	4.54E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	1.24E-01	1.24E-01	1.23E-01	1.22E-01	1.21E-01	1.20E-01	1.20E-01

1
Part E 5000 year criticality at 2.182 kw/package fission products page 175
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897BE+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sb126	1.79E-02	1.73E-02	1.72E-02	1.71E-02	1.70E-02	1.69E-02	1.67E-02
sb126m	1.25E-01	1.24E-01	1.23E-01	1.22E-01	1.21E-01	1.20E-01	1.20E-01
te126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag127	1.06E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	1.08E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	4.15E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	4.15E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	7.98E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	1.09E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	2.00E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	1.99E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	3.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe127	6.90E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	5.40E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	1.13E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	8.69E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	3.70E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	3.62E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	3.88E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i128	1.76E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd129	5.57E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	9.99E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	3.22E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	3.43E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	8.40E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	7.96E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	1.60E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	8.99E-03	8.99E-03	8.99E-03	8.99E-03	8.99E-03	8.99E-03	8.99E-03
xe129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe129m	3.93E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	2.11E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	7.98E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	9.59E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	2.77E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	1.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130	4.23E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	2.25E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd131	3.21E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	3.28E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	8.05E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	2.23E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	2.35E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	4.94E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	2.74E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131m	3.01E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package fission products page 176

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr

cd132	3.93E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	8.90E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	6.44E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	1.26E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	1.32E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	3.97E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	4.03E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs132	9.28E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in133	2.67E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	1.82E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	1.91E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	3.20E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	2.63E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	5.80E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	4.13E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	5.82E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	1.79E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba133	4.94E-10	6.84E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	4.45E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	2.98E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	3.60E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	2.44E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	5.38E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	6.52E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	4.84E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134m	1.01E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	1.10E+00	4.60E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	8.38E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn135	2.55E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	1.54E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	2.77E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	5.47E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	5.90E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	1.14E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	2.12E-01	2.12E-01	2.12E-01	2.11E-01	2.11E-01	2.11E-01	2.11E-01
cs135m	1.85E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135m	1.34E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	2.26E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	2.40E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	1.29E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	2.61E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	1.24E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs136	1.47E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136m	1.64E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 177
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sb137	3.11E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	4.31E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

i137	2.72E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	5.24E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	5.50E+00	2.75E+00	5.07E-10	4.67E-20	4.31E-30	.00E+00	.00E+00
ba137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137m	5.19E+00	2.59E+00	4.78E-10	4.41E-20	4.06E-30	.00E+00	.00E+00
sb138	3.28E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	1.01E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	1.36E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	5.08E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	5.44E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	2.00E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la138	5.51E-11	5.51E-11	5.51E-11	5.51E-11	5.51E-11	5.51E-11	5.51E-11
sb139	2.53E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	1.61E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	7.34E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	3.90E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	5.12E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	5.24E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce139	3.18E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	1.70E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	2.44E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	1.73E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	2.77E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	4.62E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	5.19E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	5.29E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr140	5.91E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	2.81E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	2.25E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	1.06E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	3.56E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	4.77E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	4.81E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	4.82E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd141	7.58E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	1.02E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	5.33E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	4.11E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	2.08E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	4.59E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	4.73E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	7.92E-06	7.92E-06	7.92E-06	7.92E-06	7.92E-06	7.92E-06	7.92E-06
pr142	1.22E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i143	7.32E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 178
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec
0
nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
xe143	6.01E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	1.10E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	4.01E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	4.58E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ce143	4.62E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	4.62E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i144	2.95E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	1.27E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	3.06E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	3.22E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	4.10E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	4.19E+00	1.11E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	4.19E+00	1.11E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	5.88E-02	1.55E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	4.16E-10	4.16E-10	4.16E-10	4.16E-10	4.16E-10	4.16E-10	4.16E-10
i145	9.24E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	1.23E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	7.20E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	1.41E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	2.81E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	3.11E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	3.11E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm145	2.04E-05	6.63E-06	2.11E-22	.00E+00	.00E+00	.00E+00	.00E+00
sm145	2.00E-05	3.98E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	1.14E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	1.74E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	7.58E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	1.85E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	2.44E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	2.45E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm146	4.11E-07	9.55E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	6.88E-08	6.88E-08	6.88E-08	6.88E-08	6.88E-08	6.88E-08	6.88E-08
xe147	3.59E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	3.52E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	1.15E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	7.66E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	1.81E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	1.90E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	1.91E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	1.91E+00	6.98E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	2.10E-06	2.10E-06	2.10E-06	2.10E-06	2.10E-06	2.10E-06	2.10E-06
cs148	6.42E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	2.24E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	2.37E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	1.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	1.44E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148	2.16E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	2.20E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package fission products page 179
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sm148	9.08E-12	9.08E-12	9.08E-12	9.08E-12	9.08E-12	9.08E-12	9.08E-12
cs149	5.32E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	2.47E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	6.61E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	6.46E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	9.63E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

nd149	1.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	1.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	1.89E-13	1.89E-13	1.89E-13	1.89E-13	1.89E-13	1.89E-13	1.89E-13
eu149	1.62E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	6.80E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	2.23E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	1.06E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	2.75E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	5.72E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm150	3.11E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu150	1.99E-06	1.12E-06	7.80E-15	3.05E-23	1.14E-31	.00E+00	.00E+00
ba151	2.26E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	1.79E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	7.55E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	2.88E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	4.78E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	4.85E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	8.00E-01	6.35E-01	3.61E-04	1.63E-07	7.36E-11	3.33E-14	1.50E-17
eu151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba152	4.85E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	1.47E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	7.09E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	8.54E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	3.07E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	3.18E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	1.06E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152	6.47E-01	1.36E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	3.51E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	1.48E-11	1.48E-11	1.48E-11	1.48E-11	1.48E-11	1.48E-11	1.48E-11
la153	1.48E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	3.55E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	3.77E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	1.72E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	2.07E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	9.61E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd153	2.02E-03	4.46E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	3.85E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	3.58E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	6.52E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	7.72E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	9.74E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	2.02E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package fission products page 180

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu154	4.84E-01	4.30E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la155	1.98E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	3.16E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	1.45E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	2.52E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	5.82E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sm155	7.19E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	7.21E-02	8.47E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce156	2.47E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	1.95E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	7.96E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	2.63E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	4.16E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	4.20E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce157	1.19E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	3.12E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	1.85E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	1.03E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	2.38E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	2.49E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr158	1.67E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	3.16E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	2.43E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	1.14E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	1.31E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr159	7.21E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	2.90E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	4.86E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	4.14E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	6.18E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	8.00E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd160	1.92E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	5.40E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	1.18E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	2.51E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb160	1.84E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd161	7.98E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	6.59E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	2.25E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	9.20E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	1.38E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	1.39E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2,182 kw/package fission products page 181
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
dy161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm162	4.47E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	3.73E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	2.44E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	6.29E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	6.42E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	1.33E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm163	2.89E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	4.57E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

gd163	2.21E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	2.59E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm164	2.17E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	5.24E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	6.55E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	9.48E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm165	1.14E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	5.75E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	1.40E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	3.29E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	4.32E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	3.27E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy166	5.96E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	6.32E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	8.91E-07	8.75E-07	5.00E-07	2.81E-07	1.57E-07	8.84E-08	4.96E-08
er166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167m	1.96E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	1.03E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170	6.47E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er171	1.39E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	1.42E-08	2.82E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er172	8.22E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	8.66E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	5.31E+02	1.50E+01	5.10E+00	5.08E+00	5.06E+00	5.05E+00	5.03E+00

1

Part E 5000 year criticality at 2.182 kw/package actinides page 185
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec
0
nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
he 4	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tl206	1.67E-07	2.31E-07	2.88E-07	3.39E-07	3.83E-07	4.22E-07	4.56E-07	4.86E-07	5.11E-07	5.33E-07	5.52E-07
tl207	9.54E-03	1.09E-02	1.21E-02	1.31E-02	1.41E-02	1.49E-02	1.55E-02	1.61E-02	1.66E-02	1.70E-02	1.74E-02
tl208	2.21E-07	2.35E-07	2.50E-07	2.66E-07	2.82E-07	2.99E-07	3.16E-07	3.33E-07	3.51E-07	3.69E-07	3.88E-07
tl209	4.79E-04	7.72E-04	1.07E-03	1.36E-03	1.64E-03	1.91E-03	2.17E-03	2.42E-03	2.65E-03	2.87E-03	3.09E-03
pb206	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb207	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb209	2.28E-02	3.68E-02	5.09E-02	6.48E-02	7.82E-02	9.10E-02	1.03E-01	1.15E-01	1.26E-01	1.37E-01	1.47E-01
pb210	1.26E-01	1.75E-01	2.18E-01	2.57E-01	2.90E-01	3.20E-01	3.46E-01	3.68E-01	3.87E-01	4.04E-01	4.18E-01
pb211	9.57E-03	1.09E-02	1.21E-02	1.32E-02	1.41E-02	1.49E-02	1.56E-02	1.62E-02	1.66E-02	1.71E-02	1.74E-02
pb212	6.16E-07	6.55E-07	6.97E-07	7.40E-07	7.85E-07	8.31E-07	8.78E-07	9.27E-07	9.76E-07	1.03E-06	1.08E-06
pb214	1.26E-01	1.75E-01	2.18E-01	2.57E-01	2.90E-01	3.20E-01	3.46E-01	3.68E-01	3.87E-01	4.04E-01	4.18E-01
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

bi209	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	1.26E-01	1.75E-01	2.18E-01	2.57E-01	2.90E-01	3.20E-01	3.46E-01	3.68E-01	3.87E-01	4.04E-01	4.18E-01	
bi211	9.57E-03	1.09E-02	1.21E-02	1.32E-02	1.41E-02	1.49E-02	1.56E-02	1.62E-02	1.66E-02	1.71E-02	1.74E-02	
bi212	6.16E-07	6.55E-07	6.97E-07	7.40E-07	7.85E-07	8.31E-07	8.78E-07	9.27E-07	9.76E-07	1.03E-06	1.08E-06	
bi213	2.28E-02	3.68E-02	5.09E-02	6.48E-02	7.82E-02	9.10E-02	1.03E-01	1.15E-01	1.26E-01	1.37E-01	1.47E-01	
bi214	1.26E-01	1.75E-01	2.18E-01	2.57E-01	2.90E-01	3.20E-01	3.46E-01	3.68E-01	3.87E-01	4.04E-01	4.18E-01	
po210	1.26E-01	1.75E-01	2.18E-01	2.57E-01	2.90E-01	3.20E-01	3.46E-01	3.68E-01	3.87E-01	4.04E-01	4.18E-01	
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	2.63E-05	3.00E-05	3.33E-05	3.62E-05	3.88E-05	4.10E-05	4.28E-05	4.44E-05	4.58E-05	4.69E-05	4.79E-05	
po212	3.95E-07	4.20E-07	4.46E-07	4.74E-07	5.03E-07	5.32E-07	5.63E-07	5.94E-07	6.25E-07	6.58E-07	6.91E-07	
po213	2.23E-02	3.60E-02	4.99E-02	6.35E-02	7.66E-02	8.91E-02	1.01E-01	1.13E-01	1.24E-01	1.34E-01	1.44E-01	
po214	1.26E-01	1.75E-01	2.18E-01	2.57E-01	2.90E-01	3.20E-01	3.46E-01	3.68E-01	3.87E-01	4.04E-01	4.18E-01	
po215	9.57E-03	1.09E-02	1.21E-02	1.32E-02	1.41E-02	1.49E-02	1.56E-02	1.62E-02	1.66E-02	1.71E-02	1.74E-02	
po216	6.16E-07	6.55E-07	6.97E-07	7.40E-07	7.85E-07	8.31E-07	8.78E-07	9.27E-07	9.76E-07	1.03E-06	1.08E-06	
po218	1.26E-01	1.75E-01	2.19E-01	2.57E-01	2.91E-01	3.20E-01	3.46E-01	3.68E-01	3.87E-01	4.04E-01	4.18E-01	
at217	2.28E-02	3.68E-02	5.09E-02	6.48E-02	7.82E-02	9.11E-02	1.03E-01	1.15E-01	1.26E-01	1.37E-01	1.47E-01	
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
rn219	9.57E-03	1.09E-02	1.21E-02	1.32E-02	1.41E-02	1.49E-02	1.56E-02	1.62E-02	1.66E-02	1.71E-02	1.74E-02	
rn220	6.16E-07	6.55E-07	6.97E-07	7.40E-07	7.85E-07	8.31E-07	8.78E-07	9.27E-07	9.76E-07	1.03E-06	1.08E-06	
rn222	1.26E-01	1.75E-01	2.19E-01	2.57E-01	2.91E-01	3.20E-01	3.46E-01	3.68E-01	3.87E-01	4.04E-01	4.18E-01	
fr221	2.28E-02	3.68E-02	5.09E-02	6.48E-02	7.82E-02	9.11E-02	1.03E-01	1.15E-01	1.26E-01	1.37E-01	1.47E-01	
fr223	1.32E-04	1.51E-04	1.67E-04	1.82E-04	1.95E-04	2.06E-04	2.15E-04	2.23E-04	2.30E-04	2.35E-04	2.40E-04	
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
ra223	9.57E-03	1.09E-02	1.21E-02	1.32E-02	1.41E-02	1.49E-02	1.56E-02	1.62E-02	1.66E-02	1.71E-02	1.74E-02	
ra224	6.16E-07	6.55E-07	6.97E-07	7.40E-07	7.85E-07	8.31E-07	8.78E-07	9.27E-07	9.76E-07	1.03E-06	1.08E-06	
ra225	2.28E-02	3.68E-02	5.09E-02	6.48E-02	7.82E-02	9.11E-02	1.03E-01	1.15E-01	1.26E-01	1.37E-01	1.47E-01	
ra226	1.26E-01	1.75E-01	2.19E-01	2.57E-01	2.91E-01	3.20E-01	3.46E-01	3.68E-01	3.87E-01	4.04E-01	4.18E-01	
ra228	1.48E-07	2.14E-07	2.82E-07	3.49E-07	4.17E-07	4.84E-07	5.52E-07	6.20E-07	6.87E-07	7.55E-07	8.22E-07	
ac225	2.28E-02	3.68E-02	5.09E-02	6.48E-02	7.82E-02	9.11E-02	1.03E-01	1.15E-01	1.26E-01	1.37E-01	1.47E-01	
ac227	9.57E-03	1.09E-02	1.21E-02	1.32E-02	1.41E-02	1.49E-02	1.56E-02	1.62E-02	1.66E-02	1.71E-02	1.74E-02	
ac228	1.48E-07	2.14E-07	2.82E-07	3.49E-07	4.17E-07	4.84E-07	5.52E-07	6.20E-07	6.87E-07	7.55E-07	8.22E-07	
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	
th227	9.44E-03	1.08E-02	1.19E-02	1.30E-02	1.39E-02	1.47E-02	1.54E-02	1.59E-02	1.64E-02	1.68E-02	1.72E-02	
th228	6.16E-07	6.55E-07	6.97E-07	7.40E-07	7.85E-07	8.31E-07	8.78E-07	9.27E-07	9.76E-07	1.03E-06	1.08E-06	
th229	2.28E-02	3.68E-02	5.09E-02	6.48E-02	7.82E-02	9.11E-02	1.03E-01	1.15E-01	1.26E-01	1.37E-01	1.47E-01	
th230	1.38E-01	1.86E-01	2.28E-01	2.65E-01	2.98E-01	3.26E-01	3.51E-01	3.73E-01	3.92E-01	4.08E-01	4.21E-01	
th231	1.62E-02	1.69E-02	1.75E-02	1.79E-02	1.81E-02	1.84E-02	1.85E-02	1.87E-02	1.88E-02	1.88E-02	1.89E-02	

1

Part E 5000 year criticality at 2.182 kw/package actinides page 186
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
th232	1.48E-07	2.14E-07	2.82E-07	3.49E-07	4.17E-07	4.84E-07	5.52E-07	6.20E-07	6.87E-07	7.55E-07	8.22E-07
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa231	9.56E-03	1.09E-02	1.21E-02	1.32E-02	1.41E-02	1.49E-02	1.56E-02	1.61E-02	1.66E-02	1.71E-02	1.74E-02
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	3.85E-01	3.83E-01	3.82E-01	3.81E-01	3.80E-01	3.79E-01	3.77E-01	3.76E-01	3.75E-01	3.74E-01	3.72E-01
pa234m	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa234	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	4.68E-07	4.41E-07	4.15E-07	3.91E-07	3.68E-07	3.46E-07	3.26E-07	3.07E-07	2.89E-07	2.72E-07	2.56E-07
u233	3.81E-02	5.29E-02	6.69E-02	8.04E-02	9.31E-02	1.05E-01	1.17E-01	1.28E-01	1.39E-01	1.49E-01	1.58E-01
u234	6.88E-01	6.73E-01	6.58E-01	6.44E-01	6.30E-01	6.17E-01	6.04E-01	5.91E-01	5.79E-01	5.67E-01	5.55E-01
u235	1.62E-02	1.69E-02	1.75E-02	1.79E-02	1.81E-02	1.84E-02	1.85E-02	1.87E-02	1.88E-02	1.88E-02	1.89E-02
u236	1.33E-01	1.36E-01	1.37E-01	1.37E-01	1.37E-01	1.37E-01	1.37E-01	1.37E-01	1.37E-01	1.37E-01	1.37E-01

u237	2.27E-08	1.00E-08	4.44E-09	1.97E-09	8.69E-10	3.85E-10	1.70E-10	7.52E-11	3.33E-11	1.47E-11	6.51E-12
u238	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	1.42E-12	2.05E-12	2.66E-12	3.25E-12	3.84E-12	4.41E-12	4.97E-12	5.52E-12	6.06E-12	6.59E-12	7.10E-12
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	5.26E-06	4.95E-06	4.66E-06	4.39E-06	4.13E-06	3.89E-06	3.66E-06	3.45E-06	3.25E-06	3.06E-06	2.88E-06
np237	3.85E-01	3.83E-01	3.82E-01	3.81E-01	3.80E-01	3.79E-01	3.77E-01	3.76E-01	3.75E-01	3.74E-01	3.72E-01
np238	2.27E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np239	2.75E-01	1.08E-01	4.20E-02	1.64E-02	6.40E-03	2.50E-03	9.75E-04	3.81E-04	1.49E-04	5.81E-05	2.27E-05
np240m	1.42E-12	2.05E-12	2.66E-12	3.25E-12	3.84E-12	4.41E-12	4.97E-12	5.52E-12	6.06E-12	6.59E-12	7.10E-12
np240	1.71E-15	2.46E-15	3.19E-15	3.90E-15	4.60E-15	5.29E-15	5.96E-15	6.62E-15	7.27E-15	7.90E-15	8.52E-15
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	4.68E-07	4.41E-07	4.15E-07	3.91E-07	3.68E-07	3.46E-07	3.26E-07	3.07E-07	2.89E-07	2.72E-07	2.56E-07
pu237	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	4.39E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu239	8.29E+01	6.22E+01	4.67E+01	3.50E+01	2.63E+01	1.97E+01	1.48E+01	1.11E+01	8.32E+00	6.24E+00	4.68E+00
pu240	1.37E+01	4.78E+00	1.66E+00	5.78E-01	2.01E-01	6.99E-02	2.43E-02	8.45E-03	2.94E-03	1.02E-03	3.55E-04
pu241	9.50E-04	4.20E-04	1.86E-04	8.22E-05	3.64E-05	1.61E-05	7.12E-06	3.15E-06	1.39E-06	6.16E-07	2.72E-07
pu242	2.64E-01	2.59E-01	2.55E-01	2.50E-01	2.45E-01	2.41E-01	2.36E-01	2.32E-01	2.28E-01	2.24E-01	2.19E-01
pu243	2.90E-09	2.89E-09	2.89E-09	2.89E-09	2.89E-09	2.89E-09	2.89E-09	2.89E-09	2.89E-09	2.88E-09	2.88E-09
pu244	1.43E-12	2.05E-12	2.66E-12	3.26E-12	3.84E-12	4.41E-12	4.98E-12	5.53E-12	6.07E-12	6.59E-12	7.11E-12
pu245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	2.26E-17	1.52E-17	1.02E-17	6.84E-18	4.60E-18	3.09E-18	2.07E-18	1.39E-18	9.34E-19	6.27E-19	4.21E-19
am239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	1.90E-03	4.20E-04	1.86E-04	8.22E-05	3.64E-05	1.61E-05	7.12E-06	3.15E-06	1.39E-06	6.16E-07	2.72E-07
am242m	5.04E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am242	5.01E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am243	2.75E-01	1.08E-01	4.20E-02	1.64E-02	6.40E-03	2.50E-03	9.75E-04	3.81E-04	1.49E-04	5.81E-05	2.27E-05
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	2.26E-17	1.52E-17	1.02E-17	6.84E-18	4.60E-18	3.09E-18	2.07E-18	1.39E-18	9.34E-19	6.27E-19	4.21E-19
cm241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package actinides page 187

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
cm242	4.15E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm243	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	9.48E-04	4.20E-04	1.86E-04	8.21E-05	3.63E-05	1.61E-05	7.11E-06	3.14E-06	1.39E-06	6.15E-07	2.72E-07
cm246	3.58E-05	8.28E-06	1.91E-06	4.42E-07	1.02E-07	2.36E-08	5.45E-09	1.26E-09	2.91E-10	6.72E-11	1.55E-11
cm247	2.90E-09	2.89E-09	2.89E-09	2.89E-09	2.89E-09	2.89E-09	2.89E-09	2.89E-09	2.89E-09	2.88E-09	2.88E-09
cm248	7.91E-09	7.75E-09	7.60E-09	7.44E-09	7.29E-09	7.15E-09	7.00E-09	6.86E-09	6.72E-09	6.59E-09	6.45E-09
cm249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	9.05E-17	6.07E-17	4.08E-17	2.74E-17	1.84E-17	1.23E-17	8.25E-18	5.56E-18	3.73E-18	2.51E-18	1.68E-18
cm251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	1.27E-17	8.50E-18	5.71E-18	3.83E-18	2.57E-18	1.73E-18	1.16E-18	7.79E-19	5.23E-19	3.51E-19	2.36E-19
bk251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	1.14E-13	2.92E-22	7.53E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf250	1.27E-17	8.50E-18	5.71E-18	3.83E-18	2.57E-18	1.73E-18	1.16E-18	7.79E-19	5.23E-19	3.51E-19	2.36E-19
cf251	4.58E-17	2.03E-20	9.04E-24	4.01E-27	1.78E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf252	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cf254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	1.01E+02	7.17E+01	5.35E+01	4.12E+01	3.25E+01	2.62E+01	2.16E+01	1.82E+01	1.57E+01	1.38E+01	1.25E+01

1

Part E 5000 year criticality at 2.182 kw/package fission products page 205

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=1.897&E+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
h 3	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 7	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 9	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 10	8.34E-07	8.30E-07	8.26E-07	8.23E-07	8.19E-07	8.16E-07	8.12E-07	8.09E-07	8.05E-07	8.02E-07	7.98E-07
c 14	1.89E-06	5.65E-07	1.68E-07	5.02E-08	1.50E-08	4.47E-09	1.33E-09	3.97E-10	1.18E-10	3.53E-11	1.05E-11
ni 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 68	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cu 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 206

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
zn 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.17E-01	9.50E-02	7.70E-02	6.24E-02	5.06E-02	4.10E-02	3.32E-02	2.69E-02	2.18E-02	1.77E-02	1.43E-02
se 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

se 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 81	2.20E-08	2.13E-08	2.07E-08	2.00E-08	1.94E-08	1.87E-08	1.81E-08	1.76E-08	1.70E-08	1.64E-08	1.59E-08
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 207

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
ge 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	6.33E-06	6.33E-06	6.33E-06	6.33E-06	6.33E-06	6.33E-06	6.33E-06	6.33E-06	6.33E-06	6.33E-06	6.33E-06
sr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 208

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	9.03E-13	3.38E-17	1.26E-21	4.73E-26	1.76E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	2.80E-11	2.80E-11	2.80E-11	2.80E-11	2.80E-11	2.80E-11	2.80E-11	2.80E-11	2.80E-11	2.80E-11	2.80E-11
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	3.52E-01	3.50E-01	3.49E-01	3.47E-01	3.46E-01	3.44E-01	3.42E-01	3.41E-01	3.39E-01	3.38E-01	3.36E-01
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93m	3.52E-01	3.50E-01	3.49E-01	3.47E-01	3.46E-01	3.44E-01	3.42E-01	3.41E-01	3.39E-01	3.38E-01	3.36E-01
br 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

kr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 209

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897BE+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =BBW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	3.49E-05	2.48E-05	1.77E-05	1.25E-05	8.92E-06	6.34E-06	4.50E-06	3.20E-06	2.28E-06	1.62E-06	1.15E-06
rb 94m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 98	1.23E-06	1.23E-06	1.23E-06	1.22E-06	1.22E-06	1.22E-06	1.22E-06	1.22E-06	1.21E-06	1.21E-06	1.21E-06
nb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	3.71E+00	3.59E+00	3.47E+00	3.36E+00	3.25E+00	3.14E+00	3.04E+00	2.94E+00	2.85E+00	2.76E+00	2.67E+00
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 210

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =8kW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	2.68E-02	2.68E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.66E-02	2.66E-02	2.66E-02	2.66E-02	2.66E-02
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108	2.82E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108m	3.24E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package fission products page 212
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
cd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	1.08E-14	1.08E-14	1.08E-14	1.08E-14	1.08E-14	1.08E-14	1.08E-14	1.08E-14	1.08E-14	1.08E-14	1.08E-14
cd113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12
in115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package fission products page 213

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr

sn115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package fission products page 214

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	6.85E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121m	9.13E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te123	9.02E-14	9.02E-14	9.02E-14	9.02E-14	9.02E-14	9.02E-14	9.02E-14	9.02E-14	9.02E-14	9.02E-14	9.02E-14
te123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	1.20E-01	1.12E-01	1.04E-01	9.71E-02	9.06E-02	8.46E-02	7.89E-02	7.36E-02	6.87E-02	6.41E-02	5.98E-02

1

Part E 5000 year criticality at 2.182 kw/package fission products page 215

decay, following reactor irradiation identified by: power= 1.059E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sb126	1.67E-02	1.56E-02	1.46E-02	1.36E-02	1.27E-02	1.18E-02	1.10E-02	1.03E-02	9.62E-03	8.97E-03	8.37E-03
sb126m	1.20E-01	1.12E-01	1.04E-01	9.71E-02	9.06E-02	8.46E-02	7.89E-02	7.36E-02	6.87E-02	6.41E-02	5.98E-02
te126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ag127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	8.99E-03	8.99E-03	8.98E-03	8.98E-03	8.98E-03	8.97E-03	8.97E-03	8.96E-03	8.96E-03	8.96E-03	8.95E-03
xe129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 216
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	2.11E-01	2.11E-01	2.10E-01	2.09E-01	2.09E-01	2.08E-01	2.08E-01	2.07E-01	2.06E-01	2.06E-01	2.05E-01
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 217

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =BBW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sb137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

te138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la138	5.51E-11	5.51E-11	5.51E-11	5.51E-11	5.51E-11	5.51E-11	5.51E-11	5.51E-11	5.51E-11	5.51E-11	5.51E-11
sb139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	7.92E-06	7.92E-06	7.92E-06	7.92E-06	7.92E-06	7.92E-06	7.92E-06	7.92E-06	7.92E-06	7.92E-06	7.92E-06
pr142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 218

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ba144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	4.16E-10	4.16E-10	4.16E-10	4.16E-10	4.16E-10	4.16E-10	4.16E-10	4.16E-10	4.16E-10	4.16E-10	4.16E-10
i145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	6.88E-08	6.88E-08	6.88E-08	6.88E-08	6.87E-08	6.87E-08	6.87E-08	6.87E-08	6.87E-08	6.87E-08	6.87E-08
xe147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	2.10E-06	2.10E-06	2.10E-06	2.10E-06	2.10E-06	2.10E-06	2.10E-06	2.10E-06	2.10E-06	2.10E-06	2.10E-06
cs148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 219

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sm148	9.08E-12	9.08E-12	9.08E-12	9.08E-12	9.08E-12	9.08E-12	9.08E-12	9.08E-12	9.08E-12	9.08E-12	9.08E-12
cs149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	1.85E-13	1.85E-13	1.85E-13	1.85E-13	1.85E-13	1.85E-13	1.85E-13	1.85E-13	1.85E-13	1.85E-13	1.85E-13
eu149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

la150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	1.50E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	1.48E-11	1.48E-11	1.48E-11	1.48E-11	1.48E-11	1.48E-11	1.48E-11	1.48E-11	1.48E-11	1.48E-11	1.48E-11
la153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 220

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897E+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =8&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial 35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 221

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.897GE+02mwd, flux= 2.90E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	35000. yr	45000. yr	55000. yr	65000. yr	75000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
dy161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	4.96E-08	1.54E-10	4.76E-13	1.48E-15	4.58E-18	1.42E-20	4.39E-23	1.36E-25	4.22E-28	1.30E-30	.00E+00
er166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	5.03E+00	4.87E+00	4.71E+00	4.57E+00	4.43E+00	4.30E+00	4.17E+00	4.05E+00	3.94E+00	3.83E+00	3.72E+00

1

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Part C 10000 year criticality at 2.182 kw/package actinides page 145
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795ZE+02mwd, flux= 2.93E+09n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
he 4	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tl206	1.66E-07	1.66E-07	1.72E-07	2.33E-07	2.94E-07	4.11E-07	4.89E-07	5.05E-07	5.33E-07	5.56E-07	5.76E-07
tl207	1.42E-02	1.42E-02	1.42E-02	1.46E-02	1.50E-02	1.59E-02	1.67E-02	1.70E-02	1.73E-02	1.75E-02	1.77E-02
tl208	6.57E-04	5.02E-04	2.92E-07	2.70E-07	2.83E-07	3.12E-07	3.44E-07	3.60E-07	3.77E-07	3.95E-07	4.13E-07
tl209	4.76E-04	4.77E-04	5.03E-04	7.62E-04	1.06E-03	1.64E-03	2.17E-03	2.42E-03	2.66E-03	2.88E-03	3.10E-03
pb206	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb207	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pb209	2.27E-02	2.27E-02	2.40E-02	3.63E-02	5.05E-02	7.80E-02	1.03E-01	1.15E-01	1.27E-01	1.37E-01	1.48E-01
pb210	1.25E-01	1.25E-01	1.30E-01	1.76E-01	2.23E-01	3.12E-01	3.70E-01	3.83E-01	4.03E-01	4.21E-01	4.36E-01
pb211	1.42E-02	1.42E-02	1.42E-02	1.46E-02	1.50E-02	1.59E-02	1.67E-02	1.70E-02	1.73E-02	1.76E-02	1.78E-02
pb212	1.83E-03	1.40E-03	8.11E-07	7.51E-07	7.88E-07	8.69E-07	9.57E-07	1.00E-06	1.05E-06	1.10E-06	1.15E-06
pb214	1.25E-01	1.26E-01	1.30E-01	1.76E-01	2.23E-01	3.12E-01	3.70E-01	3.83E-01	4.04E-01	4.21E-01	4.36E-01
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	1.25E-01	1.25E-01	1.30E-01	1.76E-01	2.23E-01	3.12E-01	3.70E-01	3.83E-01	4.03E-01	4.21E-01	4.36E-01

bi211	1.42E-02	1.42E-02	1.42E-02	1.46E-02	1.50E-02	1.59E-02	1.67E-02	1.70E-02	1.73E-02	1.76E-02	1.78E-02
bi212	1.83E-03	1.40E-03	8.11E-07	7.51E-07	7.88E-07	8.69E-07	9.57E-07	1.00E-06	1.05E-06	1.10E-06	1.15E-06
bi213	2.27E-02	2.27E-02	2.40E-02	3.63E-02	5.05E-02	7.80E-02	1.03E-01	1.15E-01	1.27E-01	1.37E-01	1.48E-01
bi214	1.25E-01	1.26E-01	1.30E-01	1.76E-01	2.23E-01	3.12E-01	3.70E-01	3.83E-01	4.04E-01	4.21E-01	4.36E-01
po210	1.25E-01	1.25E-01	1.30E-01	1.76E-01	2.23E-01	3.12E-01	3.70E-01	3.83E-01	4.03E-01	4.21E-01	4.36E-01
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	3.90E-05	3.90E-05	3.91E-05	4.01E-05	4.14E-05	4.38E-05	4.59E-05	4.68E-05	4.78E-05	4.83E-05	4.89E-05
po212	1.17E-03	8.95E-04	5.20E-07	4.81E-07	5.05E-07	5.57E-07	6.13E-07	6.42E-07	6.73E-07	7.04E-07	7.36E-07
po213	2.22E-02	2.22E-02	2.35E-02	3.55E-02	4.94E-02	7.64E-02	1.01E-01	1.13E-01	1.24E-01	1.34E-01	1.44E-01
po214	1.25E-01	1.26E-01	1.30E-01	1.76E-01	2.23E-01	3.12E-01	3.70E-01	3.83E-01	4.03E-01	4.21E-01	4.36E-01
po215	1.42E-02	1.42E-02	1.42E-02	1.46E-02	1.50E-02	1.59E-02	1.67E-02	1.70E-02	1.73E-02	1.76E-02	1.78E-02
po216	1.83E-03	1.40E-03	8.11E-07	7.51E-07	7.88E-07	8.69E-07	9.57E-07	1.00E-06	1.05E-06	1.10E-06	1.15E-06
po218	1.25E-01	1.26E-01	1.30E-01	1.76E-01	2.23E-01	3.12E-01	3.71E-01	3.83E-01	4.04E-01	4.21E-01	4.36E-01
at217	2.27E-02	2.27E-02	2.40E-02	3.63E-02	5.05E-02	7.80E-02	1.03E-01	1.15E-01	1.27E-01	1.37E-01	1.48E-01
rn218	1.50E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	1.42E-02	1.42E-02	1.42E-02	1.46E-02	1.50E-02	1.59E-02	1.67E-02	1.70E-02	1.73E-02	1.76E-02	1.78E-02
rn220	1.83E-03	1.40E-03	8.11E-07	7.51E-07	7.88E-07	8.69E-07	9.57E-07	1.00E-06	1.05E-06	1.10E-06	1.15E-06
rn222	1.25E-01	1.26E-01	1.30E-01	1.76E-01	2.23E-01	3.12E-01	3.71E-01	3.83E-01	4.04E-01	4.21E-01	4.36E-01
fr221	2.27E-02	2.27E-02	2.40E-02	3.63E-02	5.05E-02	7.80E-02	1.03E-01	1.15E-01	1.27E-01	1.37E-01	1.48E-01
fr223	1.96E-04	1.96E-04	1.96E-04	2.01E-04	2.08E-04	2.20E-04	2.31E-04	2.35E-04	2.39E-04	2.42E-04	2.45E-04
ra222	1.50E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	1.42E-02	1.42E-02	1.42E-02	1.46E-02	1.50E-02	1.59E-02	1.67E-02	1.70E-02	1.73E-02	1.76E-02	1.78E-02
ra224	1.83E-03	1.40E-03	8.11E-07	7.51E-07	7.88E-07	8.69E-07	9.57E-07	1.00E-06	1.05E-06	1.10E-06	1.15E-06
ra225	2.27E-02	2.27E-02	2.40E-02	3.63E-02	5.05E-02	7.80E-02	1.03E-01	1.15E-01	1.27E-01	1.37E-01	1.48E-01
ra226	1.25E-01	1.26E-01	1.30E-01	1.76E-01	2.23E-01	3.12E-01	3.71E-01	3.83E-01	4.04E-01	4.21E-01	4.36E-01
ra228	1.48E-07	1.48E-07	1.54E-07	2.15E-07	2.84E-07	4.22E-07	5.61E-07	6.30E-07	6.99E-07	7.68E-07	8.37E-07
ac225	2.27E-02	2.27E-02	2.40E-02	3.63E-02	5.05E-02	7.80E-02	1.03E-01	1.15E-01	1.27E-01	1.37E-01	1.48E-01
ac227	1.42E-02	1.42E-02	1.42E-02	1.46E-02	1.50E-02	1.59E-02	1.67E-02	1.70E-02	1.73E-02	1.76E-02	1.78E-02
ac228	1.48E-07	1.48E-07	1.54E-07	2.15E-07	2.84E-07	4.22E-07	5.61E-07	6.30E-07	6.99E-07	7.68E-07	8.37E-07
th226	1.50E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	1.40E-02	1.40E-02	1.40E-02	1.44E-02	1.48E-02	1.57E-02	1.65E-02	1.68E-02	1.71E-02	1.73E-02	1.75E-02
th228	1.83E-03	1.40E-03	8.11E-07	7.51E-07	7.88E-07	8.69E-07	9.57E-07	1.00E-06	1.05E-06	1.10E-06	1.15E-06
th229	2.27E-02	2.27E-02	2.40E-02	3.63E-02	5.05E-02	7.80E-02	1.03E-01	1.15E-01	1.27E-01	1.37E-01	1.48E-01
th230	1.37E-01	1.37E-01	1.42E-01	1.88E-01	2.33E-01	3.08E-01	3.65E-01	3.88E-01	4.08E-01	4.25E-01	4.39E-01
th231	6.86E-02	1.59E-02	1.60E-02	1.66E-02	1.72E-02	1.79E-02	1.83E-02	1.85E-02	1.86E-02	1.86E-02	1.87E-02

1

Part C 10000 year criticality at 2.182 kw/package actinides page 146
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
th232	1.48E-07	1.48E-07	1.54E-07	2.15E-07	2.84E-07	4.22E-07	5.61E-07	6.30E-07	6.99E-07	7.68E-07	8.37E-07
th233	7.00E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa231	1.42E-02	1.42E-02	1.42E-02	1.46E-02	1.50E-02	1.59E-02	1.67E-02	1.70E-02	1.73E-02	1.76E-02	1.78E-02
pa232	1.77E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	3.86E-01	3.88E-01	3.88E-01	3.87E-01	3.86E-01	3.84E-01	3.81E-01	3.80E-01	3.79E-01	3.77E-01	3.76E-01
pa234m	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
pa234	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04	1.93E-04
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	1.50E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	2.04E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	1.83E-03	1.36E-03	6.55E-07	5.36E-07	5.04E-07	4.47E-07	3.96E-07	3.73E-07	3.51E-07	3.31E-07	3.11E-07
u233	3.74E-02	3.74E-02	3.89E-02	5.23E-02	6.66E-02	9.31E-02	1.17E-01	1.28E-01	1.39E-01	1.49E-01	1.59E-01
u234	7.24E-01	7.24E-01	7.23E-01	7.09E-01	6.93E-01	6.63E-01	6.35E-01	6.22E-01	6.09E-01	5.96E-01	5.83E-01
u235	1.59E-02	1.59E-02	1.60E-02	1.66E-02	1.72E-02	1.79E-02	1.83E-02	1.85E-02	1.86E-02	1.86E-02	1.87E-02
u236	1.35E-01	1.35E-01	1.36E-01	1.39E-01	1.40E-01	1.40E-01	1.40E-01	1.40E-01	1.40E-01	1.40E-01	1.40E-01
u237	3.16E+00	1.19E-05	1.95E-08	9.28E-09	4.10E-09	8.08E-10	1.57E-10	6.95E-11	3.08E-11	1.36E-11	6.02E-12
u238	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01	1.49E-01
u239	6.85E+01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

u240	1.45E-12	1.45E-12	1.52E-12	2.18E-12	2.89E-12	4.26E-12	5.59E-12	6.23E-12	6.86E-12	7.47E-12	8.07E-12
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	5.68E-07	2.68E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	1.10E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	6.39E-06	6.39E-06	6.35E-06	6.00E-06	5.67E-06	5.02E-06	4.45E-06	4.19E-06	3.95E-06	3.72E-06	3.50E-06
np237	3.88E-01	3.88E-01	3.88E-01	3.87E-01	3.86E-01	3.84E-01	3.81E-01	3.80E-01	3.79E-01	3.77E-01	3.76E-01
np238	3.07E+00	7.57E-06	6.43E-08	3.92E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np239	6.90E+01	4.05E-01	3.73E-01	1.60E-01	6.25E-02	9.52E-03	1.45E-03	5.67E-04	2.21E-04	8.64E-05	3.37E-05
np240m	1.45E-12	1.45E-12	1.52E-12	2.18E-12	2.89E-12	4.26E-12	5.59E-12	6.23E-12	6.86E-12	7.47E-12	8.07E-12
np240	1.10E-06	1.74E-15	1.83E-15	2.61E-15	3.46E-15	5.12E-15	6.70E-15	7.47E-15	8.23E-15	8.97E-15	9.69E-15
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	5.33E-05	6.10E-07	5.65E-07	5.36E-07	5.04E-07	4.47E-07	3.96E-07	3.73E-07	3.51E-07	3.31E-07	3.11E-07
pu237	5.50E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	3.08E+00	2.43E+00	1.15E-03	1.92E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu239	8.69E+01	8.68E+01	8.44E+01	6.52E+01	4.90E+01	2.76E+01	1.55E+01	1.16E+01	8.73E+00	6.55E+00	4.91E+00
pu240	1.84E+01	1.83E+01	1.65E+01	6.39E+00	2.22E+00	2.69E-01	3.25E-02	1.13E-02	3.93E-03	1.37E-03	4.75E-04
pu241	2.12E+00	4.98E-01	8.09E-04	3.88E-04	1.72E-04	3.36E-05	6.58E-06	2.91E-06	1.29E-06	5.69E-07	2.52E-07
pu242	2.61E-01	2.61E-01	2.60E-01	2.56E-01	2.51E-01	2.42E-01	2.33E-01	2.29E-01	2.25E-01	2.21E-01	2.17E-01
pu243	3.73E-01	2.85E-09	2.85E-09	2.84E-09	2.84E-09	2.84E-09	2.84E-09	2.84E-09	2.84E-09	2.83E-09	2.83E-09
pu244	1.45E-12	1.44E-12	1.53E-12	2.18E-12	2.89E-12	4.27E-12	5.59E-12	6.24E-12	6.86E-12	7.48E-12	8.08E-12
pu245	1.34E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	2.26E-17	2.26E-17	2.17E-17	1.52E-17	1.02E-17	4.59E-18	2.07E-18	1.39E-18	9.34E-19	6.27E-19	4.21E-19
am239	1.81E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	1.81E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	2.14E+00	2.09E+00	4.44E-01	3.88E-04	1.72E-04	3.36E-05	6.58E-06	2.91E-06	1.29E-06	5.69E-07	2.52E-07
am242m	1.95E-03	1.68E-03	1.43E-05	8.72E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am242	1.20E-02	1.67E-03	1.42E-05	8.68E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am243	4.10E-01	4.09E-01	3.73E-01	1.60E-01	6.25E-02	9.52E-03	1.45E-03	5.67E-04	2.21E-04	8.64E-05	3.37E-05
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	1.52E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	1.38E-12	1.94E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	2.26E-17	2.26E-17	2.17E-17	1.52E-17	1.02E-17	4.59E-18	2.07E-18	1.39E-18	9.34E-19	6.27E-19	4.21E-19
cm241	2.23E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package actinides page 147
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
cm242	9.92E-03	1.38E-03	1.18E-05	7.20E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm243	3.98E-09	1.92E-09	1.09E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm244	1.52E-02	4.81E-03	3.53E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	8.76E-04	8.74E-04	8.08E-04	3.88E-04	1.71E-04	3.35E-05	6.56E-06	2.90E-06	1.28E-06	5.68E-07	2.51E-07
cm246	5.18E-05	5.16E-05	4.47E-05	1.20E-05	2.76E-06	1.48E-07	7.88E-09	1.82E-09	4.20E-10	9.71E-11	2.24E-11
cm247	2.85E-09	2.85E-09	2.85E-09	2.84E-09	2.84E-09	2.84E-09	2.84E-09	2.84E-09	2.84E-09	2.83E-09	2.83E-09
cm248	9.23E-09	9.23E-09	9.21E-09	9.04E-09	8.86E-09	8.51E-09	8.17E-09	8.00E-09	7.84E-09	7.68E-09	7.53E-09
cm249	2.72E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	9.05E-17	9.03E-17	8.69E-17	6.07E-17	4.08E-17	1.84E-17	8.28E-18	5.56E-18	3.73E-18	2.51E-18	1.68E-18
cm251	2.27E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	2.72E-09	1.34E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	3.95E-14	1.26E-17	1.22E-17	8.50E-18	5.71E-18	2.57E-18	1.16E-18	7.79E-19	5.23E-19	3.51E-19	2.36E-19
bk251	2.27E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	2.65E-09	2.50E-09	3.68E-10	6.83E-18	1.76E-26	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf250	3.07E-12	6.26E-13	1.22E-17	8.50E-18	5.71E-18	2.57E-18	1.16E-18	7.79E-19	5.23E-19	3.51E-19	2.36E-19
cf251	2.51E-15	2.46E-15	1.16E-15	1.12E-18	4.96E-22	9.80E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf252	6.43E-17	2.48E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	6.13E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	2.74E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	6.11E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	8.51E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	2.61E+02	1.15E+02	1.06E+02	7.66E+01	5.65E+01	3.41E+01	2.26E+01	1.89E+01	1.63E+01	1.44E+01	1.30E+01

1

Part C 10000 year criticality at 2.182 kw/package fission products page 165
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
h 3	1.05E-02	1.94E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 7	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 9	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
be 10	8.50E-07	8.50E-07	8.50E-07	8.47E-07	8.43E-07	8.36E-07	8.29E-07	8.25E-07	8.21E-07	8.18E-07	8.14E-07
c 14	2.40E-06	2.39E-06	2.13E-06	7.16E-07	2.14E-07	1.90E-08	1.69E-09	5.04E-10	1.50E-10	4.48E-11	1.34E-11
ni 66	5.71E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	5.73E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 67	7.46E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 68	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69	2.44E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	1.98E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 70	8.93E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71	1.18E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	5.02E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71	1.28E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	6.40E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	2.00E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	1.12E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	3.08E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	3.86E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	3.87E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 73	1.24E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	1.32E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	7.19E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	1.21E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	1.23E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73m	1.21E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	2.59E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	9.38E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	9.75E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	3.19E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	9.74E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 75	5.29E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	4.32E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	1.33E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	7.98E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	9.54E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	9.59E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ge	75m	5.08E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as	75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni	76	1.73E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu	76	1.13E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 166
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =68W 15x15, 3.00wt%, 20gwd/mtu /per assem

		initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
zn	76	1.88E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga	76	2.74E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge	76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as	76	4.03E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se	76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni	77	3.85E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu	77	6.55E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn	77	2.29E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga	77	5.56E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge	77	2.10E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge	77m	5.70E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as	77	6.61E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se	77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se	77m	2.18E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni	78	7.63E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu	78	2.46E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn	78	2.81E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga	78	1.18E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge	78	1.93E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as	78	1.95E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se	78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu	79	6.22E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn	79	1.44E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga	79	1.35E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge	79	3.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as	79	3.77E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se	79	1.21E-01	1.21E-01	1.18E-01	9.80E-02	7.94E-02	5.22E-02	3.43E-02	2.78E-02	2.25E-02	1.82E-02	1.48E-02
se	79m	3.74E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br	79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br	79m	9.63E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr	79	5.72E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu	80	6.90E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn	80	5.01E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga	80	9.74E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge	80	9.12E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as	80	1.03E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se	80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br	80	1.42E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br	80m	3.52E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr	80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu	81	6.92E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn	81	1.13E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga	81	6.35E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge	81	9.73E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as	81	1.48E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se	81	1.56E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se	81m	1.07E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br	81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr	81	4.99E-08	4.99E-08	4.98E-08	4.83E-08	4.68E-08	4.38E-08	4.11E-08	3.98E-08	3.85E-08	3.73E-08	3.61E-08
kr	81m	1.21E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

zn 82	2.72E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 82	4.66E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 167

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795ZE+02mwd, flux= 2.93E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
ge 82	9.73E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	1.56E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	5.86E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82	6.19E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	5.31E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 83	1.24E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	4.69E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	4.22E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	2.52E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	1.82E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	2.01E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	3.94E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83m	3.94E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	5.10E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	2.82E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	1.85E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	7.32E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	7.51E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	1.89E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 85	7.37E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	4.80E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	1.11E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	3.55E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	3.12E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	8.50E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	1.86E-01	2.67E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85m	8.51E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 86	1.02E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	6.43E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	8.70E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	1.06E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	1.89E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86	4.25E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	3.39E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 87	1.08E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	4.06E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	5.18E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	1.38E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	1.73E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	6.46E-06	6.46E-06	6.46E-06	6.46E-06	6.46E-06	6.46E-06	6.46E-06	6.46E-06	6.46E-06	6.46E-06	6.46E-06
sr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 87m	1.30E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	1.74E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	1.87E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	2.73E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1
Part C 10000 year criticality at 2.182 kw/package fission products page 168
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795ZE+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
br 88	1.37E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	2.42E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	2.48E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 89	2.65E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	9.71E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	9.36E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	3.07E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	3.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	3.29E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89m	3.07E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	2.45E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	2.10E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	4.94E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	3.32E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	3.05E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	9.11E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	3.97E+00	1.90E+00	8.00E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	3.98E+00	1.90E+00	8.01E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	7.58E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	2.02E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	1.74E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	2.29E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	3.91E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	4.15E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	4.15E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	2.40E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	1.90E-10	1.86E-10	6.86E-11	7.12E-15	2.66E-19	3.72E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 92	1.61E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	2.86E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	1.21E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	3.41E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	4.28E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	4.31E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	6.03E-11	6.03E-11	6.03E-11	6.02E-11	6.02E-11	6.02E-11	6.02E-11	6.02E-11	6.02E-11	6.01E-11	6.01E-11
se 93	1.14E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	5.40E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	4.10E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	2.71E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	4.68E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	3.17E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	3.59E-01	3.59E-01	3.59E-01	3.57E-01	3.56E-01	3.52E-01	3.49E-01	3.48E-01	3.46E-01	3.45E-01	3.43E-01
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93m	3.59E-01	3.59E-01	3.59E-01	3.57E-01	3.56E-01	3.52E-01	3.49E-01	3.48E-01	3.46E-01	3.45E-01	3.43E-01
br 94	3.54E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	1.83E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	1.38E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part C 10000 year criticality at 2.182 kw/package fission products page 169

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795ZE+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25000. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sr 94	4.58E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	4.92E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 94	7.39E-05	7.38E-05	7.14E-05	5.25E-05	3.73E-05	1.88E-05	9.52E-06	6.77E-06	4.81E-06	3.42E-06	2.43E-06
nb 94m	2.77E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	3.91E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	1.48E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	6.60E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	4.10E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	5.03E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	5.10E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	5.09E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	5.66E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 96	8.77E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	2.67E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 96	1.68E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	3.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	4.79E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 96	1.17E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 97	3.46E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	5.07E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	1.54E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	3.90E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	4.71E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	4.73E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	4.47E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 98	1.23E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	4.15E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	6.14E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	2.90E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	4.92E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	4.95E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	3.14E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 98	1.28E-06	1.28E-06	1.28E-06	1.28E-06	1.28E-06	1.27E-06	1.27E-06	1.27E-06	1.26E-06	1.26E-06	1.26E-06
nb 99	1.23E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	2.66E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	1.86E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	4.79E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	3.10E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	2.11E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	5.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	3.78E+00	3.78E+00	3.77E+00	3.66E+00	3.54E+00	3.31E+00	3.10E+00	3.00E+00	2.91E+00	2.81E+00	2.72E+00
tc 99m	4.64E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100	3.70E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	2.86E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	5.37E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
zr100	4.82E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100	5.15E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb100m	3.26E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc100	8.44E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb101	3.05E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	4.63E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	3.13E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	2.69E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb101	4.44E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	4.64E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	4.65E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr102	8.61E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	1.66E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	1.95E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb102	3.65E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	4.19E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	4.19E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	3.66E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh102	1.44E-05	1.10E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	5.93E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	5.08E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	6.67E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb103	2.50E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	3.69E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	3.77E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	3.79E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103m	3.78E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	1.86E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	9.79E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	1.81E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb104	1.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	2.64E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	2.77E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104	2.20E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	1.61E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y105	1.24E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	6.83E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb105	3.95E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	1.78E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	2.08E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	2.11E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	2.11E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	6.00E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part C 10000 year criticality at 2.182 kw/package fission products page 171

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795ZE+02mwd, flux= 2.93E+08n/cm**2-sec

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basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

initial 25030. yr 26000. yr 35000. yr 45000. yr 65000. yr 85000. yr 95000. yr 105000. yr 115000. yr 125000. yr

y106	2.21E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	2.14E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb106	5.73E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	8.56E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	1.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	1.42E+00	1.89E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	1.42E+00	1.89E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	6.14E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag106	2.80E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	2.02E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	2.11E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb107	9.29E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	3.03E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	7.82E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	9.66E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	9.69E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	2.73E-02	2.73E-02	2.73E-02	2.73E-02	2.72E-02	2.72E-02	2.71E-02	2.71E-02	2.71E-02	2.70E-02	2.70E-02
pd107m	8.61E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr108	8.71E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb108	2.74E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	3.54E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	2.31E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	5.73E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	5.84E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	1.11E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108	3.01E-04	1.76E-07	8.85E-10	4.11E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108m	2.39E-06	2.03E-06	1.02E-08	4.72E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr109	7.04E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb109	1.20E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	3.75E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	7.75E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	4.04E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	4.80E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	2.40E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	5.72E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	3.34E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109m	5.73E-01	3.68E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	4.98E-08	3.68E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb110	5.55E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	4.34E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	1.04E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	1.17E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	2.37E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	1.41E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110	3.14E-01	1.05E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	1.24E-02	7.68E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 172
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
cd110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb111	5.08E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

mo111	4.75E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	2.18E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	3.80E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	8.18E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	8.84E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	4.62E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	8.91E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	8.87E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111m	1.50E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb112	1.91E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	7.87E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	4.53E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	1.44E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	3.58E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	4.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	4.51E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo113	1.64E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	1.27E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	5.15E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	1.85E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	2.79E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	2.72E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	5.46E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	9.09E-15	9.09E-15	9.09E-15	9.09E-15	9.09E-15	9.09E-15	9.09E-15	9.09E-15	9.09E-15	9.09E-15	9.09E-15
cd113m	6.56E-04	1.50E-04	2.93E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113m	2.89E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	8.42E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	2.19E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	2.18E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	1.05E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	2.41E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	2.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114	7.78E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	5.86E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo115	3.77E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	8.18E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	5.49E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	4.66E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	1.56E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	1.23E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	5.10E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	1.74E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	8.15E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12	3.25E-12
in115m	1.74E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 173
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =68W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sn115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc116	3.51E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	1.95E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	2.61E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pd116	1.89E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	2.14E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	2.43E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116	3.65E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	1.37E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc117	4.34E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	3.05E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	1.00E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	1.23E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	1.03E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	1.03E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	1.80E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	4.03E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	1.33E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	1.64E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117m	1.14E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	1.29E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	4.99E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	2.44E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	6.03E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	1.02E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	7.23E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	1.75E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	1.75E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	1.95E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru119	6.61E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	9.55E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	3.68E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	1.25E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	1.27E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	5.67E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	7.38E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	1.15E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119m	1.49E-04	8.28E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	8.26E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	2.06E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	1.91E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	8.12E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	1.74E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	1.77E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	2.75E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh121	5.79E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 174

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795E+02mwd, flux= 2.93E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00w%, 20gwd/mtu /per assem

	initial	25000. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
pd121	8.20E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	6.00E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	1.77E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	1.53E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	1.80E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	1.94E-02	1.05E-04	5.16E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn121m	1.97E-04	1.35E-04	6.65E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh122	6.40E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	2.73E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	3.11E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	1.90E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	2.09E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	1.95E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122	2.05E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	2.05E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh123	5.44E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	4.77E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	1.26E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	1.23E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	1.51E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	4.14E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	1.78E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	2.03E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te123	9.43E-14	9.43E-14	9.43E-14	9.43E-14	9.43E-14	9.43E-14	9.43E-14	9.43E-14	9.43E-14	9.43E-14	9.43E-14
te123m	1.35E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	2.62E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	9.99E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	1.97E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	3.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124	1.62E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	3.22E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd125	6.43E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	4.85E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	1.28E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	1.99E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	1.48E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	1.14E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	3.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	4.65E-02	2.29E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125m	1.07E-02	5.59E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	1.42E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	1.96E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	1.43E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	4.38E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	1.23E-01	1.22E-01	1.22E-01	1.14E-01	1.07E-01	9.28E-02	8.08E-02	7.54E-02	7.04E-02	6.56E-02	6.13E-02

1

Part C 10000 year criticality at 2.182 kw/package fission products page 175
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795ZE+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00w%, 20gwd/mtu /per assem

	initial	25000. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sb126	1.77E-02	1.71E-02	1.70E-02	1.60E-02	1.49E-02	1.30E-02	1.13E-02	1.06E-02	9.85E-03	9.19E-03	8.58E-03
sb126m	1.23E-01	1.22E-01	1.22E-01	1.14E-01	1.07E-01	9.28E-02	8.08E-02	7.54E-02	7.04E-02	6.56E-02	6.13E-02
te126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag127	1.08E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	1.09E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	4.06E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	4.06E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn127	7.68E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	1.06E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	1.93E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	1.93E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	3.39E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe127	7.41E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	5.53E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	1.15E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	8.76E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	3.65E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	3.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	3.83E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i128	1.84E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd129	5.69E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	1.01E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	3.18E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	3.42E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	8.29E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	7.85E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	1.58E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	9.17E-03	9.17E-03	9.17E-03	9.17E-03	9.16E-03	9.15E-03	9.14E-03	9.14E-03	9.14E-03	9.13E-03	9.13E-03	9.13E-03
xe129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe129m	4.22E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	2.16E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	8.09E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	9.64E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	2.71E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	1.27E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130	4.40E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	2.34E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd131	3.28E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	3.35E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	8.13E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	2.23E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	2.35E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	4.82E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	2.73E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131m	2.99E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 176

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795E+02mwd, flux= 2.93E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
cd132	4.02E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	9.11E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	6.50E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	1.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	1.33E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	3.96E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	4.01E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs132	9.67E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

in133	2.73E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	1.86E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	1.94E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	3.21E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	2.64E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	5.80E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	4.07E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	5.82E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	1.78E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba133	4.62E-10	6.40E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	4.55E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	3.05E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	3.68E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	2.48E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	5.43E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	6.53E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	4.69E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134m	9.74E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	1.15E+00	4.79E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	8.73E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn135	2.61E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	1.57E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	2.79E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	5.47E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	5.89E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	1.13E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	2.20E-01	2.20E-01	2.20E-01	2.19E-01	2.19E-01	2.17E-01	2.16E-01	2.15E-01	2.15E-01	2.14E-01	2.13E-01
cs135m	1.98E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135m	1.44E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	2.32E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	2.46E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	1.31E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	2.63E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	1.24E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs136	1.53E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136m	1.71E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 177

decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795E+02mwd, flux= 2.93E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gcd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sb137	3.21E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	4.40E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	2.74E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	5.25E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	5.49E+00	2.75E+00	5.06E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137m	5.19E+00	2.59E+00	4.78E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	3.36E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	1.03E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	1.37E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	5.10E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	5.45E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cs138m	1.95E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la138	5.62E-11	5.62E-11	5.62E-11	5.62E-11	5.62E-11	5.62E-11	5.62E-11	5.62E-11	5.62E-11	5.62E-11	5.62E-11
sb139	2.59E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	1.65E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	7.49E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	3.94E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	5.15E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	5.26E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce139	3.18E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	1.77E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	2.50E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	1.77E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	2.82E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	4.65E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	5.21E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	5.31E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr140	6.17E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	2.87E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	2.30E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	1.07E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	3.58E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	4.79E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	4.82E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	4.83E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd141	7.87E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	1.05E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	5.47E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	4.20E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	2.11E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	4.61E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	4.75E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	8.07E-06	8.07E-06	8.07E-06	8.07E-06	8.07E-06	8.07E-06	8.07E-06	8.07E-06	8.07E-06	8.07E-06	8.07E-06
pr142	1.28E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i143	7.49E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 178

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec

0 nuclide radioactivity, curies

basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
xe143	6.15E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	1.12E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	4.05E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	4.61E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	4.65E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	4.65E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i144	3.00E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	1.30E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	3.12E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	3.26E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	4.14E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	4.22E+00	1.12E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	4.22E+00	1.12E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pr144m	5.92E-02	1.57E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	4.26E-10	4.26E-10	4.26E-10	4.26E-10	4.26E-10	4.26E-10	4.26E-10	4.26E-10	4.26E-10	4.26E-10	4.26E-10
i145	9.46E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	1.26E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	7.34E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	1.43E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	2.83E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	3.13E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	3.13E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm145	2.13E-05	6.93E-06	2.20E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	2.09E-05	4.16E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	1.16E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	1.79E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	7.76E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	1.88E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	2.45E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	2.46E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm146	4.28E-07	9.96E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	7.64E-08	7.64E-08	7.64E-08	7.64E-08	7.64E-08	7.64E-08	7.64E-08	7.64E-08	7.64E-08	7.64E-08	7.64E-08
xe147	3.68E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	3.60E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	1.17E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	7.76E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	1.82E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	1.90E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	1.92E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	1.92E+00	7.00E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	2.14E-06	2.14E-06	2.14E-06	2.14E-06	2.14E-06	2.14E-06	2.14E-06	2.14E-06	2.14E-06	2.14E-06	2.14E-06
cs148	6.57E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	2.29E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	2.41E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	1.28E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	1.45E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148	2.19E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	2.20E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 179
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =BW 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sm148	9.34E-12	9.34E-12	9.34E-12	9.34E-12	9.34E-12	9.34E-12	9.34E-12	9.34E-12	9.34E-12	9.34E-12	9.34E-12
cs149	5.45E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	2.53E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	6.74E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	6.52E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	9.63E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	1.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	1.02E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	1.67E-13	1.67E-13	1.67E-13	1.67E-13	1.67E-13	1.67E-13	1.67E-13	1.67E-13	1.67E-13	1.67E-13	1.67E-13
eu149	1.58E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	6.96E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	2.29E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	1.08E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	2.78E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	5.71E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pm150	2.91E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu150	1.95E-06	1.09E-06	7.62E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	2.32E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	1.83E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	7.66E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	2.87E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	4.74E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	4.80E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	8.06E-01	6.40E-01	3.64E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba152	4.98E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	1.50E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	7.17E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	8.50E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	3.08E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	3.13E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	1.08E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152	6.32E-01	1.33E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	3.43E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	2.85E-11	2.85E-11	2.85E-11	2.85E-11	2.85E-11	2.85E-11	2.85E-11	2.85E-11	2.85E-11	2.85E-11	2.85E-11	2.85E-11
la153	1.51E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	3.62E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	3.80E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	1.70E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	2.04E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	9.80E-01	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd153	3.99E-03	8.80E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	3.94E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	3.66E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	6.57E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	7.60E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	9.54E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	1.93E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 180
decay, following reactor irradiation identified by: power= 1.089E-04mw, burnup=3.795E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88w 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu154	5.08E-01	4.52E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la155	2.00E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	3.24E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	1.47E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	2.49E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	5.66E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	6.98E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	7.00E-02	8.23E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce156	2.53E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	1.99E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	7.91E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	2.54E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	3.98E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	4.03E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

gd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce157	1.22E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	3.18E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	1.86E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	1.00E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	2.27E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	2.38E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr158	1.71E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	3.20E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	2.37E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	1.09E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	1.25E-02	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr159	7.38E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	2.96E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	4.78E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	3.95E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	5.86E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	7.74E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd160	1.96E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	5.36E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	1.12E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	2.37E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb160	1.92E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd161	8.15E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	6.64E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	2.17E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	8.67E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	1.30E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	1.31E-03	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 181
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.795ZE+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide radioactivity, curies
basis =88W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
dy161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm162	4.54E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	3.66E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	2.31E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	5.89E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	6.01E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	1.24E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm163	2.87E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	4.32E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	2.07E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	2.42E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm164	2.18E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	4.98E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	6.13E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	8.85E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm165	1.16E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

eu165	5.56E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	1.32E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	3.08E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	4.49E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	3.40E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy166	5.55E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	6.77E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	1.00E-06	9.87E-07	5.64E-07	3.11E-09	9.65E-12	9.27E-17	8.90E-22	2.76E-24	8.55E-27	2.65E-29	9.13E-32
er166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er167m	1.83E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	9.55E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170	6.01E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er171	1.30E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	1.32E-08	2.62E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er172	7.67E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	8.08E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	5.33E+02	1.51E+01	5.12E+00	4.97E+00	4.81E+00	4.52E+00	4.26E+00	4.14E+00	4.02E+00	3.91E+00	3.80E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 81

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
he 4	4.81E+00	5.62E+00	8.60E+00	1.20E+01	1.64E+01	2.01E+01	2.33E+01	2.62E+01	2.89E+01	3.13E+01	3.24E+01
tl206	9.52E-19	1.54E-18	6.83E-18	2.46E-17	7.84E-17	1.44E-16	2.13E-16	2.82E-16	3.51E-16	4.19E-16	4.52E-16
tl207	6.23E-13	7.73E-13	1.57E-12	3.06E-12	5.99E-12	8.86E-12	1.17E-11	1.44E-11	1.71E-11	1.97E-11	2.10E-11
tl208	2.85E-13	1.06E-13	1.26E-15	5.33E-16	5.39E-16	5.46E-16	5.53E-16	5.61E-16	5.70E-16	5.79E-16	5.83E-16
tl209	2.31E-16	3.81E-16	1.90E-15	9.43E-15	4.29E-14	9.80E-14	1.71E-13	2.59E-13	3.59E-13	4.70E-13	5.28E-13
pb206	7.74E-06	1.59E-05	1.44E-04	1.12E-03	7.68E-03	2.22E-02	4.57E-02	7.83E-02	1.20E-01	1.71E-01	2.00E-01
pb207	9.84E-06	1.52E-05	6.00E-05	2.35E-04	9.26E-04	2.06E-03	3.63E-03	5.63E-03	8.04E-03	1.09E-02	1.24E-02
pb208	4.69E-04	4.75E-04	4.79E-04	4.79E-04	4.80E-04	4.80E-04	4.80E-04	4.81E-04	4.81E-04	4.81E-04	4.82E-04
pb209	9.74E-13	1.61E-12	8.02E-12	3.98E-11	1.81E-10	4.14E-10	7.23E-10	1.09E-09	1.52E-09	1.98E-09	2.23E-09
pb210	2.05E-06	3.32E-06	1.47E-05	5.30E-05	1.69E-04	3.10E-04	4.58E-04	6.08E-04	7.57E-04	9.03E-04	9.75E-04
pb211	4.82E-12	5.98E-12	1.21E-11	2.36E-11	4.63E-11	6.85E-11	9.03E-11	1.12E-10	1.32E-10	1.53E-10	1.63E-10
pb212	1.69E-10	6.29E-11	7.49E-13	3.16E-13	3.19E-13	3.24E-13	3.28E-13	3.33E-13	3.38E-13	3.43E-13	3.46E-13
pb214	5.62E-12	8.80E-12	3.43E-11	1.23E-10	3.94E-10	7.21E-10	1.07E-09	1.42E-09	1.76E-09	2.10E-09	2.27E-09
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	2.33E-07	4.71E-07	4.52E-06	4.51E-05	4.27E-04	1.51E-03	3.61E-03	6.99E-03	1.19E-02	1.84E-02	2.23E-02
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	1.26E-09	2.04E-09	9.06E-09	3.26E-08	1.04E-07	1.91E-07	2.82E-07	3.74E-07	4.66E-07	5.56E-07	6.00E-07
bi211	2.86E-13	3.55E-13	7.20E-13	1.40E-12	2.74E-12	4.06E-12	5.35E-12	6.61E-12	7.84E-12	9.05E-12	9.64E-12
bi212	1.61E-11	5.97E-12	7.10E-14	3.00E-14	3.03E-14	3.07E-14	3.11E-14	3.16E-14	3.20E-14	3.25E-14	3.28E-14
bi213	2.32E-13	3.83E-13	1.91E-12	9.48E-12	4.31E-11	9.85E-11	1.72E-10	2.61E-10	3.61E-10	4.72E-10	5.31E-10
bi214	4.17E-12	6.53E-12	2.55E-11	9.16E-11	2.92E-10	5.35E-10	7.93E-10	1.05E-09	1.31E-09	1.56E-09	1.69E-09
po210	3.49E-08	5.65E-08	2.50E-07	9.01E-07	2.87E-06	5.26E-06	7.79E-06	1.03E-05	1.29E-05	1.54E-05	1.66E-05
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	3.16E-18	3.92E-18	7.95E-18	1.55E-17	3.03E-17	4.49E-17	5.91E-17	7.31E-17	8.67E-17	1.00E-16	1.07E-16
po212	8.44E-22	3.14E-22	3.73E-24	1.57E-24	1.59E-24	1.61E-24	1.63E-24	1.66E-24	1.68E-24	1.71E-24	1.72E-24
po213	3.49E-22	5.76E-22	2.87E-21	1.43E-20	6.48E-20	1.48E-19	2.59E-19	3.92E-19	5.43E-19	7.10E-19	7.98E-19
po214	5.74E-19	8.99E-19	3.50E-18	1.26E-17	4.02E-17	7.37E-17	1.09E-16	1.45E-16	1.80E-16	2.15E-16	2.32E-16
po215	4.04E-18	5.01E-18	1.02E-17	1.98E-17	3.88E-17	5.74E-17	7.56E-17	9.34E-17	1.11E-16	1.28E-16	1.36E-16
po216	6.53E-16	2.43E-16	2.89E-18	1.22E-18	1.23E-18	1.25E-18	1.27E-18	1.28E-18	1.30E-18	1.32E-18	1.33E-18
po218	6.62E-13	1.04E-12	4.04E-12	1.45E-11	4.64E-11	8.50E-11	1.26E-10	1.67E-10	2.08E-10	2.48E-10	2.68E-10
at217	2.79E-18	4.61E-18	2.30E-17	1.14E-16	5.19E-16	1.19E-15	2.07E-15	3.14E-15	4.35E-15	5.68E-15	6.39E-15
rn218	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	9.14E-15	1.13E-14	2.30E-14	4.49E-14	8.79E-14	1.30E-13	1.71E-13	2.12E-13	2.51E-13	2.90E-13	3.09E-13
rn220	2.55E-13	9.48E-14	1.13E-15	4.76E-16	4.81E-16	4.87E-16	4.94E-16	5.01E-16	5.09E-16	5.17E-16	5.21E-16
rn222	1.20E-09	1.88E-09	7.31E-09	2.63E-08	8.39E-08	1.54E-07	2.28E-07	3.02E-07	3.76E-07	4.49E-07	4.84E-07
fr221	2.59E-14	4.27E-14	2.13E-13	1.06E-12	4.81E-12	1.10E-11	1.92E-11	2.91E-11	4.03E-11	5.27E-11	5.92E-11
fr223	4.24E-14	5.27E-14	1.07E-13	2.08E-13	4.08E-13	6.03E-13	7.95E-13	9.82E-13	1.17E-12	1.34E-12	1.43E-12
ra222	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	2.32E-09	2.88E-09	5.85E-09	1.14E-08	2.23E-08	3.30E-08	4.35E-08	5.38E-08	6.38E-08	7.36E-08	7.84E-08
ra224	1.48E-09	5.49E-10	6.53E-12	2.76E-12	2.79E-12	2.82E-12	2.86E-12	2.90E-12	2.95E-12	2.99E-12	3.02E-12
ra225	1.15E-10	1.89E-10	9.43E-10	4.68E-09	2.13E-08	4.87E-08	8.50E-08	1.29E-07	1.79E-07	2.33E-07	2.62E-07
ra226	1.86E-04	2.92E-04	1.14E-03	4.09E-03	1.31E-02	2.39E-02	3.54E-02	4.70E-02	5.85E-02	6.98E-02	7.53E-02
ra228	6.71E-12	8.40E-12	1.70E-11	3.46E-11	7.19E-11	1.11E-10	1.52E-10	1.95E-10	2.39E-10	2.83E-10	3.06E-10
ac225	7.74E-11	1.28E-10	6.37E-10	3.16E-09	1.44E-08	3.29E-08	5.74E-08	8.70E-08	1.21E-07	1.58E-07	1.77E-07
ac227	1.64E-06	2.04E-06	4.14E-06	8.07E-06	1.58E-05	2.34E-05	3.08E-05	3.81E-05	4.52E-05	5.21E-05	5.55E-05
ac228	8.19E-16	1.03E-15	2.07E-15	4.23E-15	8.77E-15	1.36E-14	1.86E-14	2.38E-14	2.91E-14	3.46E-14	3.73E-14
th226	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	3.82E-09	4.74E-09	9.61E-09	1.87E-08	3.67E-08	5.43E-08	7.15E-08	8.83E-08	1.05E-07	1.21E-07	1.29E-07
th228	2.87E-07	1.07E-07	1.27E-09	5.35E-10	5.42E-10	5.48E-10	5.56E-10	5.64E-10	5.73E-10	5.82E-10	5.86E-10
th229	2.27E-05	3.75E-05	1.87E-04	9.27E-04	4.21E-03	9.63E-03	1.68E-02	2.55E-02	3.53E-02	4.62E-02	5.19E-02
th230	1.13E-01	1.43E-01	2.95E-01	5.98E-01	1.19E+00	1.77E+00	2.34E+00	2.89E+00	3.44E+00	3.96E+00	4.22E+00
th231	2.57E-08	2.58E-08	2.59E-08	2.62E-08	2.68E-08	2.73E-08	2.78E-08	2.82E-08	2.87E-08	2.91E-08	2.93E-08

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 82

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
th232	1.67E-02	2.09E-02	4.22E-02	8.61E-02	1.79E-01	2.77E-01	3.79E-01	4.85E-01	5.94E-01	7.04E-01	7.61E-01
th233	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06
pa231	2.71E-03	3.32E-03	6.34E-03	1.23E-02	2.42E-02	3.58E-02	4.71E-02	5.83E-02	6.91E-02	7.97E-02	8.49E-02
pa232	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	1.08E-05	1.19E-05	1.55E-05	1.78E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05
pa234m	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10
pa234	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	1.04E-05	3.85E-06	4.62E-08	1.95E-08	1.92E-08	1.90E-08	1.88E-08	1.85E-08	1.83E-08	1.81E-08	1.80E-08
u233	2.99E-02	4.06E-02	1.06E-01	2.64E-01	6.03E-01	9.41E-01	1.28E+00	1.61E+00	1.94E+00	2.26E+00	2.43E+00
u234	1.09E+02	1.10E+02	1.11E+02	1.10E+02	1.10E+02	1.09E+02	1.09E+02	1.08E+02	1.08E+02	1.07E+02	1.07E+02
u235	6.33E+03	6.34E+03	6.37E+03	6.44E+03	6.58E+03	6.71E+03	6.83E+03	6.95E+03	7.06E+03	7.16E+03	7.21E+03
u236	1.44E+03	1.45E+03	1.48E+03	1.54E+03	1.64E+03	1.72E+03	1.79E+03	1.84E+03	1.89E+03	1.92E+03	1.94E+03
u237	2.28E-12	2.22E-12	2.13E-12	1.96E-12	1.67E-12	1.41E-12	1.20E-12	1.02E-12	8.67E-13	7.37E-13	6.79E-13
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05
u239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	2.39E-20	2.98E-20	5.96E-20	1.19E-19	2.38E-19	3.56E-19	4.74E-19	5.91E-19	7.07E-19	8.24E-19	8.82E-19
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	3.70E-04	3.70E-04	3.68E-04	3.66E-04	3.62E-04	3.58E-04	3.53E-04	3.49E-04	3.45E-04	3.41E-04	3.39E-04
np237	3.17E+02	3.51E+02	4.57E+02	5.25E+02	5.42E+02	5.42E+02	5.42E+02	5.41E+02	5.41E+02	5.41E+02	5.41E+02
np238	1.10E-08	6.72E-09	5.76E-10	4.22E-12	2.27E-16	1.22E-20	6.54E-25	3.51E-29	1.89E-33	8.80E-38	.00E+00
np239	8.36E-06	8.28E-06	7.90E-06	7.19E-06	5.96E-06	4.94E-06	4.09E-06	3.39E-06	2.81E-06	2.33E-06	2.12E-06
np240m	2.04E-22	2.55E-22	5.09E-22	1.02E-21	2.03E-21	3.04E-21	4.04E-21	5.04E-21	6.04E-21	7.03E-21	7.52E-21
np240	2.10E-24	2.62E-24	5.24E-24	1.05E-23	2.09E-23	3.12E-23	4.16E-23	5.19E-23	6.21E-23	7.23E-23	7.74E-23
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	8.30E-10	8.30E-10	8.27E-10	8.22E-10	8.12E-10	8.02E-10	7.93E-10	7.83E-10	7.74E-10	7.65E-10	7.60E-10
pu237	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	1.35E+00	6.23E-01	1.53E-02	1.74E-05	1.67E-09	8.99E-14	4.83E-18	2.60E-22	1.39E-26	7.49E-31	2.94E-33
pu239	2.60E+03	2.59E+03	2.56E+03	2.49E+03	2.35E+03	2.22E+03	2.10E+03	1.98E+03	1.87E+03	1.77E+03	1.72E+03
pu240	6.46E+02	6.39E+02	6.06E+02	5.45E+02	4.41E+02	3.57E+02	2.89E+02	2.34E+02	1.90E+02	1.53E+02	1.38E+02
pu241	7.54E-05	7.32E-05	7.03E-05	6.48E-05	5.50E-05	4.67E-05	3.97E-05	3.37E-05	2.86E-05	2.43E-05	2.24E-05
pu242	7.08E+01	7.08E+01	7.07E+01	7.06E+01	7.03E+01	7.01E+01	6.98E+01	6.96E+01	6.93E+01	6.91E+01	6.89E+01
pu243	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15	1.13E-15
pu244	1.21E-09	1.51E-09	3.02E-09	6.03E-09	1.20E-08	1.80E-08	2.40E-08	2.99E-08	3.58E-08	4.17E-08	4.46E-08
pu245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	1.23E-21	1.23E-21	1.20E-21	1.15E-21	1.07E-21	9.84E-22	9.09E-22	8.39E-22	7.75E-22	7.16E-22	6.88E-22
am239	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	2.30E+02	1.96E+02	8.77E+01	1.77E+01	7.18E-01	3.05E-02	2.43E-03	1.11E-03	9.03E-04	7.66E-04	7.04E-04
am242m	6.04E-02	3.70E-02	3.16E-03	2.32E-05	1.25E-09	6.69E-14	3.59E-18	1.93E-22	1.04E-26	5.57E-31	4.08E-33
am242	7.80E-07	4.77E-07	4.08E-08	2.99E-10	1.61E-14	8.63E-19	4.64E-23	2.49E-27	1.34E-31	7.19E-36	5.64E-38
am243	9.71E+00	9.62E+00	9.18E+00	8.36E+00	6.92E+00	5.74E+00	4.75E+00	3.94E+00	3.26E+00	2.70E+00	2.46E+00
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	3.07E-24	3.06E-24	3.00E-24	2.88E-24	2.66E-24	2.46E-24	2.27E-24	2.10E-24	1.94E-24	1.79E-24	1.72E-24
cm241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay actinides page 83

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
cm242	1.57E-04	9.63E-05	8.24E-06	6.04E-08	3.26E-12	1.75E-16	9.39E-21	5.05E-25	2.71E-29	1.46E-33	1.38E-35
cm243	3.59E-06	3.15E-07	1.65E-12	4.50E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

cm244	3.37E-07	7.32E-09	3.54E-17	8.24E-34	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	4.44E-02	4.40E-02	4.22E-02	3.89E-02	3.31E-02	2.81E-02	2.39E-02	2.03E-02	1.72E-02	1.46E-02	1.35E-02
cm246	2.83E-03	2.79E-03	2.59E-03	2.24E-03	1.67E-03	1.24E-03	9.29E-04	6.93E-04	5.17E-04	3.85E-04	3.33E-04
cm247	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05	3.24E-05
cm248	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.63E-06	1.62E-06	1.62E-06	1.61E-06	1.60E-06	1.60E-06	1.59E-06
cm249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	2.93E-15	2.92E-15	2.86E-15	2.75E-15	2.54E-15	2.35E-15	2.17E-15	2.00E-15	1.85E-15	1.71E-15	1.64E-15
cm251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	8.66E-24	8.62E-24	8.45E-24	8.12E-24	7.50E-24	6.92E-24	6.39E-24	5.90E-24	5.45E-24	5.03E-24	4.84E-24
bk251	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	8.41E-09	6.90E-09	2.57E-09	3.55E-10	6.80E-12	1.30E-13	2.49E-15	4.77E-17	9.13E-19	1.75E-20	2.42E-21
cf250	1.39E-18	3.13E-19	3.01E-19	2.90E-19	2.67E-19	2.47E-19	2.28E-19	2.10E-19	1.94E-19	1.79E-19	1.72E-19
cf251	6.27E-10	5.80E-10	3.94E-10	1.82E-10	3.89E-11	8.31E-12	1.77E-12	3.79E-13	8.10E-14	1.73E-14	7.99E-15
cf252	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 87

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
h 3	2.32E-12	8.40E-15	5.20E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05	7.49E-05
li 7	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06	2.88E-06
be 9	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06	5.54E-06
be 10	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.69E-05	3.68E-05	3.68E-05	3.68E-05	3.67E-05	3.67E-05	3.67E-05
c 14	7.12E-06	7.03E-06	6.62E-06	5.86E-06	4.60E-06	3.61E-06	2.84E-06	2.23E-06	1.75E-06	1.37E-06	1.22E-06
ni 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07	1.75E-07
cu 67	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08	2.32E-08
zn 68	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09
zn 69	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08	7.63E-08
zn 70	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06	2.03E-06
ga 70	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09	2.79E-09
zn 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05	2.00E-05
ge 71	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.30E-03

co 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03	4.09E-03
ge 73m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03	3.49E-03
co 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02	3.33E-02
ni 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 88

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
zn 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01	1.02E-01
as 76	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04	6.31E-04
ni 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01	2.33E-01
se 77m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01	7.25E-01
cu 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	1.39E+00	1.39E+00	1.37E+00	1.34E+00	1.29E+00	1.24E+00	1.18E+00	1.14E+00	1.09E+00	1.04E+00	1.02E+00
se 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 79	1.18E-02	1.47E-02	2.92E-02	5.77E-02	1.13E-01	1.66E-01	2.17E-01	2.66E-01	3.13E-01	3.57E-01	3.79E-01
br 79m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

zn 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00	3.93E+00
br 80	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05	1.50E-05
cu 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00	5.85E+00
kr 81	7.12E-07	7.11E-07	7.10E-07	7.08E-07	7.03E-07	6.99E-07	6.94E-07	6.90E-07	6.85E-07	6.81E-07	6.79E-07
kr 81m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 89

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
ge 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00	9.54E+00
br 82	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01	1.22E-01
zn 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01	1.35E+01
kr 83m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01	3.28E+01
ga 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	3.89E-11	6.05E-14	5.49E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01	3.46E+01
ge 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

br 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01	5.55E+01
rb 86	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02	6.45E-02
ge 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01	7.25E+01
sr 87	3.07E-04	3.07E-04	3.07E-04	3.08E-04	3.11E-04	3.13E-04	3.15E-04	3.17E-04	3.19E-04	3.21E-04	3.22E-04
sr 87m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 90

0 nuclide concentrations, grams

basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
br 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
as 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
y 89m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	8.57E-03	7.30E-04	3.28E-09	6.62E-20	2.70E-41	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	2.23E-06	1.90E-07	8.52E-13	1.72E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02	1.70E+02
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02	1.79E+02
nb 91	1.77E-10	1.60E-10	9.63E-11	3.47E-11	4.52E-12	5.89E-13	7.67E-14	9.98E-15	1.30E-15	1.69E-16	6.10E-17
se 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

zr 92	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02	1.89E+02
nb 92	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08	3.28E-08
se 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
nb 93	2.38E-02	3.01E-02	6.15E-02	1.24E-01	2.50E-01	3.76E-01	5.01E-01	6.26E-01	7.51E-01	8.77E-01	9.39E-01
nb 93m	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.45E-03	1.45E-03
br 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 91

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
sr 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02
nb 94	1.23E-04	1.23E-04	1.21E-04	1.17E-04	1.09E-04	1.02E-04	9.50E-05	8.88E-05	8.29E-05	7.74E-05	7.48E-05
nb 94m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02
br 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02
nb 96	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00
kr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02	2.17E+02
kr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02
tc 98	1.37E-03	1.37E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03
rb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

y 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	2.30E+02	2.30E+02	2.30E+02	2.29E+02	2.28E+02	2.26E+02	2.25E+02	2.23E+02	2.22E+02	2.20E+02	2.19E+02
tc 99m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	3.12E-01	3.87E-01	7.65E-01	1.52E+00	3.02E+00	4.51E+00	5.99E+00	7.46E+00	8.92E+00	1.04E+01	1.11E+01
rb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 92

0

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
zr100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02	2.63E+02
tc100	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01	1.89E+01
rb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02
sr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02	2.10E+02
rh102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02
rh103m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
rh104	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01	4.10E+01
y105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

zr105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 93

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
y106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01	7.94E+01
ag106	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.12E+01	5.11E+01	5.11E+01	5.11E+01	5.11E+01	5.11E+01
pd107m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	2.19E-03	2.74E-03	5.47E-03	1.09E-02	2.18E-02	3.28E-02	4.37E-02	5.46E-02	6.55E-02	7.64E-02	8.18E-02
zr108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01	3.25E+01
ag108	1.47E-14	8.49E-15	5.54E-16	2.36E-18	4.29E-23	7.79E-28	1.42E-32	2.57E-37	.00E+00	.00E+00	.00E+00
ag108m	4.75E-06	2.75E-06	1.80E-07	7.65E-10	1.39E-14	2.52E-19	4.59E-24	8.33E-29	1.51E-33	2.75E-38	1.17E-40
cd108	4.66E-05	4.67E-05	4.69E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05	4.70E-05
zr109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01
ag109m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

rh110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	9.65E+00	9.65E+00	9.65E+00	9.65E+00	9.65E+00	9.65E+00	9.65E+00	9.65E+00	9.65E+00	9.65E+00	9.65E+00
ag110	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 94

0

nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
cd110	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00	5.76E+00
nb111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00	5.04E+00
cd111m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00	2.64E+00
mo113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02
cd113m	8.09E-11	5.93E-13	1.25E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
in113m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00	2.93E+00
in114	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05	7.51E-05
mo115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

in115	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01
in115m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 95

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nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
sn115	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02	4.57E-02
tc116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
in116	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01
tc117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00
sn117m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01	9.73E-01
ru119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00
sn119m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00
rh121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 96

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
pd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	3.03E-09	8.60E-10	1.58E-12	5.32E-18	6.03E-29	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121m	6.96E-05	1.98E-05	3.62E-08	1.22E-13	1.38E-24	1.57E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb121	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00
rh122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
sb122	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	4.69E-02	4.69E-02	4.69E-02	4.69E-02	4.69E-02	4.69E-02	4.69E-02	4.69E-02	4.69E-02	4.69E-02	4.69E-02
rh123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00
te123	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04	3.68E-04
te123m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00	2.20E+00
sb124	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02	3.98E-02
pd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00	2.68E+00
te125m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	4.87E+00	4.87E+00	4.85E+00	4.82E+00	4.75E+00	4.69E+00	4.62E+00	4.56E+00	4.50E+00	4.43E+00	4.40E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 97

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
sb126	2.32E-07	2.31E-07	2.31E-07	2.29E-07	2.26E-07	2.23E-07	2.20E-07	2.17E-07	2.14E-07	2.11E-07	2.09E-07
sb126m	1.76E-09	1.76E-09	1.75E-09	1.74E-09	1.72E-09	1.69E-09	1.67E-09	1.65E-09	1.62E-09	1.60E-09	1.59E-09
te126	9.19E-02	9.53E-02	1.12E-01	1.46E-01	2.12E-01	2.77E-01	3.42E-01	4.06E-01	4.68E-01	5.30E-01	5.61E-01
xe126	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09	1.22E-09
ag127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01
xe127	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01	2.43E+01
i128	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01	3.97E-01
cd129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01	4.99E+01
xe129	2.08E-03	2.30E-03	3.41E-03	5.61E-03	1.00E-02	1.44E-02	1.88E-02	2.33E-02	2.77E-02	3.21E-02	3.43E-02
xe129m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
i130	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00	1.16E+00
cd131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe131m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 98

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
cd132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02	2.84E+02
cs132	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05	4.90E-05
in133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02	3.41E+02
ba133	9.02E-20	1.24E-22	6.10E-37	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02	4.27E+02
xe134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01
sn135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.76E+02	1.76E+02	
cs135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	5.95E-02	6.49E-02	9.16E-02	1.45E-01	2.52E-01	3.58E-01	4.65E-01	5.71E-01	6.78E-01	7.84E-01	8.37E-01
ba135m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02	5.61E+02
cs136	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00	4.78E+00
ba136m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 99

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
sb137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	3.35E-02	3.32E-03	3.19E-08	2.94E-18	2.50E-38	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ba137	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02	3.60E+02
ba137m	5.11E-09	5.07E-10	4.87E-15	4.49E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02	3.65E+02
la138	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03	2.18E-03
sb139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02
ce139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02
pr140	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02	3.21E+02
nd141	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02	3.23E+02
pr142	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00	3.24E+00
i143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 100

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
xe143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02
i144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

xe144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02
i145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02	2.03E+02
pm145	2.79E-11	5.55E-13	1.74E-21	1.71E-38	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02
pm146	3.12E-25	1.12E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03
xe147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01
cs148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
pm148	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 101

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
sm148	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01	2.89E+01
cs149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00	1.42E+00
eu149	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ba150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01	4.85E+01
pm150	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01	8.04E+01
eu150	9.29E-11	1.34E-11	8.38E-16	3.28E-24	5.02E-41	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	2.85E-01	1.32E-01	2.80E-03	1.26E-06	2.58E-13	5.26E-20	1.07E-26	2.19E-33	4.46E-40	.00E+00	.00E+00
eu151	5.93E+00	6.08E+00	6.21E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00	6.22E+00
ba152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01	3.74E+01
eu152	2.45E-11	1.35E-13	6.85E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02	3.19E-02
la153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01	2.70E+01
gd153	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 102

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
sm154	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00	9.08E+00
eu154	7.01E-14	2.19E-17	6.59E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00
la155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	5.82E-26	2.15E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00	3.18E+00
ce156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

nd156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00	9.32E+00
ce157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02	3.11E-02
pr158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00
pr159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01	5.03E-01
nd160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.25E-01
tb160	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02
nd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part B B&W 15x15, 3.00wt%, 20gwd/mtu decay fission products page 103

0 nuclide concentrations, grams
basis =per B&W assembly, 0.409 mthm for grams

	initial	500.0 yr	1000.0 yr	2000.0 yr	4000.0 yr	6000.0 yr	8000.0 yr	10000.0 yr	12000.0 yr	14000.0 yr	15000.0 yr
dy161	8.27E-02	8.27E-02	8.27E-02	8.27E-02	8.27E-02	8.27E-02	8.27E-02	8.27E-02	8.27E-02	8.27E-02	8.27E-02
pm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02	5.62E-02
sm163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02	3.66E-02
sm164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

tb164	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
sm165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03	9.50E-03
dy166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	1.89E-05	1.78E-05	1.34E-05	7.50E-06	2.36E-06	7.44E-07	2.34E-07	7.38E-08	2.32E-08	7.32E-09	4.11E-09
er166	1.55E-03	1.56E-03	1.56E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.57E-03
er167	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05	2.44E-05
er167m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07	7.41E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07	7.89E-07
tm170	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09	4.62E-09
er171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06	1.05E-06
er172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07
total	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03	9.58E+03

1

Part D 1000 year criticality at 2.182 kw/package actinides page 142
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
he 4	3.35E+01	3.35E+01	3.45E+01	3.55E+01	3.65E+01	3.74E+01	3.83E+01	3.91E+01	3.99E+01	4.07E+01	4.14E+01
tl206	4.85E-16	4.85E-16	5.17E-16	5.49E-16	5.81E-16	6.13E-16	6.44E-16	6.75E-16	7.06E-16	7.37E-16	7.67E-16
tl207	2.59E-11	2.59E-11	2.70E-11	2.82E-11	2.94E-11	3.05E-11	3.16E-11	3.27E-11	3.38E-11	3.49E-11	3.60E-11
tl208	7.78E-13	5.96E-13	6.55E-16	6.21E-16	6.25E-16	6.30E-16	6.35E-16	6.40E-16	6.45E-16	6.50E-16	6.55E-16
tl209	5.88E-13	5.89E-13	6.49E-13	7.12E-13	7.76E-13	8.41E-13	9.08E-13	9.75E-13	1.04E-12	1.11E-12	1.18E-12
pb206	2.31E-01	2.32E-01	2.64E-01	2.99E-01	3.37E-01	3.76E-01	4.18E-01	4.61E-01	5.07E-01	5.55E-01	6.04E-01
pb207	1.42E-02	1.43E-02	1.62E-02	1.84E-02	2.06E-02	2.28E-02	2.52E-02	2.77E-02	3.02E-02	3.29E-02	3.56E-02
pb208	6.93E-04	7.00E-04	7.20E-04	7.21E-04	7.21E-04	7.21E-04	7.21E-04	7.22E-04	7.22E-04	7.22E-04	7.22E-04
pb209	2.48E-09	2.49E-09	2.74E-09	3.01E-09	3.28E-09	3.55E-09	3.83E-09	4.12E-09	4.41E-09	4.70E-09	4.99E-09
pb210	1.05E-03	1.05E-03	1.12E-03	1.18E-03	1.25E-03	1.32E-03	1.39E-03	1.46E-03	1.52E-03	1.59E-03	1.65E-03
pb211	2.00E-10	2.00E-10	2.09E-10	2.18E-10	2.27E-10	2.36E-10	2.45E-10	2.53E-10	2.62E-10	2.70E-10	2.78E-10
pb212	4.61E-10	3.53E-10	3.88E-13	3.68E-13	3.71E-13	3.74E-13	3.76E-13	3.79E-13	3.82E-13	3.85E-13	3.88E-13
pb214	2.44E-09	2.44E-09	2.60E-09	2.76E-09	2.92E-09	3.08E-09	3.24E-09	3.39E-09	3.55E-09	3.70E-09	3.85E-09
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	2.67E-02	2.69E-02	3.16E-02	3.70E-02	4.28E-02	4.92E-02	5.61E-02	6.35E-02	7.15E-02	8.00E-02	8.91E-02
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	6.44E-07	6.44E-07	6.86E-07	7.29E-07	7.71E-07	8.14E-07	8.55E-07	8.97E-07	9.37E-07	9.78E-07	1.02E-06
bi211	1.19E-11	1.19E-11	1.24E-11	1.29E-11	1.35E-11	1.40E-11	1.45E-11	1.50E-11	1.55E-11	1.60E-11	1.65E-11
bi212	4.38E-11	3.35E-11	3.68E-14	3.49E-14	3.52E-14	3.54E-14	3.57E-14	3.60E-14	3.63E-14	3.65E-14	3.68E-14
bi213	5.91E-10	5.93E-10	6.52E-10	7.16E-10	7.80E-10	8.46E-10	9.13E-10	9.81E-10	1.05E-09	1.12E-09	1.19E-09
bi214	1.81E-09	1.81E-09	1.93E-09	2.05E-09	2.17E-09	2.29E-09	2.40E-09	2.52E-09	2.63E-09	2.75E-09	2.86E-09
po210	1.78E-05	1.78E-05	1.90E-05	2.01E-05	2.13E-05	2.25E-05	2.36E-05	2.48E-05	2.59E-05	2.70E-05	2.81E-05
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	1.31E-16	1.31E-16	1.37E-16	1.43E-16	1.49E-16	1.55E-16	1.60E-16	1.66E-16	1.71E-16	1.77E-16	1.82E-16
po212	2.30E-21	1.76E-21	1.94E-24	1.83E-24	1.85E-24	1.86E-24	1.88E-24	1.89E-24	1.91E-24	1.92E-24	1.93E-24
po213	8.88E-19	8.91E-19	9.81E-19	1.08E-18	1.17E-18	1.27E-18	1.37E-18	1.47E-18	1.58E-18	1.68E-18	1.79E-18
po214	2.49E-16	2.49E-16	2.65E-16	2.82E-16	2.98E-16	3.15E-16	3.31E-16	3.47E-16	3.62E-16	3.78E-16	3.93E-16
po215	1.67E-16	1.68E-16	1.75E-16	1.83E-16	1.90E-16	1.97E-16	2.05E-16	2.12E-16	2.19E-16	2.26E-16	2.33E-16
po216	1.78E-15	1.36E-15	1.50E-18	1.42E-18	1.43E-18	1.44E-18	1.45E-18	1.46E-18	1.47E-18	1.49E-18	1.50E-18
po218	2.87E-10	2.88E-10	3.06E-10	3.25E-10	3.44E-10	3.63E-10	3.81E-10	4.00E-10	4.18E-10	4.36E-10	4.54E-10
at217	7.11E-15	7.13E-15	7.85E-15	8.61E-15	9.39E-15	1.02E-14	1.10E-14	1.18E-14	1.26E-14	1.35E-14	1.43E-14
rn218	3.40E-26	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	3.80E-13	3.80E-13	3.97E-13	4.14E-13	4.31E-13	4.48E-13	4.64E-13	4.80E-13	4.96E-13	5.12E-13	5.28E-13
rn220	6.95E-13	5.32E-13	5.85E-16	5.54E-16	5.59E-16	5.63E-16	5.67E-16	5.71E-16	5.76E-16	5.80E-16	5.85E-16
rn222	5.19E-07	5.20E-07	5.54E-07	5.88E-07	6.22E-07	6.56E-07	6.90E-07	7.23E-07	7.56E-07	7.89E-07	8.21E-07
fr221	6.59E-11	6.61E-11	7.28E-11	7.98E-11	8.70E-11	9.44E-11	1.02E-10	1.09E-10	1.17E-10	1.25E-10	1.33E-10
fr223	1.76E-12	1.76E-12	1.84E-12	1.92E-12	2.00E-12	2.08E-12	2.15E-12	2.23E-12	2.30E-12	2.38E-12	2.45E-12
ra222	3.76E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	9.64E-08	9.65E-08	1.01E-07	1.05E-07	1.09E-07	1.14E-07	1.18E-07	1.22E-07	1.26E-07	1.30E-07	1.34E-07
ra224	4.02E-09	3.08E-09	3.39E-12	3.21E-12	3.23E-12	3.26E-12	3.28E-12	3.31E-12	3.33E-12	3.36E-12	3.39E-12
ra225	2.92E-07	2.93E-07	3.22E-07	3.54E-07	3.85E-07	4.18E-07	4.51E-07	4.84E-07	5.18E-07	5.53E-07	5.87E-07
ra226	8.08E-02	8.09E-02	8.61E-02	9.15E-02	9.68E-02	1.02E-01	1.07E-01	1.13E-01	1.18E-01	1.23E-01	1.28E-01
ra228	3.29E-10	3.29E-10	3.52E-10	3.75E-10	3.98E-10	4.21E-10	4.45E-10	4.68E-10	4.92E-10	5.16E-10	5.39E-10
ac225	1.97E-07	1.98E-07	2.18E-07	2.39E-07	2.60E-07	2.82E-07	3.05E-07	3.27E-07	3.50E-07	3.73E-07	3.97E-07
ac227	6.83E-05	6.83E-05	7.14E-05	7.44E-05	7.75E-05	8.05E-05	8.34E-05	8.64E-05	8.93E-05	9.21E-05	9.49E-05
ac228	4.01E-14	4.02E-14	4.29E-14	4.57E-14	4.86E-14	5.14E-14	5.43E-14	5.71E-14	6.00E-14	6.29E-14	6.58E-14
th226	1.87E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	1.58E-07	1.59E-07	1.66E-07	1.73E-07	1.80E-07	1.87E-07	1.94E-07	2.00E-07	2.07E-07	2.14E-07	2.20E-07
th228	7.82E-07	5.99E-07	6.58E-10	6.24E-10	6.28E-10	6.33E-10	6.38E-10	6.43E-10	6.48E-10	6.53E-10	6.58E-10
th229	5.78E-02	5.79E-02	6.38E-02	7.00E-02	7.63E-02	8.27E-02	8.92E-02	9.59E-02	1.03E-01	1.09E-01	1.16E-01
th230	4.47E+00	4.48E+00	4.73E+00	4.98E+00	5.23E+00	5.48E+00	5.72E+00	5.97E+00	6.21E+00	6.44E+00	6.68E+00
th231	9.32E-08	2.94E-08	2.96E-08	2.98E-08	2.99E-08	3.01E-08	3.03E-08	3.05E-08	3.06E-08	3.08E-08	3.09E-08

1

Part D 1000 year criticality at 2.182 kw/package actinides page 143
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
th232	8.17E-01	8.19E-01	8.74E-01	9.32E-01	9.90E-01	1.05E+00	1.11E+00	1.16E+00	1.22E+00	1.28E+00	1.34E+00
th233	1.12E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06
pa231	1.04E-01	1.05E-01	1.09E-01	1.14E-01	1.19E-01	1.23E-01	1.28E-01	1.32E-01	1.37E-01	1.41E-01	1.45E-01
pa232	1.37E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05	1.84E-05
pa234m	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10	2.17E-10
pa234	9.68E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	1.84E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	9.58E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	2.90E-05	2.16E-05	2.01E-08	1.85E-08	1.84E-08	1.83E-08	1.82E-08	1.81E-08	1.80E-08	1.79E-08	1.78E-08
u233	2.58E+00	2.58E+00	2.74E+00	2.90E+00	3.06E+00	3.22E+00	3.37E+00	3.53E+00	3.69E+00	3.84E+00	4.00E+00
u234	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.06E+02	1.06E+02	1.06E+02
u235	7.23E+03	7.23E+03	7.27E+03	7.32E+03	7.36E+03	7.41E+03	7.45E+03	7.49E+03	7.53E+03	7.57E+03	7.60E+03
u236	1.96E+03	1.96E+03	1.97E+03	1.98E+03	1.99E+03	2.00E+03	2.01E+03	2.02E+03	2.02E+03	2.03E+03	2.03E+03
u237	3.51E-05	2.24E-10	5.68E-13	5.24E-13	4.83E-13	4.45E-13	4.10E-13	3.78E-13	3.48E-13	3.21E-13	2.96E-13
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05
u239	1.95E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	9.41E-19	9.42E-19	1.00E-18	1.06E-18	1.12E-18	1.18E-18	1.24E-18	1.30E-18	1.36E-18	1.42E-18	1.48E-18
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	3.81E-10	1.80E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	1.75E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	3.53E-04	3.53E-04	3.51E-04	3.49E-04	3.47E-04	3.45E-04	3.43E-04	3.41E-04	3.39E-04	3.37E-04	3.34E-04
np237	5.41E+02	5.41E+02	5.42E+02	5.41E+02	5.41E+02	5.41E+02	5.41E+02	5.41E+02	5.41E+02	5.40E+02	5.40E+02
np238	1.11E-05	2.98E-11	2.53E-13	1.85E-15	1.36E-17	9.96E-20	7.30E-22	5.35E-24	3.92E-26	2.87E-28	2.11E-30
np239	2.85E-04	2.06E-06	1.88E-06	1.71E-06	1.56E-06	1.42E-06	1.29E-06	1.17E-06	1.07E-06	9.73E-07	8.86E-07
np240m	8.03E-21	8.04E-21	8.54E-21	9.05E-21	9.56E-21	1.01E-20	1.06E-20	1.11E-20	1.16E-20	1.21E-20	1.26E-20
np240	7.99E-14	8.27E-23	8.78E-23	9.31E-23	9.83E-23	1.04E-22	1.09E-22	1.14E-22	1.19E-22	1.24E-22	1.30E-22
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	9.57E-08	8.66E-10	7.88E-10	7.83E-10	7.78E-10	7.74E-10	7.69E-10	7.64E-10	7.60E-10	7.55E-10	7.51E-10
pu237	5.15E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	1.69E-01	1.33E-01	6.31E-05	2.85E-08	4.84E-11	2.95E-13	2.14E-15	1.57E-17	1.15E-19	8.42E-22	6.17E-24
pu239	1.68E+03	1.68E+03	1.63E+03	1.58E+03	1.54E+03	1.50E+03	1.45E+03	1.41E+03	1.37E+03	1.33E+03	1.30E+03
pu240	1.30E+02	1.29E+02	1.17E+02	1.05E+02	9.43E+01	8.49E+01	7.64E+01	6.87E+01	6.18E+01	5.56E+01	5.01E+01
pu241	3.14E-02	7.38E-03	1.88E-05	1.73E-05	1.59E-05	1.47E-05	1.35E-05	1.25E-05	1.15E-05	1.06E-05	9.77E-06
pu242	6.86E+01	6.86E+01	6.85E+01	6.84E+01	6.82E+01	6.81E+01	6.80E+01	6.79E+01	6.77E+01	6.76E+01	6.75E+01
pu243	1.43E-07	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.12E-15	1.12E-15
pu244	4.76E-08	4.77E-08	5.07E-08	5.37E-08	5.67E-08	5.97E-08	6.27E-08	6.57E-08	6.87E-08	7.17E-08	7.47E-08
pu245	6.31E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	6.61E-22	6.60E-22	6.35E-22	6.10E-22	5.86E-22	5.63E-22	5.41E-22	5.20E-22	5.00E-22	4.80E-22	4.62E-22
am239	1.90E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	8.18E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	7.54E-01	7.42E-01	1.59E-01	3.24E-02	6.92E-03	1.75E-03	6.85E-04	4.44E-04	3.71E-04	3.35E-04	3.07E-04
am242m	1.90E-04	1.64E-04	1.39E-06	1.02E-08	7.47E-11	5.47E-13	4.01E-15	2.94E-17	2.15E-19	1.58E-21	1.16E-23
am242	1.68E-08	2.11E-09	1.79E-11	1.31E-13	9.63E-16	7.06E-18	5.17E-20	3.79E-22	2.78E-24	2.04E-26	1.49E-28
am243	2.40E+00	2.39E+00	2.18E+00	1.99E+00	1.81E+00	1.65E+00	1.50E+00	1.36E+00	1.24E+00	1.13E+00	1.03E+00
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	1.33E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	1.28E-19	2.25E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	1.65E-24	1.65E-24	1.59E-24	1.52E-24	1.46E-24	1.41E-24	1.35E-24	1.30E-24	1.25E-24	1.20E-24	1.15E-24
cm241	1.40E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1 Part D 1000 year criticality at 2.182 kw/package actinides page 144
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cm242	3.40E-06	4.26E-07	3.62E-09	2.65E-11	1.95E-13	1.43E-15	1.04E-17	7.66E-20	5.61E-22	4.11E-24	3.01E-26
cm243	8.37E-11	4.03E-11	2.29E-21	6.25E-32	1.70E-42	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm244	2.09E-04	6.64E-05	4.88E-21	1.14E-37	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	1.22E-02	1.22E-02	1.13E-02	1.04E-02	9.58E-03	8.83E-03	8.14E-03	7.50E-03	6.91E-03	6.37E-03	5.87E-03
cm246	3.14E-04	3.13E-04	2.71E-04	2.34E-04	2.02E-04	1.75E-04	1.51E-04	1.30E-04	1.13E-04	9.73E-05	8.40E-05
cm247	3.23E-05	3.23E-05	3.23E-05	3.23E-05	3.23E-05	3.23E-05	3.23E-05	3.23E-05	3.23E-05	3.23E-05	3.23E-05
cm248	1.65E-06	1.65E-06	1.65E-06	1.64E-06	1.64E-06	1.64E-06	1.63E-06	1.63E-06	1.63E-06	1.62E-06	1.62E-06
cm249	1.67E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	1.57E-15	1.57E-15	1.51E-15	1.45E-15	1.40E-15	1.34E-15	1.29E-15	1.24E-15	1.19E-15	1.14E-15	1.10E-15
cm251	6.95E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	1.20E-12	5.92E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	7.02E-21	4.64E-24	4.47E-24	4.29E-24	4.13E-24	3.96E-24	3.81E-24	3.66E-24	3.52E-24	3.38E-24	3.25E-24
bk251	2.36E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	4.06E-10	3.84E-10	5.64E-11	7.80E-12	1.08E-12	1.49E-13	2.07E-14	2.86E-15	3.95E-16	5.47E-17	7.57E-18
cf250	1.68E-14	3.43E-15	1.59E-19	1.53E-19	1.47E-19	1.41E-19	1.36E-19	1.30E-19	1.25E-19	1.21E-19	1.16E-19
cf251	3.87E-15	3.78E-15	1.79E-15	8.27E-16	3.82E-16	1.77E-16	8.16E-17	3.77E-17	1.74E-17	8.06E-18	3.72E-18
cf252	2.80E-19	1.08E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	4.73E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	6.71E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	5.42E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	9.75E-33	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05

1

se 88	3.05E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 151
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0
nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
br 88	1.69E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	1.87E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	1.99E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
as 89	2.41E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	2.98E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	3.10E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	4.44E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	2.27E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	1.10E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02
y 89m	3.76E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	1.70E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	6.80E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	7.30E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	8.21E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	3.58E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	1.83E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	2.72E-02	1.30E-02	5.48E-13	1.11E-23	2.23E-34	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	7.07E-06	3.37E-06	1.42E-16	2.87E-27	4.20E-38	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	6.41E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	1.71E+02	1.71E+02	1.71E+02	1.71E+02	1.71E+02	1.71E+02	1.71E+02	1.71E+02	1.71E+02	1.71E+02	1.71E+02
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	4.18E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

br 91	7.97E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	1.51E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	1.78E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	1.11E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	1.64E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	5.61E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.80E+02	1.80E+02	1.80E+02	1.80E+02	1.80E+02	1.80E+02	1.80E+02	1.80E+02	1.80E+02	1.80E+02	1.80E+02
nb 91	1.34E-11	1.30E-11	4.82E-12	1.74E-12	6.28E-13	2.26E-13	8.17E-14	2.95E-14	1.06E-14	3.84E-15	1.38E-15
se 92	2.10E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	8.08E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	1.74E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	1.21E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	3.32E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	4.37E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	1.90E+02	1.90E+02	1.90E+02	1.90E+02	1.90E+02	1.90E+02	1.90E+02	1.90E+02	1.90E+02	1.90E+02	1.90E+02
nb 92	7.12E-08	7.12E-08	7.12E-08	7.12E-08	7.12E-08	7.12E-08	7.12E-08	7.12E-08	7.12E-08	7.12E-08	7.12E-08
se 93	8.65E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	7.93E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	4.15E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	1.24E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	1.68E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	9.32E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
nb 93	1.00E+00	1.00E+00	1.06E+00	1.13E+00	1.19E+00	1.25E+00	1.31E+00	1.38E+00	1.44E+00	1.50E+00	1.56E+00
nb 93m	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03	1.45E-03	1.45E-03	1.45E-03	1.45E-03
br 94	3.12E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	3.05E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	3.01E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 152

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec

0 nuclide concentrations, grams

basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sr 94	2.82E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	4.53E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02	2.24E+02
nb 94	1.02E-04	1.02E-04	9.85E-05	9.51E-05	9.20E-05	8.89E-05	8.59E-05	8.30E-05	8.02E-05	7.75E-05	7.49E-05
nb 94m	5.29E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	3.36E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	9.25E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	2.07E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	8.49E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	2.63E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	2.34E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	1.28E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	1.47E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	2.25E+02	2.25E+02	2.25E+02	2.25E+02	2.25E+02	2.25E+02	2.25E+02	2.25E+02	2.25E+02	2.25E+02	2.25E+02
br 96	6.32E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	6.35E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	2.72E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	2.64E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	2.37E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02
nb 96	9.12E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	6.63E+00	6.63E+00	6.63E+00	6.63E+00	6.63E+00	6.63E+00	6.63E+00	6.63E+00	6.63E+00	6.63E+00	6.63E+00
kr 97	2.84E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	7.10E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	5.39E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	1.16E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

zr 97	2.45E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	1.75E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	2.29E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02	2.18E+02
kr 98	1.64E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	3.93E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	3.34E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	1.58E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	1.31E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	1.23E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	8.97E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	2.34E+02	2.34E+02	2.34E+02	2.34E+02	2.34E+02	2.34E+02	2.34E+02	2.34E+02	2.34E+02	2.34E+02	2.34E+02
tc 98	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03	1.37E-03
rb 99	6.07E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	6.01E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	2.33E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	8.79E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	4.06E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	2.89E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	1.10E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	2.20E+02	2.20E+02	2.19E+02	2.18E+02	2.17E+02	2.17E+02	2.16E+02	2.15E+02	2.15E+02	2.14E+02	2.13E+02
tc 99m	8.79E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	1.18E+01	1.18E+01	1.25E+01	1.32E+01	1.40E+01	1.47E+01	1.54E+01	1.61E+01	1.68E+01	1.75E+01	1.82E+01
rb100	3.09E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	4.92E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	3.44E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 153
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
zr100	3.01E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	6.82E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	9.24E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	2.65E+02	2.65E+02	2.65E+02	2.65E+02	2.65E+02	2.65E+02	2.65E+02	2.65E+02	2.65E+02	2.65E+02	2.65E+02
tc100	1.12E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	1.91E+01	1.91E+01	1.91E+01	1.91E+01	1.91E+01	1.91E+01	1.91E+01	1.91E+01	1.91E+01	1.91E+01	1.91E+01
rb101	2.45E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	7.67E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	1.34E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	4.77E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	2.82E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	3.65E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	3.55E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02
sr102	2.12E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	1.28E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	4.99E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	4.29E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	2.59E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	2.02E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	9.36E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02
rh102	1.11E-08	8.55E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	6.19E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	1.14E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	7.75E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	3.46E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

mo103	2.35E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	1.92E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	1.21E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02	1.44E+02
rh103m	1.20E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	2.67E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	1.11E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	4.17E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	4.59E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	1.53E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	2.93E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02	1.39E+02
rh104	8.02E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	3.61E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	4.14E+01	4.14E+01	4.14E+01	4.14E+01	4.14E+01	4.14E+01	4.14E+01	4.14E+01	4.14E+01	4.14E+01	4.14E+01
y105	1.62E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	2.98E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	1.10E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	6.24E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	9.43E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	3.35E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	2.67E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	2.68E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02

1

Part D 1000 year criticality at 2.182 kw/package fission products page 154
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
y106	1.78E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	1.76E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	5.50E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	7.15E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	4.71E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	4.67E-04	6.20E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	4.33E-10	5.76E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	5.08E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	7.98E+01	7.98E+01	7.98E+01	7.98E+01	7.98E+01	7.98E+01	7.98E+01	7.98E+01	7.98E+01	7.98E+01	7.98E+01
ag106	2.31E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	1.69E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	4.66E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	6.80E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	1.07E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	1.74E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	2.29E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	1.33E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
pd107m	1.60E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	8.73E-02	8.74E-02	9.27E-02	9.82E-02	1.04E-01	1.09E-01	1.15E-01	1.20E-01	1.26E-01	1.31E-01	1.36E-01
zr108	3.02E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	6.23E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	5.26E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	1.26E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	1.67E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	1.05E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	4.36E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	3.27E+01	3.27E+01	3.27E+01	3.27E+01	3.27E+01	3.27E+01	3.27E+01	3.27E+01	3.27E+01	3.27E+01	3.27E+01
ag108	2.51E-13	2.23E-16	1.12E-18	4.77E-21	2.03E-23	8.66E-26	3.69E-28	1.57E-30	6.71E-33	2.86E-35	1.22E-37
ag108m	8.51E-08	7.22E-08	3.63E-10	1.55E-12	6.59E-15	2.81E-17	1.20E-19	5.10E-22	2.17E-24	9.26E-27	3.95E-29

cd108	8.33E-05	8.33E-05	8.33E-05	8.33E-05	8.33E-05	8.33E-05	8.33E-05	8.33E-05	8.33E-05	8.33E-05	8.33E-05
zr109	8.46E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	3.57E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	5.25E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	1.16E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	1.54E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	4.19E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	1.31E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	2.99E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	9.26E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01	2.19E+01
ag109m	2.40E-10	2.17E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	2.96E-12	2.19E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	6.75E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	1.15E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	9.02E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	1.89E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	8.26E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	4.34E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	9.69E+00	9.69E+00	9.69E+00	9.69E+00	9.69E+00	9.69E+00	9.69E+00	9.69E+00	9.69E+00	9.69E+00	9.69E+00
ag110	7.02E-11	2.34E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	2.43E-06	1.51E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 155
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0
nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cd110	5.82E+00	5.82E+00	5.82E+00	5.82E+00	5.82E+00	5.82E+00	5.82E+00	5.82E+00	5.82E+00	5.82E+00	5.82E+00
nb111	8.22E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	2.11E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	4.36E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	6.48E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	9.79E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	1.35E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	1.01E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	6.24E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	6.25E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	5.07E+00	5.07E+00	5.07E+00	5.07E+00	5.07E+00	5.07E+00	5.07E+00	5.07E+00	5.07E+00	5.07E+00	5.07E+00
cd111m	3.73E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb112	1.57E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	7.30E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	1.91E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	5.36E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	5.74E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	3.68E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	5.50E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	2.65E+00	2.65E+00	2.65E+00	2.65E+00	2.65E+00	2.65E+00	2.65E+00	2.65E+00	2.65E+00	2.65E+00	2.65E+00
mo113	3.58E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	8.01E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	1.53E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	1.72E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	2.74E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	5.55E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	3.97E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	4.17E-02	4.17E-02	4.17E-02	4.17E-02	4.17E-02	4.17E-02	4.17E-02	4.17E-02	4.17E-02	4.17E-02	4.17E-02
cd113m	2.97E-06	6.79E-07	1.33E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	3.01E-02	3.01E-02	3.01E-02	3.01E-02	3.01E-02	3.01E-02	3.01E-02	3.01E-02	3.01E-02	3.01E-02	3.01E-02
in113m	1.98E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	3.06E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

tc114	4.30E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	1.76E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	1.85E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	3.78E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	1.23E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	2.95E+00	2.95E+00	2.95E+00	2.95E+00	2.95E+00	2.95E+00	2.95E+00	2.95E+00	2.95E+00	2.95E+00	2.95E+00
in114	5.20E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	2.33E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	9.08E-05	9.08E-05	9.08E-05	9.08E-05	9.08E-05	9.08E-05	9.08E-05	9.08E-05	9.08E-05	9.08E-05	9.08E-05
mo115	4.63E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	2.16E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	4.74E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	3.96E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	6.26E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	1.56E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	9.83E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	3.54E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	3.31E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01	4.59E-01
in115m	2.97E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 156
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sn115	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02
tc116	3.98E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	3.27E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	2.53E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	2.54E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	3.66E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	2.82E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
in116	5.04E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	4.37E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	4.81E-01	4.81E-01	4.81E-01	4.81E-01	4.81E-01	4.81E-01	4.81E-01	4.81E-01	4.81E-01	4.81E-01	4.81E-01
tc117	6.53E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	1.04E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	1.25E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	6.60E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	8.25E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	6.05E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	1.78E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	5.44E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	3.88E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	1.27E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00	1.19E+00
sn117m	1.33E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	1.05E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	3.31E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	7.79E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	1.97E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	4.14E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	1.56E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	5.77E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	9.57E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	6.12E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	9.77E-01	9.77E-01	9.77E-01	9.77E-01	9.77E-01	9.77E-01	9.77E-01	9.77E-01	9.77E-01	9.77E-01	9.77E-01
ru119	1.30E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

te124	4.01E-02	4.01E-02	4.01E-02	4.01E-02	4.01E-02	4.01E-02	4.01E-02	4.01E-02	4.01E-02	4.01E-02	4.01E-02
pd125	1.13E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	1.75E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	2.24E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	5.40E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	2.12E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	1.10E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	2.34E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	4.69E-05	2.31E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	2.69E+00	2.69E+00	2.69E+00	2.69E+00	2.69E+00	2.69E+00	2.69E+00	2.69E+00	2.69E+00	2.69E+00	2.69E+00
te125m	6.28E-07	3.28E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	3.82E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	2.98E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	8.17E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	7.60E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	4.40E+00	4.40E+00	4.37E+00	4.34E+00	4.31E+00	4.28E+00	4.25E+00	4.22E+00	4.19E+00	4.16E+00	4.13E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 158
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sb126	2.16E-07	2.09E-07	2.07E-07	2.06E-07	2.05E-07	2.03E-07	2.02E-07	2.00E-07	1.99E-07	1.98E-07	1.96E-07
sb126m	1.60E-09	1.59E-09	1.58E-09	1.57E-09	1.56E-09	1.54E-09	1.53E-09	1.52E-09	1.51E-09	1.50E-09	1.49E-09
te126	5.92E-01	5.93E-01	6.22E-01	6.52E-01	6.82E-01	7.12E-01	7.42E-01	7.71E-01	8.00E-01	8.29E-01	8.58E-01
xe126	1.23E-09	1.23E-09	1.23E-09	1.23E-09	1.23E-09	1.23E-09	1.23E-09	1.23E-09	1.23E-09	1.23E-09	1.23E-09
ag127	2.05E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	6.93E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	5.47E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	1.79E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	7.02E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	3.11E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	7.69E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	7.76E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	3.82E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01
xe127	2.30E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	5.65E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	1.32E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	8.80E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	1.50E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	1.37E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	2.78E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	2.45E+01	2.45E+01	2.45E+01	2.45E+01	2.45E+01	2.45E+01	2.45E+01	2.45E+01	2.45E+01	2.45E+01	2.45E+01
i128	2.88E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	4.01E-01	4.01E-01	4.01E-01	4.01E-01	4.01E-01	4.01E-01	4.01E-01	4.01E-01	4.01E-01	4.01E-01	4.01E-01
cd129	1.86E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	6.67E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	4.81E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	1.58E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	1.54E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	3.85E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	5.39E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	5.01E+01	5.01E+01	5.01E+01	5.01E+01	5.01E+01	5.01E+01	5.01E+01	5.01E+01	5.01E+01	5.01E+01	5.01E+01
xe129	3.65E-02	3.65E-02	3.87E-02	4.09E-02	4.31E-02	4.53E-02	4.75E-02	4.98E-02	5.20E-02	5.42E-02	5.64E-02
xe129m	3.25E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	1.13E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	2.86E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	2.45E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	7.72E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sb130m	5.53E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02
i130	2.10E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	1.35E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.17E+00	1.17E+00	1.17E+00	1.17E+00	1.17E+00	1.17E+00	1.17E+00	1.17E+00	1.17E+00	1.17E+00	1.17E+00
cd131	3.87E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	1.01E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	3.61E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	3.56E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	4.10E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	6.34E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	2.22E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02	1.38E+02
xe131m	3.60E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 159
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cd132	6.10E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	1.89E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	2.98E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	3.74E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	2.56E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	1.31E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	3.89E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	2.86E+02	2.86E+02	2.86E+02	2.86E+02	2.86E+02	2.86E+02	2.86E+02	2.86E+02	2.86E+02	2.86E+02	2.86E+02
cs132	5.86E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05
in133	3.43E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	3.02E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	3.33E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	2.81E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	1.03E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	5.11E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	4.43E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	3.11E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	4.00E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02	3.42E+02
ba133	2.05E-12	2.84E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	4.16E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	3.60E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	3.56E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	2.97E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	1.59E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	2.44E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	1.31E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	4.29E+02	4.29E+02	4.29E+02	4.29E+02	4.29E+02	4.29E+02	4.29E+02	4.29E+02	4.29E+02	4.29E+02	4.29E+02
xe134m	3.58E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	8.22E-04	3.43E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	1.01E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	3.00E+01	3.00E+01	3.00E+01	3.00E+01	3.00E+01	3.00E+01	3.00E+01	3.00E+01	3.00E+01	3.00E+01	3.00E+01
sn135	1.25E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	3.10E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	6.24E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	1.55E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	2.33E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	1.26E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	1.78E+02	1.78E+02	1.78E+02	1.78E+02	1.78E+02	1.78E+02	1.78E+02	1.78E+02	1.77E+02	1.77E+02	1.77E+02

cs135m	6.65E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	8.93E-01	8.94E-01	9.46E-01	1.00E+00	1.05E+00	1.11E+00	1.16E+00	1.21E+00	1.27E+00	1.32E+00	1.37E+00
ba135m	1.56E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	1.91E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	2.32E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	2.67E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	2.59E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	6.98E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	5.63E+02	5.63E+02	5.63E+02	5.63E+02	5.63E+02	5.63E+02	5.63E+02	5.63E+02	5.63E+02	5.63E+02	5.63E+02
cs136	1.94E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	4.82E+00	4.82E+00	4.82E+00	4.82E+00	4.82E+00	4.82E+00	4.82E+00	4.82E+00	4.82E+00	4.82E+00	4.82E+00
ba136m	5.88E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 160
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sb137	1.75E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	1.80E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	8.03E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	1.46E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	6.32E-02	3.16E-02	5.82E-12	5.37E-22	4.95E-32	4.61E-42	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	3.62E+02	3.62E+02	3.62E+02	3.62E+02	3.62E+02	3.62E+02	3.62E+02	3.62E+02	3.62E+02	3.62E+02	3.62E+02
ba137m	9.65E-09	4.82E-09	8.89E-19	8.20E-29	7.55E-39	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	6.81E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	1.69E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	1.07E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	5.22E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	1.28E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	4.36E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	3.66E+02	3.66E+02	3.66E+02	3.66E+02	3.66E+02	3.66E+02	3.66E+02	3.66E+02	3.66E+02	3.66E+02	3.66E+02
la138	2.19E-03	2.19E-03	2.19E-03	2.19E-03	2.19E-03	2.19E-03	2.19E-03	2.19E-03	2.19E-03	2.19E-03	2.19E-03
sb139	6.64E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	1.12E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	2.04E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	1.89E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	3.50E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	3.26E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	3.48E+02	3.48E+02	3.48E+02	3.48E+02	3.48E+02	3.48E+02	3.48E+02	3.48E+02	3.48E+02	3.48E+02	3.48E+02
ce139	4.66E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	3.20E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	2.64E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	1.81E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	4.61E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	2.63E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	7.07E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	9.48E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02	3.68E+02
pr140	1.44E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	9.35E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	1.27E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	2.24E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	1.10E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	6.52E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	8.45E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	1.68E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	3.22E+02	3.22E+02	3.22E+02	3.22E+02	3.22E+02	3.22E+02	3.22E+02	3.22E+02	3.22E+02	3.22E+02	3.22E+02
nd141	8.21E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	7.42E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

i142	1.31E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	6.19E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	4.40E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	3.65E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	3.24E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	3.25E+02	3.25E+02	3.25E+02	3.25E+02	3.25E+02	3.25E+02	3.25E+02	3.25E+02	3.25E+02	3.25E+02	3.25E+02
pr142	1.02E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00
i143	3.64E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 161
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0
nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
xe143	7.15E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	2.43E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	7.31E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	4.90E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	6.91E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	6.82E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	2.70E+02	2.70E+02	2.70E+02	2.70E+02	2.70E+02	2.70E+02	2.70E+02	2.70E+02	2.70E+02	2.70E+02	2.70E+02
i144	5.34E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	1.74E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	3.92E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	4.61E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	2.12E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	1.30E-03	3.46E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	5.50E-08	1.46E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	3.21E-10	8.50E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	3.44E+02	3.44E+02	3.44E+02	3.44E+02	3.44E+02	3.44E+02	3.44E+02	3.44E+02	3.44E+02	3.44E+02	3.44E+02
i145	2.25E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	1.39E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	5.39E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	7.66E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	8.87E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	7.17E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	8.56E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	2.04E+02	2.04E+02	2.04E+02	2.04E+02	2.04E+02	2.04E+02	2.04E+02	2.04E+02	2.04E+02	2.04E+02	2.04E+02
pm145	1.41E-07	4.58E-08	1.46E-24	1.42E-41	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	7.27E-09	1.45E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	8.09E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	7.54E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	2.11E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	1.48E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	2.54E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	4.57E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	1.88E+02	1.88E+02	1.88E+02	1.88E+02	1.88E+02	1.88E+02	1.88E+02	1.88E+02	1.88E+02	1.88E+02	1.88E+02
pm146	8.93E-10	2.08E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	2.64E-03	2.64E-03	2.64E-03	2.64E-03	2.64E-03	2.64E-03	2.64E-03	2.64E-03	2.64E-03	2.64E-03	2.64E-03
xe147	9.12E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	2.45E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	1.02E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	4.33E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	1.32E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	2.01E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	2.35E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	2.05E-03	7.50E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	9.01E+01	9.01E+01	9.01E+01	9.01E+01	9.01E+01	9.01E+01	9.01E+01	9.01E+01	9.01E+01	9.01E+01	9.01E+01

cs148	1.69E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	1.74E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	3.21E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	9.27E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	2.57E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
pm148	1.30E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	1.03E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 162
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sm148	2.91E+01	2.91E+01	2.91E+01	2.91E+01	2.91E+01	2.91E+01	2.91E+01	2.91E+01	2.91E+01	2.91E+01	2.91E+01
cs149	1.68E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	2.22E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	2.06E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	4.40E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	1.72E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	8.38E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	2.58E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00
eu149	1.76E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	1.10E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	2.80E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	8.38E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	1.45E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	4.71E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	4.87E+01	4.87E+01	4.87E+01	4.87E+01	4.87E+01	4.87E+01	4.87E+01	4.87E+01	4.87E+01	4.87E+01	4.87E+01
pm150	4.22E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	8.08E+01	8.08E+01	8.08E+01	8.08E+01	8.08E+01	8.08E+01	8.08E+01	8.08E+01	8.08E+01	8.08E+01	8.08E+01
eu150	3.06E-08	1.71E-08	1.20E-16	4.68E-25	1.83E-33	7.15E-42	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	9.87E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	1.69E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	1.02E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	7.28E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	4.82E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	6.69E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	3.01E-02	2.39E-02	1.36E-05	6.14E-09	2.77E-12	1.25E-15	5.65E-19	2.55E-22	1.15E-25	5.21E-29	2.35E-32
eu151	6.12E+00	6.12E+00	6.15E+00	6.15E+00	6.15E+00	6.15E+00	6.15E+00	6.15E+00	6.15E+00	6.15E+00	6.15E+00
ba152	2.67E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	5.52E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	7.23E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	7.83E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	2.87E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	1.07E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	6.68E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	3.75E+01	3.75E+01	3.75E+01	3.75E+01	3.75E+01	3.75E+01	3.75E+01	3.75E+01	3.75E+01	3.75E+01	3.75E+01
eu152	3.74E-03	7.86E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	1.62E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	1.62E-01	1.63E-01	1.63E-01	1.63E-01	1.63E-01	1.63E-01	1.63E-01	1.63E-01	1.63E-01	1.63E-01	1.63E-01
la153	6.39E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	6.92E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	2.28E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	1.59E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	9.19E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	2.13E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	2.71E+01	2.71E+01	2.71E+01	2.71E+01	2.71E+01	2.71E+01	2.71E+01	2.71E+01	2.71E+01	2.71E+01	2.71E+01
gd153	1.34E-07	2.95E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

la154	7.68E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	9.64E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	9.37E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	4.27E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	1.40E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	4.62E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part D 1000 year criticality at 2.182 kw/package fission products page 163
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0
nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sm154	9.12E+00	9.12E+00	9.12E+00	9.12E+00	9.12E+00	9.12E+00	9.12E+00	9.12E+00	9.12E+00	9.12E+00	9.12E+00
eu154	1.72E-03	1.53E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	8.06E+00	8.06E+00	8.06E+00	8.06E+00	8.06E+00	8.06E+00	8.06E+00	8.06E+00	8.06E+00	8.06E+00	8.06E+00
la155	4.05E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	2.24E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	2.20E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	6.35E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	3.94E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	1.36E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	1.50E-04	1.76E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	2.73E+00	2.73E+00	2.73E+00	2.73E+00	2.73E+00	2.73E+00	2.73E+00	2.73E+00	2.73E+00	2.73E+00	2.73E+00
ce156	1.99E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	1.01E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	2.17E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	4.90E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	2.02E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	7.92E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	9.80E+00	9.80E+00	9.80E+00	9.80E+00	9.80E+00	9.80E+00	9.80E+00	9.80E+00	9.80E+00	9.80E+00	9.80E+00
ce157	3.48E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	1.62E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	6.37E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	9.06E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	1.67E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	1.98E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	2.36E-02	2.36E-02	2.36E-02	2.36E-02	2.36E-02	2.36E-02	2.36E-02	2.36E-02	2.36E-02	2.36E-02	2.36E-02
pr158	3.87E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	1.18E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	1.32E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	5.51E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	5.29E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00	3.27E+00
pr159	1.80E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	2.58E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	2.09E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	9.87E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	9.93E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	7.76E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.05E-01	5.05E-01	5.05E-01	5.05E-01	5.05E-01	5.05E-01	5.05E-01	5.05E-01	5.05E-01	5.05E-01	5.05E-01
nd160	2.10E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	5.62E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	1.26E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	1.64E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.26E-01	2.26E-01	2.26E-01	2.26E-01	2.26E-01	2.26E-01	2.26E-01	2.26E-01	2.26E-01	2.26E-01	2.26E-01
tb160	1.57E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02	3.97E-02
nd161	3.47E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	7.38E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sm161	1.58E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	5.81E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	4.56E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	1.25E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part D 1000 year criticality at 2.182 kw/package fission products page 164
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+01mwd, flux= 2.86E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	16030.0 yr	17000.0 yr	18000.0 yr	19000.0 yr	20000.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
dy161	8.28E-02	8.28E-02	8.28E-02	8.28E-02	8.28E-02	8.28E-02	8.28E-02	8.28E-02	8.28E-02	8.28E-02	8.28E-02
pm162	2.05E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	2.87E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	5.99E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	4.82E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	4.54E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	1.63E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.65E-02	5.65E-02	5.65E-02	5.65E-02	5.65E-02	5.65E-02	5.65E-02	5.65E-02	5.65E-02	5.65E-02	5.65E-02
sm163	5.34E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	5.28E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	3.14E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	4.64E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.68E-02	3.68E-02	3.68E-02	3.68E-02	3.68E-02	3.68E-02	3.68E-02	3.68E-02	3.68E-02	3.68E-02	3.68E-02
sm164	4.34E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	1.22E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	1.31E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	2.63E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.01E-02	1.01E-02	1.01E-02	1.01E-02	1.01E-02	1.01E-02	1.01E-02	1.01E-02	1.01E-02	1.01E-02	1.01E-02
sm165	7.48E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	1.17E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	9.17E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	6.47E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	5.13E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	3.49E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	9.61E-03	9.61E-03	9.61E-03	9.61E-03	9.61E-03	9.61E-03	9.61E-03	9.61E-03	9.61E-03	9.61E-03	9.61E-03
dy166	2.74E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	8.47E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	2.23E-07	2.19E-07	1.25E-07	7.02E-08	3.94E-08	2.21E-08	1.24E-08	6.96E-09	3.91E-09	2.19E-09	1.23E-09
er166	1.59E-03	1.59E-03	1.59E-03	1.59E-03	1.59E-03	1.59E-03	1.59E-03	1.59E-03	1.59E-03	1.59E-03	1.59E-03
er167	2.48E-05	2.48E-05	2.48E-05	2.48E-05	2.48E-05	2.48E-05	2.48E-05	2.48E-05	2.48E-05	2.48E-05	2.48E-05
er167m	7.05E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	1.33E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	7.45E-07	7.45E-07	7.45E-07	7.45E-07	7.45E-07	7.45E-07	7.45E-07	7.45E-07	7.45E-07	7.45E-07	7.45E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	7.93E-07	7.93E-07	7.93E-07	7.93E-07	7.93E-07	7.93E-07	7.93E-07	7.93E-07	7.93E-07	7.93E-07	7.93E-07
tm170	1.15E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	4.64E-09	4.64E-09	4.64E-09	4.64E-09	4.64E-09	4.64E-09	4.64E-09	4.64E-09	4.64E-09	4.64E-09	4.64E-09
er171	6.07E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	1.39E-11	2.75E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	1.06E-06	1.06E-06	1.06E-06	1.06E-06	1.06E-06	1.06E-06	1.06E-06	1.06E-06	1.06E-06	1.06E-06	1.06E-06
er172	2.36E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	3.21E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	6.76E-07	6.76E-07	6.76E-07	6.76E-07	6.76E-07	6.76E-07	6.76E-07	6.76E-07	6.76E-07	6.76E-07	6.76E-07
total	9.62E+03	9.62E+03	9.62E+03	9.62E+03	9.62E+03	9.62E+03	9.62E+03	9.62E+03	9.62E+03	9.62E+03	9.62E+03

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Part E 5000 year criticality at 2.182 kw/package actinides page 142
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
he 4	3.77E+01	3.77E+01	3.86E+01	3.95E+01	4.03E+01	4.12E+01	4.19E+01
tl206	6.10E-16	6.10E-16	6.41E-16	6.72E-16	7.04E-16	7.35E-16	7.67E-16
tl207	4.63E-11	4.64E-11	4.71E-11	4.78E-11	4.86E-11	4.93E-11	5.01E-11
tl208	1.37E-12	1.05E-12	7.98E-16	7.34E-16	7.38E-16	7.43E-16	7.47E-16
tl209	8.37E-13	8.39E-13	9.02E-13	9.68E-13	1.03E-12	1.10E-12	1.17E-12
pb206	3.76E-01	3.77E-01	4.17E-01	4.60E-01	5.06E-01	5.54E-01	6.03E-01
pb207	2.52E-02	2.53E-02	2.88E-02	3.24E-02	3.61E-02	3.99E-02	4.37E-02
pb208	2.11E-03	2.12E-03	2.16E-03	2.16E-03	2.16E-03	2.16E-03	2.16E-03
pb209	3.54E-09	3.54E-09	3.81E-09	4.09E-09	4.37E-09	4.66E-09	4.95E-09
pb210	1.32E-03	1.32E-03	1.38E-03	1.45E-03	1.52E-03	1.59E-03	1.65E-03
pb211	3.58E-10	3.59E-10	3.64E-10	3.70E-10	3.76E-10	3.82E-10	3.87E-10
pb212	8.15E-10	6.23E-10	4.73E-13	4.35E-13	4.38E-13	4.40E-13	4.43E-13
pb214	3.06E-09	3.07E-09	3.22E-09	3.38E-09	3.53E-09	3.69E-09	3.85E-09
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	4.92E-02	4.94E-02	5.60E-02	6.34E-02	7.13E-02	7.97E-02	8.87E-02
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	8.09E-07	8.10E-07	8.51E-07	8.92E-07	9.34E-07	9.76E-07	1.02E-06
bi211	2.12E-11	2.13E-11	2.16E-11	2.19E-11	2.23E-11	2.26E-11	2.30E-11
bi212	7.73E-11	5.91E-11	4.49E-14	4.13E-14	4.15E-14	4.18E-14	4.20E-14
bi213	8.42E-10	8.44E-10	9.07E-10	9.73E-10	1.04E-09	1.11E-09	1.18E-09
bi214	2.27E-09	2.28E-09	2.39E-09	2.51E-09	2.62E-09	2.74E-09	2.86E-09
po210	2.24E-05	2.24E-05	2.35E-05	2.46E-05	2.58E-05	2.69E-05	2.81E-05
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	2.35E-16	2.35E-16	2.39E-16	2.42E-16	2.46E-16	2.50E-16	2.54E-16
po212	4.06E-21	3.11E-21	2.36E-24	2.17E-24	2.18E-24	2.20E-24	2.21E-24
po213	1.27E-18	1.27E-18	1.36E-18	1.46E-18	1.56E-18	1.67E-18	1.77E-18
po214	3.13E-16	3.13E-16	3.29E-16	3.45E-16	3.61E-16	3.77E-16	3.93E-16
po215	3.00E-16	3.00E-16	3.05E-16	3.10E-16	3.15E-16	3.20E-16	3.24E-16
po216	3.14E-15	2.40E-15	1.83E-18	1.68E-18	1.69E-18	1.70E-18	1.71E-18
po218	3.61E-10	3.62E-10	3.79E-10	3.98E-10	4.17E-10	4.35E-10	4.54E-10
at217	1.01E-14	1.02E-14	1.09E-14	1.17E-14	1.25E-14	1.33E-14	1.42E-14
rn218	6.15E-26	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	6.80E-13	6.80E-13	6.91E-13	7.02E-13	7.13E-13	7.24E-13	7.35E-13
rn220	1.23E-12	9.39E-13	7.13E-16	6.55E-16	6.59E-16	6.63E-16	6.68E-16
rn222	6.53E-07	6.54E-07	6.86E-07	7.20E-07	7.54E-07	7.87E-07	8.21E-07
fr221	9.39E-11	9.41E-11	1.01E-10	1.09E-10	1.16E-10	1.24E-10	1.31E-10
fr223	3.16E-12	3.16E-12	3.21E-12	3.26E-12	3.31E-12	3.36E-12	3.41E-12
ra222	6.80E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	1.73E-07	1.73E-07	1.76E-07	1.78E-07	1.81E-07	1.84E-07	1.87E-07
ra224	7.11E-09	5.44E-09	4.13E-12	3.80E-12	3.82E-12	3.84E-12	3.87E-12
ra225	4.16E-07	4.17E-07	4.48E-07	4.81E-07	5.14E-07	5.48E-07	5.82E-07
ra226	1.02E-01	1.02E-01	1.07E-01	1.12E-01	1.17E-01	1.22E-01	1.28E-01
ra228	4.21E-10	4.22E-10	4.45E-10	4.69E-10	4.93E-10	5.17E-10	5.41E-10
ac225	2.81E-07	2.82E-07	3.03E-07	3.25E-07	3.47E-07	3.70E-07	3.93E-07
ac227	1.22E-04	1.22E-04	1.24E-04	1.26E-04	1.28E-04	1.30E-04	1.32E-04
ac228	5.14E-14	5.15E-14	5.43E-14	5.72E-14	6.01E-14	6.31E-14	6.60E-14
th226	3.38E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	2.84E-07	2.84E-07	2.88E-07	2.93E-07	2.98E-07	3.02E-07	3.07E-07
th228	1.38E-06	1.06E-06	8.02E-10	7.38E-10	7.42E-10	7.47E-10	7.51E-10
th229	8.23E-02	8.25E-02	8.87E-02	9.51E-02	1.02E-01	1.08E-01	1.15E-01
th230	5.44E+00	5.44E+00	5.69E+00	5.95E+00	6.20E+00	6.45E+00	6.70E+00
th231	1.09E-07	2.97E-08	2.98E-08	3.00E-08	3.02E-08	3.03E-08	3.05E-08

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decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
th232	1.05E+00	1.05E+00	1.11E+00	1.17E+00	1.23E+00	1.29E+00	1.35E+00
th233	1.47E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06
pa231	1.87E-01	1.87E-01	1.90E-01	1.93E-01	1.96E-01	1.99E-01	2.02E-01
pa232	2.51E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	1.86E-05	1.85E-05	1.85E-05	1.85E-05	1.85E-05	1.85E-05	1.85E-05
pa234m	2.16E-10	2.16E-10	2.16E-10	2.16E-10	2.16E-10	2.16E-10	2.16E-10
pa234	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	3.33E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	1.20E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	5.13E-05	3.82E-05	2.42E-08	2.16E-08	2.15E-08	2.13E-08	2.12E-08
u233	3.16E+00	3.17E+00	3.32E+00	3.48E+00	3.64E+00	3.80E+00	3.96E+00
u234	1.12E+02	1.12E+02	1.12E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02
u235	7.29E+03	7.29E+03	7.34E+03	7.38E+03	7.42E+03	7.46E+03	7.50E+03
u236	2.02E+03	2.02E+03	2.03E+03	2.04E+03	2.05E+03	2.06E+03	2.06E+03
u237	3.68E-05	1.81E-10	3.85E-13	3.55E-13	3.27E-13	3.02E-13	2.78E-13
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05
u239	2.00E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	1.20E-18	1.20E-18	1.27E-18	1.33E-18	1.40E-18	1.47E-18	1.54E-18
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	3.92E-10	1.85E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	1.80E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	4.11E-04	4.11E-04	4.09E-04	4.07E-04	4.04E-04	4.02E-04	3.99E-04
np237	5.46E+02	5.46E+02	5.46E+02	5.46E+02	5.46E+02	5.46E+02	5.46E+02
np238	1.15E-05	3.57E-11	3.03E-13	2.22E-15	1.63E-17	1.19E-19	8.74E-22
np239	2.91E-04	1.89E-06	1.73E-06	1.57E-06	1.43E-06	1.30E-06	1.19E-06
np240m	1.02E-20	1.02E-20	1.08E-20	1.14E-20	1.20E-20	1.25E-20	1.31E-20
np240	8.33E-14	1.05E-22	1.11E-22	1.17E-22	1.23E-22	1.29E-22	1.35E-22
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	9.87E-08	9.99E-10	9.18E-10	9.12E-10	9.07E-10	9.02E-10	8.96E-10
pu237	4.84E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	1.74E-01	1.37E-01	6.52E-05	3.03E-08	5.65E-11	3.53E-13	2.56E-15
pu239	1.54E+03	1.54E+03	1.50E+03	1.46E+03	1.41E+03	1.37E+03	1.34E+03
pu240	1.03E+02	1.02E+02	9.24E+01	8.31E+01	7.48E+01	6.73E+01	6.05E+01
pu241	2.54E-02	5.97E-03	1.27E-05	1.17E-05	1.08E-05	9.97E-06	9.18E-06
pu242	6.74E+01	6.74E+01	6.73E+01	6.72E+01	6.70E+01	6.69E+01	6.68E+01
pu243	1.43E-07	1.11E-15	1.11E-15	1.11E-15	1.11E-15	1.11E-15	1.11E-15
pu244	6.06E-08	6.07E-08	6.41E-08	6.76E-08	7.10E-08	7.44E-08	7.79E-08
pu245	8.21E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	5.63E-22	5.63E-22	5.41E-22	5.20E-22	5.00E-22	4.80E-22	4.62E-22
am239	2.00E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	8.61E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	7.77E-01	7.59E-01	1.62E-01	3.29E-02	6.89E-03	1.63E-03	5.54E-04
am242m	2.27E-04	1.96E-04	1.67E-06	1.22E-08	8.94E-11	6.56E-13	4.80E-15
am242	1.81E-08	2.53E-09	2.15E-11	1.57E-13	1.15E-15	8.46E-18	6.20E-20
am243	2.21E+00	2.20E+00	2.01E+00	1.83E+00	1.66E+00	1.51E+00	1.38E+00
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	1.25E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	1.66E-19	2.63E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	1.41E-24	1.41E-24	1.35E-24	1.30E-24	1.25E-24	1.20E-24	1.15E-24
cm241	1.57E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1
Part E 5000 year criticality at 2.182 kw/package actinides page 144
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams

basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cm242	3.65E-06	5.11E-07	4.34E-09	3.18E-11	2.33E-13	1.71E-15	1.25E-17
cm243	9.17E-11	4.42E-11	2.51E-21	6.86E-32	2.04E-42	.00E+00	.00E+00
cm244	1.97E-04	6.24E-05	4.59E-21	1.07E-37	.00E+00	.00E+00	.00E+00
cm245	8.30E-03	8.28E-03	7.65E-03	7.05E-03	6.50E-03	5.99E-03	5.52E-03
cm246	2.43E-04	2.41E-04	2.09E-04	1.81E-04	1.56E-04	1.35E-04	1.17E-04
cm247	3.20E-05	3.20E-05	3.20E-05	3.20E-05	3.20E-05	3.20E-05	3.20E-05
cm248	1.88E-06	1.88E-06	1.88E-06	1.88E-06	1.87E-06	1.87E-06	1.87E-06
cm249	1.95E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	1.34E-15	1.34E-15	1.29E-15	1.24E-15	1.19E-15	1.14E-15	1.10E-15
cm251	6.06E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	1.40E-12	6.90E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	8.37E-21	3.96E-24	3.81E-24	3.66E-24	3.52E-24	3.38E-24	3.25E-24
bk251	2.06E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	5.46E-10	5.16E-10	7.57E-11	1.05E-11	1.45E-12	2.01E-13	2.78E-14
cf250	2.31E-14	4.72E-15	1.36E-19	1.30E-19	1.25E-19	1.21E-19	1.16E-19
cf251	1.37E-15	1.34E-15	6.33E-16	2.92E-16	1.35E-16	6.24E-17	2.88E-17
cf252	1.01E-19	3.89E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	1.74E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	2.68E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	2.00E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	3.67E-33	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05

1

Part E 5000 year criticality at 2.182 kw/package fission products page 148
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0

nuclide concentrations, grams

basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
h 3	1.09E-06	2.01E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
li 6	7.54E-05	7.54E-05	7.54E-05	7.54E-05	7.54E-05	7.54E-05	7.54E-05
li 7	2.93E-06	2.93E-06	2.93E-06	2.93E-06	2.93E-06	2.93E-06	2.93E-06
be 9	5.65E-06	5.65E-06	5.65E-06	5.65E-06	5.65E-06	5.65E-06	5.65E-06
be 10	3.74E-05	3.74E-05	3.74E-05	3.73E-05	3.73E-05	3.73E-05	3.73E-05
c 14	7.78E-07	7.75E-07	6.89E-07	6.11E-07	5.41E-07	4.79E-07	4.25E-07
ni 66	6.84E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 66	1.07E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 66	1.79E-07	1.79E-07	1.79E-07	1.79E-07	1.79E-07	1.79E-07	1.79E-07
cu 67	1.02E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 67	2.37E-08	2.37E-08	2.37E-08	2.37E-08	2.37E-08	2.37E-08	2.37E-08
zn 68	2.12E-09	2.12E-09	2.12E-09	2.12E-09	2.12E-09	2.12E-09	2.12E-09
zn 69	5.33E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 69m	6.33E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 69	7.81E-08	7.81E-08	7.81E-08	7.81E-08	7.81E-08	7.81E-08	7.81E-08
zn 70	2.08E-06	2.08E-06	2.08E-06	2.08E-06	2.08E-06	2.08E-06	2.08E-06
ga 70	7.49E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 70	2.85E-09	2.85E-09	2.85E-09	2.85E-09	2.85E-09	2.85E-09	2.85E-09
zn 71	1.14E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 71m	4.73E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 71	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05	2.05E-05
ge 71	8.52E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 71m	8.80E-26	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 72	1.58E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 72	2.79E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 72	1.29E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

zn 72	4.25E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 72	1.29E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 72	1.33E-03	1.33E-03	1.33E-03	1.33E-03	1.33E-03	1.33E-03	1.33E-03
co 73	1.02E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 73	4.18E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 73	2.40E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 73	1.87E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 73	1.41E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 73	4.18E-03	4.18E-03	4.18E-03	4.18E-03	4.18E-03	4.18E-03	4.18E-03
ge 73m	3.98E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
co 74	1.53E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 74	5.46E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 74	4.14E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 74	2.02E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 74	3.15E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 74	3.56E-03	3.56E-03	3.56E-03	3.56E-03	3.56E-03	3.56E-03	3.56E-03
co 75	2.80E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 75	6.51E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 75	8.12E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 75	5.38E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 75	7.99E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75	3.17E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 75m	1.62E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 75	3.40E-02	3.40E-02	3.40E-02	3.40E-02	3.40E-02	3.40E-02	3.40E-02
ni 76	3.46E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 76	1.95E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1
Part E 5000 year criticality at 2.182 kw/package fission products page 149
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
zn 76	7.02E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 76	5.96E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 76	1.04E-01	1.04E-01	1.04E-01	1.04E-01	1.04E-01	1.04E-01	1.04E-01
as 76	2.46E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 76	6.57E-04	6.57E-04	6.57E-04	6.57E-04	6.57E-04	6.57E-04	6.57E-04
ni 77	2.65E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 77	1.34E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 77	3.21E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 77	4.99E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77	5.82E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 77m	2.05E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 77	6.28E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 77	2.38E-01	2.38E-01	2.38E-01	2.38E-01	2.38E-01	2.38E-01	2.38E-01
se 77m	2.58E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ni 78	6.79E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 78	1.96E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 78	2.81E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 78	4.16E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 78	7.09E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 78	7.40E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 78	7.40E-01	7.40E-01	7.40E-01	7.40E-01	7.40E-01	7.40E-01	7.40E-01
cu 79	5.74E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 79	9.85E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 79	2.78E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 79	4.67E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 79	1.43E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 79	9.48E-01	9.48E-01	9.29E-01	9.09E-01	8.90E-01	8.72E-01	8.54E-01
se 79m	6.15E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

br 79	4.82E-01	4.82E-01	5.01E-01	5.21E-01	5.40E-01	5.58E-01	5.76E-01
br 79m	3.45E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 79	2.23E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cu 80	4.30E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 80	1.88E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 80	1.14E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 80	1.89E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 80	1.11E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 80	4.01E+00	4.01E+00	4.01E+00	4.01E+00	4.01E+00	4.01E+00	4.01E+00
br 80	8.70E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 80m	3.24E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 80	7.43E-04	7.43E-04	7.43E-04	7.43E-04	7.43E-04	7.43E-04	7.43E-04
cu 81	3.60E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 81	9.70E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 81	5.55E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 81	5.25E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 81	3.53E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81	1.23E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 81m	2.65E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 81	5.97E+00	5.97E+00	5.97E+00	5.97E+00	5.97E+00	5.97E+00	5.97E+00
kr 81	1.08E-06	1.08E-06	1.08E-06	1.07E-06	1.07E-06	1.07E-06	1.06E-06
kr 81m	4.97E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zn 82	2.44E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 82	1.98E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 150
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
ge 82	3.19E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82	2.13E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 82m	5.75E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 82	9.73E+00	9.73E+00	9.73E+00	9.73E+00	9.73E+00	9.73E+00	9.73E+00
br 82	5.56E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 82m	1.37E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 82	1.27E-01	1.27E-01	1.27E-01	1.27E-01	1.27E-01	1.27E-01	1.27E-01
zn 83	7.47E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 83	1.04E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 83	5.78E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 83	2.44E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83	1.77E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 83m	1.02E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 83	2.48E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 83	1.37E+01	1.37E+01	1.37E+01	1.37E+01	1.37E+01	1.37E+01	1.37E+01
kr 83m	1.89E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ga 84	3.62E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 84	2.45E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 84	7.43E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 84	1.03E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84	1.05E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 84m	5.05E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 84	3.35E+01	3.35E+01	3.35E+01	3.35E+01	3.35E+01	3.35E+01	3.35E+01
ga 85	4.71E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 85	8.81E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 85	1.66E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85	8.33E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 85m	4.40E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 85	1.09E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 85	4.66E-04	6.70E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

kr 85m	1.02E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 85	3.53E+01	3.53E+01	3.53E+01	3.53E+01	3.53E+01	3.53E+01	3.53E+01
ge 86	1.87E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 86	4.30E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 86	9.94E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86	4.36E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 86m	7.84E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 86	5.67E+01	5.67E+01	5.67E+01	5.67E+01	5.67E+01	5.67E+01	5.67E+01
rb 86	5.00E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 86m	1.51E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 86	6.79E-02	6.79E-02	6.79E-02	6.79E-02	6.79E-02	6.79E-02	6.79E-02
ge 87	1.08E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 87	9.13E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 87	2.19E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 87	5.80E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 87	6.00E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 87	7.39E+01	7.39E+01	7.39E+01	7.39E+01	7.39E+01	7.39E+01	7.39E+01
sr 87	3.40E-04	3.40E-04	3.41E-04	3.42E-04	3.43E-04	3.44E-04	3.46E-04
sr 87m	9.46E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ge 88	1.70E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 88	1.91E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 88	3.12E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 151
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
br 88	1.72E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	1.90E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	2.03E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02
as 89	2.47E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	3.06E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	3.16E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	4.52E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	2.31E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	1.11E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02
y 89m	3.83E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	1.74E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	6.97E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	7.43E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	8.38E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	3.65E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	1.85E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	2.76E-02	1.32E-02	5.57E-13	1.12E-23	2.27E-34	.00E+00	.00E+00
y 90	7.19E-06	3.43E-06	1.45E-16	2.92E-27	4.20E-38	.00E+00	.00E+00
y 90m	6.65E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	1.74E+02	1.74E+02	1.74E+02	1.74E+02	1.74E+02	1.74E+02	1.74E+02
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	4.29E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	8.18E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	1.55E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	1.81E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	1.13E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	1.66E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	5.70E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.83E+02	1.83E+02	1.83E+02	1.83E+02	1.83E+02	1.83E+02	1.83E+02
nb 91	2.56E-11	2.48E-11	9.22E-12	3.33E-12	1.20E-12	4.33E-13	1.56E-13

se 92	2.15E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	8.29E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 92	1.78E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	1.23E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	3.36E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	4.42E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	1.93E+02	1.93E+02	1.93E+02	1.93E+02	1.93E+02	1.93E+02	1.93E+02
nb 92	2.52E-07	2.52E-07	2.52E-07	2.52E-07	2.52E-07	2.52E-07	2.52E-07
se 93	8.84E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	7.89E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	4.25E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	1.25E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	1.70E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	9.41E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02
nb 93	1.25E+00	1.26E+00	1.32E+00	1.38E+00	1.44E+00	1.51E+00	1.57E+00
nb 93m	1.48E-03	1.48E-03	1.48E-03	1.48E-03	1.48E-03	1.48E-03	1.48E-03
br 94	3.19E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	3.12E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	3.06E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 152
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sr 94	2.84E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	4.56E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	2.28E+02	2.28E+02	2.28E+02	2.28E+02	2.28E+02	2.28E+02	2.28E+02
nb 94	2.21E-04	2.21E-04	2.14E-04	2.07E-04	2.00E-04	1.93E-04	1.86E-04
nb 94m	6.76E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	3.43E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	9.46E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	2.10E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	8.57E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	2.65E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	2.36E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	1.29E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	1.48E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	2.29E+02	2.29E+02	2.29E+02	2.29E+02	2.29E+02	2.29E+02	2.29E+02
br 96	6.47E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	6.50E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	2.78E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	2.67E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	2.39E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	2.36E+02	2.36E+02	2.36E+02	2.36E+02	2.36E+02	2.36E+02	2.36E+02
nb 96	8.75E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	6.91E+00	6.91E+00	6.91E+00	6.91E+00	6.91E+00	6.91E+00	6.91E+00
kr 97	2.90E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	7.29E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	5.48E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	1.17E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	2.46E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	1.76E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	2.30E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	2.22E+02	2.22E+02	2.22E+02	2.22E+02	2.22E+02	2.22E+02	2.22E+02
kr 98	1.67E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	4.01E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	3.40E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	1.60E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

zr 98	1.31E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	1.23E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98m	8.70E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	2.38E+02	2.38E+02	2.38E+02	2.38E+02	2.38E+02	2.38E+02	2.38E+02
tc 98	1.42E-03	1.42E-03	1.42E-03	1.42E-03	1.42E-03	1.42E-03	1.42E-03
rb 99	6.20E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	6.16E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	2.37E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	8.81E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	4.07E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	2.88E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	1.10E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	2.20E+02	2.20E+02	2.19E+02	2.19E+02	2.18E+02	2.17E+02	2.17E+02
tc 99m	8.80E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	1.47E+01	1.47E+01	1.54E+01	1.61E+01	1.68E+01	1.76E+01	1.83E+01
rb100	3.15E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	5.02E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	3.47E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 153
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
zr100	3.02E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	6.83E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	8.94E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02	2.69E+02
tc100	1.15E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	1.97E+01	1.97E+01	1.97E+01	1.97E+01	1.97E+01	1.97E+01	1.97E+01
rb101	2.50E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	7.85E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	1.37E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	4.80E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	2.82E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	3.65E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	3.55E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02	2.23E+02
sr102	2.17E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	1.31E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	5.05E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	4.29E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	2.58E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	2.01E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	9.02E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	2.14E+02	2.14E+02	2.14E+02	2.14E+02	2.14E+02	2.14E+02	2.14E+02
rh102	1.15E-08	8.82E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	6.32E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	1.17E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	7.83E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	3.44E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	2.31E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	1.90E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	1.19E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02
rh103m	1.18E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	2.72E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	1.13E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	4.22E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

nb104	4.56E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	1.49E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc104	2.87E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02
rh104	8.28E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	3.72E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	4.31E+01	4.31E+01	4.31E+01	4.31E+01	4.31E+01	4.31E+01	4.31E+01
y105	1.66E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	3.05E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	1.09E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	6.08E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	9.15E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	3.25E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	2.59E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	2.60E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02

1

Part E 5000 year criticality at 2.182 kw/package fission products page 154
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
y106	1.82E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	1.79E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	5.44E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	6.96E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	4.54E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	4.48E-04	5.96E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	4.16E-10	5.53E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	4.80E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	8.11E+01	8.11E+01	8.11E+01	8.11E+01	8.11E+01	8.11E+01	8.11E+01
ag106	2.95E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	1.72E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	4.75E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	6.78E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	1.04E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	1.66E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	2.18E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	1.26E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	5.21E+01	5.21E+01	5.21E+01	5.21E+01	5.21E+01	5.21E+01	5.21E+01
pd107m	1.66E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	1.09E-01	1.09E-01	1.15E-01	1.20E-01	1.26E-01	1.31E-01	1.37E-01
zr108	3.08E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	6.29E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	5.17E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	1.20E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	1.59E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	9.97E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	4.10E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	3.32E+01	3.32E+01	3.32E+01	3.32E+01	3.32E+01	3.32E+01	3.32E+01
ag108	3.20E-13	2.31E-16	1.16E-18	4.95E-21	2.11E-23	9.00E-26	3.83E-28
ag108m	8.83E-08	7.50E-08	3.76E-10	1.60E-12	6.84E-15	2.91E-17	1.24E-19
cd108	2.54E-04	2.54E-04	2.54E-04	2.54E-04	2.54E-04	2.54E-04	2.54E-04
zr109	8.64E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	3.62E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	5.18E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	1.11E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	1.46E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	3.96E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	1.24E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

pd109	2.86E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	9.17E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag109	2.22E+01	2.22E+01	2.22E+01	2.22E+01	2.22E+01	2.22E+01	2.22E+01
ag109m	2.30E-10	6.66E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	9.09E-12	6.72E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	6.88E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	1.16E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	8.74E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	1.81E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	7.79E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	4.13E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	9.84E+00	9.84E+00	9.84E+00	9.84E+00	9.84E+00	9.84E+00	9.84E+00
ag110	7.25E-11	2.42E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	2.51E-06	1.56E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package fission products page 155
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cd110	6.08E+00	6.08E+00	6.08E+00	6.08E+00	6.08E+00	6.08E+00	6.08E+00
nb111	8.39E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	2.14E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	4.31E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	6.24E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	9.34E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	1.29E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	9.58E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	5.95E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	5.96E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	5.15E+00	5.15E+00	5.15E+00	5.15E+00	5.15E+00	5.15E+00	5.15E+00
cd111m	3.98E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb112	1.60E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	7.45E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	1.93E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	5.26E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	5.54E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	3.54E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	5.29E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	2.70E+00	2.70E+00	2.70E+00	2.70E+00	2.70E+00	2.70E+00	2.70E+00
mo113	3.66E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	8.16E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	1.54E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	1.70E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	2.67E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	5.41E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	3.87E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	3.18E-02	3.18E-02	3.18E-02	3.18E-02	3.18E-02	3.18E-02	3.18E-02
cd113m	2.95E-06	6.74E-07	1.32E-27	.00E+00	.00E+00	.00E+00	.00E+00
in113	3.06E-02	3.06E-02	3.06E-02	3.06E-02	3.06E-02	3.06E-02	3.06E-02
in113m	1.86E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	3.13E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	4.39E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	1.77E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	1.82E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	3.68E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	1.20E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	3.00E+00	3.00E+00	3.00E+00	3.00E+00	3.00E+00	3.00E+00	3.00E+00
in114	5.41E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	2.43E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sn114	1.55E-04	1.55E-04	1.55E-04	1.55E-04	1.55E-04	1.55E-04	1.55E-04
mo115	4.73E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc115	2.20E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	4.82E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	3.95E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	6.15E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	1.53E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	9.60E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	3.48E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	3.26E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	4.60E-01	4.60E-01	4.60E-01	4.60E-01	4.60E-01	4.60E-01	4.60E-01
in115m	2.92E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1
Part E 5000 year criticality at 2.182 kw/package fission products page 156
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sn115	4.66E-02	4.66E-02	4.66E-02	4.66E-02	4.66E-02	4.66E-02	4.66E-02
tc116	4.07E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	3.34E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	2.54E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	2.51E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	3.60E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	2.71E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	1.34E+00	1.34E+00	1.34E+00	1.34E+00	1.34E+00	1.34E+00	1.34E+00
in116	5.16E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	4.47E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	4.96E-01	4.96E-01	4.96E-01	4.96E-01	4.96E-01	4.96E-01	4.96E-01
tc117	6.67E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	1.06E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	1.26E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	6.49E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	8.01E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	5.88E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	1.73E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	5.25E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	3.76E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	1.23E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	1.21E+00	1.21E+00	1.21E+00	1.21E+00	1.21E+00	1.21E+00	1.21E+00
sn117m	1.35E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	1.08E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	3.38E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	7.91E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	1.96E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	4.07E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	1.54E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	5.65E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	9.37E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	5.80E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	9.94E-01	9.94E-01	9.94E-01	9.94E-01	9.94E-01	9.94E-01	9.94E-01
ru119	1.33E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	4.59E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	6.78E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	2.82E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	2.20E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	8.12E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	1.15E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	1.33E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	1.06E+00	1.06E+00	1.06E+00	1.06E+00	1.06E+00	1.06E+00	1.06E+00

sn119m	3.95E-08	2.19E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	3.00E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh120	3.70E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	7.83E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	1.02E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	9.59E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	5.91E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	1.42E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00
rh121	1.51E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 157
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
pd121	5.55E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	5.14E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	2.61E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	3.97E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	4.58E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	2.06E-08	1.15E-10	5.64E-16	1.90E-21	6.40E-27	2.16E-32	7.15E-38
sn121m	3.85E-06	2.64E-06	1.30E-11	4.36E-17	1.47E-22	4.95E-28	1.67E-33
sb121	1.07E+00	1.07E+00	1.07E+00	1.07E+00	1.07E+00	1.07E+00	1.07E+00
rh122	7.25E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	4.08E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	1.61E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	1.10E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	3.47E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	2.27E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	1.34E+00	1.34E+00	1.34E+00	1.34E+00	1.34E+00	1.34E+00	1.34E+00
sb122	4.95E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	5.36E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	4.90E-02	4.90E-02	4.90E-02	4.90E-02	4.90E-02	4.90E-02	4.90E-02
rh123	7.81E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	1.53E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	5.29E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	1.21E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	1.01E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	2.21E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	2.20E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	5.43E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	1.26E+00	1.26E+00	1.26E+00	1.26E+00	1.26E+00	1.26E+00	1.26E+00
te123	3.85E-04	3.85E-04	3.85E-04	3.85E-04	3.85E-04	3.85E-04	3.85E-04
te123m	1.42E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	1.45E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	2.72E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	1.97E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	1.25E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	2.25E+00	2.25E+00	2.25E+00	2.25E+00	2.25E+00	2.25E+00	2.25E+00
sb124	8.89E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	3.27E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	4.16E-02	4.16E-02	4.16E-02	4.16E-02	4.16E-02	4.16E-02	4.16E-02
pd125	1.16E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	1.77E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	2.22E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	5.27E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	2.06E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	1.08E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	2.28E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sb125	4.57E-05	2.25E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	2.74E+00	2.74E+00	2.74E+00	2.74E+00	2.74E+00	2.74E+00	2.74E+00
te125m	6.11E-07	3.20E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	3.91E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	3.02E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	8.12E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	7.36E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	4.36E+00	4.36E+00	4.33E+00	4.30E+00	4.27E+00	4.24E+00	4.21E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 158
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sb126	2.14E-07	2.07E-07	2.06E-07	2.04E-07	2.03E-07	2.02E-07	2.00E-07
sb126m	1.58E-09	1.58E-09	1.56E-09	1.55E-09	1.54E-09	1.53E-09	1.52E-09
te126	7.15E-01	7.16E-01	7.45E-01	7.75E-01	8.05E-01	8.34E-01	8.64E-01
xe126	1.29E-09	1.29E-09	1.29E-09	1.29E-09	1.29E-09	1.29E-09	1.29E-09
ag127	2.09E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	6.96E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	5.37E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	1.75E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	6.79E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	3.03E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	7.47E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	7.54E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	3.71E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	1.14E+01	1.14E+01	1.14E+01	1.14E+01	1.14E+01	1.14E+01	1.14E+01
xe127	2.44E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	5.78E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	1.34E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	8.87E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	1.49E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	1.33E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	2.75E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	2.49E+01	2.49E+01	2.49E+01	2.49E+01	2.49E+01	2.49E+01	2.49E+01
i128	2.99E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	4.16E-01	4.16E-01	4.16E-01	4.16E-01	4.16E-01	4.16E-01	4.16E-01
cd129	1.90E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	6.74E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	4.76E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	1.57E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	1.52E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	3.80E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	5.31E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	5.09E+01	5.09E+01	5.09E+01	5.09E+01	5.09E+01	5.09E+01	5.09E+01
xe129	4.54E-02	4.55E-02	4.76E-02	4.99E-02	5.21E-02	5.44E-02	5.66E-02
xe129m	3.45E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	1.16E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	2.92E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	2.47E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	7.57E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	5.53E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
i130	2.17E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	1.40E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.22E+00	1.22E+00	1.22E+00	1.22E+00	1.22E+00	1.22E+00	1.22E+00
cd131	3.95E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	1.03E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	3.64E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

sb131	3.57E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	4.09E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131m	6.20E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	2.21E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02	1.40E+02
xe131m	3.59E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part E 5000 year criticality at 2.182 kw/package fission products page 159
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
cd132	6.24E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	1.94E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	3.01E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	3.72E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	2.58E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	1.31E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	3.87E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	2.91E+02	2.91E+02	2.91E+02	2.91E+02	2.91E+02	2.91E+02	2.91E+02
cs132	6.08E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	5.12E-05	5.12E-05	5.12E-05	5.12E-05	5.12E-05	5.12E-05	5.12E-05
in133	3.51E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	3.08E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	3.38E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	2.83E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	1.03E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	5.12E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	4.38E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	3.11E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	3.99E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02	3.47E+02
ba133	1.93E-12	2.68E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	4.25E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	3.68E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	3.63E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	3.02E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	1.60E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	2.44E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	1.27E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	4.36E+02	4.36E+02	4.36E+02	4.36E+02	4.36E+02	4.36E+02	4.36E+02
xe134m	3.47E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	8.52E-04	3.55E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	1.04E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	3.11E+01	3.11E+01	3.11E+01	3.11E+01	3.11E+01	3.11E+01	3.11E+01
sn135	1.28E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	3.16E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	6.29E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	1.55E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	2.32E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	1.25E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	1.84E+02	1.84E+02	1.84E+02	1.84E+02	1.84E+02	1.83E+02	1.83E+02
cs135m	7.05E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	1.12E+00	1.12E+00	1.17E+00	1.23E+00	1.28E+00	1.34E+00	1.39E+00
ba135m	1.66E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	1.96E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	2.37E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	2.72E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	2.62E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	6.98E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

xe136	5.69E+02	5.69E+02	5.69E+02	5.69E+02	5.69E+02	5.69E+02	5.69E+02
cs136	2.01E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba136	4.97E+00	4.97E+00	4.97E+00	4.97E+00	4.97E+00	4.97E+00	4.97E+00
ba136m	6.10E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package fission products page 160
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0
nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sb137	1.81E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	1.83E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	8.08E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	1.46E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	6.32E-02	3.16E-02	5.82E-12	5.37E-22	4.94E-32	4.61E-42	.00E+00
ba137	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02	3.67E+02
ba137m	9.65E-09	4.82E-09	8.89E-19	8.19E-29	7.55E-39	.00E+00	.00E+00
sb138	6.96E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	1.72E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	1.08E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	5.24E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	1.28E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	4.26E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	3.72E+02	3.72E+02	3.72E+02	3.72E+02	3.72E+02	3.72E+02	3.72E+02
la138	2.23E-03	2.23E-03	2.23E-03	2.23E-03	2.23E-03	2.23E-03	2.23E-03
sb139	6.78E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	1.15E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	2.08E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	1.91E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	3.51E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	3.28E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	3.54E+02	3.54E+02	3.54E+02	3.54E+02	3.54E+02	3.54E+02	3.54E+02
ce139	4.65E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	3.32E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	2.70E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	1.84E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	4.68E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	3.65E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	7.10E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	9.51E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	3.74E+02	3.74E+02	3.74E+02	3.74E+02	3.74E+02	3.74E+02	3.74E+02
pr140	1.49E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	9.56E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	1.30E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	2.28E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	1.11E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	6.54E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	8.48E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	1.69E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	3.28E+02	3.28E+02	3.28E+02	3.28E+02	3.28E+02	3.28E+02	3.28E+02
nd141	8.48E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	7.59E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	1.34E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	6.31E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	4.45E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	3.67E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	3.25E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	3.30E+02	3.30E+02	3.30E+02	3.30E+02	3.30E+02	3.30E+02	3.30E+02
pr142	1.06E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

nd142	3.40E+00	3.40E+00	3.40E+00	3.40E+00	3.40E+00	3.40E+00	3.40E+00
i143	3.72E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package fission products page 161
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
xe143	7.31E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	2.47E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	7.37E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	4.93E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	6.95E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	6.86E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	2.73E+02	2.73E+02	2.73E+02	2.73E+02	2.73E+02	2.73E+02	2.73E+02
i144	5.46E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	1.78E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	3.99E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	4.68E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	2.14E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	1.32E-03	3.49E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	5.54E-08	1.47E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	3.24E-10	8.56E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	3.50E+02	3.50E+02	3.50E+02	3.50E+02	3.50E+02	3.50E+02	3.50E+02
i145	2.30E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	1.42E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	5.49E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	7.78E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	8.94E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	7.22E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	8.61E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	2.07E+02	2.07E+02	2.07E+02	2.07E+02	2.07E+02	2.07E+02	2.07E+02
pm145	1.46E-07	4.76E-08	1.51E-24	1.48E-41	.00E+00	.00E+00	.00E+00
sm145	7.55E-09	1.50E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	8.27E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	7.72E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	2.16E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	1.50E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	2.56E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	4.60E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	1.91E+02	1.91E+02	1.91E+02	1.91E+02	1.91E+02	1.91E+02	1.91E+02
pm146	9.27E-10	2.16E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	2.89E-03	2.89E-03	2.89E-03	2.89E-03	2.89E-03	2.89E-03	2.89E-03
xe147	9.31E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	2.50E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	1.05E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	4.39E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	1.33E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	2.02E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	2.36E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	2.06E-03	7.52E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	9.16E+01	9.16E+01	9.16E+01	9.16E+01	9.16E+01	9.16E+01	9.16E+01
cs148	1.73E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	1.78E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	3.26E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	9.32E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	2.58E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
pm148	1.31E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	1.03E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package fission products page 162
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sm148	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01	2.98E+01
cs149	1.72E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	2.27E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	2.10E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	4.44E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	1.72E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	8.38E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	2.58E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	7.88E-01	7.88E-01	7.88E-01	7.88E-01	7.88E-01	7.88E-01	7.88E-01
eu149	1.72E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	1.12E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	2.86E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	8.55E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	1.46E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	4.71E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	4.94E+01	4.94E+01	4.94E+01	4.94E+01	4.94E+01	4.94E+01	4.94E+01
pm150	3.98E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	8.21E+01	8.21E+01	8.21E+01	8.21E+01	8.21E+01	8.21E+01	8.21E+01
eu150	3.00E-08	1.68E-08	1.17E-16	4.58E-25	1.79E-33	6.94E-42	.00E+00
ba151	1.01E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	1.73E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	1.03E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	7.27E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	4.78E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	6.63E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	3.04E-02	2.41E-02	1.37E-05	6.20E-09	2.80E-12	1.26E-15	5.71E-19
eu151	5.87E+00	5.87E+00	5.90E+00	5.90E+00	5.90E+00	5.90E+00	5.90E+00
ba152	2.75E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	5.64E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	7.31E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	7.80E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	2.83E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	1.05E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	6.47E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	3.77E+01	3.77E+01	3.77E+01	3.77E+01	3.77E+01	3.77E+01	3.77E+01
eu152	3.67E-03	7.70E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	1.59E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	6.80E-01	6.80E-01	6.81E-01	6.81E-01	6.81E-01	6.81E-01	6.81E-01
la153	6.53E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	7.06E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	2.29E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	1.57E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	9.07E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	2.17E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	2.77E+01	2.77E+01	2.77E+01	2.77E+01	2.77E+01	2.77E+01	2.77E+01
gd153	5.73E-07	1.26E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	7.85E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	9.84E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	9.44E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	4.21E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	1.37E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	4.44E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
sm154	9.26E+00	9.26E+00	9.26E+00	9.26E+00	9.26E+00	9.26E+00	9.26E+00
eu154	1.79E-03	1.59E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	8.60E+00	8.60E+00	8.60E+00	8.60E+00	8.60E+00	8.60E+00	8.60E+00
la155	4.14E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	2.29E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	2.24E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	6.29E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	3.84E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	1.32E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	1.46E-04	1.72E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	1.51E+00	1.51E+00	1.51E+00	1.51E+00	1.51E+00	1.51E+00	1.51E+00
ce156	2.04E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	1.02E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	2.16E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	4.76E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	1.94E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	7.62E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01	1.12E+01
ce157	3.56E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	1.65E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	6.40E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	8.80E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	1.60E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	1.89E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	1.63E-02	1.63E-02	1.63E-02	1.63E-02	1.63E-02	1.63E-02	1.63E-02
pr158	3.95E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	1.19E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	1.29E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	5.28E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	5.06E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.34E+00	3.34E+00	3.34E+00	3.34E+00	3.34E+00	3.34E+00	3.34E+00
pr159	1.83E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	2.63E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	2.05E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	9.46E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	9.46E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	7.53E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.13E-01	5.13E-01	5.13E-01	5.13E-01	5.13E-01	5.13E-01	5.13E-01
nd160	2.15E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	5.58E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	1.21E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	1.56E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.29E-01	2.29E-01	2.29E-01	2.29E-01	2.29E-01	2.29E-01	2.29E-01
tb160	1.63E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	4.13E-02	4.13E-02	4.13E-02	4.13E-02	4.13E-02	4.13E-02	4.13E-02
nd161	3.54E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	7.43E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	1.53E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	5.52E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	4.32E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	1.18E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part E 5000 year criticality at 2.182 kw/package fission products page 164
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=1.8976E+02mwd, flux= 2.90E+08n/cm**2-sec
0 nuclide concentrations, grams

basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	20030.0 yr	21000.0 yr	22000.0 yr	23000.0 yr	24000.0 yr	25000.0 yr
dy161	8.35E-02	8.35E-02	8.35E-02	8.35E-02	8.35E-02	8.35E-02	8.35E-02
pm162	2.08E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	2.82E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	5.70E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	4.55E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	4.29E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	1.53E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.77E-02	5.77E-02	5.77E-02	5.77E-02	5.77E-02	5.77E-02	5.77E-02
sm163	5.30E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	5.02E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	2.96E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	4.37E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.79E-02	3.79E-02	3.79E-02	3.79E-02	3.79E-02	3.79E-02	3.79E-02
sm164	4.37E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	1.17E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	1.24E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	2.48E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.03E-02	1.03E-02	1.03E-02	1.03E-02	1.03E-02	1.03E-02	1.03E-02
sm165	7.58E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	1.14E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	8.68E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	6.10E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	5.31E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	3.60E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	1.01E-02	1.01E-02	1.01E-02	1.01E-02	1.01E-02	1.01E-02	1.01E-02
dy166	2.58E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	8.97E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	4.96E-07	4.88E-07	2.78E-07	1.56E-07	8.77E-08	4.92E-08	2.76E-08
er166	1.67E-03	1.67E-03	1.67E-03	1.67E-03	1.67E-03	1.67E-03	1.67E-03
er167	2.63E-05	2.63E-05	2.63E-05	2.63E-05	2.63E-05	2.63E-05	2.63E-05
er167m	6.62E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.21E-05	2.21E-05	2.21E-05	2.21E-05	2.21E-05	2.21E-05	2.21E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	1.25E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	7.59E-07	7.59E-07	7.59E-07	7.59E-07	7.59E-07	7.59E-07	7.59E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	8.07E-07	8.07E-07	8.07E-07	8.07E-07	8.07E-07	8.07E-07	8.07E-07
tm170	1.08E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	4.73E-09	4.73E-09	4.73E-09	4.73E-09	4.73E-09	4.73E-09	4.73E-09
er171	5.71E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	1.30E-11	2.59E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06	1.08E-06
er172	2.22E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	3.02E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	6.88E-07	6.88E-07	6.88E-07	6.88E-07	6.88E-07	6.88E-07	6.88E-07
total	9.78E+03	9.78E+03	9.78E+03	9.78E+03	9.78E+03	9.78E+03	9.78E+03

1

Part C 10000 year criticality at 2.182 kw/package actinides page 142
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
he 4	4.23E+01	4.24E+01	4.32E+01	4.93E+01	5.43E+01	6.08E+01	6.47E+01	6.61E+01	6.73E+01	6.82E+01	6.91E+01
tl206	7.61E-16	7.62E-16	7.92E-16	1.07E-15	1.35E-15	1.89E-15	2.25E-15	2.32E-15	2.45E-15	2.56E-15	2.65E-15

tl207	7.43E-11	7.43E-11	7.45E-11	7.64E-11	7.87E-11	8.34E-11	8.75E-11	8.92E-11	9.07E-11	9.20E-11	9.31E-11
tl208	2.22E-12	1.70E-12	9.85E-16	9.11E-16	9.57E-16	1.05E-15	1.16E-15	1.22E-15	1.27E-15	1.33E-15	1.39E-15
tl209	1.16E-12	1.17E-12	1.23E-12	1.86E-12	2.59E-12	4.00E-12	5.31E-12	5.92E-12	6.50E-12	7.05E-12	7.58E-12
pb206	6.02E-01	6.04E-01	6.54E-01	1.21E+00	2.01E+00	4.15E+00	6.84E+00	8.34E+00	9.91E+00	1.16E+01	1.33E+01
pb207	4.82E-02	4.84E-02	5.39E-02	1.06E-01	1.65E-01	2.90E-01	4.21E-01	4.88E-01	5.57E-01	6.27E-01	6.98E-01
pb208	5.07E-03	5.09E-03	5.15E-03	5.15E-03	5.16E-03	5.16E-03	5.17E-03	5.17E-03	5.18E-03	5.18E-03	5.19E-03
pb209	4.91E-09	4.92E-09	5.20E-09	7.87E-09	1.09E-08	1.69E-08	2.24E-08	2.50E-08	2.74E-08	2.98E-08	3.20E-08
pb210	1.64E-03	1.64E-03	1.71E-03	2.31E-03	2.92E-03	4.08E-03	4.85E-03	5.01E-03	5.28E-03	5.51E-03	5.71E-03
pb211	5.75E-10	5.75E-10	5.76E-10	5.91E-10	6.09E-10	6.45E-10	6.77E-10	6.90E-10	7.01E-10	7.11E-10	7.20E-10
pb212	1.31E-09	1.01E-09	5.84E-13	5.40E-13	5.67E-13	6.25E-13	6.88E-13	7.21E-13	7.56E-13	7.90E-13	8.26E-13
pb214	3.82E-09	3.83E-09	3.98E-09	5.38E-09	6.79E-09	9.51E-09	1.13E-08	1.17E-08	1.23E-08	1.28E-08	1.33E-08
bi208	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi209	8.86E-02	8.89E-02	9.80E-02	2.08E-01	3.83E-01	9.05E-01	1.64E+00	2.08E+00	2.57E+00	3.11E+00	3.69E+00
bi210m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bi210	1.01E-06	1.01E-06	1.05E-06	1.42E-06	1.79E-06	2.51E-06	2.98E-06	3.09E-06	3.25E-06	3.39E-06	3.51E-06
bi211	3.41E-11	3.41E-11	3.42E-11	3.50E-11	3.61E-11	3.82E-11	4.01E-11	4.09E-11	4.16E-11	4.22E-11	4.27E-11
bi212	1.25E-10	9.53E-11	5.54E-14	5.12E-14	5.38E-14	5.93E-14	6.53E-14	6.84E-14	7.17E-14	7.50E-14	7.84E-14
bi213	1.17E-09	1.17E-09	1.24E-09	1.87E-09	2.60E-09	4.03E-09	5.34E-09	5.95E-09	6.53E-09	7.09E-09	7.62E-09
bi214	2.84E-09	2.84E-09	2.95E-09	3.99E-09	5.04E-09	7.06E-09	8.39E-09	8.67E-09	9.14E-09	9.54E-09	9.88E-09
po210	2.79E-05	2.79E-05	2.90E-05	3.92E-05	4.96E-05	6.94E-05	8.24E-05	8.52E-05	8.98E-05	9.37E-05	9.71E-05
po211m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
po211	3.76E-16	3.77E-16	3.77E-16	3.87E-16	3.99E-16	4.23E-16	4.43E-16	4.52E-16	4.60E-16	4.66E-16	4.72E-16
po212	6.55E-21	5.01E-21	2.91E-24	2.69E-24	2.83E-24	3.12E-24	3.43E-24	3.60E-24	3.77E-24	3.94E-24	4.12E-24
po213	1.76E-18	1.76E-18	1.86E-18	2.82E-18	3.92E-18	6.05E-18	8.02E-18	8.94E-18	9.82E-18	1.07E-17	1.15E-17
po214	3.91E-16	3.91E-16	4.06E-16	5.49E-16	6.94E-16	9.71E-16	1.15E-15	1.19E-15	1.26E-15	1.31E-15	1.36E-15
po215	4.81E-16	4.81E-16	4.82E-16	4.95E-16	5.10E-16	5.40E-16	5.67E-16	5.78E-16	5.87E-16	5.96E-16	6.03E-16
po216	5.07E-15	3.88E-15	2.25E-18	2.08E-18	2.19E-18	2.41E-18	2.66E-18	2.78E-18	2.91E-18	3.05E-18	3.19E-18
po218	4.51E-10	4.51E-10	4.69E-10	6.34E-10	8.01E-10	1.12E-09	1.33E-09	1.38E-09	1.45E-09	1.51E-09	1.57E-09
at217	1.41E-14	1.41E-14	1.49E-14	2.25E-14	3.13E-14	4.84E-14	6.42E-14	7.16E-14	7.86E-14	8.53E-14	9.17E-14
rn218	1.02E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rn219	1.09E-12	1.09E-12	1.09E-12	1.12E-12	1.16E-12	1.22E-12	1.28E-12	1.31E-12	1.33E-12	1.35E-12	1.37E-12
rn220	1.98E-12	1.51E-12	8.79E-16	8.14E-16	8.54E-16	9.42E-16	1.04E-15	1.09E-15	1.14E-15	1.19E-15	1.24E-15
rn222	8.15E-07	8.16E-07	8.48E-07	1.15E-06	1.45E-06	2.03E-06	2.41E-06	2.49E-06	2.62E-06	2.74E-06	2.84E-06
fr221	1.30E-10	1.31E-10	1.38E-10	2.09E-10	2.91E-10	4.49E-10	5.95E-10	6.64E-10	7.29E-10	7.91E-10	8.50E-10
fr223	5.06E-12	5.06E-12	5.07E-12	5.20E-12	5.36E-12	5.68E-12	5.96E-12	6.08E-12	6.18E-12	6.27E-12	6.34E-12
ra222	1.12E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ra223	2.77E-07	2.77E-07	2.78E-07	2.85E-07	2.94E-07	3.11E-07	3.26E-07	3.33E-07	3.38E-07	3.43E-07	3.47E-07
ra224	1.15E-08	8.77E-09	5.09E-12	4.71E-12	4.95E-12	5.46E-12	6.01E-12	6.29E-12	6.59E-12	6.90E-12	7.21E-12
ra225	5.78E-07	5.79E-07	6.11E-07	9.26E-07	1.29E-06	1.99E-06	2.64E-06	2.94E-06	3.23E-06	3.50E-06	3.76E-06
ra226	1.27E-01	1.27E-01	1.32E-01	1.78E-01	2.25E-01	3.15E-01	3.75E-01	3.87E-01	4.08E-01	4.26E-01	4.41E-01
ra228	5.41E-10	5.42E-10	5.66E-10	7.89E-10	1.04E-09	1.55E-09	2.05E-09	2.31E-09	2.56E-09	2.81E-09	3.07E-09
ac225	3.90E-07	3.91E-07	4.13E-07	6.25E-07	8.69E-07	1.34E-06	1.78E-06	1.99E-06	2.18E-06	2.37E-06	2.54E-06
ac227	1.96E-04	1.96E-04	1.97E-04	2.02E-04	2.08E-04	2.20E-04	2.31E-04	2.35E-04	2.39E-04	2.43E-04	2.46E-04
ac228	6.60E-14	6.61E-14	6.90E-14	9.63E-14	1.27E-13	1.89E-13	2.51E-13	2.82E-13	3.13E-13	3.44E-13	3.74E-13
th226	5.57E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th227	4.55E-07	4.55E-07	4.56E-07	4.68E-07	4.82E-07	5.11E-07	5.36E-07	5.46E-07	5.64E-07	5.70E-07	
th228	2.23E-06	1.70E-06	9.90E-10	9.16E-10	9.61E-10	1.06E-09	1.17E-09	1.22E-09	1.28E-09	1.34E-09	1.40E-09
th229	1.14E-01	1.15E-01	1.21E-01	1.83E-01	2.55E-01	3.94E-01	5.22E-01	5.82E-01	6.39E-01	6.93E-01	7.45E-01
th230	6.63E+00	6.64E+00	6.90E+00	9.10E+00	1.13E+01	1.49E+01	1.77E+01	1.88E+01	1.98E+01	2.06E+01	2.13E+01
th231	1.29E-07	2.99E-08	3.00E-08	3.13E-08	3.23E-08	3.37E-08	3.45E-08	3.47E-08	3.49E-08	3.51E-08	3.52E-08

1

Part C 10000 year criticality at 2.182 kw/package actinides page 143
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
th232	1.35E+00	1.35E+00	1.41E+00	1.96E+00	2.59E+00	3.85E+00	5.11E+00	5.74E+00	6.37E+00	7.00E+00	7.63E+00
th233	1.93E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
th234	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06	6.42E-06
pa231	3.00E-01	3.00E-01	3.01E-01	3.09E-01	3.18E-01	3.37E-01	3.53E-01	3.60E-01	3.66E-01	3.72E-01	3.76E-01

pa232	4.12E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pa233	1.87E-05	1.87E-05	1.87E-05	1.87E-05	1.86E-05	1.85E-05	1.84E-05	1.83E-05	1.82E-05	1.82E-05	1.81E-05
pa234m	2.16E-10	2.16E-10	2.16E-10	2.16E-10	2.16E-10	2.16E-10	2.16E-10	2.16E-10	2.16E-10	2.16E-10	2.16E-10
pa234	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11	9.67E-11
pa235	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u230	5.50E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u231	1.51E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u232	8.28E-05	6.15E-05	2.96E-08	2.43E-08	2.28E-08	2.02E-08	1.79E-08	1.69E-08	1.59E-08	1.50E-08	1.41E-08
u233	3.88E+00	3.88E+00	4.03E+00	5.42E+00	6.90E+00	9.66E+00	1.22E+01	1.33E+01	1.44E+01	1.55E+01	1.65E+01
u234	1.16E+02	1.16E+02	1.16E+02	1.14E+02	1.11E+02	1.07E+02	1.02E+02	9.99E+01	9.78E+01	9.58E+01	9.38E+01
u235	7.35E+03	7.35E+03	7.39E+03	7.69E+03	7.95E+03	8.29E+03	8.48E+03	8.54E+03	8.59E+03	8.62E+03	8.65E+03
u236	2.09E+03	2.09E+03	2.10E+03	2.14E+03	2.16E+03	2.17E+03	2.17E+03	2.17E+03	2.17E+03	2.16E+03	2.16E+03
u237	3.87E-05	1.46E-10	2.37E-13	1.14E-13	5.03E-14	9.84E-15	1.92E-15	8.51E-16	3.77E-16	1.67E-16	7.37E-17
u238	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05	4.42E+05
u239	2.04E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
u240	1.57E-18	1.57E-18	1.65E-18	2.35E-18	3.12E-18	4.60E-18	6.03E-18	6.72E-18	7.40E-18	8.06E-18	8.71E-18
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	4.05E-10	1.91E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236m	1.86E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np236	4.85E-04	4.85E-04	4.82E-04	4.57E-04	4.30E-04	3.81E-04	3.38E-04	3.18E-04	2.99E-04	2.82E-04	2.65E-04
np237	5.50E+02	5.50E+02	5.51E+02	5.49E+02	5.47E+02	5.44E+02	5.40E+02	5.39E+02	5.37E+02	5.35E+02	5.33E+02
np238	1.18E-05	2.92E-11	2.48E-13	1.51E-32	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np239	2.97E-04	1.76E-06	1.61E-06	6.89E-07	2.69E-07	4.10E-08	6.25E-09	2.44E-09	9.53E-10	3.72E-10	1.45E-10
np240m	1.34E-20	1.34E-20	1.40E-20	2.00E-20	2.66E-20	3.93E-20	5.15E-20	5.74E-20	6.32E-20	6.88E-20	7.44E-20
np240	8.72E-14	1.38E-22	1.44E-22	2.06E-22	2.74E-22	4.04E-22	5.29E-22	5.90E-22	6.50E-22	7.08E-22	7.65E-22
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	1.02E-07	1.17E-09	1.08E-09	1.03E-09	9.65E-10	8.55E-10	7.58E-10	7.14E-10	6.72E-10	6.33E-10	5.96E-10
pu237	4.51E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu238	1.80E-01	1.42E-01	6.71E-05	1.12E-25	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu239	1.40E+03	1.40E+03	1.36E+03	1.05E+03	7.89E+02	4.44E+02	2.50E+02	1.87E+02	1.41E+02	1.05E+02	7.91E+01
pu240	8.09E+01	8.07E+01	7.28E+01	2.81E+01	9.79E+00	1.18E+00	1.43E-01	4.98E-02	1.73E-02	6.02E-03	2.09E-03
pu241	2.05E-02	4.82E-03	7.82E-06	3.75E-06	1.66E-06	3.25E-07	6.36E-08	2.81E-08	1.24E-08	5.50E-09	2.43E-09
pu242	6.59E+01	6.59E+01	6.58E+01	6.47E+01	6.35E+01	6.12E+01	5.90E+01	5.79E+01	5.68E+01	5.58E+01	5.48E+01
pu243	1.43E-07	1.09E-15	1.09E-15	1.09E-15	1.09E-15	1.09E-15	1.09E-15	1.09E-15	1.09E-15	1.09E-15	1.09E-15
pu244	7.93E-08	7.94E-08	8.33E-08	1.19E-07	1.58E-07	2.33E-07	3.05E-07	3.40E-07	3.75E-07	4.08E-07	4.41E-07
pu245	1.10E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu246	4.62E-22	4.61E-22	4.44E-22	3.10E-22	2.08E-22	9.38E-23	4.23E-23	2.84E-23	1.91E-23	1.28E-23	8.59E-24
am239	1.64E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am240	7.06E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am241	6.23E-01	6.09E-01	1.30E-01	1.13E-04	5.01E-05	9.79E-06	1.92E-06	8.48E-07	3.75E-07	1.66E-07	7.34E-08
am242m	1.86E-04	1.61E-04	1.36E-06	8.32E-26	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am242	1.48E-08	2.07E-09	1.76E-11	1.07E-30	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am243	2.05E+00	2.05E+00	1.87E+00	8.01E-01	3.13E-01	4.77E-02	7.27E-03	2.84E-03	1.11E-03	4.33E-04	1.69E-04
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	1.19E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am245	2.21E-19	3.11E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am246	1.15E-24	1.15E-24	1.11E-24	7.74E-25	5.20E-25	2.34E-25	1.06E-25	7.09E-26	4.76E-26	3.20E-26	2.15E-26
cm241	1.35E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

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Part C 10000 year criticality at 2.182 kw/package actinides page 144
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
cm242	3.00E-06	4.18E-07	3.55E-09	2.17E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm243	7.71E-11	3.72E-11	2.11E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm244	1.87E-04	5.94E-05	4.36E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm245	5.10E-03	5.09E-03	4.70E-03	2.26E-03	9.98E-04	1.95E-04	3.82E-05	1.69E-05	7.48E-06	3.31E-06	1.46E-06
cm246	1.69E-04	1.68E-04	1.46E-04	3.89E-05	9.00E-06	4.80E-07	2.56E-08	5.92E-09	1.37E-09	3.16E-10	7.30E-11
cm247	3.14E-05	3.14E-05	3.14E-05	3.14E-05	3.14E-05	3.14E-05	3.14E-05	3.13E-05	3.13E-05	3.13E-05	3.13E-05

cm248	2.18E-06	2.18E-06	2.17E-06	2.13E-06	2.09E-06	2.01E-06	1.93E-06	1.89E-06	1.85E-06	1.81E-06	1.77E-06
cm249	2.31E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cm250	1.10E-15	1.10E-15	1.06E-15	7.39E-16	4.96E-16	2.24E-16	1.01E-16	6.77E-17	4.54E-17	3.05E-17	2.05E-17
cm251	5.08E-28	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk249	1.66E-12	8.16E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
bk250	1.01E-20	3.24E-24	3.12E-24	2.18E-24	1.46E-24	6.60E-25	2.98E-25	2.00E-25	1.34E-25	9.00E-26	6.05E-26
bk251	1.73E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf249	6.47E-10	6.11E-10	8.97E-11	1.67E-18	4.28E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf250	2.81E-14	5.72E-15	1.11E-19	7.77E-20	5.22E-20	2.35E-20	1.06E-20	7.12E-21	4.78E-21	3.21E-21	2.15E-21
cf251	1.59E-15	1.55E-15	7.32E-16	7.04E-19	3.13E-22	6.17E-29	1.22E-35	5.42E-39	2.46E-42	.00E+00	.00E+00
cf252	1.20E-19	4.61E-23	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf253	2.11E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf254	3.22E-35	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cf255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es253	2.42E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es254	4.56E-33	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
es255	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
s250	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
total	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05	4.54E+05

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Part C 10000 year criticality at 2.182 kw/package fission products page 151
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0
nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
br 88	1.76E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 88	1.93E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 88	2.06E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 88	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02
as 89	2.53E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 89	3.14E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 89	3.22E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 89	4.61E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 89	2.35E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 89	1.13E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 89	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02
y 89m	3.89E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
as 90	1.78E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 90	7.16E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 90	7.57E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 90	8.54E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90	3.72E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 90m	1.88E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 90	2.81E-02	1.34E-02	5.67E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90	7.32E-06	3.49E-06	1.47E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 90m	6.94E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 90	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02	1.77E+02
zr 90m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
se 91	4.40E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 91	8.40E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 91	1.58E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 91	1.84E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 91	1.15E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91	1.69E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 91m	5.78E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 91	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02	1.87E+02
nb 91	3.29E-11	3.19E-11	1.19E-11	1.23E-15	4.61E-20	6.44E-29	9.01E-38	3.32E-42	.00E+00	.00E+00	.00E+00
se 92	2.20E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 92	8.51E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

kr 92	1.82E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 92	1.25E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 92	3.40E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 92	4.48E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 92	1.97E+02	1.97E+02	1.97E+02	1.97E+02	1.97E+02	1.97E+02	1.97E+02	1.97E+02	1.97E+02	1.97E+02	1.97E+02
nb 92	5.42E-07	5.42E-07	5.42E-07	5.42E-07	5.42E-07	5.42E-07	5.42E-07	5.41E-07	5.41E-07	5.41E-07	5.41E-07
se 93	9.05E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 93	7.85E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 93	4.36E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 93	1.27E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 93	1.72E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 93	9.50E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 93	1.43E+02	1.43E+02	1.43E+02	1.42E+02	1.41E+02	1.40E+02	1.39E+02	1.38E+02	1.38E+02	1.37E+02	1.36E+02
nb 93	1.57E+00	1.58E+00	1.64E+00	2.22E+00	2.86E+00	4.14E+00	5.40E+00	6.03E+00	6.66E+00	7.28E+00	7.90E+00
nb 93m	1.51E-03	1.51E-03	1.50E-03	1.50E-03	1.49E-03	1.48E-03	1.46E-03	1.46E-03	1.45E-03	1.45E-03	1.44E-03
br 94	3.27E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 94	3.20E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 94	3.10E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 152
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sr 94	2.87E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 94	4.60E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 94	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02	2.32E+02
nb 94	3.94E-04	3.94E-04	3.81E-04	2.80E-04	1.99E-04	1.01E-04	5.08E-05	3.61E-05	2.57E-05	1.82E-05	1.30E-05
nb 94m	8.67E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
br 95	3.51E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 95	9.69E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 95	2.13E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 95	8.65E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 95	2.67E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 95	2.37E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95	1.30E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 95m	1.49E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 95	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02	2.33E+02
br 96	6.62E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
kr 96	6.66E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 96	2.84E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 96	2.71E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 96	2.40E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 96	2.41E+02	2.41E+02	2.41E+02	2.41E+02	2.41E+02	2.41E+02	2.41E+02	2.41E+02	2.41E+02	2.41E+02	2.41E+02
nb 96	8.36E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 96	7.28E+00	7.28E+00	7.28E+00	7.28E+00	7.28E+00	7.28E+00	7.28E+00	7.28E+00	7.28E+00	7.28E+00	7.28E+00
kr 97	2.97E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 97	7.49E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 97	5.57E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 97	1.17E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 97	2.46E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97	1.76E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 97m	2.30E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 97	2.26E+02	2.26E+02	2.26E+02	2.26E+02	2.26E+02	2.26E+02	2.26E+02	2.26E+02	2.26E+02	2.26E+02	2.26E+02
kr 98	1.71E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rb 98	4.10E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 98	3.46E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 98	1.61E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 98	1.31E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 98	1.23E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

nb 98m	8.40E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 98	2.43E+02	2.43E+02	2.43E+02	2.43E+02	2.43E+02	2.43E+02	2.43E+02	2.43E+02	2.43E+02	2.43E+02	2.43E+02
tc 98	1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.46E-03	1.46E-03	1.46E-03	1.45E-03	1.45E-03	1.45E-03
rb 99	6.35E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr 99	6.32E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y 99	2.40E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr 99	8.83E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99	4.08E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb 99m	2.88E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo 99	1.10E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc 99	2.21E+02	2.21E+02	2.20E+02	2.14E+02	2.07E+02	1.94E+02	1.81E+02	1.75E+02	1.70E+02	1.64E+02	1.59E+02
tc 99m	8.81E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru 99	1.83E+01	1.83E+01	1.90E+01	2.54E+01	3.23E+01	4.54E+01	5.78E+01	6.36E+01	6.93E+01	7.48E+01	8.01E+01
rb100	3.23E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr100	5.13E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y100	3.50E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 153
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0
nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
zr100	3.03E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100	6.84E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb100m	8.62E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo100	2.74E+02	2.74E+02	2.74E+02	2.74E+02	2.74E+02	2.74E+02	2.74E+02	2.74E+02	2.74E+02	2.74E+02	2.74E+02
tc100	1.18E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru100	2.06E+01	2.06E+01	2.06E+01	2.06E+01	2.06E+01	2.06E+01	2.06E+01	2.06E+01	2.06E+01	2.06E+01	2.06E+01
rb101	2.56E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr101	8.04E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y101	1.40E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr101	4.82E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb101	2.82E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo101	3.64E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc101	3.54E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru101	2.27E+02	2.27E+02	2.27E+02	2.27E+02	2.27E+02	2.27E+02	2.27E+02	2.27E+02	2.27E+02	2.27E+02	2.27E+02
sr102	2.23E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y102	1.35E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr102	5.11E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb102	4.29E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo102	2.57E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102	2.00E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc102m	8.64E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru102	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02	2.19E+02
rh102	1.19E-08	9.13E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd102	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr103	6.47E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y103	1.21E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr103	7.92E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb103	3.42E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo103	2.28E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc103	1.86E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru103	1.17E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh103	1.47E+02	1.47E+02	1.47E+02	1.47E+02	1.47E+02	1.47E+02	1.47E+02	1.47E+02	1.47E+02	1.47E+02	1.47E+02
rh103m	1.16E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sr104	2.79E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y104	1.16E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr104	4.28E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb104	4.52E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo104	1.46E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

tc104	2.80E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru104	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02	1.45E+02
rh104	8.57E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh104m	3.85E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd104	4.53E+01	4.53E+01	4.53E+01	4.53E+01	4.53E+01	4.53E+01	4.53E+01	4.53E+01	4.53E+01	4.53E+01	4.53E+01
y105	1.70E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr105	3.13E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb105	1.08E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo105	5.91E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc105	8.84E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru105	3.14E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105	2.50E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh105m	2.51E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd105	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02

1

Part C 10000 year criticality at 2.182 kw/package fission products page 154
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0
nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
y106	1.86E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr106	1.82E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb106	5.38E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo106	6.76E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc106	4.35E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru106	4.28E-04	5.70E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106	3.98E-10	5.29E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh106m	4.50E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd106	8.28E+01	8.28E+01	8.28E+01	8.28E+01	8.28E+01	8.28E+01	8.28E+01	8.28E+01	8.28E+01	8.28E+01	8.28E+01
ag106	3.79E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
y107	1.76E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
zr107	4.85E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb107	6.75E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo107	1.00E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc107	1.57E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru107	2.06E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh107	1.20E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd107	5.31E+01	5.31E+01	5.31E+01	5.30E+01	5.30E+01	5.29E+01	5.27E+01	5.27E+01	5.26E+01	5.26E+01	5.25E+01
pd107m	1.74E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag107	1.37E-01	1.37E-01	1.43E-01	1.94E-01	2.50E-01	3.63E-01	4.76E-01	5.32E-01	5.88E-01	6.44E-01	7.00E-01
zr108	3.15E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb108	6.36E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo108	5.08E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc108	1.14E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru108	1.50E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108	9.39E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh108m	3.82E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd108	3.38E+01	3.38E+01	3.38E+01	3.38E+01	3.38E+01	3.38E+01	3.38E+01	3.38E+01	3.38E+01	3.38E+01	3.38E+01
ag108	4.10E-13	2.40E-16	1.20E-18	5.59E-40	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag108m	9.16E-08	7.77E-08	3.90E-10	1.81E-31	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd108	5.27E-04	5.27E-04	5.27E-04	5.27E-04	5.27E-04	5.27E-04	5.27E-04	5.27E-04	5.27E-04	5.27E-04	5.27E-04
zr109	8.84E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb109	3.67E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo109	5.10E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc109	1.05E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru109	1.37E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109	3.71E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh109m	1.16E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109	2.73E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd109m	9.08E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ag109	2.25E+01	2.25E+01	2.25E+01	2.25E+01	2.25E+01	2.25E+01	2.25E+01	2.25E+01	2.25E+01	2.25E+01	2.25E+01
ag109m	2.19E-10	1.41E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd109	1.92E-11	1.42E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb110	7.03E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo110	1.17E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc110	8.45E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru110	1.71E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110	7.29E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh110m	3.91E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd110	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
ag110	7.52E-11	2.51E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag110m	2.61E-06	1.62E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 155

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec

0

nuclide concentrations, grams

basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
cd110	6.42E+00	6.42E+00	6.42E+00	6.42E+00	6.42E+00	6.42E+00	6.42E+00	6.42E+00	6.42E+00	6.42E+00	6.42E+00
nb111	8.59E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo111	2.18E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc111	4.25E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru111	5.98E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh111	8.85E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111	1.22E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd111m	9.00E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111	5.64E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag111m	5.65E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd111	5.25E+00	5.25E+00	5.25E+00	5.25E+00	5.25E+00	5.25E+00	5.25E+00	5.25E+00	5.25E+00	5.25E+00	5.25E+00
cd111m	4.30E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nb112	1.64E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo112	7.61E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc112	1.94E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru112	5.15E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh112	5.33E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd112	3.39E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag112	5.06E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd112	2.75E+00	2.75E+00	2.75E+00	2.75E+00	2.75E+00	2.75E+00	2.75E+00	2.75E+00	2.75E+00	2.75E+00	2.75E+00
mo113	3.75E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc113	8.32E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru113	1.55E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh113	1.66E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd113	2.60E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113	5.26E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag113m	3.75E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd113	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02	2.67E-02
cd113m	2.92E-06	6.69E-07	1.31E-27	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in113	3.13E-02	3.13E-02	3.13E-02	3.13E-02	3.13E-02	3.13E-02	3.13E-02	3.13E-02	3.13E-02	3.13E-02	3.13E-02
in113m	1.73E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
mo114	3.20E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc114	4.48E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru114	1.79E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh114	1.79E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd114	3.58E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag114	1.16E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd114	3.07E+00	3.07E+00	3.07E+00	3.07E+00	3.07E+00	3.07E+00	3.07E+00	3.07E+00	3.07E+00	3.07E+00	3.07E+00
in114	5.65E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in114m	2.53E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn114	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04
mo115	4.84E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

tc115	2.25E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru115	4.91E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh115	3.95E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd115	6.03E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115	1.50E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag115m	9.36E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115	3.40E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd115m	3.20E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in115	4.61E-01	4.61E-01	4.61E-01	4.61E-01	4.61E-01	4.61E-01	4.61E-01	4.61E-01	4.61E-01	4.61E-01	4.61E-01
in115m	2.86E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 156
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0
nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sn115	4.75E-02	4.75E-02	4.75E-02	4.75E-02	4.75E-02	4.75E-02	4.75E-02	4.75E-02	4.75E-02	4.75E-02	4.75E-02
tc116	4.16E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru116	3.41E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh116	2.55E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd116	2.47E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116	3.53E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag116m	2.59E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd116	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00
in116	5.29E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in116m	4.58E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn116	5.16E-01	5.16E-01	5.16E-01	5.16E-01	5.16E-01	5.16E-01	5.16E-01	5.16E-01	5.16E-01	5.16E-01	5.16E-01
tc117	6.82E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru117	1.08E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh117	1.27E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd117	6.37E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117	7.75E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag117m	5.69E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117	1.67E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd117m	5.05E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117	3.63E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in117m	1.19E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn117	1.24E+00	1.24E+00	1.24E+00	1.24E+00	1.24E+00	1.24E+00	1.24E+00	1.24E+00	1.24E+00	1.24E+00	1.24E+00
sn117m	1.39E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tc118	1.10E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru118	3.46E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh118	8.04E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd118	1.95E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118	4.00E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag118m	1.51E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd118	5.53E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118	9.16E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in118m	5.45E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn118	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00	1.01E+00
ru119	1.36E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
rh119	4.68E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd119	6.83E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag119	2.78E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119	2.16E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd119m	7.90E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119	1.12E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in119m	1.31E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn119	1.08E+00	1.08E+00	1.08E+00	1.08E+00	1.08E+00	1.08E+00	1.08E+00	1.08E+00	1.08E+00	1.08E+00	1.08E+00
sn119m	3.99E-08	2.21E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ru120	3.07E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

rh120	3.79E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd120	7.95E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag120	1.01E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd120	9.39E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120	5.79E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in120m	1.35E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn120	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00
rh121	1.55E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 157

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec

0

nuclide concentrations, grams

basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
pd121	5.66E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag121	5.14E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd121	2.56E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121	3.80E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in121m	4.50E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121	2.02E-08	1.10E-10	5.39E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn121m	3.67E-06	2.52E-06	1.24E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb121	1.09E+00	1.09E+00	1.09E+00	1.09E+00	1.09E+00	1.09E+00	1.09E+00	1.09E+00	1.09E+00	1.09E+00	1.09E+00
rh122	7.42E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd122	4.16E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag122	1.61E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd122	1.08E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122	3.39E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in122m	2.17E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn122	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00
sb122	5.16E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb122m	5.59E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te122	5.13E-02	5.13E-02	5.13E-02	5.13E-02	5.13E-02	5.13E-02	5.13E-02	5.13E-02	5.13E-02	5.13E-02	5.13E-02
rh123	7.99E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd123	1.56E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag123	5.34E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd123	1.19E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123	9.84E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in123m	2.16E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123	2.16E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn123m	5.32E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb123	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00
te123	4.02E-04	4.02E-04	4.02E-04	4.02E-04	4.02E-04	4.02E-04	4.02E-04	4.02E-04	4.02E-04	4.02E-04	4.02E-04
te123m	1.52E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd124	1.48E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag124	2.74E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd124	1.95E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in124	1.22E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn124	2.30E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00	2.30E+00
sb124	9.26E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb124m	3.29E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te124	4.36E-02	4.36E-02	4.36E-02	4.36E-02	4.36E-02	4.36E-02	4.36E-02	4.36E-02	4.36E-02	4.36E-02	4.36E-02
pd125	1.18E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag125	1.79E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd125	2.19E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125	5.13E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in125m	1.99E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125	1.05E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn125m	2.21E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb125	4.43E-05	2.18E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te125	2.80E+00	2.80E+00	2.80E+00	2.80E+00	2.80E+00	2.80E+00	2.80E+00	2.80E+00	2.80E+00	2.80E+00	2.80E+00

te125m	5.94E-07	3.10E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pd126	4.00E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag126	3.06E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd126	8.07E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in126	7.10E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn126	4.32E+00	4.32E+00	4.29E+00	4.03E+00	3.76E+00	3.27E+00	2.85E+00	2.66E+00	2.48E+00	2.31E+00	2.16E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 158
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sb126	2.11E-07	2.05E-07	2.04E-07	1.91E-07	1.79E-07	1.55E-07	1.35E-07	1.26E-07	1.18E-07	1.10E-07	1.03E-07
sb126m	1.57E-09	1.56E-09	1.55E-09	1.45E-09	1.36E-09	1.18E-09	1.03E-09	9.60E-10	8.95E-10	8.35E-10	7.80E-10
te126	8.68E-01	8.69E-01	8.98E-01	1.16E+00	1.43E+00	1.91E+00	2.34E+00	2.53E+00	2.70E+00	2.87E+00	3.03E+00
xe126	1.38E-09	1.38E-09	1.38E-09	1.38E-09	1.38E-09	1.38E-09	1.38E-09	1.38E-09	1.38E-09	1.38E-09	1.38E-09
ag127	2.13E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd127	6.99E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127	5.25E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in127m	1.72E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127	6.53E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn127m	2.95E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb127	7.23E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127	7.30E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te127m	3.59E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i127	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01	1.16E+01
xe127	2.62E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ag128	5.91E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd128	1.37E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in128	8.94E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn128	1.47E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128	1.29E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb128m	2.71E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te128	2.54E+01	2.54E+01	2.54E+01	2.54E+01	2.54E+01	2.54E+01	2.54E+01	2.54E+01	2.54E+01	2.54E+01	2.54E+01
i128	3.12E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe128	4.37E-01	4.37E-01	4.37E-01	4.37E-01	4.37E-01	4.37E-01	4.37E-01	4.37E-01	4.37E-01	4.37E-01	4.37E-01
cd129	1.94E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in129	6.81E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129	4.72E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn129m	1.57E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb129	1.50E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129	3.75E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te129m	5.23E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i129	5.19E+01	5.19E+01	5.19E+01	5.19E+01	5.19E+01	5.18E+01	5.18E+01	5.18E+01	5.17E+01	5.17E+01	5.17E+01
xe129	5.67E-02	5.68E-02	5.90E-02	7.96E-02	1.03E-01	1.48E-01	1.94E-01	2.17E-01	2.40E-01	2.63E-01	2.85E-01
xe129m	3.71E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cd130	1.19E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in130	2.98E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn130	2.48E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130	7.40E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb130m	5.54E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te130	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02
i130	2.26E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i130m	1.46E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe130	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00	1.28E+00
cd131	4.05E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in131	1.05E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn131	3.68E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb131	3.58E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te131	4.08E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

te131m	6.04E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i131	2.20E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe131	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02	1.42E+02
xe131m	3.57E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 159

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec

0

nuclide concentrations, grams

basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
cd132	6.38E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in132	1.98E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn132	3.04E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132	3.69E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb132m	2.61E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te132	1.30E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i132	3.86E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe132	2.98E+02	2.98E+02	2.98E+02	2.98E+02	2.98E+02	2.98E+02	2.98E+02	2.98E+02	2.98E+02	2.98E+02	2.98E+02
cs132	6.33E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba132	5.34E-05	5.34E-05	5.34E-05	5.34E-05	5.34E-05	5.34E-05	5.34E-05	5.34E-05	5.34E-05	5.34E-05	5.34E-05
in133	3.59E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn133	3.15E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb133	3.42E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133	2.84E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te133m	1.03E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133	5.12E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i133m	4.32E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133	3.11E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe133m	3.97E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs133	3.53E+02	3.53E+02	3.53E+02	3.53E+02	3.53E+02	3.53E+02	3.53E+02	3.53E+02	3.53E+02	3.53E+02	3.53E+02
ba133	1.81E-12	2.51E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
in134	4.35E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn134	3.76E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134	3.71E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb134m	3.06E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te134	1.62E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134	2.45E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i134m	1.23E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe134	4.45E+02	4.45E+02	4.45E+02	4.45E+02	4.45E+02	4.45E+02	4.45E+02	4.45E+02	4.45E+02	4.45E+02	4.45E+02
xe134m	3.35E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134	8.87E-04	3.70E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs134m	1.09E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba134	3.26E+01	3.26E+01	3.26E+01	3.26E+01	3.26E+01	3.26E+01	3.26E+01	3.26E+01	3.26E+01	3.26E+01	3.26E+01
sn135	1.31E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb135	3.22E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te135	6.34E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i135	1.55E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135	2.32E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe135m	1.24E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs135	1.91E+02	1.91E+02	1.91E+02	1.90E+02	1.90E+02	1.89E+02	1.88E+02	1.87E+02	1.86E+02	1.86E+02	1.85E+02
cs135m	7.51E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba135	1.41E+00	1.41E+00	1.47E+00	1.99E+00	2.56E+00	3.70E+00	4.83E+00	5.40E+00	5.96E+00	6.52E+00	7.08E+00
ba135m	1.78E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sn136	2.00E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb136	2.43E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te136	2.77E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136	2.65E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i136m	6.99E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe136	5.76E+02	5.76E+02	5.76E+02	5.76E+02	5.76E+02	5.76E+02	5.76E+02	5.76E+02	5.76E+02	5.76E+02	5.76E+02
cs136	2.10E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

ba136	5.17E+00	5.17E+00	5.17E+00	5.17E+00	5.17E+00	5.17E+00	5.17E+00	5.17E+00	5.17E+00	5.17E+00	5.17E+00
ba136m	6.37E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 160
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sb137	1.86E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te137	1.87E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i137	8.14E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe137	1.46E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs137	6.31E-02	3.16E-02	5.82E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba137	3.75E+02	3.75E+02	3.75E+02	3.75E+02	3.75E+02	3.75E+02	3.75E+02	3.75E+02	3.75E+02	3.75E+02	3.75E+02
ba137m	9.64E-09	4.82E-09	8.88E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sb138	7.12E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te138	1.76E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i138	1.09E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe138	5.27E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138	1.29E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs138m	4.15E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba138	3.80E+02	3.80E+02	3.80E+02	3.80E+02	3.80E+02	3.80E+02	3.80E+02	3.80E+02	3.80E+02	3.80E+02	3.80E+02
la138	2.28E-03	2.28E-03	2.28E-03	2.28E-03	2.28E-03	2.28E-03	2.28E-03	2.28E-03	2.28E-03	2.28E-03	2.28E-03
sb139	6.94E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te139	1.18E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i139	2.12E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe139	1.93E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs139	3.52E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba139	3.29E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la139	3.61E+02	3.61E+02	3.61E+02	3.61E+02	3.61E+02	3.61E+02	3.61E+02	3.61E+02	3.61E+02	3.61E+02	3.61E+02
ce139	4.65E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr139	3.47E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te140	2.77E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i140	1.88E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe140	4.76E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs140	3.67E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba140	7.12E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la140	9.55E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce140	3.81E+02	3.81E+02	3.81E+02	3.81E+02	3.81E+02	3.81E+02	3.81E+02	3.81E+02	3.81E+02	3.81E+02	3.81E+02
pr140	1.56E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te141	9.78E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i141	1.32E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe141	2.32E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs141	1.12E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba141	6.56E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la141	8.50E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce141	1.69E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr141	3.34E+02	3.34E+02	3.34E+02	3.34E+02	3.34E+02	3.34E+02	3.34E+02	3.34E+02	3.34E+02	3.34E+02	3.34E+02
nd141	8.81E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
te142	7.77E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
i142	1.38E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe142	6.44E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs142	4.51E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba142	3.69E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la142	3.27E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce142	3.36E+02	3.36E+02	3.36E+02	3.36E+02	3.36E+02	3.36E+02	3.36E+02	3.36E+02	3.36E+02	3.36E+02	3.36E+02
pr142	1.11E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr142m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd142	3.57E+00	3.57E+00	3.57E+00	3.57E+00	3.57E+00	3.57E+00	3.57E+00	3.57E+00	3.57E+00	3.57E+00	3.57E+00
i143	3.81E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1
Part C 10000 year criticality at 2.182 kw/package fission products page 161
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
xe143	7.48E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs143	2.51E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba143	7.44E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la143	4.96E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce143	7.00E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr143	6.90E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd143	2.77E+02	2.77E+02	2.77E+02	2.77E+02	2.77E+02	2.77E+02	2.77E+02	2.77E+02	2.77E+02	2.77E+02	2.77E+02
i144	5.59E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe144	1.83E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs144	4.06E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba144	4.74E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la144	2.16E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce144	1.33E-03	3.51E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144	5.58E-08	1.48E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr144m	3.26E-10	8.63E-22	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd144	3.59E+02	3.59E+02	3.59E+02	3.59E+02	3.59E+02	3.59E+02	3.59E+02	3.59E+02	3.59E+02	3.59E+02	3.59E+02
i145	2.35E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe145	1.46E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs145	5.60E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba145	7.91E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la145	9.02E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce145	7.26E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr145	8.67E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd145	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02	2.11E+02
pm145	1.53E-07	4.97E-08	1.58E-24	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm145	7.89E-09	1.57E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
xe146	8.47E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs146	7.92E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba146	2.21E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la146	1.52E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce146	2.57E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr146	4.62E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd146	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
pm146	9.66E-10	2.25E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm146	3.21E-03	3.21E-03	3.21E-03	3.21E-03	3.21E-03	3.21E-03	3.21E-03	3.21E-03	3.21E-03	3.21E-03	3.21E-03
xe147	9.53E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs147	2.56E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba147	1.07E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la147	4.45E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce147	1.34E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr147	2.02E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd147	2.37E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm147	2.07E-03	7.55E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm147	9.34E+01	9.34E+01	9.34E+01	9.34E+01	9.34E+01	9.34E+01	9.34E+01	9.34E+01	9.34E+01	9.34E+01	9.34E+01
cs148	1.77E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba148	1.82E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la148	3.31E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce148	9.38E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr148	2.58E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd148	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02
pm148	1.33E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm148m	1.03E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sm148	3.06E+01	3.06E+01	3.06E+01	3.06E+01	3.06E+01	3.06E+01	3.06E+01	3.06E+01	3.06E+01	3.06E+01	3.06E+01
cs149	1.76E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba149	2.32E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la149	2.14E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce149	4.48E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr149	1.72E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd149	8.37E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm149	2.58E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm149	6.96E-01	6.96E-01	6.96E-01	6.96E-01	6.96E-01	6.96E-01	6.96E-01	6.96E-01	6.96E-01	6.96E-01	6.96E-01
eu149	1.68E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
cs150	1.15E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba150	2.92E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la150	8.72E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce150	1.48E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr150	4.70E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd150	5.04E+01	5.04E+01	5.04E+01	5.04E+01	5.04E+01	5.04E+01	5.04E+01	5.04E+01	5.04E+01	5.04E+01	5.04E+01
pm150	3.73E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm150	8.32E+01	8.32E+01	8.32E+01	8.32E+01	8.32E+01	8.32E+01	8.32E+01	8.32E+01	8.32E+01	8.32E+01	8.32E+01
eu150	2.92E-08	1.64E-08	1.14E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ba151	1.03E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la151	1.77E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce151	1.05E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr151	7.26E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd151	4.73E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm151	6.56E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm151	3.06E-02	2.43E-02	1.38E-05	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu151	5.60E+00	5.60E+00	5.63E+00	5.63E+00	5.63E+00	5.63E+00	5.63E+00	5.63E+00	5.63E+00	5.63E+00	5.63E+00
ba152	2.82E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la152	5.76E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce152	7.40E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr152	7.76E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd152	2.79E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152	1.04E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm152m	6.24E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm152	3.79E+01	3.79E+01	3.79E+01	3.79E+01	3.79E+01	3.79E+01	3.79E+01	3.79E+01	3.79E+01	3.79E+01	3.79E+01
eu152	3.58E-03	7.52E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu152m	1.55E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd152	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00	1.31E+00
la153	6.68E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce153	7.22E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr153	2.31E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd153	1.56E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm153	8.94E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm153	2.21E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu153	2.84E+01	2.84E+01	2.84E+01	2.84E+01	2.84E+01	2.84E+01	2.84E+01	2.84E+01	2.84E+01	2.84E+01	2.84E+01
gd153	1.13E-06	2.49E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
la154	8.03E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce154	1.01E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr154	9.51E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd154	4.15E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154	1.34E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm154m	4.24E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1
Part C 10000 year criticality at 2.182 kw/package fission products page 163
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide concentrations, grams

basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

	initial	25030. yr	26000. yr	35000. yr	45000. yr	65000. yr	85000. yr	95000. yr	105000. yr	115000. yr	125000. yr
sm154	9.44E+00	9.44E+00	9.44E+00	9.44E+00	9.44E+00	9.44E+00	9.44E+00	9.44E+00	9.44E+00	9.44E+00	9.44E+00
eu154	1.88E-03	1.67E-04	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd154	9.29E+00	9.30E+00	9.30E+00	9.30E+00	9.30E+00	9.30E+00	9.30E+00	9.30E+00	9.30E+00	9.30E+00	9.30E+00
la155	4.23E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ce155	2.35E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr155	2.27E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd155	6.24E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm155	3.73E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm155	1.28E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu155	1.42E-04	1.67E-06	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd155	7.60E-01	7.60E-01	7.60E-01	7.60E-01	7.60E-01	7.60E-01	7.60E-01	7.60E-01	7.60E-01	7.60E-01	7.60E-01
ce156	2.08E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr156	1.04E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd156	2.14E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm156	4.60E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm156	1.86E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu156	7.30E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd156	1.21E+01	1.21E+01	1.21E+01	1.21E+01	1.21E+01	1.21E+01	1.21E+01	1.21E+01	1.21E+01	1.21E+01	1.21E+01
ce157	3.64E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pr157	1.68E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd157	6.43E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm157	8.53E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm157	1.53E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu157	1.81E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd157	1.55E-02	1.55E-02	1.55E-02	1.55E-02	1.55E-02	1.55E-02	1.55E-02	1.55E-02	1.55E-02	1.55E-02	1.55E-02
pr158	4.04E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd158	1.21E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm158	1.26E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm158	5.03E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu158	4.81E-10	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd158	3.41E+00	3.41E+00	3.41E+00	3.41E+00	3.41E+00	3.41E+00	3.41E+00	3.41E+00	3.41E+00	3.41E+00	3.41E+00
pr159	1.88E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
nd159	2.67E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm159	2.02E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm159	9.01E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu159	8.96E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd159	7.28E-09	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb159	5.22E-01	5.22E-01	5.22E-01	5.22E-01	5.22E-01	5.22E-01	5.22E-01	5.22E-01	5.22E-01	5.22E-01	5.22E-01
nd160	2.19E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm160	5.54E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm160	1.16E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu160	1.48E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd160	2.34E-01	2.34E-01	2.34E-01	2.34E-01	2.34E-01	2.34E-01	2.34E-01	2.34E-01	2.34E-01	2.34E-01	2.34E-01
tb160	1.70E-07	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy160	4.34E-02	4.34E-02	4.34E-02	4.34E-02	4.34E-02	4.34E-02	4.34E-02	4.34E-02	4.34E-02	4.34E-02	4.34E-02
nd161	3.62E-19	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pm161	7.48E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm161	1.48E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu161	5.20E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd161	4.07E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb161	1.11E-08	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00

1

Part C 10000 year criticality at 2.182 kw/package fission products page 164
decay, following reactor irradiation identified by: power= 1.039E-04mw, burnup=3.7952E+02mwd, flux= 2.93E+08n/cm**2-sec
0 nuclide concentrations, grams
basis =B&W 15x15, 3.00wt%, 20gwd/mtu /per assem

initial 25030. yr 26000. yr 35000. yr 45000. yr 65000. yr 85000. yr 95000. yr 105000. yr 115000. yr 125000. yr

dy161	8.43E-02	8.43E-02	8.43E-02	8.43E-02	8.43E-02	8.43E-02	8.43E-02	8.43E-02	8.43E-02	8.43E-02	8.43E-02
pm162	2.11E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
sm162	2.76E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu162	5.38E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd162	4.26E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162	4.02E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb162m	1.42E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy162	5.92E-02	5.92E-02	5.92E-02	5.92E-02	5.92E-02	5.92E-02	5.92E-02	5.92E-02	5.92E-02	5.92E-02	5.92E-02
sm163	5.25E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu163	4.75E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd163	2.77E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163	4.09E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb163m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy163	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02	3.93E-02
sm164	4.39E-18	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu164	1.11E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd164	1.16E-12	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb164	2.31E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy164	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02	1.06E-02
sm165	7.70E-20	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
eu165	1.10E-17	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
gd165	8.15E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tb165	5.70E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165	5.52E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
dy165m	3.75E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho165	1.07E-02	1.07E-02	1.07E-02	1.07E-02	1.07E-02	1.07E-02	1.07E-02	1.07E-02	1.07E-02	1.07E-02	1.07E-02
dy166	2.40E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166	9.61E-11	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
ho166m	5.59E-07	5.50E-07	3.14E-07	1.73E-09	5.37E-12	5.16E-17	4.96E-22	1.54E-24	4.76E-27	1.48E-29	4.58E-32
er166	1.77E-03	1.77E-03	1.77E-03	1.77E-03	1.77E-03	1.77E-03	1.77E-03	1.77E-03	1.77E-03	1.77E-03	1.77E-03
er167	2.83E-05	2.83E-05	2.83E-05	2.83E-05	2.83E-05	2.83E-05	2.83E-05	2.83E-05	2.83E-05	2.83E-05	2.83E-05
er167m	6.16E-21	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er168	2.43E-05	2.43E-05	2.43E-05	2.43E-05	2.43E-05	2.43E-05	2.43E-05	2.43E-05	2.43E-05	2.43E-05	2.43E-05
yb168	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er169	1.16E-13	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm169	7.75E-07	7.75E-07	7.75E-07	7.75E-07	7.75E-07	7.75E-07	7.75E-07	7.75E-07	7.75E-07	7.75E-07	7.75E-07
yb169	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
er170	8.24E-07	8.24E-07	8.24E-07	8.24E-07	8.24E-07	8.24E-07	8.24E-07	8.24E-07	8.24E-07	8.24E-07	8.24E-07
tm170	1.01E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm170m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb170	4.84E-09	4.84E-09	4.84E-09	4.84E-09	4.84E-09	4.84E-09	4.84E-09	4.84E-09	4.84E-09	4.84E-09	4.84E-09
er171	5.31E-15	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm171	1.22E-11	2.41E-16	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb171	1.10E-06	1.10E-06	1.10E-06	1.10E-06	1.10E-06	1.10E-06	1.10E-06	1.10E-06	1.10E-06	1.10E-06	1.10E-06
er172	2.07E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
tm172	2.82E-14	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
yb172	7.02E-07	7.02E-07	7.02E-07	7.02E-07	7.02E-07	7.02E-07	7.02E-07	7.02E-07	7.02E-07	7.02E-07	7.02E-07
total	9.97E+03	9.97E+03	9.97E+03	9.97E+03	9.97E+03	9.97E+03	9.97E+03	9.97E+03	9.97E+03	9.97E+03	9.97E+03

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1broad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.0000E+07	2.6656E+06	1.9708E+09	7.2287E-01
2	9.0000E+05	1.5177E+05	1.0210E+07	2.7713E-01
3	4.0000E-01	1.2448E-01	3.6380E+05	1.2042E-10
4	1.0000E-05			

1 1200 d, second part of sas2h pass to make library

0cell averaged fluxes

0zone	grp. 1	grp. 2	grp. 3
1	3.92924E-01	1.13410E+00	2.09377E-01
2	3.98193E-01	1.13511E+00	2.00378E-01
3	4.01162E-01	1.13526E+00	1.96343E-01
4	4.18364E-01	1.13645E+00	1.67443E-01
5	4.16670E-01	1.13631E+00	1.70246E-01