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ENDF/B-VII.0 Data Testing Using 1,172 Critical Assemblies

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DISCLAIMER

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Introduction

In order to test the ENDF/B-VII.0 neutron data library [1], 1,172 critical assemblies from [2] have been calculated using the Monte Carlo transport code TART [3]. TART's "best" physics was used for all of these calculations; this included continuous energy cross sections, delayed neutrons in their spectrum that is slower than prompt neutrons, unresolved resonance region self-shielding, the thermal scattering (free atom for all materials plus thermal scattering law data $S(\alpha,\beta)$ when available).

In this first pass through the assemblies the objective was to "quickly" test the validity of the ENDF/B-VII.0 data [1], the assembly models as defined in [2] and coded for use with TART, and TART's physics treatment [3] of these assemblies. With TART we have the option of running criticality problems until K-eff has been calculated to an acceptable input accuracy. In order to "quickly" calculate all of these assemblies K-eff was calculated in each case to +/- 0.002.

For these calculations the assemblies were divided into ten types based on fuel (mixed, Pu239, U233, U235) and median fission energy (Fast, Midi, Slow). The below table is a summary of these results. This is followed be details for every assembly, and statistical information about the distribution of K-eff for each type of assembly.

After a review of these results to eliminate any obvious errors in ENDF/B data, assembly models, or TART physics, all assemblies will be run again to a higher precision. Only after this second run is finished will we have highly precise results. Until then the results presently here should only be interpreted as approximate values of K-eff with a standard deviation of +/- 0.002; for such a large number of assemblies we expected the results to be approximately normal, with a spread out to several times the standard deviation; see the below calculated statistical distributions and their comparisons to a normal distribution.

Based strictly on a "quick" look at the below summary my initial impression is that on average,

1) MIXED results look o.k.
2) PU239 fast results are very good., midi are too high, and slow is slightly too high.
3) U233 fast results are o.k., midi are poor, slow are o.k.
1) U235 fast results are good, midi too high, and slow very good.

Type	Assemblies	Average	Minimum	Maximum
Mixed	57	1.00177+/-0.00459	0.98546	1.01039
Pu Fast	48	1.00016+/-0.00462	0.98297	1.01099
Pu Midi	36	1.01896+/-0.00769	0.99689	1.03538
Pu Slow	247	1.00489+/-0.00627	0.98271	1.04091
U233 Fast	12	1.00226+/-0.00485	0.99401	1.01066
U233 Midi	33	0.98193+/-0.00589	0.96787	0.99999
U233 Slow	155	0.99798+/-0.00808	0.96628	1.02051
U235 Fast	199	1.00101+/-0.00523	0.97584	1.02526
U235 Midi	13	1.00429+/-0.00613	0.99200	1.01276
U235 Slow	372	0.99999+/-0.00606	0.97809	1.03050
Total	1172			

References

[1] "ENDF/B-VII.0: Next Generation Evaluated Nuclear Data Library for Nuclear Science and Technology", Nuclear Data Sheets 107 (2006) pp. 2931-3060, Editors: P.Oblozinsky and M.Herman.

[2] "International Handbook of Evaluated Criticality Safety Benchmark Experiments", NEA/NSC/DOC(95)03, September 2006 edition, Editor Blair Briggs

[3] ."TART 2005: A Coupled Neutron-Photon 3-D, Time Dependent, Combinatorial Geometry Monte Carlo Transport Code," Lawrence Livermore National Laboratory, UCRL-SM-218009, November 22, 2005, by D.E.Cullen.

Mixed (57 Assemblies)

Criticality Calculation Editor (CRITEDIT 2002-1)

Crit. ID.	Fuel	Reflector or Name	Expected K	Removal Lifetime (Microsec.)	Median Energy (MeV)	Average Energy (MeV)	Seconds
MMF001-1	Pu239	U235	0.9971610	4.38003D-03	1.32817D+00	1.81656D+00	1.280
MMF002-1	Pu239	Flattop	1.0036100	7.08866D-02	1.14973D+00	1.74642D+00	8.200
MMF002-2	Pu239	Flattop	1.0080500	7.02324D-02	1.11442D+00	1.72515D+00	9.920
MMF002-3	Pu239	Flattop	1.0047800	7.03334D-02	1.09901D+00	1.71424D+00	8.660
MMF003-1	Pu239	U235	1.0052100	9.57130D-03	1.30107D+00	1.80289D+00	5.980
MMF004-1	Pu239	U235-Be	0.9918450	1.11663D-02	9.80256D-01	1.54773D+00	8.610
MMF004-2	Pu239	U235-BeO	1.0026300	1.13768D-02	9.45068D-01	1.52077D+00	10.480
MMF005-1	Pu239	U235-Al	1.0048500	1.16771D-02	1.25412D+00	1.75748D+00	7.810
MMF007-1	Pu239	U235-Be	1.0073600	1.29764D+02	1.16054D+00	1.88986D+00	14.830
MMF007-2	Pu239	U235-Be	1.0060500	5.80758D+01	1.10513D+00	1.84419D+00	9.220
MMF007-3	Pu239	U235-Be	0.9987300	2.04635D+00	1.12771D+00	1.80336D+00	3.250
MMF007-4	Pu239	U235-Be	1.0061900	1.18387D-01	1.11476D+00	1.76573D+00	1.480
MMF007-5	Pu239	U235-Be	1.0003900	1.12577D-02	1.10687D+00	1.70115D+00	1.170
MMF007-6	Pu239	U235-Be	1.0013000	7.06356D-03	1.08159D+00	1.65300D+00	1.420
MMF007-7	Pu239	U235-Be	1.0034000	7.58701D+01	1.33050D+00	1.98912D+00	11.450
MMF007-8	Pu239	U235-Be	1.0008200	2.21177D+01	1.30860D+00	1.96387D+00	5.730
MMF007-9	Pu239	U235-Be	1.0103900	7.38217D+00	1.29160D+00	1.92048D+00	3.200
MMF007-10	Pu239	U235-Be	1.0032600	1.64255D-01	1.21980D+00	1.83900D+00	1.890
MMF007-11	Pu239	U235-Be	1.0077500	1.98269D-02	1.17812D+00	1.78188D+00	1.520
MMF007-12	Pu239	U235-Be	0.9976510	7.40829D-03	1.14734D+00	1.71217D+00	1.220
MMF007-13	Pu239	U235-Be	0.9998860	5.66745D-03	1.17061D+00	1.70934D+00	1.000
MMF007-14	Pu239	U235-Be	1.0057000	5.10753D+00	1.42589D+00	2.00917D+00	2.580
MMF007-15	Pu239	U235-Be	1.0043500	1.59091D+00	1.35460D+00	1.97690D+00	2.390
MMF007-16	Pu239	U235-Be	1.0084100	3.29638D-02	1.29793D+00	1.88181D+00	1.700
MMF007-17	Pu239	U235-Be	1.0021800	1.05610D-02	1.24821D+00	1.82054D+00	0.910
MMF007-18	Pu239	U235-Be	1.0092400	6.14974D-03	1.18857D+00	1.72665D+00	0.880
MMF007-19	Pu239	U235-Be	1.0000500	1.56927D-02	1.32964D+00	1.88239D+00	1.550
MMF007-20	Pu239	U235-Be	1.0042300	7.43490D-03	1.27665D+00	1.81612D+00	1.120
MMF007-21	Pu239	U235-Be	1.0054200	5.00833D-03	1.25675D+00	1.77863D+00	1.060
MMF007-22	Pu239	U235-Be	1.0022000	8.84976D-03	1.37653D+00	1.90873D+00	1.380
MMF007-23	Pu239	U235-Be	1.0039300	5.78207D-03	1.31546D+00	1.85108D+00	1.080
MMF009-1	Pu239	U235	1.0035100	4.22796D-03	1.39024D+00	1.86866D+00	3.200
MMF010-1	Pu239	U235	0.9988840	5.32506D-03	1.19806D+00	1.70025D+00	4.730
MMF011-1	Pu239	U235-Graphite	0.9959260	3.96329D+00	5.38270D-01	1.07525D+00	144.580
MMF011-2	U235	Pu-Graphite	1.0001400	3.14363D+00	5.14783D-01	1.04911D+00	106.530
MMF011-3	U235	Pu-Graphite	1.0066500	4.84409D+00	4.14988D-01	9.48410D-01	140.300
MMF011-4	U235	Pu-Graphite	1.0078000	3.42279D+00	4.15068D-01	9.43820D-01	139.530
MCF001	U235	ZPR6/7	0.9875050	6.80559D-01	1.64005D-01	8.52485D-01	157.840
Mst006-1s	Pu239U235	H2O	0.9854610	3.90604D+01	8.63649D-08	3.66694D-02	207.310
Mst006-2s	Pu239U235	H2O	0.9905270	3.41540D+01	1.03639D-07	3.87693D-02	215.420
Mst006-3s	Pu239U235	H2O	0.9955720	3.19877D+01	1.09685D-07	4.71316D-02	123.890
Mst006-4s	Pu239U235	H2O	1.0000100	2.84056D+01	1.23660D-07	4.42405D-02	173.060
Mst006-5s	Pu239U235	H2O	1.0058600	2.65535D+01	1.26456D-07	4.18924D-02	114.250
Mst006-6s	Pu239U235	H2O	1.0024100	2.55762D+01	1.42009D-07	4.97231D-02	165.810
Mst006-1	Pu239U235	H2O	0.9855750	3.88704D+01	9.22318D-08	3.97859D-02	241.670
Mst006-2	Pu239U235	H2O	0.9980710	3.36931D+01	1.07017D-07	4.33410D-02	208.220
Mst006-3	Pu239U235	H2O	0.9949630	3.23524D+01	1.15568D-07	4.29141D-02	161.500
Mst006-4	Pu239U235	H2O	1.0006800	2.85041D+01	1.29496D-07	4.29879D-02	147.720
Mst006-5	Pu239U235	H2O	1.0060500	2.68264D+01	1.36861D-07	4.20212D-02	169.380
Mst006-6	Pu239U235	H2O	1.0063700	2.60554D+01	1.41629D-07	4.65599D-02	133.310
MST007-1	Pu239U235	H2O	0.9895950	8.58150D+01	8.72348D-08	2.96214D-02	96.120
MST007-2	Pu239U235	H2O	0.9991930	7.66135D+01	6.96435D-08	3.11383D-02	86.480
MST007-3	Pu239U235	H2O	1.0033600	5.89231D+01	1.10880D-07	3.23339D-02	54.110
MST007-4	Pu239U235	H2O	1.0102400	5.34664D+01	1.19467D-07	3.19402D-02	73.450
MST007-5	Pu239U235	H2O	1.0070700	4.84022D+01	1.20563D-07	3.00682D-02	48.940
MST007-6	Pu239U235	H2O	1.0065400	3.82157D+01	1.43372D-07	3.43447D-02	45.700
MST007-6	Pu239U235	H2O	1.0058700	3.51961D+01	1.51881D-07	3.88879D-02	43.660
		Average	1.0017694	+/- 0.0045881		Total	3339.680

```
                              Lowest     0.9854610      -0.0163084 (from Average)
                              Highest    1.0103900       0.0086206 (from Average)
================================================================================================

 Frequency Distribution for Expected K Values from 0.0 to 2.0
 (0.005 bin width sums)

 Expected K Range    Occurrences
  0.985  0.990       4 XXXX
  0.990  0.995       3 XXX
  0.995  1.000      11 XXXXXXXXXXX
  1.000  1.005      19 XXXXXXXXXXXXXXXXXXX
  1.005  1.010      18 XXXXXXXXXXXXXXXXXX
  1.010  1.015       2 XX
 ------------------------------------------------------------
           Sum      57 (inside  0.0 to 2.0 Range)
                     0 (outside 0.0 to 2.0 Range)
 ------------------------------------------------------------
 Average  1.0017 +/-  0.0008 s. d. (0.0001 bin width average)

 K(i)                = K-Effective for Sample i
 N                   = Number of Samples        =      57
 Average K   = <K>   = K(i)/N  , Sum i=1 to N   =  1.0017
 Average K^2 = <K^2> = K(i)^2/N, Sum i=1 to N   =  1.0034
 Standard Deviation  = Sqrt[(<K^2>-<K>^2)/(N-1)]=  0.0008
 Sample Variance     =     [(<K^2>-<K>^2)]      =  0.0000
 Sample Width        = Sqrt[(<K^2>-<K>^2)]      =  0.0059

 As N Approaches Infinity Standard Deviation Approaches Zero.
 As N Approaches Infinity Sample Width Approaches a Constant.

 Confidence Limits
 (Occurrences out to +/- 10 times Sample Width)

 Sample Width  Occurrences  Per-Cent   Per-Cent
 Range                     Occurred   Normal
  -3  -2            4          7.018      2.140
  -2  -1            4          7.018     13.591
  -1   0           15         26.316     34.134
   0   1           27         47.368     34.134
   1   2            7         12.281     13.591
 ---------------------------------------------
    Sum            57
```

Pu Fast (48 Assemblies)

Criticality Calculation Editor (CRITEDIT 2002-1)

Crit. ID.	Fuel	Reflector or Name	Expected K	Removal Lifetime (Microsec.)	Median Energy (MeV)	Average Energy (MeV)	Seconds
PMF001-1	Pu239	Jezebel	1.0059300	3.73490D-03	1.45141D+00	1.92138D+00	0.770
PMF002-1	Pu239	Jezebel	1.0034400	4.03351D-03	1.46692D+00	1.92600D+00	0.700
PMF005-1	Pu239	W	1.0109900	1.40337D-02	1.20515D+00	1.73145D+00	5.520
PMF006	Pu239	Flattop	0.9968470	7.74139D-02	1.50454D+00	2.00353D+00	7.000
PMF008-1	Pu239	Thorium	0.9974590	7.48934D-02	1.35230D+00	1.92913D+00	3.170
PMF008-2	Pu239	Thorium	0.9933360	7.34728D-02	1.33970D+00	1.91991D+00	2.890
PMF009-1	Pu239	Aluminum	1.0091300	1.42369D-02	1.32441D+00	1.80158D+00	2.920
PMF010-1	Pu239	U-nat	0.9979740	1.04398D-02	1.45691D+00	1.94415D+00	1.660
PMF011-1	Pu239	water	1.0037300	1.20424D+02	1.04233D+00	1.51977D+00	38.080
PMF018-1	Pu239	Be	0.9947810	1.64912D-02	1.44281D+00	1.97997D+00	1.390
PMF019-1	Pu239	Be	1.0014700	1.23468D-01	1.43136D+00	1.99487D+00	13.140
PMF020-1	Pu239	U238	0.9966390	2.49421D-02	1.47421D+00	1.95757D+00	7.050
PMF021-1	Pu239	Be	0.9995220	8.95677D-01	1.45295D+00	2.02375D+00	8.330
PMF021-2	Pu239	BeO	0.9928220	4.93097D-01	1.37627D+00	1.91321D+00	9.120
PMF022-S	Pu239	bare	0.9995710	3.92425D-03	1.45215D+00	1.89743D+00	2.980
PMF022-D	Pu239	bare	1.0018000	3.95398D-03	1.43880D+00	1.90333D+00	4.980
PMF023-S	PU239	Graphite	1.0015400	7.05910D-03	1.36909D+00	1.82327D+00	3.670
PMF023-D	PU239	Graphite	0.9969920	7.02470D-03	1.33724D+00	1.81243D+00	3.230
PMF024-S	Pu239	poly	1.0056600	1.50569D-01	1.29723D+00	1.75657D+00	3.700
PMF024-D	Pu239	Poly	1.0008700	1.60445D-01	1.29719D+00	1.75069D+00	4.750
PMF025-S	Pu239	steel	0.9975240	5.44868D-03	1.38109D+00	1.83778D+00	5.940
PMF025-D	Pu239	Steel	1.0011900	5.47255D-03	1.40997D+00	1.85495D+00	4.120
PMF026-S	Pu239	steel	0.9945090	2.64149D-02	1.28512D+00	1.74639D+00	21.200
PMF026-D	Pu239	Steel	0.9969320	2.71058D-02	1.27307D+00	1.75675D+00	15.620
PMF027-S	Pu239	Poly	1.0036500	1.78305D+01	9.99689D-01	1.48397D+00	12.050
PMF027-D	Pu239	Steel	1.0071700	1.76829D+01	1.00925D+00	1.48375D+00	15.220
SFIR001	Pu239	Jezebel	1.0034000	3.76897D-03	1.46266D+00	1.92492D+00	0.780
SFIR002	Pu239	Vera-11a	0.9829740	2.12080D-01	7.59629D-01	1.43472D+00	91.670
SFIR008	Pu239	Thor	0.9943780	7.58576D-02	1.33997D+00	1.90258D+00	3.390
SFIR009	Pu239	Flattop	1.0065300	7.67354D-02	1.49419D+00	1.99054D+00	10.910
SFIR010	Pu239	Zebra-3	0.9914470	1.60798D-01	5.66365D-01	1.45133D+00	129.520
SFIR013	Pu239	Jezebel	0.9905260	3.98341D-03	1.46433D+00	1.93339D+00	1.060
PMF028-S	Pu239	Steel	0.9956340	7.75285D-02	1.27744D+00	1.74331D+00	27.750
PMF028-D	Pu239	Steel	1.0023800	7.42221D-02	1.28094D+00	1.74561D+00	19.830
PMF029-S	Pu239	bare	1.0029900	3.16512D-03	1.49526D+00	1.95823D+00	2.060
PMF029-D	Pu239	bare	0.9921650	3.15486D-03	1.49189D+00	1.95770D+00	2.030
PMF030-S	Pu239	Graphite	1.0035800	9.34960D-03	1.38170D+00	1.83862D+00	3.360
PMF030-D	Pu239	Graphite	1.0058000	9.43656D-03	1.37406D+00	1.83497D+00	2.730
PMF031-S	Pu239	Poly	1.0065400	4.96984D+00	1.15040D+00	1.62461D+00	6.360
PMF031-D	Pu239	Poly	1.0076400	4.85015D+00	1.15043D+00	1.61639D+00	7.950
PMF032-S	Pu239	Steel	0.9982650	8.47321D-03	1.38710D+00	1.84099D+00	7.160
PMF032-D	Pu239	Steel	1.0048100	8.63256D-03	1.36047D+00	1.81719D+00	5.620
PMF033	Pu239	ZPPR-21	1.0006200	3.03494D+00	6.58848D-01	1.18821D+00	126.910
PMF035	Pu239	lead	0.9984980	7.14222D-03	1.41389D+00	1.87403D+00	4.340
PMF036	Pu239	Poly	1.0051600	8.53074D-01	1.26576D+00	1.72961D+00	4.920
PMF039	Pu239	Duraluminiun	0.9938870	9.01953D-03	1.33798D+00	1.80366D+00	5.840
PMF040	Pu239	Copper	1.0009600	5.99575D-03	1.31601D+00	1.80202D+00	3.620
PMF041	Pu239	D38	1.0079200	8.54537D-02	1.57408D+00	2.05025D+00	18.890
		Average	1.0001580	+/- 0.0046164		Total	685.900
		Lowest	0.9829740	-0.0171840 (from Average)			
		Highest	1.0109900	0.0108320 (from Average)			

Frequency Distribution for Expected K Values from 0.0 to 2.0
(0.005 bin width sums)

Expected K Range		Occurrences
0.980	0.985	1 X
0.985	0.990	0
0.990	0.995	9 XXXXXXXXX

```
 0.995  1.000      12 XXXXXXXXXXX
 1.000  1.005      15 XXXXXXXXXXXXXX
 1.005  1.010      10 XXXXXXXXX
 1.010  1.015       1 X
-------------------------------------------------------
          Sum      48 (inside  0.0 to 2.0 Range)
                    0 (outside 0.0 to 2.0 Range)
-------------------------------------------------------
Average  1.0001 +/-  0.0008 s. d. (0.0001 bin width average)

K(i)                = K-Effective for Sample i
N                   = Number of Samples        =      48
Average K   = <K>   = K(i)/N  , Sum i=1 to N   =  1.0001
Average K^2 = <K^2> = K(i)^2/N, Sum i=1 to N   =  1.0001
Standard Deviation  = Sqrt[(<K^2>-<K>^2)/(N-1)]=  0.0008
Sample Variance     =     [(<K^2>-<K>^2)]      =  0.0000
Sample Width        = Sqrt[(<K^2>-<K>^2)]      =  0.0056

As N Approaches Infinity Standard Deviation Approaches Zero.
As N Approaches Infinity Sample Width Approaches a Constant.

Confidence Limits
(Occurrences out to +/- 10 times Sample Width)

Sample Width  Occurrences  Per-Cent   Per-Cent
Range                      Occurred   Normal
 -4  -3            1          2.083      0.132
 -2  -1            7         14.583     13.591
 -1   0           14         29.167     34.134
  0   1           17         35.417     34.134
  1   2            9         18.750     13.591
-----------------------------------------------
   Sum            48
```

Pu Midi (36 Assemblies)

Criticality Calculation Editor (CRITEDIT 2002-1)

Crit. ID.	Fuel	Reflector or Name	Expected K	Removal Lifetime (Microsec.)	Median Energy (MeV)	Average Energy (MeV)	Seconds
PCI001	Pu239	infinite-media	1.0133700	4.59505D+00	1.08071D-04	1.35204D-01	43.970
PCM001-1	Pu239	Concrete	1.0276100	1.56767D+03	1.25811D+00	1.72986D+00	219.780
PCM001-2	Pu239	Concrete	1.0280200	1.21350D+03	5.09645D-04	6.40840D-01	143.590
PCM001-3	Pu239	Concrete	1.0249000	1.16625D+03	1.15855D-05	2.73893D-01	190.170
PCM001-4	Pu239	Concrete	0.9968930	1.07750D+03	1.42781D-05	2.89609D-01	141.360
PCM001-5	Pu239	Concrete	1.0061400	8.26677D+02	3.22137D-07	1.02039D-01	108.190
PCM002-1	Pu239	Polystyrene	1.0325100	1.04978D+02	3.52197D-01	1.06309D+00	39.580
PCM002-2	Pu239	Polystyrene	1.0313800	1.04621D+02	3.22090D-01	1.03541D+00	40.610
PCM002-3	Pu239	Polystyrene	1.0284200	1.04257D+02	2.90641D-01	1.01944D+00	52.110
PCM002-4	Pu239	Polystyrene	1.0175500	1.05100D+02	2.18409D-01	9.80094D-01	44.560
PCM002-5	Pu239	Polystyrene	1.0148600	1.04620D+02	1.43703D-01	9.65807D-01	38.030
PCM002-6	Pu239	Polystyrene	1.0237600	8.69629D+01	5.72537D-05	4.43542D-01	36.340
PCM002-7	Pu239	Polystyrene	1.0204000	8.76141D+01	5.00326D-05	4.38555D-01	41.690
PCM002-8	Pu239	Polystyrene	1.0193800	8.76285D+01	2.70258D-05	4.21848D-01	35.170
PCM002-9	Pu239	Polystyrene	1.0245000	8.82106D+01	2.16622D-05	4.18109D-01	33.670
PCM002-10	Pu239	Polystyrene	1.0353800	8.52543D+01	4.45062D-07	1.81722D-01	36.920
PCM002-11	Pu239	Polystyrene	1.0304500	8.57309D+01	4.63353D-07	1.87097D-01	40.200
PCM002-12	Pu239	Polystyrene	1.0233300	8.53504D+01	5.14116D-07	1.91336D-01	36.380
PCM002-13	Pu239	Polystyrene	1.0274700	8.48497D+01	5.45259D-07	1.97030D-01	41.050
PCM002-14	Pu239	Polystyrene	1.0289200	8.38433D+01	5.23255D-07	1.95118D-01	34.270
PCM002-15	Pu239	Polystyrene	1.0261900	8.44769D+01	5.50803D-07	1.99655D-01	30.550
PCM002-16	Pu239	Polystyrene	1.0218300	8.56201D+01	5.20871D-07	1.91089D-01	45.700
PCM002-17	Pu239	Polystyrene	1.0120100	8.15141D+01	4.80033D-07	1.92325D-01	63.480
PCM002-18	Pu239	Polystyrene	1.0074600	8.05515D+01	5.74500D-07	2.00666D-01	61.160
PCM002-19	Pu239	Polystyrene	1.0106100	7.95542D+01	6.01436D-07	2.07927D-01	42.730
PCM002-20	Pu239	Polystyrene	1.0149100	7.89437D+01	6.29531D-07	2.05134D-01	47.800
PCM002-21	Pu239	Polystyrene	1.0103300	7.94442D+01	6.34491D-07	1.99989D-01	50.530
PCM002-22	Pu239	Polystyrene	1.0181300	7.92209D+01	6.12758D-07	2.05605D-01	41.420
PCM002-23	Pu239	Polystyrene	1.0097300	6.66982D+01	2.34962D-07	7.82270D-02	36.610
PCM002-24	Pu239	Polystyrene	1.0085400	6.69546D+01	2.37742D-07	7.56600D-02	37.550
PCM002-25	Pu239	Polystyrene	1.0162500	6.55061D+01	2.38095D-07	7.46985D-02	44.340
PCM002-26	Pu239	Polystyrene	1.0089000	6.64282D+01	2.35680D-07	7.99386D-02	38.840
PCM002-27	Pu239	Polystyrene	1.0094600	6.56347D+01	2.39837D-07	8.09071D-02	42.000
PCM002-28	Pu239	Polystyrene	1.0115200	6.51932D+01	2.41757D-07	8.35844D-02	48.880
PCM002-29	Pu239	Polystyrene	1.0160700	6.45283D+01	2.46659D-07	8.12159D-02	46.120
PMI002	U235	ZPR6-10	1.0252600	4.96934D+00	8.18622D-03	3.03170D-01	341.450
		Average	1.0189568 +/-	0.0076938		Total	2416.800
		Lowest	0.9968930	-0.0220638 (from Average)			
		Highest	1.0353800	0.0164232 (from Average)			

Frequency Distribution for Expected K Values from 0.0 to 2.0
(0.005 bin width sums)

Expected K Range		Occurrences
0.995	1.000	1 X
1.000	1.005	0
1.005	1.010	6 XXXXXX
1.010	1.015	7 XXXXXXX
1.015	1.020	5 XXXXX
1.020	1.025	6 XXXXXX
1.025	1.030	7 XXXXXXX
1.030	1.035	3 XXX
1.035	1.040	1 X
Sum		36 (inside 0.0 to 2.0 Range)
		0 (outside 0.0 to 2.0 Range)

Average 1.0189 +/- 0.0015 s. d. (0.0001 bin width average)

```
K(i)                = K-Effective for Sample i
N                   = Number of Samples        =      36
Average K   = <K>   = K(i)/N  , Sum i=1 to N   =  1.0189
Average K^2 = <K^2> = K(i)^2/N, Sum i=1 to N   =  1.0382
Standard Deviation  = Sqrt[(<K^2>-<K>^2)/(N-1)]=  0.0015
Sample Variance     =     [(<K^2>-<K>^2)]      =  0.0001
Sample Width        = Sqrt[(<K^2>-<K>^2)]      =  0.0089

As N Approaches Infinity Standard Deviation Approaches Zero.
As N Approaches Infinity Sample Width Approaches a Constant.

Confidence Limits
(Occurrences out to +/- 10 times Sample Width)
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Sample Width Range		Occurrences	Per-Cent Occurred	Per-Cent Normal
-3	-2	1	2.778	2.140
-2	-1	6	16.667	13.591
-1	0	11	30.556	34.134
0	1	11	30.556	34.134
1	2	7	19.444	13.591
Sum		36		

Pu Slow (247 Assemblies)

Criticality Calculation Editor (CRITEDIT 2002-1)

Crit. ID.	Fuel	Reflector or Name	Expected K	Removal Lifetime (Microsec.)	Median Energy (MeV)	Average Energy (MeV)	Seconds
PST001-1	Pu239	30cm-H2O	1.0036400	8.70141D+01	6.63961D-08	1.35718D-02	73.500
PST001-2	Pu239	30cm-H2O	1.0021800	8.55592D+01	7.83061D-08	1.79951D-02	46.000
PST001-3	Pu239	30cm-H2O	1.0055600	8.43737D+01	9.34902D-08	2.20241D-02	59.380
PST001-4	Pu239	30cm-H2O	0.9973200	8.43773D+01	1.00428D-07	2.36321D-02	49.780
PST001-5	Pu239	30cm-H2O	1.0032800	8.36691D+01	1.05365D-07	2.43300D-02	59.090
PST001-6	Pu239	30cm-H2O	1.0021500	8.06327D+01	1.92867D-07	4.63684D-02	61.140
PST001-T1	Pu239	30cm_H2O	1.0077500	8.64639D+01	6.53296D-08	1.27809D-02	25.940
PST001-T2	Pu239	30cm_H2O	1.0025500	8.56140D+01	7.74814D-08	1.84745D-02	70.520
PST001-T3	Pu239	30cm_H2O	1.0017700	8.44604D+01	9.04530D-08	2.07796D-02	76.580
PST001-T4	Pu239	30Cm_H2O	1.0026600	8.39496D+01	9.98510D-08	2.48472D-02	47.450
PST001-T5	Pu239	30Cm_H2O	1.0023500	8.31778D+01	1.06114D-07	2.65342D-02	74.120
PST001-T6	Pu239	30Cm_H2O	1.0040800	8.07706D+01	1.93743D-07	4.91729D-02	57.670
PST002-1	Pu239	30cm-H2O	1.0065500	8.92837D+01	5.69545D-08	8.96113D-03	61.610
PST002-2	Pu239	30cm-H20	1.0033700	8.89751D+01	5.76394D-08	9.78381D-03	44.380
PST002-3	Pu239	30cm-H2O	0.9989440	8.90626D+01	5.99269D-08	1.18325D-02	51.500
PST002-4	Pu239	30cm-H2O	1.0064400	8.79557D+01	6.20943D-08	1.16423D-02	68.880
PST002-5	Pu239	30cm-H2O	1.0098100	8.68181D+01	6.41582D-08	1.24360D-02	76.810
PST002-6	Pu239	30cm-H2O	1.0033600	8.70492D+01	6.78370D-08	1.45432D-02	56.980
PST002-7	Pu239	30cm-H2O	0.9934890	8.79486D+01	7.22954D-08	1.51837D-02	52.220
PST003-1	Pu239	30cm-H2O	1.0057900	9.14167D+01	5.04274D-08	6.66637D-03	80.270
PST003-2	Pu239	30cm-H2O	1.0056400	9.19463D+01	5.03280D-08	6.07977D-03	52.190
PST003-3	Pu239	30cm-H2O	1.0064300	8.99658D+01	5.18992D-08	7.29761D-03	70.480
PST003-4	Pu239	30cm-H2O	1.0088500	8.90124D+01	5.25687D-08	8.21094D-03	60.720
PST003-5	Pu239	30cm-H2O	1.0008800	8.95126D+01	5.34566D-08	8.60447D-03	61.140
PST003-6	Pu239	30cm-H2O	1.0054800	8.78204D+01	5.59582D-08	8.85093D-03	71.770
PST003-7	Pu239	30cm-H2O	1.0124100	9.42147D+01	4.98341D-08	6.79766D-03	66.980
PST003-8	Pu239	30cm-H2O	1.0077000	9.40451D+01	5.08086D-08	7.29928D-03	64.720
PST004-1	Pu239	30cm-H2O	1.0096700	9.21845D+01	5.25936D-08	6.27995D-03	52.520
PST004-2	Pu239	30cm-H2O	1.0037500	9.18415D+01	5.24768D-08	5.50798D-03	73.140
PST004-3	Pu239	30cm-H2O	1.0070200	9.14085D+01	5.31402D-08	5.97148D-03	58.770
PST004-4	Pu239	30cm-H2O	1.0027500	9.11964D+01	5.39248D-08	6.44561D-03	64.620
PST004-5	Pu239	30cm-H2O	1.0046000	9.09086D+01	5.31819D-08	3.62913D-03	57.450
PST004-6	Pu239	30cm-H2O	1.0023800	9.06440D+01	5.38002D-08	6.04784D-03	59.330
PST004-7	Pu239	30cm-H2O	1.0097800	8.94503D+01	5.39275D-08	6.01399D-03	71.270
PST004-8	Pu239	30cm-H2O	1.0026600	8.95421D+01	5.39924D-08	6.58711D-03	61.050
PST004-9	Pu239	30cm-H2O	0.9953960	8.93037D+01	5.57618D-08	7.14978D-03	55.110
PST004-10	Pu239	30cm-H2O	1.0042000	8.75492D+01	5.78630D-08	8.76564D-03	50.670
PST004-11	Pu239	30cm-H2O	1.0018000	8.60384D+01	6.11832D-08	8.23580D-03	66.470
PST004-12	Pu239	30cm-H2O	0.9997690	9.05100D+01	5.43464D-08	5.30143D-03	48.620
PST004-13	Pu239	30cm-H2O	1.0036000	8.99737D+01	5.39301D-08	6.56737D-03	72.980
PST005-1	Pu239	30cm-H2O	1.0077400	9.01188D+01	4.85887D-08	6.74518D-03	53.950
PST005-2	Pu239	30cm-H2O	1.0044400	8.95555D+01	4.90585D-08	7.40498D-03	60.020
PST005-3	Pu239	30cm-H2O	1.0067900	8.90080D+01	4.94846D-08	5.77696D-03	42.560
PST005-4	Pu239	30cm-H2O	1.0103300	8.81057D+01	5.13674D-08	6.08379D-03	64.810
PST005-5	Pu239	30cm-H2O	1.0073400	8.71547D+01	5.24348D-08	7.83066D-03	85.640
PST005-6	Pu239	30cm-H2O	1.0020100	8.67420D+01	5.39221D-08	8.70865D-03	93.450
PST005-7	Pu239	30cm-H2O	1.0002700	8.70185D+01	5.49165D-08	7.91925D-03	65.970
PST005-8	Pu239	30cm-H2O	0.9992760	8.99112D+01	4.92795D-08	6.13732D-03	64.330
PST005-9	Pu239	30cm-H2O	1.0022600	8.88757D+01	4.99756D-08	6.54830D-03	60.980
PST006-1	Pu239	30cm-H2O	1.0065400	9.06025D+01	4.65578D-08	5.45527D-03	49.780
PST006-2	Pu239	30cm-H2O	1.0096500	8.97458D+01	4.73511D-08	5.43289D-03	51.640
PST006-3	Pu239	30cm-H2O	1.0052300	8.93034D+01	4.91324D-08	4.95568D-03	44.550
PST007-1	Pu239	Water	1.0026000	8.20177D+01	1.66853D-07	4.03846D-02	54.390
PST007-2	Pu239	Water	0.9938260	8.27859D+01	1.60085D-07	3.98805D-02	55.620
PST007-3	Pu239	Water	1.0010500	8.62819D+01	7.83668D-08	1.87889D-02	55.890
PST007-4	Pu239	Water	1.0018300	8.59803D+01	8.14486D-08	1.95733D-02	55.420
PST007-5	Pu239	Water	1.0024800	8.59103D+01	7.94657D-08	1.79576D-02	72.910
PST007-6	Pu239	Water	0.9934670	8.68047D+01	7.97150D-08	1.86019D-02	72.030
PST007-7	Pu239	Water	0.9853110	8.80490D+01	8.05309D-08	2.05319D-02	53.300

PST007-8	Pu239	water	0.9985800	8.70934D+01	7.69517D-08	1.62738D-02	54.450
PST008-1	Pu239	case-01	1.0101100	3.92148D+01	5.38864D-08	7.38649D-03	57.660
PST008-2	Pu239	case-02	1.0060700	3.34820D+01	6.19512D-08	1.05944D-02	54.300
PST008-3	Pu239	case-03	1.0165000	3.26413D+01	6.19598D-08	1.12182D-02	61.410
PST008-4	Pu239	case-04	1.0195500	3.19393D+01	6.42057D-08	1.10866D-02	62.910
PST008-5	Pu239	case-05	1.0212100	4.08484D+01	5.16247D-08	8.93216D-03	53.950
PST008-6	Pu239	case-07	1.0130400	9.48421D+01	4.89870D-08	7.05357D-03	115.670
PST008-7	Pu239	case-08	0.9981970	2.31786D+01	6.58139D-08	1.25307D-02	51.750
PST008-8	Pu239	case-09	1.0008100	1.33481D+01	2.60167D-07	5.30546D-02	35.860
PST008-9	Pu239	case-10	1.0253500	8.74407D+01	5.90363D-08	9.18861D-03	53.470
PST008-10	Pu239	case-11	1.0192400	8.96482D+01	5.42208D-08	8.12608D-03	68.390
PST008-11	Pu239	case-12	1.0153100	7.67937D+01	7.25568D-08	1.50802D-02	72.980
PST008-12	Pu239	case-13	1.0265000	8.20953D+01	6.03531D-08	1.00713D-02	52.910
PST008-13	Pu239	case-14	0.9954500	2.98210D+01	8.00980D-08	1.68951D-02	35.970
PST008-14	Pu239	case-15	1.0094200	4.72389D+01	5.87102D-08	1.01639D-02	51.730
PST008-15	Pu239	case-16	1.0151400	4.29624D+01	5.45297D-08	8.10917D-03	45.000
PST008-16	Pu239	case-17	1.0154600	3.27902D+01	6.10636D-08	1.09672D-02	28.550
PST008-17	Pu239	case-18	1.0247900	3.21735D+01	6.21456D-08	8.24617D-03	25.110
PST008-18	Pu239	case-19	1.0178900	4.54326D+01	5.15111D-08	5.60691D-03	41.220
PST008-19	Pu239	case-20	1.0169900	9.38886D+01	4.98486D-08	7.26428D-03	57.670
PST008-20	Pu239	case-21	0.9983360	2.32511D+01	6.59800D-08	1.12777D-02	33.080
PST008-21	Pu239	case-22	0.9922400	1.36097D+01	2.54680D-07	5.42012D-02	44.410
PST008-22	Pu239	case-23	1.0203500	8.80421D+01	6.07532D-08	1.05235D-02	64.690
PST008-23	Pu239	case-24	1.0131000	9.10039D+01	5.43870D-08	8.35832D-03	45.110
PST008-24	Pu239	case-25	1.0229400	7.71697D+01	7.38258D-08	1.44012D-02	52.800
PST008-25	Pu239	case-26	1.0135500	8.41255D+01	6.19145D-08	1.19719D-02	59.660
PST008-26	Pu239	case-27	1.0050400	2.70331D+01	1.03683D-07	2.32181D-02	36.360
PST008-27	Pu239	case-28	0.9996400	2.92404D+01	8.25674D-08	1.87044D-02	34.410
PST008-28	Pu239	case-29	1.0106000	4.64511D+01	6.18635D-08	1.10876D-02	42.610
PST008-29	Pu239	case-30	1.0095900	4.71502D+01	5.94385D-08	1.09101D-02	44.220
PST009-1	Pu239	impurities	1.0296800	7.46946D+01	4.57803D-08	2.16496D-03	172.270
PST009-1a	Pu239	no-impurities	1.0289100	7.41061D+01	4.59218D-08	1.93276D-03	24.420
PST009-2	Pu239	impurities	1.0352200	7.81769D+01	4.54842D-08	4.22196D-03	179.480
PST009-2a	Pu239	no-impurities	1.0354100	7.80926D+01	4.57018D-08	2.22304D-03	26.330
PST009-3	Pu239	impurities	1.0342300	7.86886D+01	4.60324D-08	2.09142D-03	174.690
PST009-3a	Pu239	no-impurities	1.0409100	7.90694D+01	4.56281D-08	3.32810D-03	25.610
Pst010-1	Pu239	30cm-H2O	1.0157200	8.54199D+01	7.75892D-08	1.72591D-02	196.060
Pst010-2	Pu239	30cm-H2O	1.0102400	8.69672D+01	6.60308D-08	1.26038D-02	203.190
Pst010-3	Pu239	30cm-H2O	1.0057100	8.82204D+01	5.80501D-08	9.83237D-03	268.030
Pst010-4	Pu239	30cm-H2O	1.0087100	8.40187D+01	5.92470D-08	1.01540D-02	206.980
Pst010-5	Pu239	30cm-H2O	1.0087600	8.41276D+01	5.59988D-08	9.48295D-03	209.390
Pst010-6	Pu239	30cm-H2O	1.0085800	8.73638D+01	5.53295D-08	8.60001D-03	211.620
Pst010-7	Pu239	30cm-H2O	1.0027000	8.74605D+01	5.38005D-08	8.37763D-03	217.450
Pst010-8	Pu239	30cm-H2O	1.0031200	8.67810D+01	5.27213D-08	7.86819D-03	214.020
Pst010-9	Pu239	30cm-H2O	1.0113500	8.61701D+01	6.17524D-08	1.12543D-02	205.050
Pst010-10	Pu239	30cm-H2O	1.0048600	8.74932D+01	5.60373D-08	8.66968D-03	209.910
Pst010-11	Pu239	30cm-H2O	1.0077300	8.68295D+01	5.60168D-08	9.69776D-03	207.980
Pst010-12	Pu239	30cm-H2O	1.0098500	8.72737D+01	5.38039D-08	8.69993D-03	210.440
Pst010-13	Pu239	30cm-H2O	1.0161100	8.68826D+01	5.11397D-08	6.89452D-03	217.980
Pst010-14	Pu239	30cm-H2O	1.0157500	8.75824D+01	4.92411D-08	6.79618D-03	221.340
PST011-1	Pu239	16-1	1.0115300	1.98979D+01	5.26699D-08	8.40956D-03	20.000
PST011-2	Pu239	16-2	1.0218500	1.93812D+01	5.26105D-08	7.46260D-03	15.420
PST011-3	Pu239	16-3	1.0185900	1.82439D+01	5.48256D-08	7.11991D-03	18.050
PST011-4	Pu239	16-4	1.0114100	1.80413D+01	5.48659D-08	1.02772D-02	22.690
PST011-5	Pu239	16-5	1.0031700	1.53523D+01	5.98176D-08	9.24673D-03	17.580
PST011-6	Pu239	18-1	0.9941490	3.17520D+01	4.64298D-08	4.34023D-03	16.780
PST011-7	Pu239	18-2	1.0040700	3.07518D+01	4.74564D-08	4.64952D-03	23.450
PST011-8	Pu239	18-3	1.0001200	3.08449D+01	4.71437D-08	5.49372D-03	30.110
PST011-9	Pu239	18-5	1.0124800	2.82546D+01	4.88569D-08	5.38291D-03	25.380
PST011-10	Pu239	18-4	1.0006400	2.98150D+01	4.78502D-08	4.80366D-03	31.230
PST011-11	Pu239	18-5	1.0124800	2.82546D+01	4.88569D-08	5.38291D-03	26.410
PST011-12	Pu239	18-6	1.0019900	2.54218D+01	5.05891D-08	6.39235D-03	27.250
PST011-13	Pu239	18-7	1.0049100	2.97037D+01	4.80009D-08	5.78917D-03	22.280
PST020-1	Pu239	Water	1.0059800	8.69384D+01	5.41365D-08	8.68941D-03	40.470
PST020-2	Pu239	Water	1.0038200	8.69262D+01	5.38151D-08	8.25467D-03	45.420
PST020-3	Pu239	Water	0.9979460	8.95118D+01	4.98461D-08	5.57462D-03	44.500
PST020-4	Pu239	Water	0.9977170	8.55430D+01	6.00042D-08	9.76249D-03	46.720
PST020-5	Pu239	Water	1.0034400	8.13342D+01	6.12871D-08	1.12720D-02	43.660
PST020-6	Pu239	Water	1.0012300	8.65340D+01	5.15142D-08	7.78891D-03	31.060
PST020-7	Pu239	Water	0.9990960	6.29384D+01	7.94955D-08	1.51324D-02	37.030
PST020-8	Pu239	Water	0.9972370	6.54759D+01	6.00789D-08	1.10405D-02	41.280

PST020-9	Pu239	Water	1.0064200	8.64744D+01	5.30611D-08	6.93972D-03	27.250
PST020-10	Pu239	Water	0.9975760	8.92241D+01	4.98408D-08	6.24663D-03	37.920
PST020-11	Pu239	Water	1.0006200	8.50818D+01	5.92657D-08	1.08072D-02	38.450
PST020-12	Pu239	Water	1.0031100	8.12761D+01	6.15030D-08	1.05392D-02	37.800
PST020-13	Pu239	Water	0.9954400	6.55851D+01	6.03080D-08	9.41378D-03	37.560
PST020-14	Pu239	Water	0.9949410	6.31051D+01	7.84086D-08	1.41968D-02	34.380
PST020-15	Pu239	Water	1.0072300	8.85243D+01	5.06470D-08	8.02569D-03	38.500
PST021-1	Pu239	H2O	1.0054900	2.11626D+01	5.41941D-08	9.59373D-03	24.120
PST021-2	Pu239	H2O	1.0067100	2.36814D+01	5.25107D-08	7.51135D-03	24.020
PST021-3	Pu239	H2O	0.9961360	4.44286D+00	2.08888D-07	4.13516D-02	19.250
PST021-4	Pu239	H2O	1.0047400	8.57281D+01	4.71134D-08	5.25006D-03	51.730
PST021-5	Pu239	H2O	1.0025300	9.02925D+01	4.62872D-08	4.77120D-03	51.950
PST021-6	Pu239	H2O	1.0104500	8.32656D+01	5.63881D-08	8.60994D-03	51.340
PST021-7	Pu239	H2O	1.0049900	1.76480D+01	5.45078D-08	9.67924D-03	25.660
PST021-8	Pu239	H2O	1.0027500	3.40823D+00	2.07870D-07	3.96676D-02	16.880
PST021-9	Pu239	H2O	1.0067000	1.66946D+01	5.58643D-08	8.32822D-03	24.300
PST021-10	Pu239	H2O	1.0105700	9.45449D+01	4.54664D-08	4.82909D-03	48.110
PST022-D1	Pu239	soln-H2O	0.9936710	5.04133D+01	1.37905D-07	3.19198D-02	61.950
PST022-D2	Pu239	Soln-H2O	0.9968600	5.19926D+01	8.97132D-08	2.16249D-02	67.420
PST022-D3	Pu239	Soln-H2O	0.9968430	5.79382D+01	6.36378D-08	1.24222D-02	81.690
PST022-D4	Pu239	soln-H2O	0.9908130	6.13725D+01	5.90222D-08	1.13225D-02	80.560
PST022-D5	Pu239	Soln-H2O	0.9996860	6.43406D+01	5.44153D-08	7.14218D-03	94.300
PST022-D6	Pu239	Soln-H2O	1.0027500	6.67503D+01	5.20296D-08	9.13555D-03	63.310
PST022-D7	Pu239	Soln-H2O	1.0039300	6.95108D+01	5.07522D-08	7.64180D-03	63.480
PST022-D8	Pu239	Soln-H2O	1.0119600	7.04987D+01	4.94911D-08	8.89734D-03	65.830
PST022-D9	Pu239	Soln-H2O	1.0073900	7.25553D+01	4.93236D-08	5.99191D-03	87.170
PST022-D10	Pu239	soln-H2O	0.9956100	5.23394D+01	1.44368D-07	3.50259D-02	54.670
PST022-D11	Pu239	soln-H2O	0.9891390	5.34728D+01	1.14719D-07	2.77109D-02	87.830
PST022-D12	Pu239	soln-H2O	0.9911850	5.46730D+01	8.88465D-08	2.28791D-02	76.590
PST022-D13	Pu239	soln-H2O	0.9890780	5.62164D+01	7.77859D-08	1.96742D-02	63.770
PST022-D14	Pu239	soln-H2O	0.9913880	5.74605D+01	7.07360D-08	1.67979D-02	50.970
PST022-D15	Pu239	soln-H2O	0.9912100	5.99232D+01	6.38307D-08	1.39468D-02	65.340
PST022-D16	Pu239	soln-H2O	0.9916020	6.08298D+01	6.05029D-08	1.26432D-02	75.730
PST022-D17	Pu239	soln-H2O	0.9895190	6.14237D+01	6.04412D-08	1.26649D-02	82.920
PST022-S1	Pu239	soln-H2O	0.9948630	4.98494D+01	1.34422D-07	3.34946D-02	57.160
PST022-S2	Pu239	Soln-H2O	0.9887480	5.28289D+01	9.03575D-08	2.31429D-02	80.280
PST022-S3	Pu239	Soln-H2O	0.9986290	5.80469D+01	6.45193D-08	1.33242D-02	66.720
PST022-S4	Pu239	soln-H2O	1.0038800	6.09766D+01	5.81334D-08	1.03832D-02	71.550
PST022-S5	Pu239	Soln-H2O	1.0023900	6.46248D+01	5.38086D-08	8.91588D-03	71.110
PST022-S6	Pu239	Soln-H2O	1.0042700	6.73095D+01	5.23933D-08	7.81768D-03	73.800
PST022-S7	Pu239	Soln-H2O	1.0051900	6.86292D+01	5.00380D-08	6.29449D-03	68.020
PST022-S8	Pu239	Soln-H2O	1.0025400	7.07975D+01	4.93630D-08	6.86068D-03	80.330
PST022-S9	Pu239	Soln-H2O	1.0105800	7.21895D+01	4.90896D-08	5.91872D-03	73.950
PST022-S10	Pu239	soln-H2O	0.9889050	5.23811D+01	1.45046D-07	3.63878D-02	65.270
PST022-S11	Pu239	soln-H2O	0.9827060	5.33933D+01	1.14134D-07	2.78124D-02	72.670
PST022-S12	Pu239	soln-H2O	0.9868600	5.43487D+01	9.05490D-08	2.12743D-02	77.730
PST022-S13	Pu239	soln-H2O	0.9887600	5.63016D+01	7.73468D-08	2.04554D-02	68.080
PST022-S14	Pu239	soln-H2O	0.9871340	5.73964D+01	7.04664D-08	1.44991D-02	76.830
PST022-S15	Pu239	soln-H2O	0.9881540	5.99711D+01	6.35838D-08	1.44236D-02	88.530
PST022-S16	Pu239	soln-H2O	0.9961230	6.07113D+01	6.10762D-08	1.20189D-02	79.500
PST022-S17	Pu239	soln-H2O	0.9906880	6.09833D+01	5.99717D-08	1.05098D-02	75.380
PST028-D1	Pu239	solution_1	1.0073800	6.75223D+01	7.65844D-08	1.71160D-02	46.250
PST028-D2	Pu239	solution_2	1.0072500	6.85480D+01	7.10950D-08	1.59550D-02	43.720
PST028-D3	Pu239	solution_3	1.0081200	7.10807D+01	6.44259D-08	1.13501D-02	39.050
PST028-D4	Pu239	solution_4	1.0075200	7.41287D+01	6.04773D-08	1.05988D-02	47.910
PST028-D5	Pu239	solution_5	1.0090000	7.61736D+01	5.77332D-08	8.42644D-03	48.120
PST028-D6	Pu239	solution_6	1.0111200	8.09132D+01	5.29547D-08	8.35373D-03	47.580
PST028-D7	Pu239	sol_1+h20	1.0052000	7.65156D+01	7.08223D-08	1.26691D-02	42.940
PST028-D8	Pu239	sol8_2+h20	1.0058000	7.76898D+01	6.59118D-08	1.31805D-02	33.330
PST028-D9	Pu239	soln_3+H2O	1.0083700	7.99941D+01	6.11531D-08	1.05406D-02	42.470
PST028-D10	Pu239	sol_1	1.0012000	7.65765D+01	7.20938D-08	1.45082D-02	36.750
PST028-D11	Pu239	sol_1	1.0036200	7.13549D+01	7.43471D-08	1.54941D-02	54.830
PST028-D12	Pu239	sol_1	1.0069000	6.87827D+01	7.17949D-08	1.44166D-02	35.190
PST028-D13	Pu239	sol_1	1.0115300	6.69046D+01	7.71812D-08	1.63033D-02	54.890
PST028-D14	Pu239	sol_1	1.0070700	6.71162D+01	7.58258D-08	1.60068D-02	59.980
PST028-D15	Pu239	sol_1	1.0003900	6.96061D+01	7.18600D-08	1.50534D-02	53.500
PST029-D1	Pu239	Exp-160	1.0054300	7.18504D+01	5.54695D-08	8.16433D-03	34.690
PST029-D2	Pu239	Exp-166	1.0080800	7.42412D+01	5.53139D-08	8.90919D-03	45.080
PST029-D3	Pu239	Exp-170	1.0116000	7.66491D+01	5.59114D-08	7.39551D-03	44.950
PST029-D4	Pu239	Exp-172	1.0027000	7.93690D+01	5.44683D-08	9.99005D-03	40.200
PST029-D5	Pu239	Exp-174	1.0027800	7.88839D+01	5.63535D-08	8.98292D-03	35.970

PST029-D6 Pu239	Exp-162	1.0007600	7.43908D+01	5.39251D-08	7.67834D-03	58.420
PST029-D7 Pu239	Exp-168	0.9974490	7.86318D+01	5.33937D-08	6.87572D-03	63.640
PST029-D8 Pu239	Exp-183	0.9994020	6.48614D+01	5.64845D-08	8.12453D-03	52.750
PST029-D9 Pu239	Exp-185	1.0100100	6.73052D+01	5.58375D-08	8.53985D-03	52.330
PST029-D10Pu239	Exp-186	1.0103800	6.98952D+01	5.54949D-08	7.03004D-03	47.910
PST029-D11Pu239	Exp-187	1.0058300	7.12539D+01	5.55921D-08	9.35917D-03	42.980
PST029-D12Pu239	Exp-188	1.0022900	7.22531D+01	5.67573D-08	7.64469D-03	46.590
PST029-D13Pu239	Exp-161	1.0025700	7.30716D+01	5.49937D-08	1.00856D-02	48.120
PST029-D14Pu239	Exp-167	1.0055100	7.55860D+01	5.50097D-08	9.04310D-03	41.080
PST029-D15Pu239	Exp-171	1.0043000	7.79576D+01	5.50752D-08	8.00758D-03	48.620
PST029-D16Pu239	Exp-173	0.9943420	7.98393D+01	5.51549D-08	9.82702D-03	26.220
PST029-D17Pu239	Exp-175	0.9974260	7.98191D+01	5.50131D-08	8.44821D-03	36.800
PST032-1 U235	water	0.9955030	5.90700D+01	6.58165D-08	1.18814D-02	47.450
PST032-2 U235	water	1.0000400	6.03661D+01	6.23623D-08	1.23886D-02	35.890
PST032-3 U235	water	0.9970140	6.22842D+01	6.03636D-08	1.24391D-02	51.840
PST032-4 U235	water	0.9973610	6.39356D+01	5.69977D-08	9.69063D-03	45.030
PST032-5 U235	water	1.0071500	6.54907D+01	5.44275D-08	8.67176D-03	42.940
PST032-6 U235	water	1.0074400	6.79465D+01	5.26719D-08	7.57963D-03	35.520
PST032-7 U235	water	1.0056100	6.94536D+01	5.11802D-08	6.77923D-03	46.310
PST032-8 U235	water	1.0063200	7.16123D+01	4.99051D-08	6.40035D-03	44.830
PST032-9 U235	water	1.0083700	7.36343D+01	4.91179D-08	4.70408D-03	37.360
PST032-10 U235	water	1.0040400	7.58033D+01	4.84876D-08	7.74543D-03	57.410
PST032-11 U235	water	1.0105600	7.60178D+01	4.77528D-08	7.30765D-03	45.950
PST032-12 U235	water	1.0079000	7.71711D+01	4.68652D-08	5.10374D-03	46.590
PST032-13 U235	water	1.0004200	6.57766D+01	5.80255D-08	1.10860D-02	50.270
PST032-14 U235	water	1.0030400	6.78001D+01	5.58642D-08	9.41875D-03	52.050
PST032-15 U235	water	1.0051900	6.92131D+01	5.39556D-08	1.02157D-02	37.120
PST032-16 U235	water	1.0065400	7.18104D+01	5.16673D-08	7.76815D-03	64.230
PST032-17 U235	water	1.0118000	7.26709D+01	5.05786D-08	7.01363D-03	49.500
PST032-S1 U235	water	0.9903670	5.98712D+01	6.67226D-08	1.31109D-02	38.000
PST032-S2 U235	water	0.9987360	6.03400D+01	6.28572D-08	1.04102D-02	40.950
PST032-S3 U235	water	1.0000800	6.23787D+01	6.00730D-08	1.11282D-02	38.480
PST032-S4 U235	water	1.0017100	6.44036D+01	5.68093D-08	1.11735D-02	47.470
PST032-S5 U235	water	1.0025700	6.60942D+01	5.41125D-08	7.69171D-03	53.560
PST032-S6 U235	water	1.0018200	6.88542D+01	5.20457D-08	8.71490D-03	48.590
PST032-S7 U235	water	1.0105600	6.90213D+01	5.11527D-08	6.84066D-03	51.480
PST032-S8 U235	water	1.0076400	7.19766D+01	5.01788D-08	6.22495D-03	44.440
PST032-S9 U235	water	1.0059100	7.38189D+01	4.89500D-08	6.16861D-03	42.170
PST032-S10U235	water	1.0098000	7.49066D+01	4.79783D-08	5.81477D-03	47.440
PST032-S11U235	water	1.0117400	7.61703D+01	4.74330D-08	5.87293D-03	47.080
PST032-S12U235	water	1.0105000	7.73918D+01	4.77382D-08	4.54424D-03	44.500
PST032-S13U235	water	1.0036600	6.57955D+01	5.79300D-08	1.03540D-02	53.640
PST032-S14U235	water	0.9964160	6.77393D+01	5.64667D-08	9.00794D-03	47.660
PST032-S15U235	water	1.0026300	6.96603D+01	5.35853D-08	7.83415D-03	48.340
PST032-S16U235	water	1.0062300	7.24743D+01	5.14117D-08	8.03136D-03	49.250
PST032-S17U235	water	1.0131500	7.25510D+01	4.99467D-08	6.33372D-03	38.160
	Average	1.0048876 +/-	0.0062745		Total	15442.403
	Lowest	0.9827060	-0.0221816 (from Average)			
	Highest	1.0409100	0.0360224 (from Average)			

Frequency Distribution for Expected K Values from 0.0 to 2.0
(0.005 bin width sums)

Expected K Range		Occurrences	
0.980	0.985	1	
0.985	0.990	10	XXXXXXX
0.990	0.995	16	XXXXXXXXXX
0.995	1.000	33	XXXXXXXXXXXXXXXXXXXXXXX
1.000	1.005	71	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
1.005	1.010	64	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
1.010	1.015	27	XXXXXXXXXXXXXXXXXX
1.015	1.020	12	XXXXXXXX
1.020	1.025	5	XXX
1.025	1.030	4	XX
1.030	1.035	1	
1.035	1.040	2	X
1.040	1.045	1	
Sum		247	(inside 0.0 to 2.0 Range)

```
                    0 (outside 0.0 to 2.0 Range)
-------------------------------------------------------------
Average  1.0048 +/-  0.0006 s. d. (0.0001 bin width average)

K(i)                = K-Effective for Sample i
N                   = Number of Samples        =     247
Average K   = <K>   = K(i)/N  , Sum i=1 to N   =  1.0048
Average K^2 = <K^2> = K(i)^2/N, Sum i=1 to N   =  1.0097
Standard Deviation  = Sqrt[(<K^2>-<K>^2)/(N-1)]=  0.0006
Sample Variance     =     [(<K^2>-<K>^2)]      =  0.0001
Sample Width        = Sqrt[(<K^2>-<K>^2)]      =  0.0088

As N Approaches Infinity Standard Deviation Approaches Zero.
As N Approaches Infinity Sample Width Approaches a Constant.

Confidence Limits
(Occurrences out to +/- 10 times Sample Width)

Sample Width  Occurrences  Per-Cent   Per-Cent
Range                      Occurred   Normal
 -3  -2            4          1.619      2.140
 -2  -1           28         11.336     13.591
 -1   0           96         38.866     34.134
  0   1           94         38.057     34.134
  1   2           15          6.073     13.591
  2   3            6          2.429      2.140
  3   4            3          1.215      0.132
  4   5            1          0.405      0.003
-----------------------------------------------
   Sum           247
```

U233 Fast (12 Assemblies)

```
Criticality Calculation Editor (CRITEDIT 2002-1)
=================================================================================================
Crit.     Fuel      Reflector          Expected K  Removal     Median      Average        Seconds
ID.                 or Name                        Lifetime    Energy      Energy
                                                   (Microsec.) (MeV)       (MeV)
=================================================================================================
SFIR004   U233      Jezebel-23           1.0021900 3.18656D-03 1.31899D+00 1.77804D+00      0.660
SFIR007   U233      Flattop-23           1.0094900 7.05817D-02 1.34719D+00 1.86516D+00      4.390
UMF001-1  U233      Jezebel              0.9961170 3.14902D-03 1.26666D+00 1.75297D+00      0.660
UMF002-1  U233      U235                 0.9942960 3.65307D-03 1.25475D+00 1.73477D+00      1.000
UMF002-2  U233      U235                 1.0102600 4.11639D-03 1.19558D+00 1.68293D+00      1.060
UMF003-1  U233      U-nat                1.0025200 5.74215D-03 1.27816D+00 1.75641D+00      1.140
UMF003-2  U233      U-nat                1.0007000 1.16169D-02 1.26864D+00 1.79267D+00      1.470
UMF004-1  U233      W                    1.0075100 6.50212D-03 1.12422D+00 1.63480D+00      2.690
UMF004-2  U233      W                    1.0106600 1.51108D-02 1.01584D+00 1.57149D+00      4.660
UMF005-1  U233      Be                   0.9977360 5.97871D-03 1.25695D+00 1.78321D+00      0.840
UMF005-2  U233      Be                   0.9940070 1.76091D-02 1.21915D+00 1.80235D+00      1.060
UMF006-1  U233      U-nat                1.0016700 7.12522D-02 1.30945D+00 1.84086D+00      5.470
=================================================================================================
                             Average    1.0022630 +/-   0.0048542           Total         25.100
                             Lowest     0.9940070      -0.0082560 (from Average)
                             Highest    1.0106600       0.0083970 (from Average)
=================================================================================================

 Frequency Distribution for Expected K Values from 0.0 to 2.0
 (0.005 bin width sums)

 Expected K Range    Occurrences
  0.990  0.995       2 XX
  0.995  1.000       2 XX
  1.000  1.005       4 XXXX
  1.005  1.010       2 XX
  1.010  1.015       2 XX
 ------------------------------------------------------------
           Sum      12 (inside  0.0 to 2.0 Range)
                     0 (outside 0.0 to 2.0 Range)
 ------------------------------------------------------------
 Average  1.0022 +/-  0.0018 s. d. (0.0001 bin width average)

 K(i)                = K-Effective for Sample i
 N                   = Number of Samples        =      12
 Average K   = <K>   = K(i)/N  , Sum i=1 to N   =  1.0022
 Average K^2 = <K^2> = K(i)^2/N, Sum i=1 to N   =  1.0044
 Standard Deviation  = Sqrt[(<K^2>-<K>^2)/(N-1)]=  0.0018
 Sample Variance     =     [(<K^2>-<K>^2)]      =  0.0000
 Sample Width        = Sqrt[(<K^2>-<K>^2)]      =  0.0058

 As N Approaches Infinity Standard Deviation Approaches Zero.
 As N Approaches Infinity Sample Width Approaches a Constant.

 Confidence Limits
 (Occurrences out to +/- 10 times Sample Width)

 Sample Width  Occurrences  Per-Cent   Per-Cent
 Range                     Occurred   Normal
  -2  -1           3         25.000     13.591
  -1   0           4         33.333     34.134
   0   1           2         16.667     34.134
   1   2           3         25.000     13.591
 ----------------------------------------------
    Sum           12
```

U233 Midi (33 Assemblies)

Criticality Calculation Editor (CRITEDIT 2002-1)

Crit. ID.	Fuel	Reflector or Name	Expected K	Removal Lifetime (Microsec.)	Median Energy (MeV)	Average Energy (MeV)	Seconds
USI001-1	U233-1	8.00cm-Be	0.9826490	8.45482D+00	6.40565D-06	6.40576D-01	20.840
USI001-2	U233-1	5.82cm-Be	0.9805840	3.25053D+00	6.25790D-06	5.31062D-01	19.500
USI001-3	U233-1	4.67cm-Be	0.9892320	1.92231D+00	6.08074D-06	4.74091D-01	18.880
USI001-4	U233-1	3.50cm-Be	0.9817860	1.29176D+00	6.02794D-06	4.19345D-01	17.700
USI001-5	U233-1	2.69cm-Be	0.9840130	1.00704D+00	5.89979D-06	3.64467D-01	14.140
USI001-6	U233-1	1.83cm-Be	0.9796910	8.43836D-01	5.68559D-06	3.01303D-01	19.470
USI001-7	U233-2	8.00cm-Be	0.9871820	9.03116D+00	3.53291D-06	6.23730D-01	17.690
USI001-8	U233-2	5.94cm-Be	0.9855610	3.82764D+00	3.54576D-06	5.30109D-01	23.420
USI001-9	U233-2	4.70cm-Be	0.9836190	2.29323D+00	3.46810D-06	4.57782D-01	16.480
USI001-10	U233-2	3.43cm-Be	0.9889190	1.52297D+00	3.34115D-06	3.85945D-01	20.730
USI001-11	U233-2	2.62cm-Be	0.9772250	1.22065D+00	3.42317D-06	3.34218D-01	19.230
USI001-12	U233-2	1.78cm-Be	0.9748900	1.02022D+00	2.92934D-06	2.80979D-01	19.250
USI001-13	U233-2	1.18cm-Be	0.9799400	9.42380D-01	2.83699D-06	2.32027D-01	17.890
USI001-14	U233-3	8.69cm-Be	0.9999960	1.40639D+01	1.75793D-06	5.95033D-01	23.220
USI001-15	U233-3	6.20cm-Be	0.9842770	5.46851D+00	1.81132D-06	5.14953D-01	20.420
USI001-16	U233-3	5.03cm-Be	0.9980990	3.61804D+00	1.78109D-06	4.56940D-01	21.440
USI001-17	U233-3	3.61cm-Be	0.9873700	2.25771D+00	1.75463D-06	3.81222D-01	22.520
USI001-18	U233-3	2.72cm-Be	0.9808240	1.80607D+00	1.73630D-06	3.09437D-01	24.450
USI001-19	U233-3	2.08cm-Be	0.9916640	1.61262D+00	1.70765D-06	2.71929D-01	21.520
USI001-20	U233-3	1.19cm-Be	0.9745220	1.39737D+00	1.68347D-06	2.06937D-01	19.810
USI001-21	U233-1	4.11cm-Poly	0.9766550	1.80379D+01	1.96448D-06	2.56322D-01	24.670
USI001-22	U233-1	3.31cm-Poly	0.9772630	9.52354D+00	1.95827D-06	1.86400D-01	25.690
USI001-23	U233-1	1.47cm-Poly	0.9800020	2.56286D+00	3.72309D-06	2.61637D-01	15.190
USI001-24	U233-1	1.35cm-Poly	0.9789980	1.70013D+00	3.55995D-06	2.04504D-01	15.670
USI001-25	U233-2	5.18cm-Poly	0.9678660	3.13027D+01	1.60553D-06	2.88587D-01	36.000
USI001-26	U233-2	4.06cm-Poly	0.9713720	1.79747D+01	1.64627D-06	2.42771D-01	30.610
USI001-27	U233-3	4.34cm-Poly	0.9752150	2.16459D+01	7.09373D-07	2.17514D-01	26.860
USI001-28	U233-1	3.05cm-Poly	0.9790900	6.42184D+00	1.87698D-06	1.19644D-01	16.730
USI001-29	U233-2	11.68cm-Poly	0.9773230	6.97823D+01	7.22893D-07	9.34836D-02	40.090
USI001-30	U233-2	3.07cm-Poly	0.9725170	6.85829D+00	1.59302D-06	1.07523D-01	28.030
USI001-31	U233-2	1.52cm-Poly	0.9865240	1.76548D+00	1.94642D-06	1.15034D-01	18.330
USI001-32	U233-3	3.10cm-Poly	0.9738830	7.94645D+00	6.64320D-07	7.77214D-02	25.220
USI001-33	U233-3	1.60cm-Poly	0.9950970	2.46028D+00	1.24354D-06	8.45531D-02	23.450
		Average	0.9819348 +/-	0.0058858		Total	725.140
		Lowest	0.9678660	-0.0140688 (from Average)			
		Highest	0.9999960	0.0180612 (from Average)			

Frequency Distribution for Expected K Values from 0.0 to 2.0
(0.005 bin width sums)

Expected K Range		Occurrences
0.965	0.970	1 X
0.970	0.975	5 XXXXX
0.975	0.980	10 XXXXXXXXXX
0.980	0.985	7 XXXXXXX
0.985	0.990	6 XXXXXX
0.990	0.995	2 XX
0.995	1.000	2 XX
Sum		33 (inside 0.0 to 2.0 Range)
		0 (outside 0.0 to 2.0 Range)

Average 0.9818 +/- 0.0013 s. d. (0.0001 bin width average)

K(i) = K-Effective for Sample i
N = Number of Samples = 33
Average K = <K> = K(i)/N , Sum i=1 to N = 0.9818
Average K^2 = <K^2> = K(i)^2/N, Sum i=1 to N = 0.9640
Standard Deviation = Sqrt[(<K^2>-<K>^2)/(N-1)]= 0.0013
Sample Variance = [(<K^2>-<K>^2)] = 0.0001

Sample Width = Sqrt[(<K^2>-<K>^2)] = 0.0074

As N Approaches Infinity Standard Deviation Approaches Zero.
As N Approaches Infinity Sample Width Approaches a Constant.

Confidence Limits
(Occurrences out to +/- 10 times Sample Width)

Sample Width Range		Occurrences	Per-Cent Occurred	Per-Cent Normal
-2	-1	4	12.121	13.591
-1	0	15	45.455	34.134
0	1	10	30.303	34.134
1	2	2	6.061	13.591
2	3	2	6.061	2.140
Sum		33		

U233 Slow (155 Assemblies)

Criticality Calculation Editor (CRITEDIT 2002-1)

Crit. ID.	Fuel	Reflector or Name	Expected K	Removal Lifetime (Microsec.)	Median Energy (MeV)	Average Energy (MeV)	Seconds
UST001-1	U233	Bare	1.0061800	7.65304D+01	3.49470D-08	3.61909D-03	36.050
UST001-2	U233	Bare	1.0035800	7.32001D+01	3.49053D-08	3.75341D-03	40.080
UST001-3	U233	Bare	1.0033000	6.99242D+01	3.54007D-08	3.99033D-03	33.300
UST001-4	U233	Bare	1.0005700	6.73201D+01	3.53596D-08	4.03525D-03	29.970
UST001-5	U233	Bare	1.0043900	6.54618D+01	3.54580D-08	3.60881D-03	33.840
UST002-1	U233	paraffin	1.0060300	8.81157D+01	6.37047D-08	2.67064D-02	49.860
UST002-2	U233	paraffin	0.9847330	8.99011D+01	5.65682D-08	1.98293D-02	39.380
UST002-3	U233	paraffin	1.0047800	8.81005D+01	5.12106D-08	1.80239D-02	49.730
UST002-4	U233	paraffin	0.9938210	8.87959D+01	8.06251D-08	3.65830D-02	42.860
UST002-5	U233	paraffin	0.9889020	8.78797D+01	1.19190D-07	4.82815D-02	43.590
UST002-6	U233	paraffin	1.0010000	8.87193D+01	5.77144D-08	2.16388D-02	36.300
UST002-7	U233	paraffin	1.0069600	8.80132D+01	4.89827D-08	1.62290D-02	44.030
UST002-8	U233	paraffin	1.0086900	8.94256D+01	4.60774D-08	1.25812D-02	39.690
UST002-9	U233	paraffin	1.0106100	8.88577D+01	4.42141D-08	1.20360D-02	43.360
UST002-10	U233	paraffin	0.9946960	9.15799D+01	4.25992D-08	9.94239D-03	45.880
UST002-11	U233	paraffin	1.0053300	9.05000D+01	4.15825D-08	9.92859D-03	34.520
UST002-12	U233	paraffin	0.9854550	9.70549D+01	4.12045D-08	1.08845D-02	40.530
UST002-13	U233	paraffin	0.9988640	9.48123D+01	3.95842D-08	9.59352D-03	49.330
UST002-14	U233	paraffin	1.0107200	9.23599D+01	3.96841D-08	7.52664D-03	49.640
UST002-15	U233	paraffin	0.9891220	1.02701D+02	3.81808D-08	8.01231D-03	46.560
UST002-16	U233	paraffin	1.0051000	9.96719D+01	3.79858D-08	6.36043D-03	48.770
UST002-17	U233	paraffin	1.0145100	9.53789D+01	3.67832D-08	5.99280D-03	50.830
UST003-1	U233	Paraffin	1.0025400	8.45394D+01	8.81972D-08	3.79068D-02	75.520
UST003-2	U233	Paraffin	1.0186100	8.13261D+01	9.59986D-08	4.07437D-02	141.060
UST003-3	U233	Paraffin	1.0030600	8.87626D+01	9.37913D-08	4.06157D-02	105.080
UST003-4	U233	Paraffin	1.0066200	8.11899D+01	2.18518D-07	6.19956D-02	120.080
UST003-5	U233	Paraffin	1.0077300	8.13114D+01	3.14396D-07	7.38415D-02	89.970
UST003-6	U233	Paraffin	1.0205100	8.57647D+01	5.60264D-08	2.10009D-02	153.120
UST003-7	U233	Paraffin	0.9662800	7.13686D+01	4.70563D-08	1.48044D-02	105.620
UST003-8	U233	Paraffin	1.0138400	8.86971D+01	4.33211D-08	1.13640D-02	128.660
UST003-9	U233	Paraffin	1.0063900	9.07881D+01	4.10249D-08	9.06018D-03	222.810
UST003-10	U233	Paraffin	1.0130100	9.62605D+01	3.70152D-08	5.32166D-03	135.660
UST004-1	U233	paraffin	0.9992330	8.78834D+01	6.42401D-08	2.73426D-02	41.750
UST004-2	U233	paraffin	1.0055300	8.74330D+01	5.66869D-08	2.28258D-02	49.620
UST004-3	U233	paraffin	0.9955780	8.76845D+01	8.13105D-08	3.53451D-02	43.750
UST004-4	U233	paraffin	0.9881430	8.81291D+01	1.19829D-07	5.08838D-02	36.700
UST004-5	U233	paraffin	0.9972660	8.73876D+01	1.02089D-07	4.44018D-02	51.270
UST004-6	U233	paraffin	1.0050000	8.50592D+01	1.18756D-07	4.97787D-02	57.800
UST004-7	U233	paraffin	0.9993170	8.59555D+01	9.99215D-08	4.17306D-02	47.200
UST004-8	U233	paraffin	1.0032400	8.60281D+01	5.81528D-08	2.14943D-02	43.610
UST005-1	U233	15cm-H20	1.0029700	9.58111D+01	4.11239D-08	9.56776D-03	39.420
UST005-2	U233	15cm-H20	1.0090600	9.98931D+01	3.89006D-08	6.81194D-03	38.980
UST008-1	U233	Bare	1.0047500	1.00696D+02	3.41519D-08	4.44015D-03	32.730
UST009-S1	U233	Soln	1.0055700	9.81153D+01	3.60363D-08	3.87423D-03	35.090
UST009-S2	U233	Soln	1.0063900	1.01564D+02	3.56764D-08	4.08596D-03	34.000
UST009-S3	U233	Soln	1.0075700	1.04748D+02	3.52092D-08	2.86236D-03	34.780
UST009-S4	U233	Soln	1.0069900	1.07091D+02	3.55146D-08	2.78132D-03	35.000
UST012-S1	U233	H2O	0.9949020	9.89995D+01	6.50764D-08	2.61436D-02	53.420
UST012-S2	U233	H2O	0.9950290	9.91563D+01	6.29412D-08	2.77050D-02	63.440
UST012-S3	U233	H2O	1.0076000	9.80891D+01	5.93616D-08	2.40316D-02	55.270
UST012-S4	U233	H2O	1.0029000	9.89591D+01	5.14937D-08	1.77753D-02	49.020
UST012-S5	U233	H2O	1.0039200	1.00234D+02	4.79871D-08	1.46051D-02	47.470
UST012-S6	U233	H2O	1.0044500	1.00149D+02	4.59242D-08	1.34524D-02	56.610
UST012-S7	U233	H2O	1.0044600	1.03570D+02	3.87915D-08	7.29452D-03	64.200
UST012-S8	U233	H2O	0.9990140	1.03601D+02	3.87645D-08	7.11401D-03	39.300
UST012-D1	U233	H2O	0.9968200	1.11888D+02	6.37763D-08	2.63197D-02	66.880
UST012-D2	U233	H2O	0.9981030	1.11855D+02	6.24557D-08	2.43755D-02	75.940
UST012-D3	U233	H2O	1.0080700	1.10291D+02	5.87446D-08	2.40594D-02	57.910
UST012-D4	U233	H2O	0.9999800	1.11436D+02	5.12407D-08	1.84949D-02	71.720
UST012-D5	U233	H2O	1.0025200	1.11887D+02	4.77181D-08	1.58931D-02	70.050
UST012-D6	U233	H2O	1.0006100	1.11261D+02	4.59539D-08	1.35900D-02	59.250

UST012-D7	U233	H2O	1.0079400	1.11819D+02	3.93294D-08	6.71791D-03	26.620
UST012-D8	U233	H2O	1.0000500	1.12252D+02	3.92619D-08	8.42182D-03	45.120
UST013-1	U233	Solution	1.0034900	8.19067D+00	6.17036D-08	2.24377D-02	28.920
UST013-2	U233	Solution	1.0014600	8.14307D+00	6.22809D-08	2.48095D-02	27.530
UST013-3	U233	Solution	1.0050400	8.18382D+00	6.20797D-08	2.18354D-02	23.720
UST013-4	U233	Solution	1.0028700	8.18524D+00	6.15808D-08	2.45090D-02	20.200
UST013-5	U233	Solution	1.0027900	8.15737D+00	6.16496D-08	2.30757D-02	26.800
UST013-6	U233	Solution	1.0056600	8.50239D+00	6.07059D-08	2.24797D-02	24.970
UST013-7	U233	Solution	1.0064800	8.48610D+00	6.05816D-08	2.37839D-02	22.220
UST013-8	U233	Solution	1.0058000	8.48673D+00	6.03595D-08	2.21162D-02	22.380
UST013-9	U233	Solution	1.0049600	8.47732D+00	6.05386D-08	2.16763D-02	33.440
UST013-10	U233	Solution	1.0081500	8.53402D+00	6.05829D-08	2.33550D-02	25.970
UST013-11	U233	Solution	1.0001000	8.45987D+00	5.98851D-08	2.34682D-02	26.980
UST013-12	U233	Solution	0.9995150	8.45841D+00	6.06536D-08	2.23408D-02	30.360
UST013-13	U233	Solution	0.9961250	8.40680D+00	6.06601D-08	2.24591D-02	24.690
UST013-14	U233	Solution	1.0048900	8.49966D+00	6.05815D-08	2.34063D-02	26.920
UST013-15	U233	Solution	1.0188000	1.21703D+01	5.08849D-08	1.69329D-02	28.440
UST013-16	U233	Solution	0.9927620	1.44157D+01	4.71692D-08	1.28432D-02	23.950
UST013-17	U233	Solution	0.9954660	1.50986D+01	4.71401D-08	1.53410D-02	27.170
UST013-18	U233	Solution	0.9977130	1.62467D+01	4.54354D-08	1.49589D-02	29.220
UST013-19	U233	Solution	0.9969260	1.66554D+01	4.56244D-08	1.38412D-02	27.880
UST013-20	U233	Solution	1.0031800	2.45237D+01	4.10881D-08	9.83024D-03	44.660
UST013-21	U233	Solution	0.9970810	2.81090D+01	3.99232D-08	9.34636D-03	32.310
UST015-1	U233	Be-4,1	0.9780470	1.37211D+01	1.32543D-06	5.96311D-01	23.980
UST015-2	U233	Be-4,2	0.9828870	6.19019D+00	1.30502D-06	5.12304D-01	22.220
UST015-3	U233	Be-4,3	0.9843940	4.18522D+00	1.28076D-06	4.41726D-01	27.390
UST015-4	U233	Be+Poly-4,3	0.9901310	2.70167D+01	2.44955D-07	1.98916D-01	47.050
UST015-5	U233	Be-4,4	0.9832810	2.91721D+00	1.24269D-06	3.70149D-01	29.780
UST015-6	U233	Be-4,5	0.9726670	2.40050D+00	1.16768D-06	3.11442D-01	24.090
UST015-7	U233	Poly-4,5	0.9835930	1.15579D+01	2.60225D-07	5.90542D-02	29.250
UST015-8	U233	Be-4,6	0.9679540	2.07783D+00	1.13325D-06	2.49643D-01	16.880
UST015-9	U233	Be-4,7	0.9692930	1.90894D+00	1.01781D-06	1.83796D-01	15.390
UST015-10	U233	Poly-4,7	0.9862400	3.27766D+00	4.87734D-07	6.83759D-02	18.980
UST015-11	U233	Be-5,1	0.9849920	1.80549D+01	6.16293D-07	6.01735D-01	18.110
UST015-12	U233	Be-5,2	0.9824950	8.35870D+00	6.66513D-07	5.20114D-01	24.060
UST015-13	U233	Be-5,3	0.9841900	5.56253D+00	6.26484D-07	4.55710D-01	18.550
UST015-14	U233	Be+Poly-4,3	0.9975770	4.00027D+01	1.40853D-07	1.83316D-01	39.660
UST015-15	U233	Be-5,4	0.9872050	3.91161D+00	5.62898D-07	3.58862D-01	27.230
UST015-16	U233	Be-5,5	0.9824890	3.22684D+00	5.53958D-07	3.13118D-01	19.110
UST015-17	U233	Poly-5,5	0.9954090	1.58635D+01	1.39838D-07	4.66474D-02	29.620
UST015-18	U233	Be-5,6	0.9699750	2.70611D+00	4.91815D-07	2.46428D-01	22.950
UST015-19	U233	Be-5,7	0.9710670	2.50740D+00	4.39733D-07	1.84970D-01	19.810
UST015-20	U233	Be-6,1	0.9880860	3.85795D+01	1.47105D-07	6.21720D-01	28.500
UST015-21	U233	Be-6,2	0.9847930	1.69815D+01	1.54409D-07	5.38212D-01	23.120
UST015-22	U233	Be-6,3	0.9873150	1.06430D+01	1.51299D-07	4.68924D-01	26.140
UST015-23	U233	Be-6,4	0.9914960	7.31825D+00	1.37938D-07	3.86528D-01	21.030
UST015-24	U233	Be-6,5	0.9861970	5.97622D+00	1.33967D-07	3.31555D-01	22.910
UST015-25	U233	Poly-6,5	0.9932580	3.06488D+01	7.50035D-08	3.03240D-02	41.420
UST015-26	U233	Be-7,3	0.9807710	3.49756D+01	7.06088D-08	5.54016D-01	30.140
UST015-27	U233	Be-7,4	0.9878960	2.12195D+01	6.81673D-08	4.69797D-01	21.360
UST015-28	U233	Be-7,5	0.9867920	1.59481D+01	6.81489D-08	4.02006D-01	26.450
UST015-29	U233	Be-7,6	0.9858730	1.25507D+01	6.54421D-08	3.22598D-01	22.330
UST015-30	U233	Be-7,7	0.9922710	1.09866D+01	6.35757D-08	2.62263D-01	25.060
UST015-31	U233	Be-7,8	0.9890310	9.54481D+00	6.14255D-08	1.65523D-01	24.810
UST016-1	U233	Expt93	0.9927950	1.88043D+03	9.42526D-08	3.67011D-02	119.530
UST016-2	U233	Expt94	1.0062400	1.85242D+03	9.29520D-08	3.47946D-02	122.050
UST016-3	U233	Expt95	0.9959240	1.84950D+03	9.48729D-08	3.56561D-02	124.610
UST016-4	U233	Expt96	1.0036200	1.83874D+03	9.43080D-08	3.74361D-02	132.940
UST016-5	U233	Expt97	1.0016200	1.83169D+03	9.43523D-08	3.46596D-02	159.300
UST016-6	U233	Expt98	0.9900470	1.86329D+03	9.42631D-08	3.52343D-02	160.310
UST016-7	U233	Expt100	0.9884570	1.86560D+03	9.49275D-08	3.78593D-02	120.140
UST016-8	U233	Expt101	0.9914740	1.84630D+03	9.45282D-08	3.53935D-02	145.440
UST016-9	U233	Expt102	0.9940890	1.84370D+03	9.32139D-08	3.55311D-02	135.690
UST016-10	U233	Expt103	0.9989390	1.83423D+03	9.21824D-08	3.63359D-02	162.190
UST016-11	U233	Expt104	1.0019400	1.81852D+03	9.31103D-08	3.63431D-02	154.250
UST016-12	U233	Expt105	1.0037400	1.81702D+03	9.34594D-08	3.57538D-02	118.050
UST016-13	U233	Expt134	0.9964120	1.83882D+03	6.26694D-08	2.21383D-02	124.690
UST016-14	U233	Expt135	1.0148800	1.80521D+03	6.29217D-08	2.24845D-02	138.060
UST016-15	U233	Expt136	1.0012600	1.83620D+03	6.27152D-08	2.28680D-02	141.620
UST016-16	U233	Expt139	1.0048100	1.81463D+03	6.22824D-08	2.55197D-02	115.920
UST016-17	U233	Expt140	0.9881510	1.87042D+03	6.25443D-08	2.22807D-02	123.200

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UST016-18 U233      Expt141             0.9865720 1.85727D+03 6.28849D-08 2.35644D-02    130.410
UST016-19 U233      Expt142             0.9922030 1.85639D+03 6.25116D-08 2.21538D-02    163.920
UST016-20 U233      Expt143             0.9932720 1.83513D+03 6.28163D-08 2.18260D-02     90.120
UST016-21 U233      Expt144             1.0023200 1.82087D+03 6.24288D-08 2.36706D-02    186.580
UST016-22 U233      Expt145             1.0029800 1.82477D+03 6.30232D-08 2.21952D-02    165.030
UST016-23 U233      Expt146             1.0067300 1.81415D+03 6.26222D-08 2.20718D-02    166.050
UST016-24 U233      Expt147             1.0007700 1.81985D+03 6.24567D-08 2.27029D-02    139.120
UST016-25 U233      Expt178             0.9950840 1.67524D+03 4.83151D-08 1.48549D-02    104.660
UST016-26 U233      Expt179             1.0018000 1.65660D+03 4.81790D-08 1.33011D-02    110.880
UST016-27 U233      Expt180             0.9981430 1.66934D+03 4.81707D-08 1.39930D-02    106.250
UST016-28 U233      Expt181             0.9983970 1.68752D+03 4.83106D-08 1.46226D-02    118.200
UST016-29 U233      Expt182             0.9963880 1.67244D+03 4.81265D-08 1.40908D-02    117.950
UST016-30 U233      Expt183             0.9901340 1.68250D+03 4.81189D-08 1.49816D-02    120.450
UST016-31 U233      Expt196             1.0035100 1.52964D+03 4.20724D-08 9.25165D-03     55.420
UST016-32 U233      Expt197             1.0191300 1.50241D+03 4.16742D-08 8.79230D-03     69.800
UST016-33 U233      Expt198             1.0110500 1.51834D+03 4.19852D-08 8.53699D-03     91.120
UST017-1  U233      Expt221h            1.0011300 9.67527D+01 5.64119D-08 1.91719D-02     56.620
UST017-2  U233      Expt223c            0.9980600 1.06450D+02 5.50692D-08 1.84156D-02     55.470
UST017-3  U233      Expt225b            1.0074600 1.08671D+02 5.47595D-08 1.78534D-02     53.480
UST017-4  U233      Expt232b            1.0005600 1.09232D+02 4.90822D-08 1.39252D-02     59.940
UST017-5  U233      Expt234d            1.0017000 1.09569D+02 4.86863D-08 1.36470D-02     54.890
UST017-6  U233      Expt244d            1.0028400 1.10614D+02 4.15570D-08 8.12527D-03     44.280
UST017-7  U233      Expt249c            0.9971800 1.04380D+02 4.17687D-08 8.05941D-03     61.800
=============================================================================================================
                             Average    0.9979848 +/-   0.0080819           Total       9716.141
                             Lowest     0.9662800      -0.0317048 (from Average)
                             Highest    1.0205100       0.0225252 (from Average)
=============================================================================================================

 Frequency Distribution for Expected K Values from 0.0 to 2.0
 (0.005 bin width sums)

 Expected K Range    Occurrences
  0.965  0.970       4 XXXX
  0.970  0.975       2 XX
  0.975  0.980       1 X
  0.980  0.985      11 XXXXXXXXXXX
  0.985  0.990      17 XXXXXXXXXXXXXXXXX
  0.990  0.995      16 XXXXXXXXXXXXXXXX
  0.995  1.000      26 XXXXXXXXXXXXXXXXXXXXXXXXXX
  1.000  1.005      42 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
  1.005  1.010      25 XXXXXXXXXXXXXXXXXXXXXXXXX
  1.010  1.015       7 XXXXXXX
  1.015  1.020       3 XXX
  1.020  1.025       1 X
 ------------------------------------------------------------
           Sum     155 (inside  0.0 to 2.0 Range)
                     0 (outside 0.0 to 2.0 Range)
 ------------------------------------------------------------
 Average  0.9979 +/-  0.0008 s. d. (0.0001 bin width average)

 K(i)                = K-Effective for Sample i
 N                   = Number of Samples        =     155
 Average K   = <K>   = K(i)/N  , Sum i=1 to N   =  0.9979
 Average K^2 = <K^2> = K(i)^2/N, Sum i=1 to N   =  0.9959
 Standard Deviation  = Sqrt[(<K^2>-<K>^2)/(N-1)]=  0.0008
 Sample Variance     =     [(<K^2>-<K>^2)]      =  0.0001
 Sample Width        = Sqrt[(<K^2>-<K>^2)]      =  0.0103

 As N Approaches Infinity Standard Deviation Approaches Zero.
 As N Approaches Infinity Sample Width Approaches a Constant.

 Confidence Limits
 (Occurrences out to +/- 10 times Sample Width)

 Sample Width  Occurrences  Per-Cent   Per-Cent
 Range                     Occurred   Normal
  -4  -3            1         0.645      0.132
  -3  -2            5         3.226      2.140
  -2  -1           20        12.903     13.591
  -1   0           39        25.161     34.134
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0	1	77	49.677	34.134
1	2	9	5.806	13.591
2	3	4	2.581	2.140
Sum		155		

U235 Fast (199 Assemblies)

Criticality Calculation Editor (CRITEDIT 2002-1)

Crit. ID.	Fuel	Reflector or Name	Expected K	Removal Lifetime (Microsec.)	Median Energy (MeV)	Average Energy (MeV)	Seconds
HMF001-1	U235	Godiva	1.0042900	6.23205D-03	9.55259D-01	1.51058D+00	0.910
HMF001-2	U235	Godiva	1.0023500	6.19500D-03	9.75280D-01	1.52076D+00	0.690
HMF002-1	U235	Tuballoy-sphere	0.9985170	7.65880D-02	9.44777D-01	1.61050D+00	5.280
HMF002-2	U235	Tuballoy-cyl	0.9975920	8.42132D-02	9.07787D-01	1.58847D+00	4.610
HMF002-3	U235	Tuballoy-box	1.0051100	8.87250D-02	9.09292D-01	1.59032D+00	8.090
HMF002-4	U235	Tuballoy-box	0.9960720	8.95613D-02	8.94650D-01	1.57932D+00	8.450
HMF002-5	U235	Tuballoy-box	0.9952500	8.97188D-02	8.83014D-01	1.57476D+00	7.080
HMF002-6	U235	Tuballoy-box	0.9992510	8.87183D-02	8.89290D-01	1.57026D+00	7.050
Hmf003-1	U235	2-inches-U	0.9944840	1.48527D-02	9.29636D-01	1.54223D+00	1.590
Hmf003-2	U235	3-inches-U	0.9993000	2.20868D-02	9.32514D-01	1.54856D+00	1.300
Hmf003-3	U235	4-inches-U	0.9991780	3.16701D-02	9.31426D-01	1.57783D+00	3.090
Hmf003-4	U235	5-inches-U	0.9934300	4.24375D-02	9.46053D-01	1.59178D+00	2.880
Hmf003-5	U235	7-inches-U	0.9988200	6.54989D-02	9.07049D-01	1.58294D+00	5.250
Hmf003-6	U235	8-inches-U	1.0043900	7.63665D-02	9.05001D-01	1.57489D+00	5.360
Hmf003-7	U235	11-inches-U	1.0002800	1.03764D-01	9.02012D-01	1.59398D+00	5.200
Hmf003-8	U235	1.9-inches-WC	1.0086300	1.94540D-02	7.29655D-01	1.30433D+00	2.780
Hmf003-9	U235	2.9-inches-WC	1.0133800	3.54199D-02	6.79294D-01	1.26973D+00	2.920
Hmf003-10	U235	4.5-inches-WC	1.0150200	7.38332D-02	6.34551D-01	1.23225D+00	5.280
Hmf003-11	U235	6.5-inches-WC	1.0167800	1.23994D-01	6.38083D-01	1.23857D+00	6.230
Hmf003-12	U235	8.0-inches-Ni	1.0077600	3.38777D-01	7.72413D-01	1.32666D+00	12.920
HMF007-1	U235	Bare	0.9936050	6.25216D-03	9.60877D-01	1.51053D+00	3.880
HMF007-2	U235	Poly	1.0058000	1.11059D-02	8.02747D-01	1.36803D+00	3.380
HMF007-3	U235	Poly	1.0032900	1.80910D-02	7.25977D-01	1.29312D+00	4.280
HMF007-4	U235	Poly	1.0019200	1.57911D-02	6.81190D-01	1.26673D+00	5.390
HMF007-5	U235	Poly	0.9988700	1.80840D-02	6.05322D-01	1.22233D+00	5.220
HMF007-6	U235	Poly	1.0059700	6.36978D-02	5.65441D-01	1.16374D+00	6.450
HMF007-7	U235	Poly	0.9939890	2.49050D-02	5.70069D-01	1.17707D+00	5.060
HMF007-8	U235	Poly	0.9999150	2.16333D-02	5.16334D-01	1.14961D+00	4.340
HMF007-9	U235	Poly	1.0081500	4.01294D-02	5.47800D-01	1.16428D+00	4.280
HMF007-10	U235	Poly	1.0003400	1.97271D-01	1.94242D-01	9.24975D-01	7.200
HMF007-11	U235	Poly	1.0007800	2.88262D-01	1.05031D-02	7.15220D-01	5.050
HMF007-12	U235	Poly	0.9935540	3.45089D-01	6.18867D-03	6.98348D-01	11.330
HMF007-13	U235	Poly	0.9984510	1.34778D+00	8.05895D-03	7.25057D-01	9.770
HMF007-14	U235	Poly	0.9972990	3.63087D-01	5.22475D-03	6.86191D-01	8.470
HMF007-15	U235	Poly	1.0006300	1.24037D+00	8.50638D-03	7.32715D-01	9.310
HMF007-16	U235	Poly	0.9944960	1.25270D+00	9.00113D-03	7.38190D-01	9.500
HMF007-17	U235	Poly	0.9901390	1.60894D+00	2.55702D-04	5.20954D-01	9.440
HMF007-18	U235	Poly	0.9972890	1.65212D+00	2.44033D-04	5.19066D-01	10.730
HMF007-19	U235	Bare	0.9942520	6.23634D-03	9.35643D-01	1.49045D+00	2.700
HMF007-20	U235	Poly	0.9948940	3.97495D-02	6.04165D-01	1.20395D+00	4.310
HMF007-21	U235	Poly	1.0009700	4.31876D-02	5.85009D-01	1.19996D+00	5.360
HMF007-22	U235	Poly	0.9989100	4.81545D-02	5.57467D-01	1.17681D+00	4.530
HMF007-23	U235	Poly	1.0033300	2.84721D-01	4.36411D-01	1.09113D+00	4.550
HMF007-24	U235	Poly	1.0013800	3.26193D-01	4.17643D-01	1.07260D+00	5.830
HMF007-25	U235	Poly	0.9933460	5.00934D-01	2.75229D-01	9.93519D-01	4.720
HMF007-26	U235	Poly	0.9994290	5.42136D-01	2.67003D-01	9.77602D-01	6.910
HMF007-27	U235	Plexi	0.9887530	1.26740D-02	7.70222D-01	1.33928D+00	4.060
HMF007-28	U235	Plexi	0.9917980	2.27282D-02	6.25639D-01	1.20816D+00	4.860
HMF007-29	U235	Plexi	1.0039000	3.72855D-02	5.04949D-01	1.12526D+00	6.360
HMF007-30	U235	Plexi	0.9970780	3.82474D-01	1.29054D-01	8.67598D-01	10.020
HMF007-31	U235	Plexi	1.0022300	8.28805D-01	1.70205D-03	6.11001D-01	11.690
HMF007-32	U235	Teflon	1.0061700	8.82644D-03	8.83062D-01	1.42961D+00	4.120
HMF007-33	U235	Teflon	1.0128200	1.08766D-02	8.19127D-01	1.36904D+00	5.810
HMF007-34	U235	Teflon	1.0174600	1.30645D-02	7.71044D-01	1.31607D+00	6.390
HMF007-35	U235	Poly	1.0073500	8.17350D+01	3.18382D-01	9.82615D-01	33.970
HMF007-36	U235	Poly	1.0005400	8.03310D+01	9.69484D-02	8.45441D-01	33.470
HMF007-37	U235	Poly	0.9993450	7.83223D+01	1.40322D-02	7.24844D-01	37.410
HMF007-38	U235	Poly	1.0032000	7.74684D+01	8.51570D-03	7.05252D-01	38.420
HMF007-39	U235	Poly	1.0068100	7.73921D+01	8.21040D-03	7.02496D-01	47.470
HMF007-40	U235	Poly	1.0025800	7.80263D+01	1.10903D-02	7.28138D-01	32.080
HMF007-41	U235	Poly	1.0045700	7.49133D+01	3.32848D-04	5.22499D-01	43.380

HMF007-42	U235	Poly	0.9970470	7.56283D+01	2.80868D-04	5.17306D-01	40.120
HMF007-43	U235	Poly	0.9969100	7.35115D+01	1.40345D-05	3.16054D-01	35.280
HMF008-1	U235	Bare	0.9926580	1.09080D-02	9.22593D-01	1.47397D+00	4.200
HMF009-1	U235	Be	0.9912480	1.68059D-02	8.73407D-01	1.50885D+00	4.690
HMF009-2	U235	BeO	0.9979730	1.60386D-02	8.50148D-01	1.45765D+00	5.420
HMF010-1	U235	B-Be	0.9961160	1.82700D-02	8.82920D-01	1.47935D+00	6.580
HMF010-2	U235	B-BeO	0.9939040	1.80533D-02	8.40401D-01	1.42520D+00	6.050
HMF011-1	U235	Poly	1.0032000	5.18358D+01	4.96462D-01	1.10283D+00	19.030
HMF012-1	U235	Al	1.0000700	1.19639D-02	8.82988D-01	1.45247D+00	3.880
HMF013-1	U235	steel	0.9934020	1.41418D-02	8.85016D-01	1.43536D+00	6.880
HMF014-1	U235	Al	0.9982750	1.86965D-02	8.83980D-01	1.51022D+00	8.230
Hmf015	U235	Bare	0.9961530	7.15753D-03	9.65060D-01	1.51602D+00	2.670
Hmf016-1	U235	Be	1.0010600	7.37009D-01	8.75170D-01	1.51308D+00	3.090
Hmf016-2	U235	BeO	1.0070900	2.69599D-01	8.42394D-01	1.46355D+00	3.050
Hmf017-1	U235	Be	0.9943470	1.90606D-02	7.59648D-01	1.44949D+00	1.640
HMF018-D1	U235	Bare	1.0052400	6.77743D-03	9.19355D-01	1.47320D+00	2.310
HMF018-S1	U235	Bare	0.9920870	6.62328D-03	9.26107D-01	1.47978D+00	2.480
HMF019-D1	U235	Graphite	1.0108600	1.23151D-02	8.67417D-01	1.42863D+00	2.800
HMF019-S1	U235	Graphite	1.0033300	1.22922D-02	8.58561D-01	1.41022D+00	3.110
HMF020-D1	U235	1.45-Poly	0.9997430	1.31934D-01	8.01151D-01	1.37041D+00	3.270
HMF020-S1	U235	1.45-Poly	1.0012800	1.22463D-01	7.96219D-01	1.37031D+00	3.090
HMF021-D1	U235	Steel	0.9979880	2.25875D-02	8.32496D-01	1.38504D+00	9.980
HMF021-S1	U235	Steel	0.9946260	2.27892D-02	8.30836D-01	1.38728D+00	7.270
HMF022-D1	U235	Duralumin	1.0024600	1.09647D-02	8.65618D-01	1.43606D+00	2.810
HMF022-S1	U235	Duralumin	1.0037500	1.09851D-02	8.69976D-01	1.44085D+00	2.730
HMF024-1	U235	poly	1.0002100	5.14092D+01	6.31509D-01	1.20849D+00	22.770
HMF027-1	U235	lead	1.0068300	1.01518D-02	8.91335D-01	1.45218D+00	4.500
HMF028	U235	Flattop	1.0042900	6.63269D-02	9.18332D-01	1.59074D+00	6.450
HMF029-1	U235	Duralumin	1.0059200	1.49636D-02	8.98457D-01	1.51658D+00	5.980
HMF030	U235	D38	1.0048700	2.05447D-01	4.79038D-01	1.40656D+00	18.730
HMF031-1	U235	Poly	1.0075600	8.22255D+01	2.40976D-01	9.33050D-01	36.840
HMF032-1	U235	Unat	1.0034300	3.10353D-02	9.32997D-01	1.57467D+00	3.530
HMF032-2	U235	Unat	1.0049200	2.71014D-02	9.18925D-01	1.55948D+00	1.950
HMF032-3	U235	Unat	1.0006500	1.32869D-02	9.22328D-01	1.52120D+00	1.500
HMF032-4	U235	Unat	1.0055200	8.24981D-03	9.43564D-01	1.51065D+00	1.090
Hmf033-1	U235	Poly	1.0047600	3.80786D-01	1.06510D-01	8.25606D-01	7.970
Hmf033-2	U235	Poly	0.9758360	2.00568D+00	9.61611D-03	7.19616D-01	8.230
Hmf034-1	U235	Poly-Ti	0.9920430	1.43370D+00	2.30129D-01	9.15511D-01	5.340
Hmf034-2	U235	Poly-Al	0.9971490	1.25551D+00	2.23869D-01	9.15240D-01	7.020
Hmf034-3	U235	Poly-steel	0.9953260	1.95466D+00	2.53921D-01	9.25509D-01	8.750
Hmf036-1	U235	CH2-D38	1.0028300	1.95486D+00	4.42945D-02	8.39253D-01	8.250
Hmf036-2	U235	CH2-D38	0.9984330	1.62350D+00	3.74682D-01	1.07399D+00	5.060
Hmf037-1	U235	CH2-D38	0.9976890	6.06753D+01	9.81247D-02	8.96765D-01	25.970
Hmf037-2	U235	CH2-D38	0.9980320	3.84388D+01	2.70072D-01	1.00354D+00	23.390
Hmf038-1	U235	Be-D38	1.0100200	2.03722D-01	4.93179D-01	1.40034D+00	12.310
Hmf038-2	U235	Be-D38	1.0072400	2.33186D-01	3.32367D-01	1.30704D+00	16.360
HMF041-1	U235	Be	1.0049600	3.94349D-02	8.21549D-01	1.49441D+00	1.560
HMF041-2	U235	Be	0.9942880	1.17061D+01	7.28678D-01	1.53395D+00	3.410
HMF041-3	U235	Graphite	1.0020900	1.51341D-02	8.66603D-01	1.40333D+00	1.190
HMF041-4	U235	Graphite	1.0141300	6.44422D-02	7.79220D-01	1.33301D+00	1.220
HMF041-5	U235	Graphite	1.0063200	8.56427D-01	7.37033D-01	1.29137D+00	2.030
HMF041-6	U235	Graphite	1.0048700	6.45749D+00	6.97247D-01	1.25151D+00	2.730
HMF055-1	U235	ZPR3/23	0.9967370	2.15335D-01	3.97225D-01	1.05282D+00	65.270
HMF057-1	U235	lead	0.9917780	4.12411D-02	8.59219D-01	1.42260D+00	4.030
HMF057-2	U235	lead	0.9921690	1.89624D-02	8.74632D-01	1.42922D+00	2.250
HMF057-3	U235	lead	1.0181900	2.78480D-02	8.46890D-01	1.39109D+00	5.280
HMF057-4	U235	lead	0.9892020	1.90113D-02	8.97325D-01	1.45493D+00	3.160
HMF057-5	U235	lead	1.0252600	3.34403D-02	8.39551D-01	1.39183D+00	4.720
HMF057-6	U235	lead	0.9911300	3.10124D-02	8.54970D-01	1.41502D+00	5.530
HMF058-1	U235	Be	0.9993390	1.31590D+02	6.35584D-01	1.52597D+00	10.340
HMF058-2	U235	Be	1.0057700	3.15598D+00	7.62693D-01	1.52676D+00	1.800
HMF058-3	U235	Be	0.9980380	8.67433D-02	8.25217D-01	1.51322D+00	1.830
HMF058-4	U235	Be	0.9981670	1.50512D-02	8.65241D-01	1.50923D+00	1.170
HMF058-5	U235	Be	0.9971510	1.03686D-02	8.99627D-01	1.51572D+00	1.220
HMF060-1	U235	ZPR9/4-10	1.0190900	2.45611D-01	2.22987D-01	6.06550D-01	51.590
HMF061	U235	Graphite	1.0123900	2.67721D+00	4.36929D-01	9.72699D-01	86.770
HMF063-1	U235	LiD	1.0140100	1.08146D-02	8.47098D-01	1.42051D+00	1.030
HMF063-2	U235	LiD	1.0028500	1.28355D-02	8.17429D-01	1.38665D+00	1.330
HMF064-1	U235	lead	0.9904280	3.65417D-02	8.57962D-01	1.40738D+00	7.200
HMF064-2	U235	lead	0.9882560	3.73154D-02	7.96799D-01	1.31421D+00	6.360
HMF064-3	U235	lead	0.9883970	3.79943D-02	8.03994D-01	1.30964D+00	7.200

HMF065	U235	Bare	1.0030000	7.04647D-03	9.68307D-01	1.52033D+00	2.330
HMF066-1	U235	Be	0.9986410	2.17961D+00	7.00151D-01	1.50147D+00	2.950
HMF066-2	U235	Be	0.9981100	8.53898D-02	7.75258D-01	1.49418D+00	2.220
HMF066-3	U235	Be	0.9952260	2.22217D-02	8.14597D-01	1.49317D+00	1.120
HMF066-4	U235	Be	1.0048100	2.29627D+01	5.37974D-01	1.46102D+00	3.920
HMF066-5	U235	Be	1.0025500	1.22474D+00	6.68429D-01	1.47743D+00	2.480
HMF066-6	U235	Be	0.9900400	1.25079D-01	7.25743D-01	1.48697D+00	1.690
HMF066-7	U235	Be	1.0011900	1.02067D+00	6.42749D-01	1.46360D+00	2.480
HMF066-8	U235	Be	1.0033300	7.82435D+00	5.31911D-01	1.43502D+00	3.670
HMF066-9	U235	Be	1.0008200	1.68318D-01	6.13194D-01	1.41565D+00	2.170
HMF067-1	U235	ZPR9-5	1.0120200	3.15703D-01	1.21961D-01	5.10357D-01	61.340
HMF067-2	U235	ZPR9-6	1.0060800	2.97908D-01	2.05825D-01	5.84251D-01	63.610
HMF070-1	U235	ZPR9-7	1.0189900	1.65346D+01	1.29431D-01	5.09669D-01	86.000
HMF070-2	U235	ZPR9-8	1.0139700	7.82103D+00	1.34488D-01	5.86866D-01	90.050
HMF070-3	U235	ZPR9-9	1.0084600	4.19265D+01	1.15168D-01	4.92898D-01	109.340
Hmf073-1	U235	Cu	1.0052300	2.56386D-01	4.64840D-01	9.90017D-01	43.380
Hmf078-1	U235	water	0.9946510	2.18079D+01	6.84541D-01	1.25610D+00	9.910
Hmf078-2	U235	Poly	0.9876160	6.72179D-01	7.98046D-01	1.37150D+00	2.120
Hmf078-3	U235	Poly	0.9943280	5.99828D+00	7.15479D-01	1.28454D+00	4.750
Hmf078-4	U235	Poly	1.0010600	1.29207D+01	3.44936D-01	1.00653D+00	7.750
Hmf078-5	U235	Poly	0.9971040	1.33760D+01	6.60379D-01	1.24966D+00	6.660
Hmf078-6	U235	Poly	0.9981170	1.84781D+01	6.52187D-01	1.23524D+00	10.580
Hmf078-7	U235	Poly	1.0077700	2.27141D+01	6.63659D-01	1.25219D+00	11.030
Hmf078-8	U235	Poly	0.9997890	2.40139D+01	6.71947D-01	1.24779D+00	14.420
Hmf078-9	U235	Poly	1.0005100	2.39314D+01	6.47741D-01	1.22240D+00	13.300
Hmf078-10	U235	Lucite	0.9987630	2.28311D+01	6.55136D-01	1.23451D+00	9.910
Hmf078-11	U235	Paraffin	1.0030300	2.29025D+01	6.62889D-01	1.24050D+00	12.670
Hmf078-12	U235	Graphite	0.9982000	8.04287D-03	9.34476D-01	1.47807D+00	1.480
Hmf078-13	U235	Graphite	1.0055100	1.05449D-02	9.07595D-01	1.45199D+00	1.670
Hmf078-14	U235	Graphite	0.9955520	5.81496D-02	8.48613D-01	1.39985D+00	1.750
Hmf078-15	U235	Graphite	1.0074700	1.59410D-01	6.88954D-01	1.23847D+00	2.880
Hmf078-16	U235	Graphite	0.9914680	1.05565D-01	8.47978D-01	1.38395D+00	1.590
Hmf078-17	U235	graphite	1.0019300	2.82483D-01	6.60907D-01	1.21252D+00	3.300
Hmf078-18	U235	Graphite	0.9922660	1.35742D-01	8.67208D-01	1.40781D+00	1.670
Hmf078-19	U235	Graphite	0.9958440	4.66875D-01	8.43887D-01	1.38714D+00	2.190
Hmf078-20	U235	Graphite	0.9980550	7.46569D-01	8.46771D-01	1.39048D+00	2.620
Hmf078-21	U235	Graphite	1.0006000	6.45679D-03	9.68865D-01	1.51732D+00	1.160
Hmf078-22	U235	Poly	1.0014800	1.90113D+01	8.41368D-01	1.40005D+00	6.480
HMF079-1	U235	Ti	1.0050900	8.56479D-03	9.45186D-01	1.49438D+00	4.520
HMF079-2	U235	Ti	1.0029200	9.45162D-03	9.46150D-01	1.49307D+00	4.640
HMF079-3	U235	Ti	1.0009000	1.06772D-02	9.32927D-01	1.48314D+00	5.110
HMF079-4	U235	Ti	1.0053600	1.39248D-02	9.05802D-01	1.45174D+00	5.270
HMF079-5	U235	Ti	1.0037000	1.58609D-02	9.27442D-01	1.47104D+00	4.810
HMM001	U235	Poly	1.0072800	5.50150D+01	3.95761D-02	7.73642D-01	33.690
HMM002	U235	Poly	1.0131400	6.89679D+01	1.23815D-02	7.63585D-01	28.560
HMM003	U235	Poly	1.0040600	7.87708D+01	1.43584D-02	7.76677D-01	42.280
HMM004	U235	Poly	1.0054100	1.67924D+01	1.10031D-03	9.37421D-01	14.890
IMF002	U235	Cylindrical-D	1.0046000	6.19718D-02	4.82997D-01	1.29690D+00	5.270
IMF003	U235	Spherical	1.0050300	1.78961D-02	6.36276D-01	1.33449D+00	8.970
IMF004-D	U235	Graphite	1.0042700	2.35308D-02	6.07220D-01	1.29595D+00	4.950
IMF004-S	U235	Graphite	1.0052800	2.35583D-02	5.98196D-01	1.29540D+00	6.060
IMF005	U235	Spherical-D	0.9978030	3.38093D-02	5.98376D-01	1.27716D+00	15.810
IMF006	U235	Spherical-D	0.9955450	4.09509D-02	5.85375D-01	1.26180D+00	15.910
IMF008	U235	Spherical-D	1.0010000	2.32711D-02	6.32529D-01	1.35086D+00	9.340
IMF009	U235	Spherical-D	1.0145600	2.02584D+01	3.06045D-01	9.92893D-01	15.590
IMF010-1	U235	U9	0.9980800	1.63371D-01	3.35834D-01	1.17779D+00	73.280
IMF012-1	U235	ZPR-3/41	0.9999420	2.25655D-01	3.17191D-01	1.04846D+00	61.250
IMF013-1	U235	ZPR-9/1	0.9950670	2.23043D-01	3.51605D-01	1.14137D+00	56.230
IMF014-1	U235	ZPR-9/2	0.9986400	2.20880D-01	2.84848D-01	9.61201D-01	60.470
IMF014-2	U235	ZPR-9/3	1.0075300	2.08236D-01	2.41076D-01	8.43905D-01	64.440
SFIR003	U235	Godiva	1.0040800	6.26347D-03	9.43592D-01	1.50949D+00	0.950
SFIR005	U235	Big10	0.9939040	1.08082D-01	3.96133D-01	1.28051D+00	6.700
SFIR006	U235	Flattop-25	1.0023900	6.67486D-02	9.30487D-01	1.60373D+00	4.920
HMF004-S	U235	Water	1.0010400	1.06169D+02	5.32998D-01	1.11815D+00	24.440
HMF004-D	U235	Water	1.0014600	1.05085D+02	5.25945D-01	1.11850D+00	46.050
ICF001	U235	Zpr6-6a	0.9916890	5.83508D-01	8.24672D-02	6.40952D-01	107.520
IMF007-H	U235	D38	0.9919370	1.11741D-01	3.95534D-01	1.27111D+00	7.720

Average	1.0010058	+/-	0.0052317	Total 2629.610
Lowest	0.9758360		-0.0251698 (from Average)	
Highest	1.0252600		0.0242542 (from Average)	

```
==========================================================================================

 Frequency Distribution for Expected K Values from 0.0 to 2.0
 (0.005 bin width sums)

 Expected K Range    Occurrences
  0.975  0.980       1
  0.980  0.985       0
  0.985  0.990       6 XXXX
  0.990  0.995      32 XXXXXXXXXXXXXXXXXXXXXXXXX
  0.995  1.000      52 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
  1.000  1.005      61 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
  1.005  1.010      30 XXXXXXXXXXXXXXXXXXXXXX
  1.010  1.015      11 XXXXXXXXX
  1.015  1.020       5 XXXX
  1.020  1.025       0
  1.025  1.030       1
 ------------------------------------------------------------
           Sum     199 (inside  0.0 to 2.0 Range)
                     0 (outside 0.0 to 2.0 Range)
 ------------------------------------------------------------
 Average  1.0009 +/-  0.0005 s. d. (0.0001 bin width average)

 K(i)                = K-Effective for Sample i
 N                   = Number of Samples        =     199
 Average K   = <K>   = K(i)/N  , Sum i=1 to N   =  1.0009
 Average K^2 = <K^2> = K(i)^2/N, Sum i=1 to N   =  1.0019
 Standard Deviation  = Sqrt[(<K^2>-<K>^2)/(N-1)]=  0.0005
 Sample Variance     =     [(<K^2>-<K>^2)]      =  0.0000
 Sample Width        = Sqrt[(<K^2>-<K>^2)]      =  0.0068

 As N Approaches Infinity Standard Deviation Approaches Zero.
 As N Approaches Infinity Sample Width Approaches a Constant.

 Confidence Limits
 (Occurrences out to +/- 10 times Sample Width)

 Sample Width  Occurrences  Per-Cent   Per-Cent
 Range                     Occurred   Normal
  -4  -3            1         0.503      0.132
  -2  -1           28        14.070     13.591
  -1   0           75        37.688     34.134
   0   1           74        37.186     34.134
   1   2           14         7.035     13.591
   2   3            6         3.015      2.140
   3   4            1         0.503      0.132
 ---------------------------------------------
    Sum           199
```

U235 Midi (13 Assemblies)

```
Criticality Calculation Editor (CRITEDIT 2002-1)
================================================================================================
Crit.     Fuel      Reflector          Expected K  Removal     Median      Average        Seconds
ID.                 or Name                        Lifetime    Energy      Energy
                                                   (Microsec.) (MeV)       (MeV)
================================================================================================
HCI003-1  U235      D38                1.0127600 1.36936D-01 6.05747D-03 8.46089D-01      9.470
HCI003-2  U235      D38-Be             1.0122100 2.57613D-01 3.50194D-03 8.57700D-01     10.300
HCI003-3  U235      D38-Be             1.0058800 2.69002D-01 3.95968D-03 8.59167D-01     10.480
HCI003-4  U235      D38-Be             1.0073500 1.47474D-01 3.62494D-03 7.15583D-01     12.700
HCI003-5  U235      Be                 0.9990950 1.10742D-01 2.76123D-03 7.18727D-01     10.860
HCI003-6  U235      D38                1.0023000 8.21463D-02 3.69308D-03 7.10653D-01     10.580
HCI003-7  U235      D38                0.9925420 8.04859D-02 4.00939D-03 7.04469D-01      8.840
HCI004    U235      infinite-media     1.0116700 7.01411D+00 8.58118D-05 6.55700D-02     53.840
HMI001    U235      Steel              1.0109700 3.00393D+00 5.44648D-02 2.53079D-01    249.670
HMI006-1  U235      Copper             0.9920020 2.05258D+00 3.42645D-03 3.43009D-01     17.270
HMI006-2  U235      Copper             0.9992850 1.18832D+00 8.33839D-03 3.80424D-01     20.230
HMI006-3  U235      Copper             1.0006600 8.11468D-01 2.38418D-02 4.53787D-01     22.250
HMI006-4  U235      Copper             1.0090900 4.83186D-01 1.05086D-01 6.03691D-01     20.770
================================================================================================
                            Average    1.0042934 +/-   0.0061348          Total        457.260
                            Lowest     0.9920020      -0.0122914 (from Average)
                            Highest    1.0127600       0.0084666 (from Average)
================================================================================================

 Frequency Distribution for Expected K Values from 0.0 to 2.0
 (0.005 bin width sums)

 Expected K Range    Occurrences
  0.990  0.995       2 XX
  0.995  1.000       2 XX
  1.000  1.005       2 XX
  1.005  1.010       3 XXX
  1.010  1.015       4 XXXX
 ------------------------------------------------------------
           Sum      13 (inside  0.0 to 2.0 Range)
                     0 (outside 0.0 to 2.0 Range)
 ------------------------------------------------------------
 Average  1.0042 +/-  0.0020 s. d. (0.0001 bin width average)

 K(i)                = K-Effective for Sample i
 N                   = Number of Samples        =      13
 Average K   = <K>   = K(i)/N  , Sum i=1 to N   =  1.0042
 Average K^2 = <K^2> = K(i)^2/N, Sum i=1 to N   =  1.0084
 Standard Deviation  = Sqrt[(<K^2>-<K>^2)/(N-1)]=  0.0020
 Sample Variance     =     [(<K^2>-<K>^2)]      =  0.0000
 Sample Width        = Sqrt[(<K^2>-<K>^2)]      =  0.0069

 As N Approaches Infinity Standard Deviation Approaches Zero.
 As N Approaches Infinity Sample Width Approaches a Constant.

 Confidence Limits
 (Occurrences out to +/- 10 times Sample Width)

 Sample Width  Occurrences  Per-Cent   Per-Cent
 Range                     Occurred   Normal
  -2  -1           2         15.385     13.591
  -1   0           4         30.769     34.134
   0   1           4         30.769     34.134
   1   2           3         23.077     13.591
 ---------------------------------------------
    Sum           13
```

U235 Slow (372 Assemblies)

Criticality Calculation Editor (CRITEDIT 2002-1)

Crit. ID.	Fuel	Reflector or Name		Expected K	Removal Lifetime (Microsec.)	Median Energy (MeV)	Average Energy (MeV)	Seconds
HMT001-1	U235	Poly		1.0080700	6.52976D+01	4.93650D-08	2.19777D-02	31.800
HMT008-D	U235	Poly		1.0125700	6.34489D+01	4.96781D-08	2.20237D-02	51.580
HMT008-S	U235	Poly		1.0138900	6.31692D+01	5.03483D-08	2.08222D-02	61.690
HST001-1	U235	Bare		0.9924440	9.58781D+00	4.76672D-08	1.52600D-02	25.170
HST001-2	U235	Bare		0.9938250	4.06571D+00	8.53190D-08	3.99813D-02	20.940
HST001-3	U235	Bare		1.0079000	9.87678D+00	4.68030D-08	1.70385D-02	21.200
HST001-4	U235	Bare		1.0044200	3.94729D+00	8.91416D-08	4.14049D-02	16.890
HST001-5	U235	Bare		0.9987230	2.52065D+01	3.64407D-08	6.66791D-03	21.410
HST001-6	U235	Bare		1.0058400	2.34902D+01	3.68597D-08	6.83186D-03	25.200
HST001-7	U235	Bare		0.9918910	1.03942D+01	4.60941D-08	1.66338D-02	16.940
HST001-8	U235	Bare		0.9899480	9.82914D+00	4.76136D-08	1.74800D-02	19.230
HST001-9	U235	Bare		0.9923360	4.07024D+00	8.97716D-08	3.99923D-02	15.890
HST001-10	U235	Bare		0.9875710	2.19682D+01	3.68633D-08	8.94846D-03	18.770
HST002-1	U235	Steel	case	1.0034200	2.89716D+02	4.68288D-08	1.64808D-02	141.550
HST002-2	U235	Steel	case	1.0069100	2.52895D+02	4.68458D-08	1.57337D-02	136.550
HST002-3	U235	Steel	case	0.9961150	2.77507D+02	8.13354D-08	3.68863D-02	140.730
HST002-4	U235	Steel	case	1.0067100	2.43061D+02	8.00099D-08	3.47844D-02	145.910
HST002-5	U235	Al	case	1.0057700	2.97783D+02	4.70375D-08	1.61727D-02	141.780
HST002-6	U235	Al	case	1.0147000	2.64618D+02	4.66839D-08	1.54925D-02	108.920
HST002-7	U235	Al	case	0.9982340	2.84627D+02	8.01044D-08	3.79413D-02	127.140
HST002-8	U235	Al	case	1.0018800	2.53573D+02	7.80164D-08	3.60701D-02	105.420
HST002-9	U235	Al	case	1.0000100	2.93561D+02	3.68684D-08	8.03246D-03	93.660
HST002-10	U235	Al	case	1.0036500	2.56629D+02	3.64709D-08	8.00604D-03	85.270
HST002-11	U235	Al	case	1.0074800	3.01850D+02	4.63528D-08	1.53723D-02	82.860
HST002-12	U235	Al	case	1.0102800	2.54929D+02	4.65151D-08	1.72168D-02	108.890
HST002-13	U235	Al	case	1.0011600	2.85052D+02	8.02772D-08	3.70463D-02	148.190
HST002-14	U235	Al	case	1.0023400	2.50025D+02	7.66576D-08	3.52129D-02	142.550
HST003-1	U235	Poly		1.0021700	2.50433D+02	3.66219D-08	6.68907D-03	66.670
Hst003-2	U235	Poly		1.0024900	2.89242D+02	3.64857D-08	7.23989D-03	59.520
Hst003-3	U235	Poly		0.9998930	3.08122D+02	4.71318D-08	1.56687D-02	50.080
Hst003-4	U235	Poly		1.0017100	2.51867D+02	4.65729D-08	1.51483D-02	75.910
Hst003-5	U235	Poly		0.9962780	2.97046D+02	8.26255D-08	3.82359D-02	71.940
Hst003-6	U235	Poly		1.0004200	2.41220D+02	7.93693D-08	3.70222D-02	65.800
Hst003-7	U235	Poly		1.0029100	2.73291D+02	3.64370D-08	6.80822D-03	45.500
Hst003-8	U235	Poly		1.0015800	3.23079D+02	4.69826D-08	1.70070D-02	68.450
Hst003-9	U235	Poly		1.0034300	2.71496D+02	4.61345D-08	1.53141D-02	69.830
Hst003-10	U235	Poly		0.9972190	3.07251D+02	8.18035D-08	3.60868D-02	73.090
Hst003-11	U235	Poly		1.0011700	2.57248D+02	7.74920D-08	3.41697D-02	78.690
Hst003-12	U235	Poly		0.9961320	3.20590D+02	3.66502D-08	7.74045D-03	61.810
Hst003-13	U235	Poly		1.0082300	2.53891D+02	3.61782D-08	6.42896D-03	59.610
Hst003-14	U235	Poly		1.0005500	2.93851D+02	3.65256D-08	5.92228D-03	58.550
Hst003-15	U235	Poly		0.9990920	2.57162D+02	3.69398D-08	6.34717D-03	64.120
Hst003-16	U235	Poly		0.9988200	3.23827D+02	4.68287D-08	1.52737D-02	59.230
Hst003-17	U235	Poly		1.0042400	2.50844D+02	4.54935D-08	1.42595D-02	58.880
Hst003-18	U235	Poly		0.9963210	3.02554D+02	8.14354D-08	3.77515D-02	66.050
Hst003-19	U235	Poly		1.0061500	2.38232D+02	7.52984D-08	3.34843D-02	79.640
HST004-1	U235	27cm-D2O		0.9867170	2.37714D+02	1.84556D-05	1.44781D-01	35.390
HST004-2	U235	26cm-D2O		0.9798860	2.23644D+02	2.91704D-06	1.13442D-01	35.640
HST004-3	U235	25cm-D2O		0.9887620	2.05023D+02	5.21246D-07	9.86292D-02	33.360
HST004-4	U235	24cm-D2O		0.9913290	1.94744D+02	2.33498D-07	8.42799D-02	44.750
HST004-5	U235	22cm-D2O		0.9875180	1.91496D+02	1.14692D-07	7.65492D-02	26.720
HST004-6	U235	30cm-D2O		0.9859550	1.94101D+02	7.56469D-08	6.61174D-02	43.110
HST006-1	U235	Air		0.9780880	8.60090D+00	7.42668D-08	3.24854D-02	16.580
HST006-2	U235	Air		0.9820410	7.43396D+00	8.57032D-08	3.50472D-02	11.780
HST006-3	U235	Air		0.9962800	6.55088D+00	9.60604D-08	4.09439D-02	15.920
HST006-4	U235	Air		0.9960010	6.03888D+00	1.04438D-07	4.01437D-02	16.390
HST006-5	U235	Air		1.0053000	5.52058D+00	1.14000D-07	4.47651D-02	15.480
HST006-6	U235	Air		0.9890170	5.16055D+00	1.21253D-07	4.48398D-02	10.800
HST006-7	U235	Air		1.0022100	5.15402D+00	1.26302D-07	4.34820D-02	11.160
HST006-8	U235	Water		0.9815160	5.36528D+01	7.22606D-08	3.28665D-02	36.500
HST006-9	U235	Water		0.9874530	4.17949D+01	8.41256D-08	3.59831D-02	26.810

HST006-10	U235	Water		0.9999240	3.33610D+01	9.44247D-08	3.97566D-02	21.550
HST006-11	U235	Water		0.9996740	1.97892D+01	1.18460D-07	4.33556D-02	13.550
HST006-12	U235	Nickel		0.9805890	9.03099D+00	7.45393D-08	3.38167D-02	23.560
HST006-13	U235	Nickel		0.9831730	7.56454D+00	8.57570D-08	3.63896D-02	15.030
HST006-14	U235	Nickel		0.9956280	5.95549D+00	1.05400D-07	3.83561D-02	13.770
HST006-15	U235	Nickel		1.0061900	5.45546D+00	1.12778D-07	3.98961D-02	10.470
HST006-16	U235	Nickel		0.9937100	5.18057D+00	1.22635D-07	3.99694D-02	10.610
HST006-17	U235	Nickel		0.9976130	5.04715D+00	1.22727D-07	4.30333D-02	12.380
HST006-18	U235	Ni-Borated-H2O		1.0020900	8.30648D+00	1.00025D-07	4.17711D-02	11.840
HST006-19	U235	Ni-Borated-H2O		1.0087900	6.99440D+00	1.16478D-07	4.21928D-02	15.190
HST006-20	U235	Ni-Borated-H2O		0.9923560	6.73227D+00	1.21614D-07	4.02699D-02	13.550
HST006-21	U235	Ni-Borated-H2O		1.0044300	6.50114D+00	1.23835D-07	4.11558D-02	13.580
HST006-22	U235	Borated-H2O		0.9962830	1.03928D+01	9.45091D-08	4.20301D-02	11.700
HST006-23	U235	Borated-H2O		0.9960110	9.08110D+00	1.04685D-07	4.37219D-02	17.470
HST006-24	U235	Borated-H2O		1.0072200	7.43567D+00	1.14153D-07	3.80843D-02	12.610
HST006-25	U235	Borated-H2O		0.9920710	6.93248D+00	1.21130D-07	4.45596D-02	14.050
HST006-26	U235	Borated-H2O		0.9995290	6.70598D+00	1.19578D-07	4.51193D-02	11.030
HST006-27	U235	Nickel&	H2O	0.9817340	3.96895D+01	7.30658D-08	3.49892D-02	26.770
HST006-28	U235	Nickel&	H2O	0.9815010	3.23283D+01	8.63955D-08	3.74185D-02	28.330
HST006-29	U235	Nickel&	H2O	1.0049500	1.62731D+01	1.21196D-07	4.04188D-02	13.840
HST009-1	U235	H2O		1.0026900	9.09001D+01	1.18559D-07	5.83525D-02	44.470
HST009-2	U235	H2O		1.0051500	9.20684D+01	9.16985D-08	4.71518D-02	44.700
HST009-3	U235	H2O		1.0032500	9.46437D+01	6.69418D-08	2.89287D-02	42.380
HST009-4	U235	H2O		0.9938060	9.63655D+01	5.23424D-08	1.74313D-02	53.690
HST010-1	U235	H2O		0.9973050	9.74780D+01	4.31222D-08	1.02073D-02	53.060
HST010-2	U235	H2O		1.0008000	9.68630D+01	5.00239D-08	9.52100D-03	47.470
HST010-3	U235	H2O		0.9949660	9.63007D+01	7.29906D-08	9.28316D-03	39.530
HST010-4	U235	H2O		0.9938700	9.98184D+01	4.04707D-08	1.04054D-02	53.120
HST011-1	U235	Spherical		0.9989940	9.70620D+01	3.52086D-08	4.85644D-03	34.580
HST011-2	U235	Spherical		1.0039000	9.67723D+01	3.49177D-08	4.81387D-03	51.340
HST012-1	U235	H2O		1.0003000	9.87545D+01	3.43999D-08	2.80377D-03	33.580
HST013-1	U235	ORNL-1		1.0033000	6.78337D+01	3.22586D-08	2.91948D-03	22.910
HST013-2	U235	ORNL-2		0.9959990	5.79293D+01	3.36605D-08	3.76519D-03	24.050
HST013-3	U235	ORNL-3		0.9942850	5.04869D+01	3.39834D-08	3.26998D-03	22.480
HST013-4	U235	ORNL-4		1.0007900	4.79854D+01	3.42788D-08	2.64796D-03	20.200
HST014-1	U235	H2O		0.9914580	6.23600D+01	3.72222D-08	7.73156D-03	37.470
HST014-2	U235	H2O		1.0117500	5.96659D+01	3.81083D-08	7.72238D-03	45.030
HST014-3	U235	H2O		1.0219800	4.94480D+01	3.86968D-08	7.89727D-03	39.050
HST015-1	U235	H2O		0.9949840	3.65892D+01	4.06761D-08	1.16348D-02	31.080
HST015-2	U235	H2O		0.9834040	6.07636D+01	4.05407D-08	1.02116D-02	33.880
HST015-3	U235	H2O		1.0036100	2.84040D+01	4.28928D-08	1.27669D-02	28.060
HST015-4	U235	H2O		1.0093200	4.74908D+01	4.24567D-08	1.13708D-02	39.770
HST015-5	U235	H2O		1.0118300	3.88200D+01	4.42498D-08	1.21221D-02	42.860
HST016-1	U235	H2O		0.9933520	4.91735D+01	4.66646D-08	1.66782D-02	34.450
HST016-2	U235	H2O		1.0132000	4.59306D+01	4.75663D-08	1.92624D-02	23.700
HST016-3	U235	H2O		1.0305000	3.83231D+01	5.12785D-08	1.61616D-02	35.670
HST017-1	U235	H2O		0.9862340	6.53191D+01	5.21368D-08	2.15156D-02	43.170
HST017-2	U235	H2O		0.9804690	3.14207D+01	5.38357D-08	2.11802D-02	29.810
HST017-3	U235	H2O		0.9813800	4.81117D+01	5.23203D-08	2.05293D-02	26.750
HST017-4	U235	H2O		0.9973530	6.92974D+01	5.42230D-08	1.98074D-02	64.670
HST017-5	U235	H2O		1.0061400	6.46168D+01	5.61486D-08	1.83663D-02	56.590
HST017-6	U235	H2O		1.0050200	2.00771D+01	5.94373D-08	2.39003D-02	39.840
HST017-7	U235	H2O		1.0082900	4.73090D+01	5.76350D-08	2.23988D-02	39.480
HST017-8	U235	H2O		1.0054700	1.56990D+01	6.21163D-08	2.33366D-02	35.390
HST018-1	U235	H2O		0.9842940	6.46671D+01	6.46793D-08	2.84241D-02	32.880
HST018-2	U235	H2O		0.9822870	2.89813D+01	7.00215D-08	3.49104D-02	32.160
HST018-3	U235	H2O		0.9832000	4.47903D+01	6.65453D-08	3.18663D-02	39.050
HST018-4	U235	H2O		0.9986430	7.28654D+01	7.03436D-08	3.15005D-02	56.020
HST018-5	U235	H2O		0.9968060	2.11190D+01	7.86145D-08	3.26466D-02	34.610
HST018-6	U235	H2O		0.9878930	3.92065D+01	7.43952D-08	3.28853D-02	43.060
HST018-7	U235	H2O		1.0068600	5.98366D+01	7.49936D-08	2.76262D-02	32.280
HST018-8	U235	H2O		1.0211800	1.60728D+01	8.47065D-08	3.60930D-02	18.280
HST018-9	U235	H2O		1.0049200	3.74639D+01	8.10074D-08	3.17456D-02	35.840
HST018-10	U235	H2O		1.0242700	1.21814D+01	9.27956D-08	3.49867D-02	23.750
HST018-11	U235	H2O		1.0202200	3.79053D+01	8.52494D-08	3.35101D-02	28.190
HST018-12	U235	H2O		1.0178500	3.04432D+01	9.51963D-08	3.65045D-02	21.480
HST019-1	U235	H2O		0.9931620	6.20547D+01	8.93378D-08	4.20653D-02	41.690
HST019-2	U235	H2O		1.0035500	6.63952D+01	8.87593D-08	3.94742D-02	43.360
HST019-3	U235	H2O		1.0043900	6.35064D+01	1.01554D-07	4.23370D-02	42.420
HST020-1	U235	Bare		0.9931630	1.16950D+01	3.30102D-07	7.29916D-02	27.330
HST020-2	U235	Bare		1.0034600	2.17529D+01	1.28352D-07	6.50870D-02	34.700

HST020-3	U235	Bare	1.0107300	4.59778D+01	6.45982D-08	6.18390D-02	31.620
HST020-4	U235	Bare	1.0111400	4.59874D+01	6.49117D-08	6.14391D-02	35.730
HST020-5	U235	Bare	1.0181300	1.08422D+02	4.26071D-08	5.28608D-02	35.860
Hst025-1	U235	Water	1.0032300	7.20551D+01	3.52280D-08	6.19672D-03	34.970
Hst025-2	U235	Water	1.0040100	6.40292D+01	3.54304D-08	5.97240D-03	43.280
Hst025-3	U235	Water	0.9955010	5.61008D+01	3.63341D-08	7.59233D-03	54.590
Hst025-4	U235	Water	0.9974710	6.05346D+01	3.54637D-08	6.83621D-03	73.840
Hst025-5	U235	Water	1.0028200	5.61312D+01	3.82290D-08	8.92724D-03	51.420
Hst025-6	U235	Water	1.0100200	5.31160D+01	3.61138D-08	5.87278D-03	53.750
Hst025-7	U235	Water	1.0186600	5.03002D+01	3.75746D-08	6.82962D-03	42.380
Hst025-8	U235	Water	1.0093000	4.84594D+01	3.84963D-08	8.01624D-03	37.390
Hst025-9	U235	Water	1.0102000	4.78196D+01	4.08044D-08	9.88976D-03	43.500
Hst025-10	U235	Water	1.0124500	4.46683D+01	4.53058D-08	1.24644D-02	46.840
Hst025-11	U235	Water	1.0102100	4.12499D+01	4.58003D-08	1.11030D-02	31.910
Hst025-12	U235	Water	1.0062900	4.13196D+01	5.02960D-08	1.63532D-02	31.170
Hst025-13	U235	Water	1.0236200	3.94636D+01	5.04541D-08	1.53409D-02	31.000
Hst025-14	U235	Water	1.0124200	3.80767D+01	5.71455D-08	2.14752D-02	34.620
Hst025-15	U235	Water	1.0041700	3.80199D+01	5.59860D-08	2.11287D-02	37.170
Hst025-16	U235	Water	1.0217300	4.02640D+01	6.89236D-08	2.92639D-02	25.620
Hst025-17	U235	Water	1.0126600	3.90404D+01	6.64184D-08	2.76005D-02	26.620
Hst025-18	U235	Water	1.0048400	3.92136D+01	6.28921D-08	2.41676D-02	32.330
Hst027-1	U235	Bare	0.9909970	1.17912D+01	4.55944D-08	1.59794D-02	27.480
Hst027-2	U235	B4C-rod	0.9893800	1.13896D+01	4.51901D-08	1.59979D-02	20.700
Hst027-3	U235	B4C-rod	0.9951130	1.13564D+01	4.52787D-08	1.55106D-02	32.230
Hst027-4	U235	B4C-rod	0.9985680	1.11142D+01	4.54605D-08	1.49291D-02	21.250
Hst027-5	U235	B4C-rod	0.9994640	1.09716D+01	4.55748D-08	1.62375D-02	26.060
Hst027-6	U235	Cd-rod	0.9863200	1.18193D+01	4.54639D-08	1.50358D-02	28.330
Hst027-7	U235	Cd-rod	0.9958530	1.24214D+01	4.52285D-08	1.56656D-02	28.380
Hst027-8	U235	Cd-rod	1.0033100	1.39149D+01	4.55261D-08	1.52562D-02	31.410
Hst027-9	U235	Cd-rod	0.9959280	1.53247D+01	4.55801D-08	1.55371D-02	27.120
Hst028-1	U235	Water	0.9909770	9.74871D+01	3.78023D-08	7.70982D-03	60.690
Hst028-2	U235	Water	0.9993170	8.50264D+01	3.76153D-08	7.96090D-03	51.670
Hst028-3	U235	Water	0.9951560	9.78164D+01	3.80521D-08	8.12055D-03	39.750
Hst028-4	U235	Water	1.0034200	8.62099D+01	3.75270D-08	6.72069D-03	61.450
Hst028-5	U235	Water	0.9940700	9.92178D+01	3.78100D-08	7.85110D-03	41.500
Hst028-6	U235	Water	1.0001200	8.74663D+01	3.76502D-08	8.38606D-03	42.270
Hst028-7	U235	Water	0.9983110	1.02059D+02	3.77691D-08	7.68294D-03	62.970
Hst028-8	U235	Water	0.9955870	9.28300D+01	3.77991D-08	8.02536D-03	59.920
Hst028-9	U235	Water	0.9965070	9.42574D+01	6.13550D-08	2.79159D-02	39.720
Hst028-10	U235	Water	0.9882550	8.37454D+01	6.16888D-08	2.68364D-02	50.970
Hst028-11	U235	Water	1.0004800	9.48160D+01	6.18928D-08	2.80993D-02	60.390
Hst028-12	U235	Water	0.9905700	8.49440D+01	6.17872D-08	2.71342D-02	61.390
Hst028-13	U235	Water	0.9988780	9.63235D+01	6.21142D-08	2.74747D-02	59.440
Hst028-14	U235	Water	0.9923980	8.67965D+01	6.28908D-08	2.72688D-02	69.000
Hst028-15	U235	Water	1.0006600	9.71066D+01	6.27378D-08	2.86713D-02	57.700
Hst028-16	U235	Water	0.9965600	8.84665D+01	6.28724D-08	2.90025D-02	57.300
Hst028-17	U235	Water	0.9954550	1.00050D+02	6.37737D-08	2.80016D-02	80.300
Hst028-18	U235	Water	0.9962030	9.18485D+01	6.38338D-08	2.82808D-02	86.110
Hst029-1	U235	Water	0.9945150	6.43533D+01	6.37726D-08	2.84282D-02	58.910
Hst029-2	U235	Water	0.9976390	7.70867D+01	6.30460D-08	2.88270D-02	92.310
HST029-3	U235	Water	0.9895170	7.51473D+01	6.35847D-08	2.65266D-02	73.840
Hst029-4	U235	Water	0.9899450	6.83519D+01	6.46514D-08	3.11837D-02	86.890
Hst029-5	U235	Water	0.9941090	6.61324D+01	6.49016D-08	3.16371D-02	85.390
Hst029-6	U235	Water	0.9935830	6.67541D+01	6.52923D-08	2.84098D-02	85.890
Hst029-7	U235	Water	0.9979380	6.85722D+01	6.50794D-08	2.90039D-02	77.410
Hst030-1	U235	Water	0.9948490	7.58955D+01	3.77498D-08	7.97843D-03	62.230
Hst030-2	U235	Water	0.9963870	8.01774D+01	3.82600D-08	9.53785D-03	84.720
Hst030-3	U235	Water	0.9945130	7.56454D+01	3.81512D-08	7.69931D-03	72.060
Hst030-4	U235	Water	1.0020200	6.31781D+01	6.46468D-08	2.86686D-02	64.270
Hst030-5	U235	Water	0.9919380	8.14139D+01	6.46069D-08	3.07526D-02	85.050
Hst030-6	U235	Water	0.9952570	7.81088D+01	6.34704D-08	2.68232D-02	89.060
Hst030-7	U235	Water	0.9941480	7.06326D+01	6.48608D-08	2.99802D-02	96.310
HST032-1	U235	ORNL-10	1.0050700	8.99774D+01	3.10666D-08	2.74723D-03	51.700
HST042-1	U235	solution	0.9956920	8.39753D+01	3.21981D-08	2.65125D-03	37.750
HST042-2	U235	solution	0.9993350	8.50725D+01	3.19964D-08	2.90555D-03	37.980
HST042-3	U235	solution	0.9978060	9.16924D+01	3.12973D-08	2.42175D-03	41.950
HST042-4	U235	solution	1.0035400	9.53465D+01	3.09090D-08	3.39757D-03	41.550
HST042-5	U235	solution	0.9970630	9.75885D+01	3.13080D-08	2.70971D-03	43.770
HST042-6	U235	solution	0.9975150	9.86487D+01	3.11927D-08	1.45421D-03	41.660
HST042-7	U235	solution	0.9990650	9.97597D+01	3.10917D-08	2.47847D-03	43.050
HST042-8	U235	solution	0.9986280	1.01131D+02	3.11834D-08	1.18062D-03	42.120

HST043-1	U235	solution	0.9885880	1.00808D+01	4.52120D-08	1.44159D-02	137.910
HST043-2	U235	solution	1.0046200	5.46361D+01	3.26583D-08	3.04923D-03	350.610
HST043-3	U235	solution	1.0004200	6.83683D+01	3.20313D-08	3.03902D-03	300.940
IST004-1	U235	BeO	1.0094600	3.32817D+02	3.77423D-08	2.97943D-01	100.270
LCT006-1	U235	Water	0.9964580	7.04995D+01	5.39703D-08	2.22928D-01	53.440
LCT006-2	U235	Water	0.9971850	6.85257D+01	5.46611D-08	2.22522D-01	50.810
LCT006-3	U235	Water	0.9987370	6.62960D+01	5.50067D-08	2.25059D-01	49.060
LCT006-4	U235	Water	1.0030000	7.33820D+01	5.05258D-08	1.99915D-01	35.810
LCT006-5	U235	Water	0.9940340	7.23227D+01	5.04767D-08	2.02711D-01	47.270
LCT006-6	U235	Water	0.9993130	6.95500D+01	5.09578D-08	2.00324D-01	53.500
LCT006-7	U235	Water	1.0010000	6.63711D+01	5.17920D-08	2.07533D-01	33.330
LCT006-8	U235	Water	1.0022900	6.63091D+01	5.17372D-08	2.06706D-01	49.700
LCT006-9	U235	Water	0.9939000	7.58085D+01	4.71205D-08	1.70237D-01	53.310
LCT006-10	U235	Water	1.0031400	7.34542D+01	4.69748D-08	1.70814D-01	42.890
LCT006-11	U235	Water	0.9989860	7.21817D+01	4.73005D-08	1.70917D-01	46.690
LCT006-12	U235	Water	0.9947560	7.04392D+01	4.74811D-08	1.83109D-01	61.480
LCT006-13	U235	Water	0.9924540	6.87898D+01	4.84709D-08	1.81479D-01	45.520
LCT006-14	U235	Water	0.9942670	7.97166D+01	4.47955D-08	1.54971D-01	51.910
LCT006-15	U235	Water	0.9994610	7.64146D+01	4.50831D-08	1.50811D-01	50.050
LCT006-16	U235	Water	0.9976320	7.46951D+01	4.53475D-08	1.62719D-01	44.880
LCT006-17	U235	Water	0.9997270	7.29280D+01	4.59349D-08	1.62423D-01	50.920
LCT006-18	U235	Water	1.0024100	7.13445D+01	4.56744D-08	1.53206D-01	34.280
LCT033-01	U235	Paraffin+Plexi	0.9967160	4.58247D+01	5.57755D-08	1.98449D-01	27.780
LCT033-02	U235	Paraffin+Plexi	0.9975240	4.57577D+01	5.65846D-08	1.95478D-01	27.170
LCT033-03	U235	Paraffin+Plexi	0.9997980	4.62208D+01	5.55188D-08	1.81620D-01	19.140
LCT033-04	U235	Paraffin+Plexi	1.0008800	4.68781D+01	5.53347D-08	1.97528D-01	31.220
LCT033-05	U235	Paraffin+Plexi	1.0078700	5.18562D+01	4.73898D-08	1.53346D-01	27.440
LCT033-06	U235	Paraffin+Plexi	1.0000900	5.24806D+01	4.80938D-08	1.57149D-01	22.190
LCT033-07	U235	Paraffin+Plexi	0.9999600	5.39184D+01	4.76171D-08	1.51377D-01	32.380
LCT033-08	U235	Paraffin+Plexi	0.9989250	5.76158D+01	4.26845D-08	1.17148D-01	29.770
LCT033-09	U235	Paraffin+Plexi	1.0026700	5.64838D+01	4.29847D-08	1.22744D-01	34.560
LCT033-10	U235	Paraffin+Plexi	0.9946090	5.88413D+01	4.07995D-08	1.07655D-01	37.090
LCT033-11	U235	Paraffin+Plexi	0.9910490	5.98136D+01	4.12056D-08	1.07435D-01	28.840
LCT033-12	U235	Paraffin+Plexi	0.9952040	6.04032D+01	4.12522D-08	1.09230D-01	30.720
LCT033-13	U235	Polyethy+Plexi	0.9951770	6.22721D+01	3.94744D-08	9.89822D-02	36.470
LCT033-14	U235	Polyethy+Plexi	0.9886890	6.54552D+01	3.69871D-08	7.79377D-02	26.420
LCT033-15	U235	Polyethy+Plexi	0.9962560	6.47028D+01	3.72445D-08	7.41791D-02	28.060
LCT033-16	U235	Polyethy+Plexi	0.9940660	6.47546D+01	3.68568D-08	6.73517D-02	24.670
LCT033-17	U235	Paraffin+Plexi	1.0105900	4.91960D+01	6.31551D-08	1.81469D-01	46.620
LCT033-18	U235	Paraffin+Plexi	1.0049700	5.02123D+01	6.25682D-08	1.85066D-01	33.590
LCT033-19	U235	Paraffin+Plexi	1.0176900	4.96665D+01	6.37498D-08	1.81470D-01	30.380
LCT033-20	U235	Paraffin+Plexi	1.0130300	5.14283D+01	6.28683D-08	1.80065D-01	37.620
LCT033-21	U235	Paraffin+Plexi	1.0089400	5.16301D+01	6.30126D-08	1.80703D-01	36.700
LCT033-22	U235	Polyethy+Plexi	1.0150100	6.10877D+01	4.65026D-08	1.14286D-01	26.310
LCT033-23	U235	Bare	0.9970910	1.94170D+01	5.94178D-08	2.16333D-01	20.170
LCT033-24	U235	Bare	0.9983240	1.94636D+01	5.94887D-08	2.17384D-01	23.160
LCT033-25	U235	Bare	0.9965270	1.93099D+01	5.90043D-08	2.18705D-01	18.360
LCT033-26	U235	Bare	1.0048800	2.36369D+01	4.91903D-08	1.67700D-01	25.230
LCT033-27	U235	Bare	1.0014100	2.34557D+01	4.94179D-08	1.71467D-01	20.590
LCT033-28	U235	Bare	0.9985790	2.34145D+01	4.89737D-08	1.63872D-01	24.110
LCT033-29	U235	Bare	1.0000100	2.34125D+01	4.88537D-08	1.68127D-01	23.110
LCT033-30	U235	Bare	0.9918490	2.79416D+01	4.40999D-08	1.37301D-01	21.110
LCT033-31	U235	Bare	0.9943590	2.79290D+01	4.41356D-08	1.35248D-01	16.020
LCT033-32	U235	Bare	0.9950850	2.79510D+01	4.44745D-08	1.39671D-01	24.500
LCT033-33	U235	Bare	0.9925910	2.79564D+01	4.44449D-08	1.42773D-01	15.860
LCT033-34	U235	Bare	0.9958780	2.80419D+01	4.42227D-08	1.36102D-01	26.160
LCT033-35	U235	Bare	0.9970160	3.16941D+01	4.15482D-08	1.09101D-01	17.080
LCT033-36	U235	Bare	1.0006200	3.19770D+01	4.21204D-08	1.14921D-01	19.720
LCT033-37	U235	Bare	1.0006800	3.19275D+01	4.17182D-08	1.26861D-01	23.200
LCT033-38	U235	Bare	0.9876920	3.13563D+01	4.22773D-08	1.23369D-01	19.020
LCT033-39	U235	Bare	0.9949410	3.18371D+01	4.16562D-08	1.14786D-01	25.000
LCT033-40	U235	Bare	0.9925070	3.16646D+01	4.15722D-08	1.10535D-01	23.580
LCT033-41	U235	Bare	0.9918980	3.61746D+01	4.02907D-08	1.05375D-01	23.970
LCT033-42	U235	Bare	0.9995860	3.66962D+01	3.97128D-08	9.89199D-02	26.120
LCT033-43	U235	Bare	0.9937160	3.63175D+01	4.01666D-08	1.05238D-01	32.080
LCT033-44	U235	Bare	0.9880010	5.03229D+01	3.69600D-08	6.94654D-02	25.090
LCT033-45	U235	Bare	0.9886580	5.08394D+01	3.71853D-08	7.55636D-02	23.270
LCT033-46	U235	Bare	0.9947660	5.07794D+01	3.69135D-08	7.22529D-02	26.360
LCT033-47	U235	Bare	1.0097300	1.32566D+01	7.11852D-08	2.07737D-01	13.280
LCT033-48	U235	Bare	1.0154700	1.32355D+01	7.12131D-08	2.06926D-01	20.410
LCT033-49	U235	Bare	1.0110600	1.32390D+01	7.14592D-08	2.11353D-01	28.060

LCT033-50	U235	Bare	1.0159200	1.92902D+01	4.84328D-08	1.25827D-01	28.030
LCT033-51	U235	Bare	1.0070000	1.90832D+01	4.85885D-08	1.23934D-01	25.610
LCT033-52	U235	Bare	1.0096200	1.91175D+01	4.89552D-08	1.23961D-01	26.390
LMT001	U-nat	D2O	1.0043800	4.62799D+02	4.26519D-08	2.26960D-01	46.810
LMT002-1	U235	D2O	1.0142800	1.19955D+03	3.67893D-08	1.13881D-01	117.020
LMT002-2	U235	D2O	1.0034100	1.00522D+03	3.79872D-08	1.20027D-01	141.840
LMT002-3	U235	D2O	1.0143100	1.07359D+03	3.72924D-08	1.15740D-01	159.830
LMT002-6	U235	D2O	1.0007400	1.12641D+03	4.52067D-08	1.35732D-01	193.610
LMT002-10	U235	D2O	1.0014200	8.42914D+02	3.91188D-08	1.20068D-01	147.140
LMT002-11	U235	D2O	1.0003400	8.23488D+02	4.03968D-08	1.19419D-01	232.270
LMT002-12	U235	D2O	1.0108700	9.74173D+02	3.79524D-08	1.20526D-01	84.580
LST001	U235	Sheba-11	1.0159700	2.77872D+01	3.83162D-08	5.23972D-02	28.420
LST002-1	U235	15cm-H2O	0.9970390	8.44994D+01	3.30005D-08	3.13422D-02	42.030
LST002-2	U235	Bare	0.9965500	5.23548D+01	3.32932D-08	3.20273D-02	30.170
LST002-3	U235	15cm-H2O	1.0084300	8.67595D+01	3.31580D-08	3.15814D-02	29.970
LST003-1	U235	Bare	0.9941920	4.24241D+01	3.49932D-08	2.11901D-02	20.330
LST003-2	U235	Bare	1.0021100	4.79347D+01	3.39918D-08	1.91476D-02	30.090
LST003-3	U235	Bare	1.0004300	4.83505D+01	3.43638D-08	2.01019D-02	23.830
LST003-4	U235	Bare	0.9929660	5.04558D+01	3.38698D-08	1.98438D-02	33.190
LST003-5	U235	Bare	0.9995520	6.22030D+01	3.33772D-08	1.85446D-02	26.340
LST003-6	U235	Bare	1.0038100	6.43347D+01	3.27372D-08	1.51626D-02	31.500
LST003-7	U235	Bare	0.9932120	6.59996D+01	3.30013D-08	1.39555D-02	32.420
LST003-8	U235	Bare	1.0008800	7.39520D+01	3.26008D-08	1.26342D-02	27.980
LST003-9	U235	Bare	0.9993410	7.48647D+01	3.27038D-08	9.81432D-03	29.060
LST004-1	U235	30cm-H2O	0.9980440	8.55121D+01	3.48507D-08	2.12439D-02	56.640
LST004-2	U235	30cm-H2O	0.9931360	8.54121D+01	3.47320D-08	2.18092D-02	51.170
LST004-3	U235	30cm-H2O	0.9912530	8.31238D+01	3.44305D-08	1.87590D-02	33.690
LST004-4	U235	30cm-H2O	1.0019800	8.29223D+01	3.43249D-08	1.88151D-02	34.030
LST004-5	U235	30cm-H2O	1.0007900	8.22557D+01	3.37026D-08	1.84067D-02	36.200
LST004-6	U235	30cm-H2O	1.0014800	8.16694D+01	3.34007D-08	1.71237D-02	34.480
LST004-7	U235	30cm-H2O	0.9981630	8.08293D+01	3.34690D-08	1.46520D-02	38.700
LST005-1	U235	H2O	0.9981570	7.33095D+01	3.41638D-08	2.80263D-02	29.890
LST005-2	U235	H2O	0.9962060	7.22783D+01	3.36960D-08	2.66013D-02	38.530
LST005-3	U235	H2O	0.9964800	6.61079D+01	3.40354D-08	2.77298D-02	40.160
LST007-1	U235	Bare	0.9932870	4.17040D+01	3.49662D-08	1.96219D-02	24.080
LST007-2	U235	Bare	1.0001100	4.45835D+01	3.46365D-08	2.18025D-02	31.310
LST007-3	U235	Bare	0.9987170	4.80663D+01	3.44921D-08	1.90779D-02	41.700
LST007-4	U235	Bare	1.0010000	5.06511D+01	3.43741D-08	1.63281D-02	28.660
LST007-5	U235	Bare	0.9949360	5.24789D+01	3.40498D-08	1.95693D-02	31.280
LST009-1	U235	Concrete	0.9944640	5.45572D+01	3.40434D-08	1.48513D-02	38.810
LST008-1	U235	Concrete	0.9958560	6.17211D+01	3.39471D-08	1.46471D-02	34.080
LST008-2	U235	Concrete	1.0032800	6.97741D+01	3.38265D-08	1.61194D-02	45.750
LST008-3	U235	Concrete	1.0035700	8.25839D+01	3.37188D-08	1.76494D-02	57.200
LST008-4	U235	Concrete	1.0005600	8.80630D+01	3.41360D-08	1.82805D-02	45.720
LST009-2	U235	Concrete	0.9984090	5.30919D+01	3.39280D-08	1.81988D-02	41.590
LST009-3	U235	Concrete	1.0005300	5.27207D+01	3.43867D-08	1.94161D-02	40.030
LST010-1	U235	Poly	1.0013900	6.57250D+01	3.40984D-08	1.52066D-02	32.500
LST010-2	U235	Poly	1.0040900	7.15408D+01	3.41786D-08	1.95867D-02	32.590
LST010-3	U235	Poly	1.0039200	7.54642D+01	3.39577D-08	1.75641D-02	41.670
LST010-4	U235	Poly	1.0054300	7.65689D+01	3.41650D-08	1.83672D-02	39.420
LST016-1	U235	30cm-H20	1.0037500	6.53705D+01	3.75434D-08	3.07778D-02	61.380
LST016-2	U235	30cm-H20	1.0040500	6.60278D+01	3.67552D-08	2.65350D-02	50.330
LST016-3	U235	30cm-H20	1.0068600	6.70411D+01	3.59050D-08	2.61849D-02	58.380
LST016-4	U235	30cm-H20	1.0071300	6.76852D+01	3.53190D-08	2.15959D-02	50.640
LST016-5	U235	30cm-H20	1.0046400	6.80222D+01	3.49207D-08	2.13890D-02	55.440
LST016-6	U235	30cm-H20	1.0063700	6.80244D+01	3.47160D-08	2.07644D-02	45.470
LST016-7	U235	30cm-H20	1.0095400	6.84667D+01	3.46611D-08	2.01975D-02	43.060
LST017-1	U235	Bare	1.0021600	3.64905D+01	3.79803D-08	3.13240D-02	26.020
LST017-2	U235	Bare	1.0035700	3.83716D+01	3.64469D-08	2.69020D-02	32.440
LST017-3	U235	Bare	1.0103400	4.38405D+01	3.56999D-08	2.82236D-02	40.470
LST017-4	U235	Bare	1.0032400	4.53286D+01	3.53551D-08	2.24610D-02	42.020
LST017-5	U235	Bare	1.0029600	4.79932D+01	3.48302D-08	2.33270D-02	34.550
LST017-6	U235	Bare	1.0023500	4.88797D+01	3.53220D-08	2.74189D-02	32.450
LST018-1	U235	concrete	0.9982150	5.32085D+01	3.64164D-08	2.07899D-02	39.170
LST018-2	U235	concrete	1.0017600	4.28484D+01	3.70104D-08	2.28051D-02	38.980
LST018-3	U235	concrete	1.0076200	4.40713D+01	3.67844D-08	2.20780D-02	42.000
LST018-4	U235	concrete	0.9999200	4.80583D+01	3.67975D-08	1.85254D-02	47.840
LST018-5	U235	concrete	0.9983580	5.67225D+01	3.69115D-08	2.24294D-02	41.470
LST018-6	U235	concrete	0.9990730	6.05042D+01	3.68317D-08	2.63728D-02	49.890
LST019-1	U235	Poly	1.0040700	4.22059D+01	3.52085D-08	2.14442D-02	36.030
LST019-2	U235	Poly	0.9963500	4.40111D+01	3.56638D-08	2.05270D-02	27.780

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LST019-3  U235      Poly                1.0049400 4.83428D+01 3.56693D-08 1.99053D-02     34.270
LST019-4  U235      Poly                1.0060000 5.14495D+01 3.50358D-08 2.03410D-02     47.520
LST019-5  U235      Poly                1.0014300 5.35484D+01 3.46466D-08 2.26971D-02     43.840
LST019-6  U235      Poly                1.0040200 5.63418D+01 3.48844D-08 2.10885D-02     37.270
LST020-1  U235      H2O                 1.0092000 9.00516D+01 3.35806D-08 1.42965D-02     39.440
LST020-2  U235      H2O                 1.0035000 8.78535D+01 3.33686D-08 1.57785D-02     34.720
LST020-3  U235      H2O                 1.0080700 8.81842D+01 3.29544D-08 1.63902D-02     41.080
LST020-4  U235      H2O                 1.0061200 8.58594D+01 3.31846D-08 1.66492D-02     34.750
LST021-1  U235      Bare                0.9985510 5.89643D+01 3.39786D-08 1.69150D-02     28.310
LST021-2  U235      Bare                0.9971650 6.28275D+01 3.35977D-08 2.02125D-02     38.030
LST021-3  U235      Bare                0.9948660 6.71264D+01 3.27093D-08 1.78971D-02     34.750
LST021-4  U235      Bare                0.9957510 6.97416D+01 3.27960D-08 1.43054D-02     33.520
LST022-1  U235      case-136            1.0061300 4.40094D+01 3.47248D-08 1.96661D-02    324.890
LST022-2  U235      case-135            1.0059000 4.32513D+01 3.46038D-08 2.16167D-02    402.380
LST022-3  U235      case-134            1.0034100 4.30268D+01 3.46112D-08 2.11338D-02    313.580
LST022-4  U235      case-138            1.0057600 4.29255D+01 3.46616D-08 2.04820D-02    314.610
LST023-1  U235      TwoTanks            1.0026800 4.80329D+01 3.51149D-08 1.77964D-02     41.940
LST023-2  U235      TwoTanks            1.0006200 4.78472D+01 3.50682D-08 2.37018D-02     36.520
LST023-3  U235      TwoTanks            1.0031000 4.75520D+01 3.52450D-08 2.19062D-02     37.560
LST023-4  U235      TwoTanks            0.9971780 4.82026D+01 3.48878D-08 1.84918D-02     50.410
LST023-5  U235      TwoTanks            0.9995100 4.83517D+01 3.45784D-08 1.83371D-02     61.090
LST023-6  U235      TwoTanks            0.9912350 4.76588D+01 3.48411D-08 2.05653D-02     38.020
LST023-7  U235      TwoTanks            0.9898000 4.78574D+01 3.47657D-08 1.88615D-02     36.610
LST023-8  U235      TwoTanks            1.0054100 4.85742D+01 3.45172D-08 2.54963D-02     35.670
LST023-9  U235      TwoTanks            1.0019800 4.75601D+01 3.47610D-08 2.08889D-02     41.450
LST025-1  U235      concrete            0.9945020 4.86803D+01 3.67876D-08 1.94758D-02     43.770
LST025-2  U235      concrete            0.9942540 4.96347D+01 3.66975D-08 2.03182D-02     50.880
=============================================================================================
                            Average    0.9999923 +/-   0.0060566          Total      18284.492
                            Lowest     0.9780880      -0.0219043 (from Average)
                            Highest    1.0305000       0.0305077 (from Average)
=============================================================================================

 Frequency Distribution for Expected K Values from 0.0 to 2.0
 (0.005 bin width sums)

 Expected K Range    Occurrences
  0.975  0.980       2 X
  0.980  0.985      12 XXXXXX
  0.985  0.990      21 XXXXXXXXXX
  0.990  0.995      58 XXXXXXXXXXXXXXXXXXXXXXXXXXXX
  0.995  1.000     100 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
  1.000  1.005     100 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
  1.005  1.010      43 XXXXXXXXXXXXXXXXXXXX
  1.010  1.015      22 XXXXXXXXXX
  1.015  1.020       7 XXX
  1.020  1.025       6 XXX
  1.025  1.030       0
  1.030  1.035       1
 ------------------------------------------------------------
           Sum     372 (inside  0.0 to 2.0 Range)
                     0 (outside 0.0 to 2.0 Range)
 ------------------------------------------------------------
 Average  0.9999 +/-  0.0004 s. d. (0.0001 bin width average)

 K(i)                = K-Effective for Sample i
 N                   = Number of Samples        =     372
 Average K   = <K>   = K(i)/N  , Sum i=1 to N   =  0.9999
 Average K^2 = <K^2> = K(i)^2/N, Sum i=1 to N   =  0.9999
 Standard Deviation  = Sqrt[(<K^2>-<K>^2)/(N-1)]=  0.0004
 Sample Variance     =     [(<K^2>-<K>^2)]      =  0.0001
 Sample Width        = Sqrt[(<K^2>-<K>^2)]      =  0.0080

 As N Approaches Infinity Standard Deviation Approaches Zero.
 As N Approaches Infinity Sample Width Approaches a Constant.

 Confidence Limits
 (Occurrences out to +/- 10 times Sample Width)

 Sample Width  Occurrences  Per-Cent   Per-Cent
 Range                     Occurred   Normal
```

-3	-2	13	3.495	2.140
-2	-1	34	9.140	13.591
-1	0	143	38.441	34.134
0	1	131	35.215	34.134
1	2	40	10.753	13.591
2	3	9	2.419	2.140
3	4	2	0.538	0.132
Sum		372		