

PACKAGE ID - 000835MLTPL00 CORD-2

KWIC TITLE - Core Design Applications

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LIMITATION CODE -UNL **AUDIENCE CODE** - UNL

COMPLETION DATE - 07/01/1994 **PUBLICATION DATE** - 07/10/1994

DESCRIPTION - CORD-2 is intended for core design applications of pressurized water reactors. The main objective was to assemble a core design system which could be used for simple calculations (such as frequently required for fuel management) as well as for accurate calculations (for example, core design after refueling).

PACKAGE CONTENTS - Media Directory; Software Abstract; IJS-DP-6173; Media Includes Source Code, Installation Procedures, Auxiliary Material, Sample Problem;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 2 3.5 Diskettes

METHOD OF SOLUTION - The calculations are performed at the cell level with a lattice code in the supercell approximation to generate the single cell cross sections. Fuel assembly cross section homogenization is done in the diffusion approximation. Global core calculations can be done in the full three-dimensional cartesian geometry. Thermohydraulic feedbacks can be accounted for. The effective diffusion homogenization method is used for generating the homogenized cross sections.

COMPUTER - MLT-PLTFM

OPERATING SYSTEMS - Machine dependent

PROGRAMMING LANGUAGES - FORTRAN77

SOFTWARE LIMITATIONS - The complexity of the problem is selected by the user, depending on the capacity of his computer.

SOURCE CODE AVAILABLE (Y/N) - Y

UNIQUE FEATURES - The package provides the calculational as well as data maintenance modules. Once the system is set up, it is relatively easy to use for design calculations of subsequent cycles of operation for a particular power plant. Reflective quadrant core symmetry, cyclic quadrant symmetry and octant symmetry options are available.

RELATED SOFTWARE - WIMSD-4 and GNOMER

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OTHER PROG/OPER SYS INFO - To execute a sequence of codes as necessary for a realistic calculation, the use of job control language is inevitable, but it has been kept to a minimum for better code portability. Appropriate procedures are provided for VAX/VMS and PC/DOS systems. These may serve as examples to the user, to make adjustments for his specific requirements or implementation on other operating systems.

HARDWARE REQS - IBM/PC wit 640K mai memory and about 30 mb disk space. VAX/VMS or OpenVMS with about 40,000 blocks of disk space.

TIME REQUIREMENTS - On VAX 3secs to 30min On the PC test required 2d 20h 45min.

REFERENCES - A. Trkov, The Nuclear Core Design Manual, Core Diffusion Cross Section Preparation, IJS-DP-6173 Revision 1, March 21, 1994.

ABSTRACT STATUS - Submitted 6/23/95. Released screened 7/12/95.

SUBJECT CLASS CODE - CD

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
C CODES
PWR TYPE REACTORS
MULTIGROUP THEORY
REACTOR LATTICES
REACTOR CORES
THREE-DIMENSIONAL CALCULATIONS
NEUTRON DIFFUSION EQUATION

EDB SUBJECT CATEGORIES -

990200 210200 220100

SPONSOR - NEA

PACKAGE TYPE - SCREENED