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MULTI-KENO : A MONTE CARLO CODE FOR CRITICALITY SAFETY ANALYSIS

March 1983

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MULTI-KENO: A Monte Carlo Code for Criticality Safety Analysis

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Modifying the Monte Carlo code KENO-IV, the MULTI-KENO code was developed for criticality safety analysis. The following functions were added to the code; (1) to divide a system into many sub-systems named super boxes where the size of box types in each super box can be selected independently, (2) to output graphical view of a system for examining geometrical input data, (3) to solve fixed source problems, (4) to permit intersection of core boundaries and inner geometries, (5) to output ANISN type neutron balance table.

With the above function (1), many cases which had to be applied a general geometry option of KENO-IV, became to be treated as box type geometry. In such a case, input data became simpler and required computer time became shorter than those of KENO-IV.

This code is now available for the FACOM-M200 computer and the CDC 6600 computer. This report is a computer code manual for MULTI-KENO.

Keyword: Monte Carlo Code, KENO-IV, MULTI-KENO, Criticality Safety, Super Box, Computer Code Manual

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MULTI－KENO ： 臨界安全解析用モンテカルロコード

日本原子力研究所東海研究所安全解析部

内藤 俶孝・横田 匡彦・中野 鴻*

（1983年2月21日受理）

モンテカルロ・コードKENO－Ⅳを改良して，MULTI－KENO コードを臨界安全解析のために開発した。このコードには下記の機能が付け加わった。（1）系をいくつかの部分系に分割し，各部分系で独立にボックス辺長を取ることができる，（2）形状入力データの誤りを調べるために系をグラフィックで図示する，（3）固定中性子源の問題も解ける，（4）コア・バウンダリと内部領域の交叉を許す，（5）ANISN タイプの中性子収支表を出力する。上記（1）の機能を用いることにより，KENO－Ⅳコードでは一般形状として取扱かわなければならなかった多くの場合でも，ボックス・タイプとして取扱うことができるようになった。このような場合には，KENO－Ⅳコードに比して入力データが単純になり，計算時間も短縮される。

このコードは現在，計算機FACOM－M 200 およびCDC 6600 で使用可能である。この報告書はMULTI－KENO コードの使用手引書である。

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1. Introduction

The configuration of facilities treating fissionable materials outside reactor is, in many cases, so complicated that criticality safety evaluation for them is often performed by Monte Carlo codes. One of the most popular Monte Carlo codes for criticality evaluation in Japan is KENO-IV[1] developed at Oak Ridge National Laboratory (ORNL). In this code, built-in routines are prepared for calculation of a simple rectangular lattice system named a box type system. With these routines, input data become simpler and required computer time become shorter than those with a general geometry option which is applied to non-rectangular lattices. When stacking box types, the adjacent faces of adjacent box types must be the same size. So that, few systems are, in general, composed of box types. Most are indeed not composed of box types but many of them can be devided into several sub-systems named super box types each of which is composed of box types. For such systems, KENO-IV treats them as general geometry. Attaching the additional functions to the code for combining each sub-system, the systems belonging to the above cases become to be treated as box types with built-in routines.

Performing a few other improvements to KENO-IV as well as the above, the MULTI-KENO code has been developed, which is now available for the FACOM-M200 computer and the CDC-6600 computer. The code is now entered into the criticality safety evaluation code system JACS[2] developed at Japan Atomic Energy Research Institute. In addition to functions of KENO-IV, MULTI-KENO has following functions.

(1) A system is divided into sub systems (super boxes), each of which may contain a different geometrycal configuration. Some super boxes are divided into many boxes. When stacking boxes, the size of boxes in each super box can be selected independently. By introducing several super box types, it becomes easy to specify the geometrical region with the box type identification.

(2) In order to examine geometrical data, arbitrary cross sectional view of a system can be output. Two kinds of graphic outputs are available. One may be in the form of a graph produced by a plotter, a trace on a cathode - ray tube like TEKTRONIX 4014, or a microfilm photographed by G-COM. Another may be in the form of a print by a line-printer.

(3) MULTI-KENO can solve not only eigen value problems, but fixed neutron source problems. Two kinds of fixed neutron source, point source and distributed source are applicable.

(4) Intersecting geometries are permitted. In KENO-IV, if core boundaries intersect an inner geometry, calculation is stopped, but it occurrs frequently in calculation of transport casks. Then by introducing this function, transport casks can be treated easily without using the general geometry option of KENO-IV.

(5) In order to evaluated precision of a calculation result, the neutron balance table is added to the output list. This table contains fixed source, fission source, inscattering, outscattering, absorptions. leaKages, killed neutron ratio, and born neutron ratio in each energy group and each geometry region. And the format of this table is similar to a output list of the ANISN code[3].

2. Feature of MULTI-KENO

2.1 SUPER BOX

In geometrical definition of a system, KENO-IV is characterized by existence of geometry key words and box type descriptions. The geometry input for KENO-IV consists of geometry key words representing simple types of three-dimensional configurations. A geometry shape defines a region. These regions can be nested one outside another to construct a desired object. Each region must be completely enclosed by the next larger region. This procedure is used to describe box types, each of which may contain a different geometry configuration. The box types can then be stacked to form a three-dimensional array of units. When stacking box types, the adjacent faces of adjacent box types must be the same size. Therefore, a system shown in Fig. 2.1 can be not be defined by using box types. A general geometry option must be used in this case. Generally speaking, handling of this option is not easy and needs more time for calculation.

SUPER BOX type is an extension of BOX TYPE. A system is divided into any number of SUPER BOXes. A SUPER BOX is divided into many BOX TYPEs similarly. A geometry defined by BOX TYPEs is the same as that of KENO-IV. By introducing the SUPER BOX concept, the adjacent faces of adjacent box types are not necessary to be the same size, if they are contained by different SUPER BOX each other. Availability of the code is increased by this extension.

Examples of MULTI-KENO geometry are shown in Figs. 2.1 and 2.2. The system shown in Fig. 2.1 is divided into two SUPER BOXes. The upper SUPER BOX consists of four boxes. The lower one consists of twenty boxes. The size of the BOX TYPE included in the upper SUPER BOX may be determined independently of the box type included in the lower one. Each SUPER BOX is enclosed by CELL BOUNDARY similar to the CORE BOUNDARY of KENO-IV. An array of the SUPER BOXes is enclosed by CORE BOUNDARY. A system shown in Fig. 2.2 is also divided into two SUPER BOXes. The upper SUPER BOX consists of eight boxes. The lower one consists of four boxes. The CELL BOUNDARY of each SUPER BOX is enclosed by cylinders doubly, and each outer cylinder is enclosed by parallelepiped.

As shown in these examples, a geometry defined by a SUPER BOX is similar to the inside of CORE BOUNDARY in KENO-IV. A CELL BOUNDARY

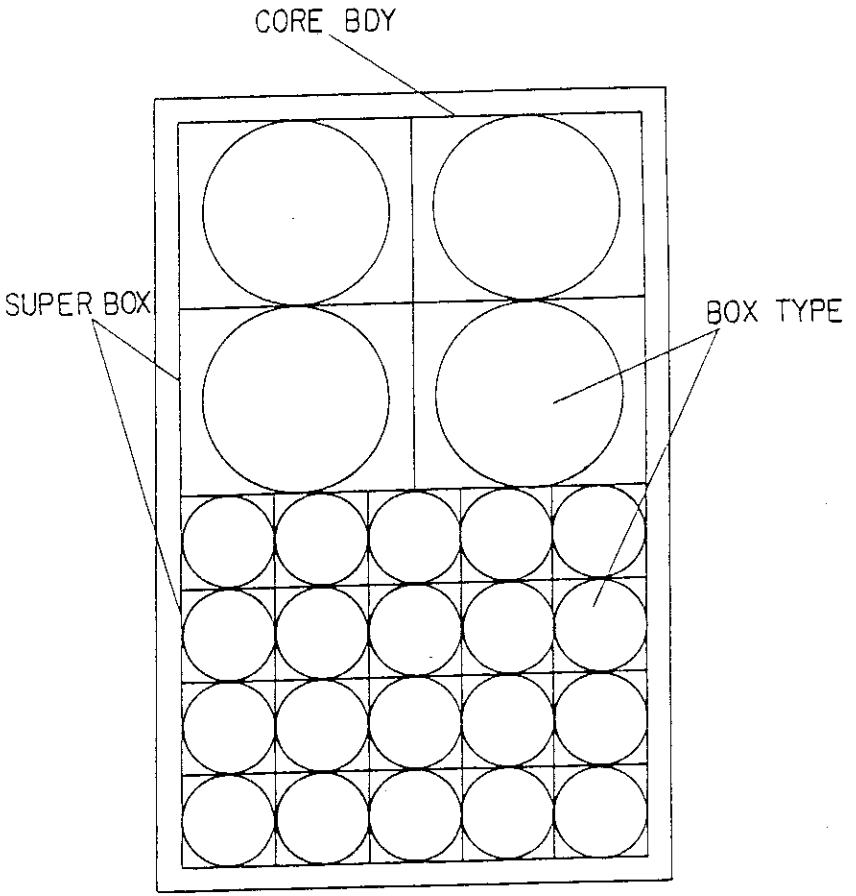
defines outline of the array consisted by box types. A CORE BOUNDARY devines outline of the array consisted by SUPER BOX similarly.

A SUPER BOX description is almost the same as the BOX TYPE, but must be added a number of BOX TYPEs contained, and a number of units in the x, y and z direction of the array. Usually a SUPER BOX is used together with CELL BOUNDARY. If only single SUPER BOX is used, CELL BOUNDARY card is not needed.

It is possible for MULTI-KENO to have a combination of BOX TYPEs and a general geometry option. The general geometry option is treated as one of super box types.

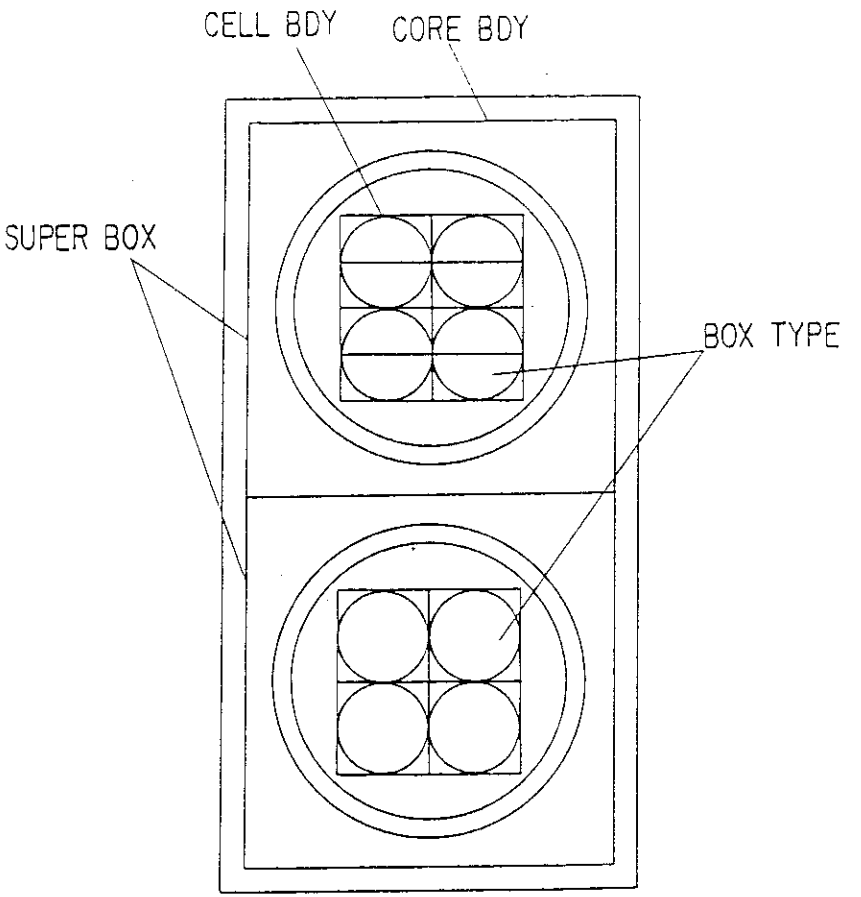
Table 2.1 and 2.2 are typical card input data of the geometries shown in Figs. 2.1 and 2.2.

MULTI-KENO can define multiple array structure by using SUPER BOX. This extension brings about decreasing computation time and input data compared with the general geometry option of KENO-IV. The modified parts of KENO-IV routines for this extension are essentially geometry data treatment section in KENOG and neutron tracking section in BEGIN. The simplified neutron tracking flow in BEGIN is shown in Fig. 2.3. A characteristic computation time by MULTI-KENO and KENO-IV is shown in Figs. 2.1 and 2.2. The average computation time decrease to about 1/3, and the difference between MULTI-KENO using SUPER BOX and KENO-IV using BOX TYPE are a little.



	keff	cpu Time (min)
MULTI - KENO (SUPER-BOX)	0.9745 ±0.0044	3.1
KENO - $\overline{V}$ (GENERAL)	0.9771 ±0.0045	6.9

Fig. 2.1 Sample of MULTI-KENO geometry



	keff	cpu Time (min)
MULTI - KENO (SUPER - BOX)	1.0923±0.0050	2.0
KENO - $\overline{V}$ (GENERAL)	1.0871±0.0050	8.1

Fig. 2.2 Sample of MUTLI-KENO geometry

Table 2.1 Typical card input data of the geometry shown in Fig. 2.1

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
   1  SUPER 1
   2 ** PARAMETER CARD
   3   2.3  103  300    3   16    6    6    2    6   22    2    2    1    2
   4     6    0    0   30    0    0    0    0    0    0    0    0    0    0
   5 **MIXING TABLE
   6           1    -92500 4.48006-2
   7           1     92800 2.65780-3
   8           1     92400 4.82700-4
   9           1     92600 9.57000-5
  10           2      1101 8.25810-2
  11           2      6100 3.97020-2
  12 *** GEOMETRY CARD AND WEIGHTS. **************************************************
  13 SUPER BOX      1    2    4    2    1
  14 BOX TYPE       1
  15 ZHEMICYL-X     1  5.748   5.3825 -5.3825                              16*0.5
  16 CUBOID         0  0.0    -5.748   5.748  -5.748   5.3825 -5.3825     16*0.5
  17 CUBOID         0  0.0    -7.585   7.585  -7.585   7.22   -7.22       16*0.5
  18 BOX TYPE       2
  19 ZHEMICYL+X     1  5.748   5.3825 -5.3825                              16*0.5
  20 CUBOID         0  5.748   0.0      5.748  -5.748   5.3825 -5.3825     16*0.5
  21 CUBOID         0  7.585   0.0      7.585  -7.585   7.22   -7.22       16*0.5
  22 CELL BDY       0 15.17  -15.17    15.17  -15.17    7.22   -7.22       16*0.5
  23 CYLINDER       0 23.5     7.22    -7.22                               16*0.5
  24 CYLINDER       2 24.0     7.22    -7.22                               16*0.5
  25 CUBOID         0 24.5   -24.5     24.5   -24.5     7.22   -7.22       16*0.5
  26 ************************************************
  27 SUPER BOX      2    2    2    2    1
  28 BOX TYPE       1
  29 CYLINDER       1 5.748   5.3825 -5.3825                              16*0.5
  30 CUBOID         0  5.748  -5.748   5.748  -5.748   5.3825 -5.3825     16*0.5
  31 CUBOID         0  7.585  -7.585   7.585  -7.585   7.22   -7.22       16*0.5
  32 BOX TYPE       2
  33 CYLINDER       1  5.748   5.3825 -5.3825                              16*0.5
  34 CUBOID         0  5.748  -5.748   5.748  -5.748   5.3825 -5.3825     16*0.5
  35 CUBOID         0 7.585  -7.585   7.585  -7.585   7.22   -7.22       16*0.5
  36 CELL BDY       0 15.17  -15.17   15.17  -15.17    7.22   -7.22       16*0.5
  37 CYLINDER       0 23.5     7.22   -7.22                               16*0.5
  38 CYLINDER       2 24.0     7.22   -7.22                               16*0.5
  39 CUBOID         0 24.5    -24.5    24.5   -24.5     7.22   -7.22       16*0.5
  40 CORE BDY       0 49.0    -49.0    24.5   -24.5    14.44  -14.44       16*0.5
  41 CUBOID         2 50.0    -50.0    25.0   -25.0    14.94  -14.94       16*0.5
  42   1  1  3  2  1  2  1  1  1  1  0    2  2  4  2  1  2  1  1  1  1  1
  43   1  1  1  1  1  2  1  1  1  1  0    2  2  2  1  1  2  1  1  1  1  1
  44   1  1  1  1  1  1  1  1  2  1  0    2  2  2  1  1  1  1  1  2  1  1
  45   0
  46   1  0
  47 -60.0      30.0       5.0       60.0      -30.0      5.0
  48  1.0        0.0       0.0        0.0        1.0      0.0
  49 118 98 0.0 0.0 3
  50   1  1
  51 -60.0      30.0       5.0       60.0      -30.0      5.0
  52  1.0        0.0       0.0        0.0        1.0      0.0
  53  118 98 0.0 0.0 1
  54   0  0
  55 END KENO
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

Table 2.2 Typical card input data of the geometry shown in Fig. 2.2

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
   1  SUPER 2
   2   2.5  103  300    3   16    6    6    2    6   18    2    2    1    1
   3     6    0    0   30    0    0    0    0    0    0    0    0    0    0
   4          1    -92500 4.48006-2
   5          1     92800 2.65780-3
   6          1     92400 4.82700-4
   7          1     92600 9.57000-5
   8          2      1101 8.25810-2
   9          2      6100 3.97020-2
  10 SUPER BOX      1    2    4    5    1
  11 BOX TYPE       1
  12 CYLINDER       1  5.748    5.3825 -5.3825                              16*0.5
  13 CUBOID         0 5.748  -5.748   5.748  -5.748   5.3825 -5.3825       16*0.5
  14 CUBOID         0 7.585  -7.585   7.585  -7.585   7.22   -7.22         16*0.5
  15 BOX TYPE       2
  16 CYLINDER       1  5.748    5.3825 -5.3825                              16*0.5
  17 CUBOID         0 5.748  -5.748   5.748  -5.748   5.3825 -5.3825       16*0.5
  18 CUBOID         0  7.585  -7.585   7.585  -7.585   7.22   -7.22         16*0.5
  19 CELL BDY       0 30.34   -30.34  37.925 -37.925   7.22   -7.22         16*0.5
  20 CUBOID         0 30.34   -30.34  37.925 -37.925   7.22   -7.22         16*0.5
  21 SUPER BOX      2    2    2    2    1
  22 BOX TYPE       1
  23 CYLINDER       1 11.496    5.3825 -5.3825                              16*0.5
  24 CUBOID         0 11.496 -11.496  11.496 -11.496   5.3825 -5.3825       16*0.5
  25 CUBOID         0 15.17  -15.17   18.9625 -18.9625 7.22   -7.22         16*0.5
  26 BOX TYPE       2
  27 CYLINDER       1 11.496    5.3825 -5.3825                              16*0.5
  28 CUBOID         0 11.496 -11.496  11.496 -11.496   5.3825 -5.3825       16*0.5
  29 CUBOID         0 15.17  -15.17   18.9625 -18.9625 7.22   -7.22         16*0.5
  30 CELL BDY       0 30.34  -30.34   37.925 -37.925   7.22   -7.22         16*0.5
  31 CUBOID         0 30.34  -30.34   37.925 -37.925   7.22   -7.22         16*0.5
  32 CORE BDY       0 60.68  -60.68   37.925 -37.925   7.22   -7.22         16*0.5
  33 CUBOID         2 61.18  -61.18   38.425 -38.425   7.72   -7.72         16*0.5
  34   1  1  3  2  1  5  2  1  1  1  0    1  2  4  2  2  4  2  1  1  1  0
  35   2  2  4  2  1  5  2  1  1  1  0    2  1  3  2  2  4  2  1  1  1  1
  36   1  1  1  1  1  1  1  1  1  1  0    1  2  2  1  2  2  1  1  1  1  0
  37   2  2  2  1  1  1  1  1  1  1  0    2  1  1  1  2  2  1  1  1  1  1
  38   1  1  1  1  1  1  1  1  1  1  0    2  2  2  1  1  1  1  1  1  1  1
  39   0
  40   1  0
  41 -61.18   38.425   5.0    61.18  -38.425   5.0
  42   1.0       0.0       0.0       0.0       1.0       0.0
  43  96 100 0.0 0.0 1
  44   1  1
  45 -61.18   38.425   5.0    61.18  -38.425   5.0
  46   1.0       0.0       0.0       0.0       1.0       0.0
  47  96 100 0.0 0.0 1
  48   0  0
  49 END KENO
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

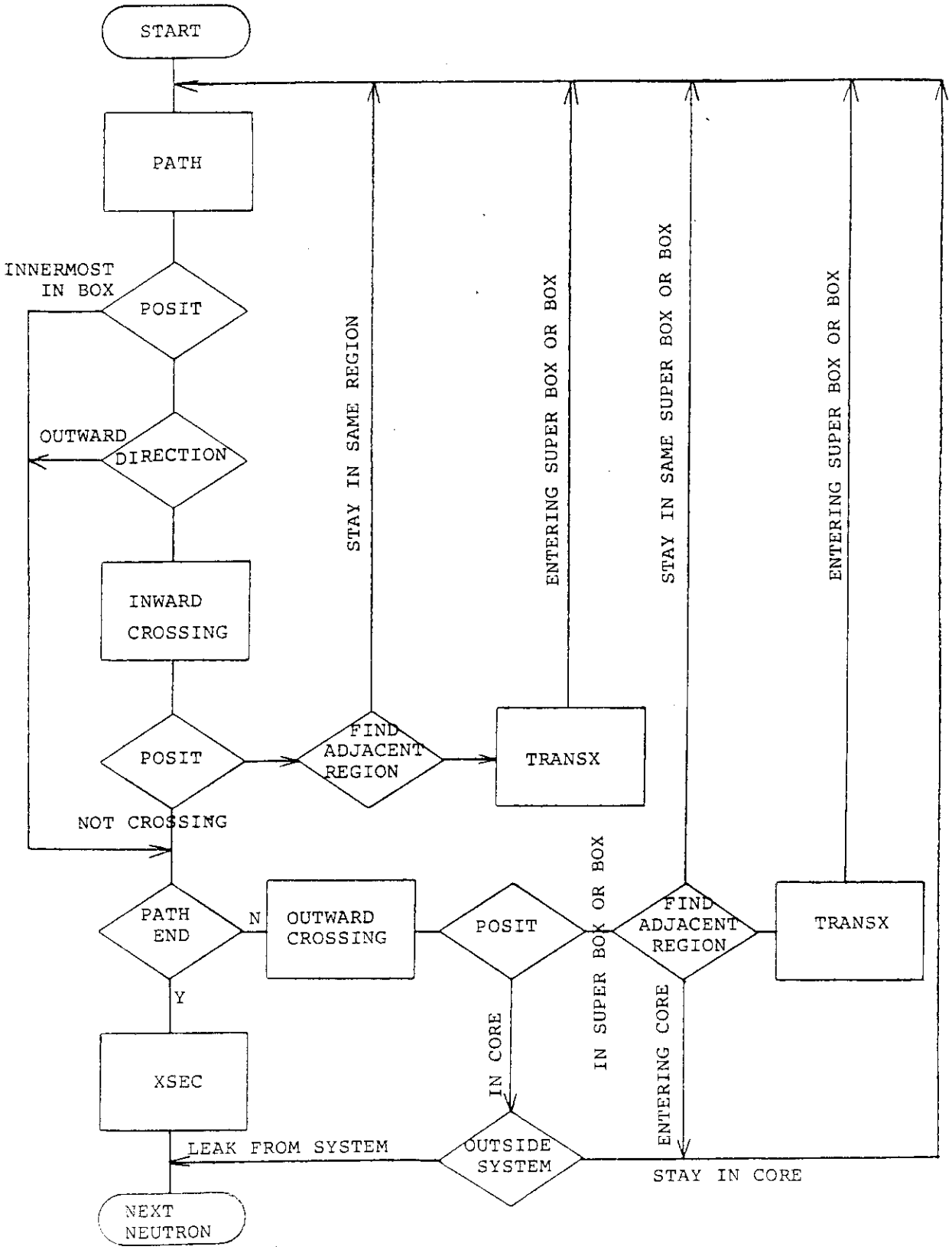


Fig. 2.3 Neutron tracking flow

2.2 Fixed Source Problem

The fixed source problem option is one of improvements in MULTI-KENO. It is possible to solve this problem with three-dimensional geometry-strictly, which is the same input geometry as one used for a criticality problem.

Two kinds of fixed neutron source problems are available. One is a point source problem and another is a distributed source problem. It is allowed that a number of point sources or distributed sources are specified, and that both of them are used together. The energy spectrum is given regionwise, whether in a point source problem or in a distributed source problem.

The fixed source problem option is excuted in each one generation which is a period between neutron birth and death. In an execution of one generation, a calculation may be stopped at any Nth fission points. A specification for an order of fission points is the same way as the outer iteration limit which is used in common neutron transport code ANISN or DOT-3.5. A neutron flux distribution in a system is estimated by an average value of the calculation results from several generations. The initial fission neutrons must be specified at least over 10^4, otherwise it may be obtained insufficient results.

The flow of the fixed source problem option is shown in Fig. 2.4. A sample problem of this option is executed with a simple Th metal sphere model (see APPENDIX A). The results by MULTI-KENO shown in Fig. 2.5 are obtained good agreements with those of ANISN.

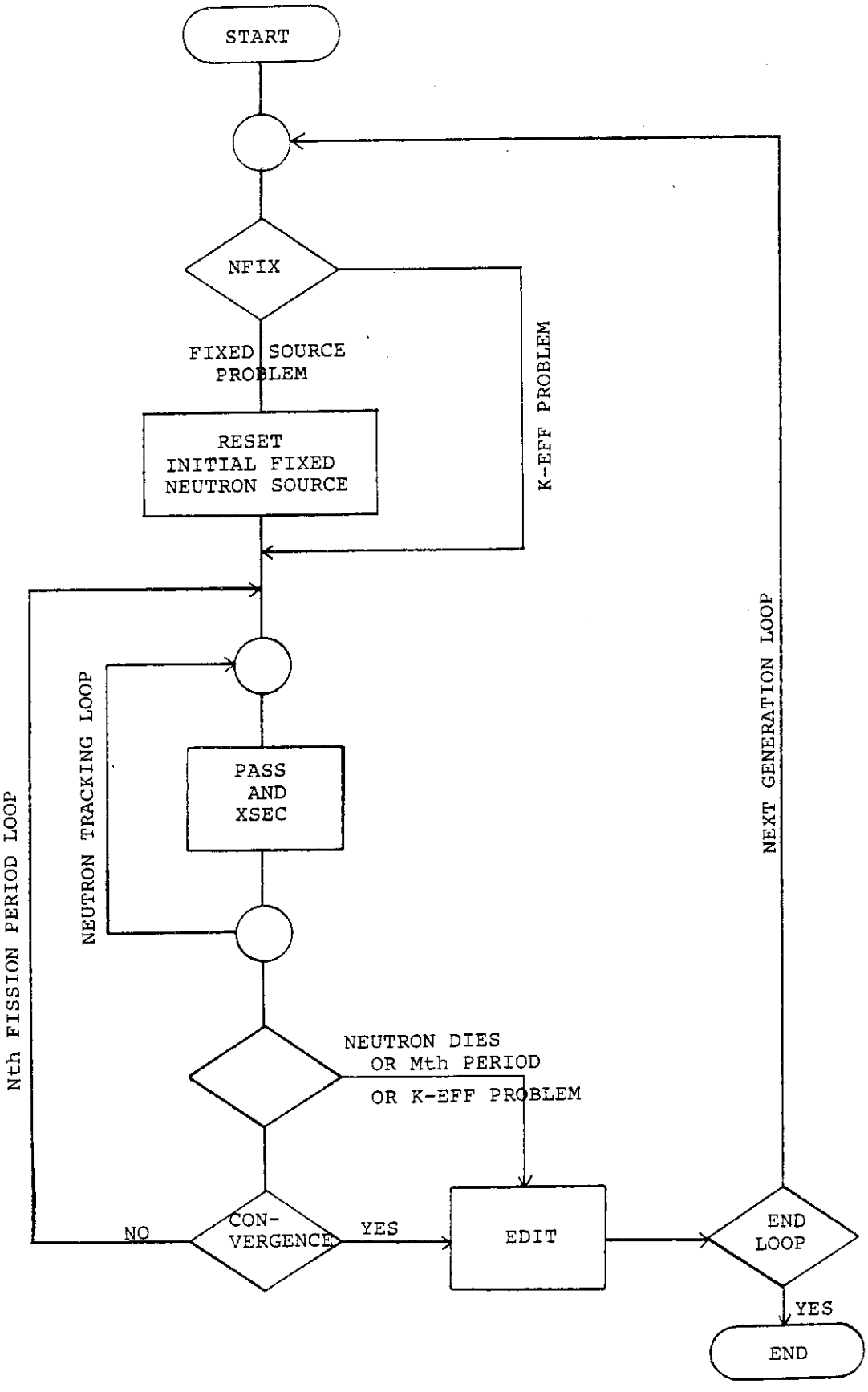


Fig. 2.4 Flow of fixed source problem option

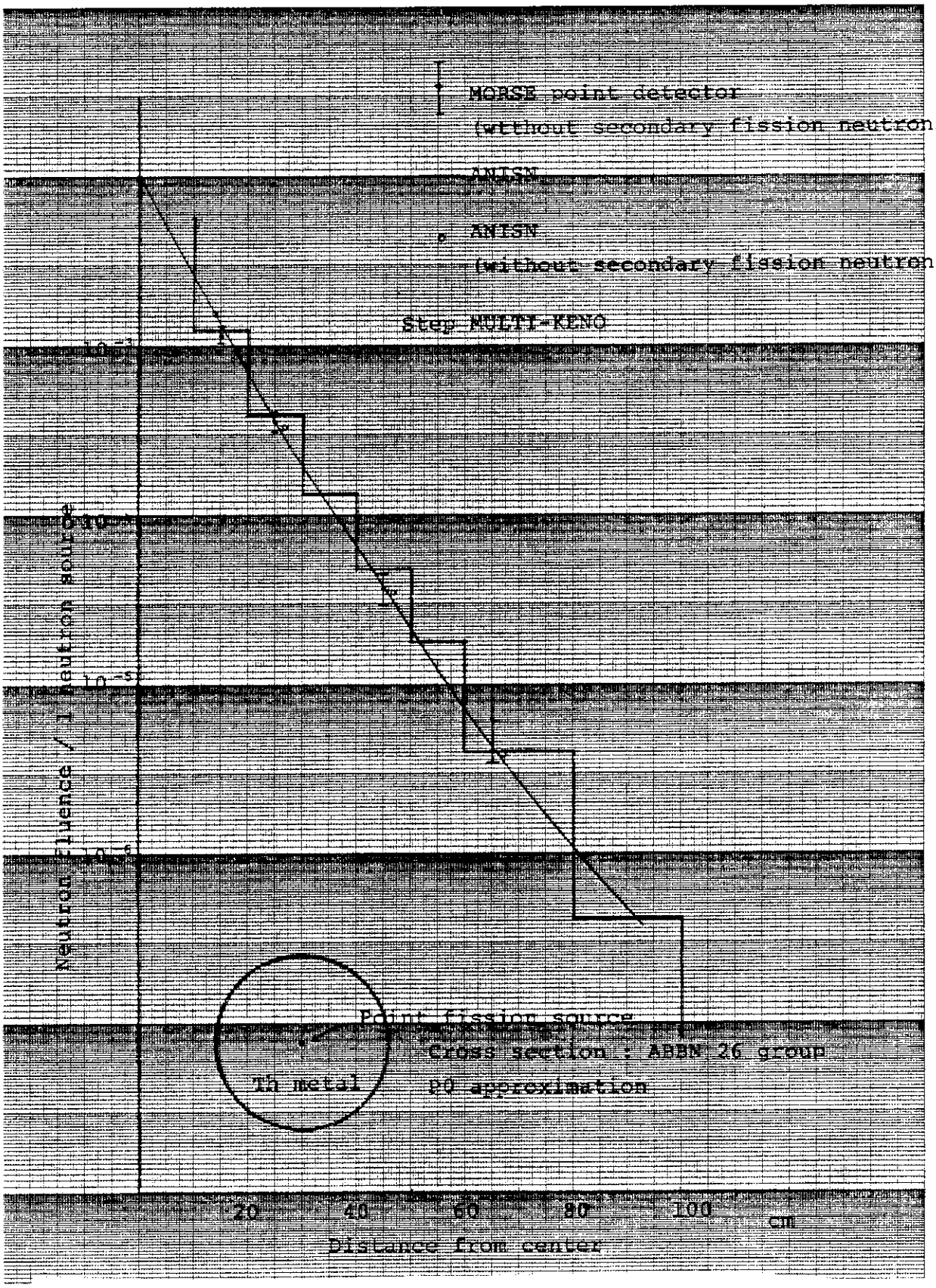


Fig. 2.5 Comparison of neutron flux distribution in Th sphere between ANISN, MORSE and MULTI-KENO

2.3 Intersecting Geometry

A criticality analysis of a transport cask is an important problem in the field of criticality safety analysis. In the analyses, particularly large type PWR or BWR transport cask, it is often occurred that the regional intersecting treatment are needed.

In KENO-IV if CORE BOUNDARY intersects with inner geometry, a calculation is stopped due to error. Usually these geometries are used to take several approximations or to take the general geometry option. If the approximations for geometries are done, a precision of the calculation results becomes worse. The treatment of the general geometry option is ordinally difficult. Therefore, MULTI-KENO is permitted to define the intersecting geometries.

In MULTI-KENO, it is available that outer regions of CELL BOUNDARY intersect with outer regions of CORE BOUNDARY, but each previous outer region must include an inner region without intersection.

This extension is accomplished by the following procedure;

(1) After crossing the CELL BOUNDARY outward, the region is checked whether it is intersected with outer regions of CORE BOUNDARY.

(2) If an intersection does not occur, it continues a normal neutron tracking procedure. If an intersection occurs, neutron coordinate is transformed to an intersecting region from an intersected region, then the tracking procedure continues the same treatment as before.

An example of transport cask configuration is shown in Fig. 2.6. This model consists of eleven SUPER BOZes and the corners of four SUPER BOXes are intersected with the outer region of CORE BOUNDARY.

MULTI-KENO prints out intersected SUPER BOX numbers with negative signs description of mixed box array.

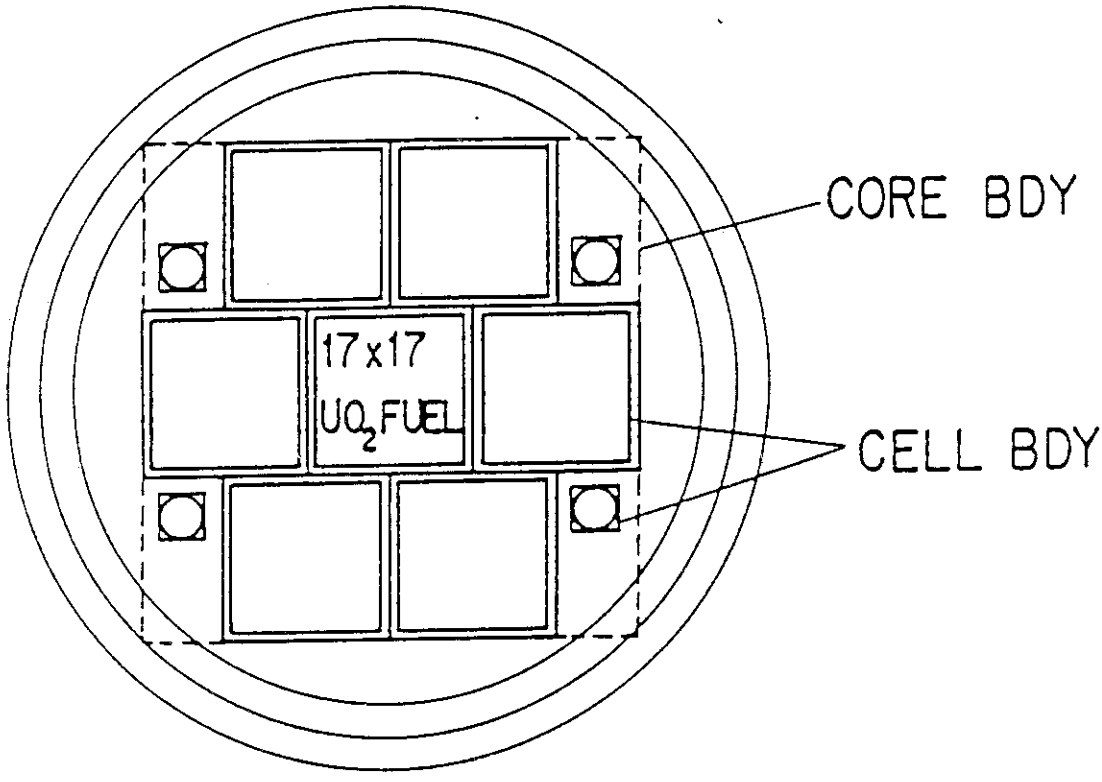


Fig. 2.6 Transport cask configuration

2.4 Graphic Processing

It is possible for MULTI-KENO to define a complicated geometry without using the general geometry option. A definition of a system such problems as experimental analysis of triangular fuel lattice need many input geometry data and much preparation time. These data are complicated one naturally. It is difficult to prepare exact input geometry data, and incorrect data are frequently made.

In order to check input geometry data, the graphic processing option is added to MULTI-KENO. Two kinds of outputs are available. One is in the form of a graph produced by a plotter, a graphic display or a microfilm photographed by G-COM. Another is in the form of a print by a lineprinter.

It draws arbitrary two-dimensional slice through the geometry with arbitrary area of it. The graphic processing flow is shown in Fig. 2.7. In this flow chart PLOTER routine draws on a plotter, a graphic display or a G-COM, and PRINT routine prints out printer plot.

The sample outputs from PICTUR are shown in Fig. 2.8 and Fig. 2.9. The former is drawn for sample problem GENRL-1 and the latter for sample problem SUPER-2 (see APPENDIX A).

The addition of this function has raised availability of MULTI-KENO code.

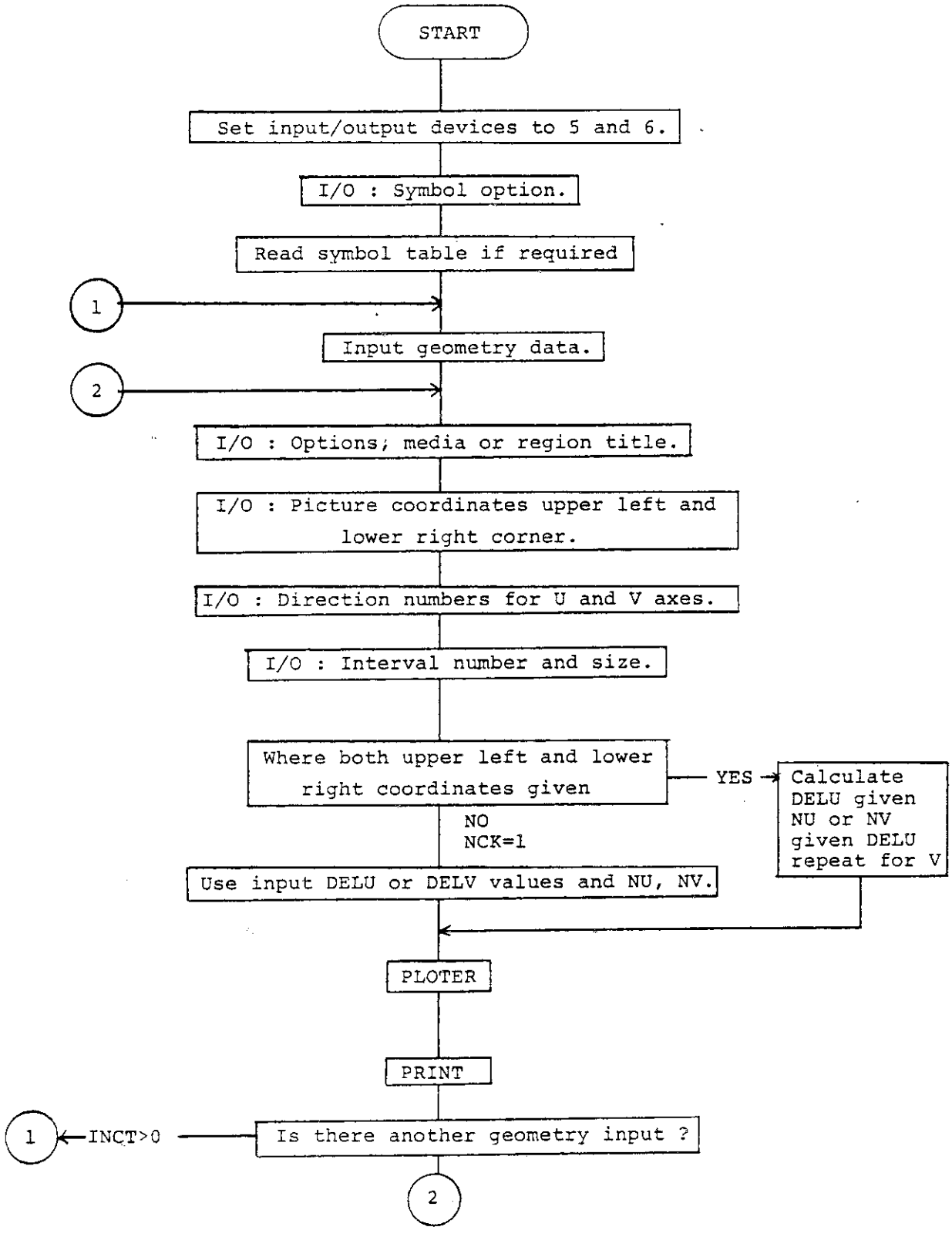


Fig. 2.7 Simplified graphic processing flow

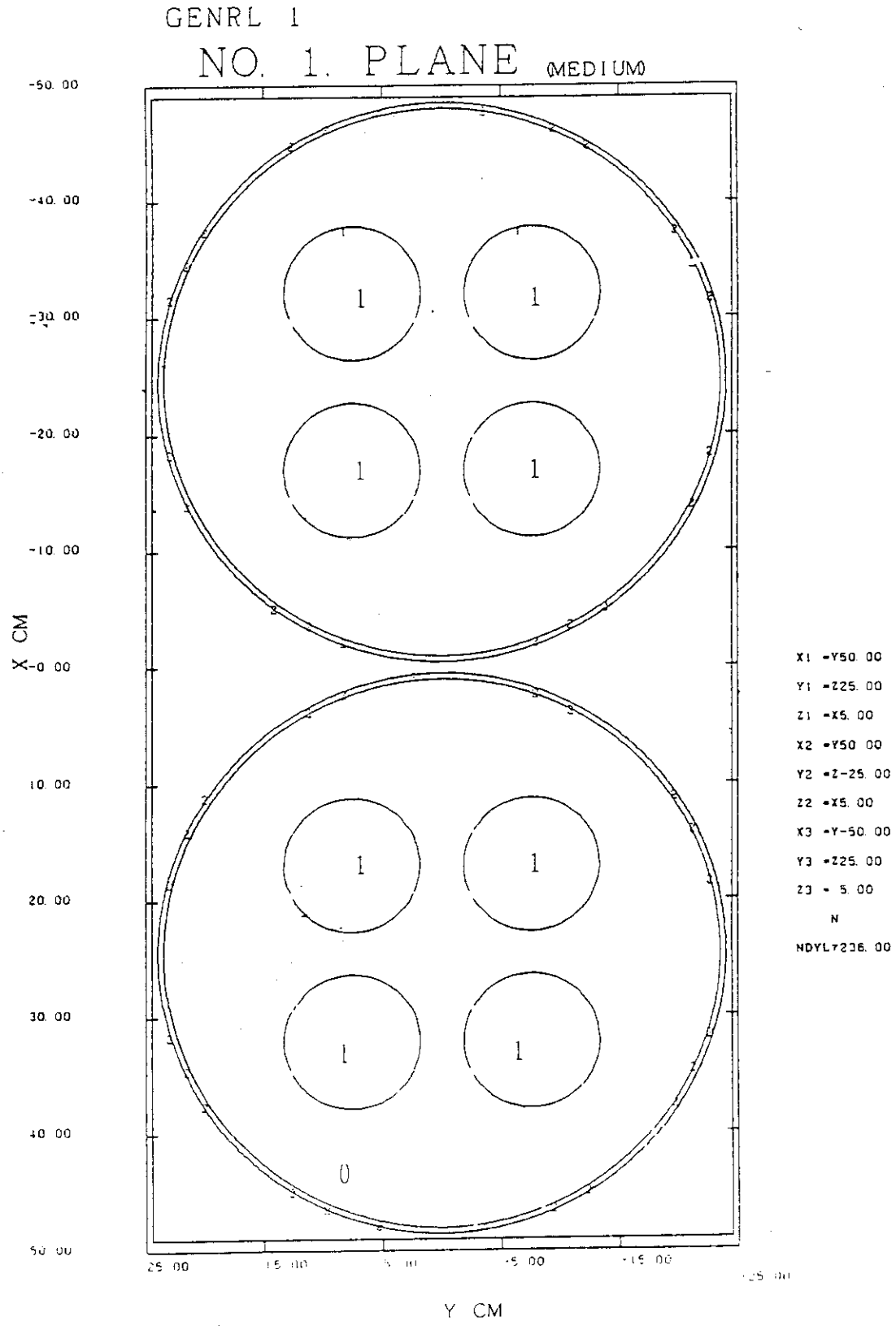


Fig. 2.8 Picture for GENRL-1

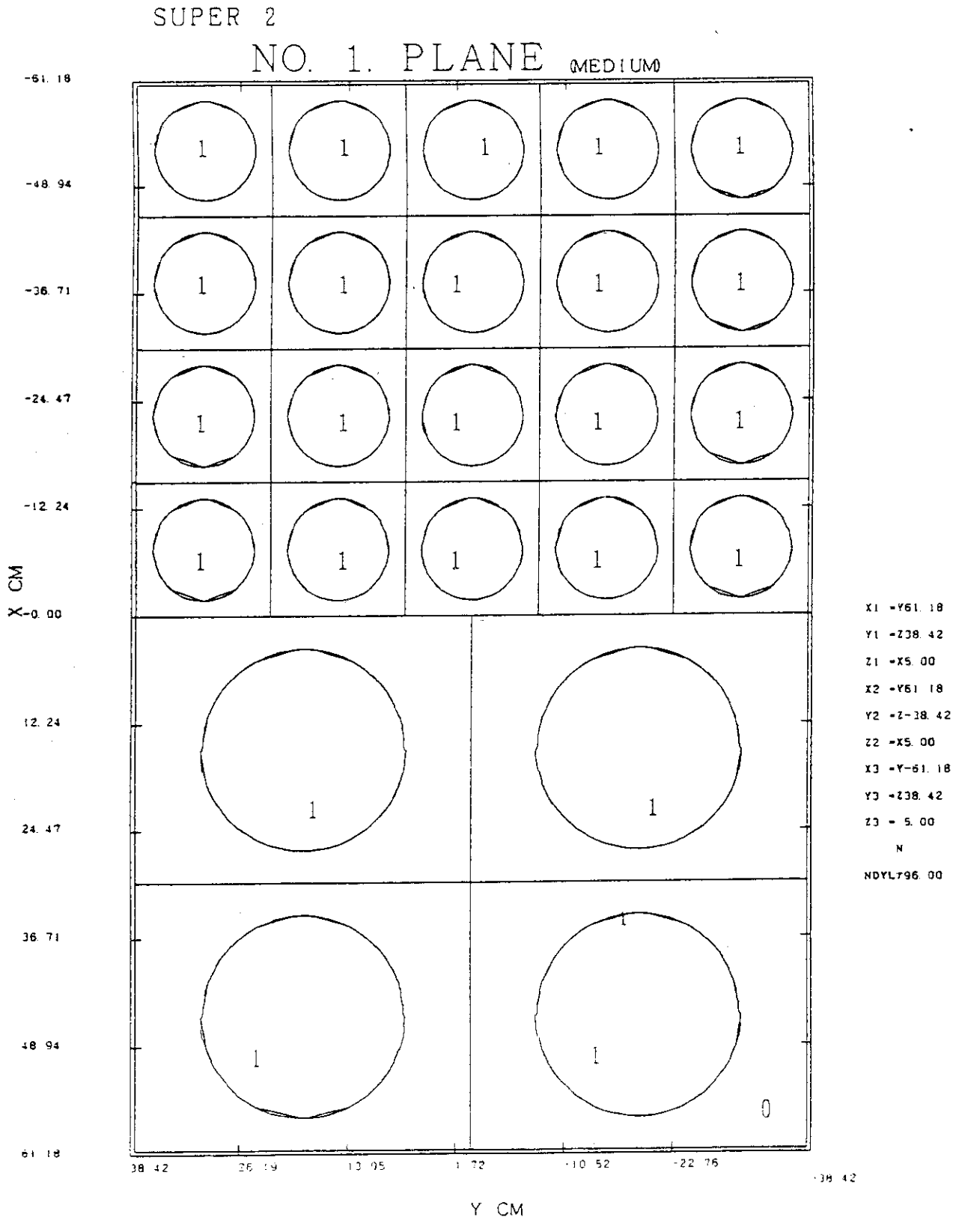


Fig. 2.9 Picture for SUPER-2

2.5 Neutron Balance Table

In order to evaluate a precision of calculation results, neutron balance table editor is added to MULTI-KENO. The output format is the same as the format used by neutron transport code ANISN.

In KENO-IV, the leakage, absorptions and fissions are printed by energy group and may be further divided by geometry region. It is not enough to evaluate a precision by these printouts. The following items are printed by the editor;

(1) The fixed sources, scatterings, absorptions, leakages, current, fissions, fluxes and balance by energy group and geometry region.

(2) The fission sources are neutrons, which are caused by Russian-roulette kill or splitting.

It is possible to determine neutron balance in every geometry region by these informations. After a calculation, the following confirmation is available;

(1) whether fission source distributions agree with input neutron spectrum,

(2) whether the sum of total leakage and absorption close to 1.0 if albedos are not utilized and severe weighting is not imposed,

(3) whether the ratio of a total killed neutron to a survived neutron close to 1.0,

(4) whether all neutrons are traced throughout every geometry region and energy group.

If the general geometry option is used, neutron fluxes and leakages are printed as a volume integrated value. The leakages and currents are edited by surfaces in every geometry region. The items of neutron balance table are the following;

(1) Fixed source : FIXSUR(IG,K) = FIXSUR(IG,K) + WT
(2) Fission source : SOURCE(IG,K) = SOURCE(IG,K) + WT
(3) In-scattering : INSCT (IG,K) = INSCT (IG,K) + WT
(4) Self-scattering : SLFSCT(IG,K) = SLFSCT(IG,K) + WT
(5) Out-scattering : OUTSCT(IG,K) = OUTSCT(IG,K) + WT
(6) Leakage : TLEAK (IG,K) = SLEAK(IG,K,7) + SLEAK(IG,K-1,7)

(7) Balance : BALNCE(IG,K) =
(SOURCE(IG,K) + INSCT(IG,K) + WTBORN(IG,K))
/(OUTSCT(IG,K) + FMABS(IG,K) + TLEAK (IG,K) +
WTKIL (IG,K))

(8) Number of neutron kill :
IWTKIL(IG,K) = IWTKIL(IG,K) + 1

(9) Total weight of neutron in kill :
WTKIL (IG,K) = WTKIL (IG,K) + WT

(10) Number of neutron split ;
IWTSPL(IG,K) = IWTSPL(IG,K) + 1

(11) Total weight of neutron in split :
WTSPL (IG,K) = WTSPL (IG,K) + WT

(12) Number of neutron survive :
IWTBRN(IG,K) = IWTBRN(IG,K) + 1.0

(13) Total weight of neutron in survive :
WTBORN(IG,K) = WTBORN(IG,K) + WTAVG(IG,K) - WT

(14) Number of neutron collision :
IWTSRV(IG,K) = IWTSRV(IG,K) + 1

(15) Total weight of neutron in collision :
WTSURV(IG,K) = WTSURV(IG,K) + WT

IG : neutron energy group

K : geometry region

The neutron balance tables of sample problems are shown in APPENDIX C.

3. Structure of Program

3.1 Alphabetical Subroutine Summary

ABC

This subroutine is called from BLINE and JOMBYE. It determines coefficients of a quadratic equation, and using these coefficients, a point where a quadric surface and a straight line cross is calculated.

AJOINT

This subroutine is called from INPUT only if an adjoint problem was specified. It inverts the cross-section data, the fission spectrum, the energy bounds and the lethargy bounds in the proper manner.

ALBIN

If albedo data is expected for a given problem, subroutine ALBIN is called from KENO to read in the necessary data from cards or tape. It then converts the data to usable probability tables.

ALBEDO is an entry point in ALBIN. ALBEDO returns the weight, direction cosines and returning energy to subroutine BEGIN whenever a neutron enters a face having an albedo reflector.

ALOCAT

This subroutine is called from MAIN. It determines the maximum storage available for a MULTI-KENO problem based on the amount of core requested and passes this information to subroutine KENO.

ARAMOD

ARAMOD is the subroutine that calculates the new array size for an array search problem. It is called from XXMOD.

AREAD

Subroutine AREAD is used to read card input data for MULTI-KENO. AREAD reads alphanumeric character data. It is called from KENO, KENOG, and MAKREF.

IREAD is an entry point in AREAD. It reads free-form fixed point (integer) data. IREAD is called from FILBOX, KENO, KENOG, MAIN, MAKREF, START and XSTAPE.

FREAD is an entry point in AREAD. It reads free-form floating (decimal) data. FREAD is called from INPUT, KENO, KENOG, MAIN, MAKREF, RDREF, START, and XSTAPE.

AZIRN

AZIRN randomly picks an azimuthal angle and returns the sine and cosine of that angle to the calling program. AZIRN is called from START, BEGIN and ALBIN.

BEGIN

Subroutine BEGIN is the main tracking routine for MULTI-KENO. It consists of two concentric DO loops, the outer one running over the number of generations and the inner one running over the number of neutrons per generation BEGIN is called from KENO.

BLINE

This subroutine is called from GGLINE. It calculates an order of surface, and determines a direction of processing in a calculating the coordinates of crossing points.

BOX

This subroutine prints out the box type arrangement for each z-layer in the box orientation array. It also checks the box orientation for errors and prints out error messages for any errors it finds. BOX is called from INPUT.

BOXLU

This subroutine is called from PLOTER. It stores a coordinate of an origin and a geometry type for a fixed super box.

BOXLV

This subroutine is called from BOXLU. It stores a coordinate of an origin and a geometry type for a box type in a fixed super box.

CLEAR

Subroutine CLEAR is called from KENO. Its function is to zero an array "A" that is of length "L".

CLINE1

This subroutine is called from GGLINE. It defines maximumly 1000 straight lines on the two-dimensional slice of a geometry, stores the coordinates, of the point where each slice and straight line cross, and stores flags whether each crossing point will be plotted.

CRSCHK

This subroutine is called from INPUT. It checks whether a geometry is intersected.

CORSIZ

Subroutine CORSIZ calculates the overall array dimensions and checks to assure that the tangent faces of adjacent boxes are the same size. CORSIZ is called from INPUT and XXMOD.

CROS

This subroutine is called from BEGIN and calculates all boundary crossing information needed by BEGIN in tracking a neutorn. It does both inward and outward boundary crossings.

DATIM

This subroutine determines the date and time, and returns them at eight character alphanumeric data. DATIM is called from subroutine MESAGE.

DTLIST

This subroutine is called from MESAGE. It prints a card input data image after the header page.

DXX

This subroutine is called from CLINE1, GSIN and PLBOX2. The coordinate transformations are set up appropriate direction of axes.

EXPRN

EXPRN picks a random number from an exponential distribution. EXPRN is called from BEGIN.

FHLPR

This subroutine is called from MESAGE to print eight block letter characters across a page.

FILBOX

Subroutine FILBOX reads the mixed box orientation data and stores the three-dimensional arrangement of the box types used in a problem. It is called from INPUT, KENOG, and MAKREF.

FINALE

This subroutine collects and prints fissions, absorptions and leakages by region and energy group if so desired. It also prints the matrix k-effective, cofactor k-effective, source vectors, the unit interaction matrix and the interaction matrix by box type if requested. Fluxes and fission densities are also calculated and printed. FINALE is called from KENO.

FLTRN

FLTRN picks a random number between zero and 1. FLTRN is called from ALBIN, BEGIN, NSTART, and START.

FREAK

Subroutine FREAK is called by FINALE to print four frequency distributions for each problem. All k-effective, the last three-fourths, the last one-half and the last one-fourth of the k-effective calculated are used in the plots. The plots are scaled so they do not exceed the page width.

FSIGN

This subroutine is called from PBLOC. It determines whether boundary surface of BLOCK's and ZONE's are the boundaries of material or region.

GGLINE

This subroutine is called from PLBOX. It controls the plotting of crossing lines for general geometry.

GSIN

This subroutine is called from CLINE1, GSINCK, and PBLOC. It determines whether each crossing point stored by CLINE1 will be plotted with calculation by LOOKZ about transition of MEDIA or REGION around each crossing point.

GSINCK

This subroutine is called from CLINE1. It calculates a gradient of a crossing line where a surface and a two-dimensional slice of a geometry cross. If the gradient is less than 50 degrees, subroutine GSIN is called.

GTISO

GTISO picks direction cosines from an isotropic distribution, and is called from BEGIN and START.

IDPLUS

This subroutine is called from BLINE. It calculates an address of the coefficients of equation for a surface.

IDSET

This subroutine is called from GGLINE. It stores the surface number used for definition of MEDIA or REGION.

INPUT

This subroutine reads velocities from cards if they are expected. It calls XSTAPE to read cross sections and AJOINT to invert cross sections for an adjoint problem. INPUT creates and stores the macroscopic cross sections and probabilities used in the problem solution. It sets the dimensions of the last general region equal to the outer zone boundaries. It also checks to be sure the mixture numbers on the geometry cards fall within the allowable range, and if a reflector is present, it makes sure the core boundary exactly encloses the array. INPUT is called from KENO.

IPSET

This subroutine is called from PLOTER. It prepares for the plotting a region number at a divided area.

ITIME

This subroutine is called from BEGIN and KENO. It gets execution time measured in CPU.

JOMBYE

This subroutine is called from CLINE1. It calculates a crossing point between a quadric surface and a straight line.

JOMCHK

Subroutine JOMCHK is called by KENO to be sure that regions within a given box type or the reflector do not contain intersecting surface. Each successive geometry region must completely enclose the one before it except outter geometry than CELL BOUNDARY. They can have common faces or be tangent, but they must not intersect except outter geometry than CELL BOUNDARY.

KEDIT

Subroutine KEDIT is called from KENO after all the generations have been calculated for a given pass. KEDIT calculates and prints the average k-effectives and their associated deviation for the 67.95, and 99 % confidence intervals. It also calculates and prints the number of histories used in calculating each k-effective that is printed.

KENO

Subroutine KENO computes the starting indices for the data arrays, prints the title and input parameters, calculates the amount of storage locations required for the problem and the amount of storage left over. It also directs the calling of the basic subroutines governing the flow used in the solution of a prlblem.

KENOG

This subroutine reads and prints the geometry description of a problem. If the automatic reflector option is invoked, it calls MAKREF. It checks to be sure each geometry type encountered is a valied one. It also reads in the energy-dependent weight average for each geometry region and calculates and stores the values of weight high and weight low. The weights are printed out after all the geometry data has been printed. KENOG is called from INPUT.

LABL

Subroutine LABL is a printing subroutine. It prints from one to a maximum of five sets of headings (two per set) across the page. Under each heading is a column of up to 50 numbers. Each set of numbers consists of an integer number and a floating point number. LABL is called from subroutine FINALE to print the source vector by unit and the source vector by box type.

MAIN

This routine prints the MULTI-KENO header page, reads title card and parameters, sets up buffer space for the necessary input and output units, and calls subroutine ALOCAT.

LEAK

This subroutine is called from BEGIN. It calculates current (J) and scores leakage.

LOOKNZ

This subroutine is called from PREAD. It stores the sequence numbers of ZONEs (NZ) which draw boundaries of BLOCKs.

MAKREF

Subroutine MAKREF is called from KENOG to calculate a reflector of the desired material and thickness on the designated face. It supplies the energy-dependent weights and weighting intervals, calculates all the necessary regions in the reflector and applies the appropriate wieights to each region.

MATK

MATK solves for the principal eigenvalue and eigenvector of a matrix using an iterative technique. It is called from BEGIN to calculate matrix k-effective and from FINALE to provide cofactor k-effective and source vectors.

MESAGE

Subroutine MESAGE is called from MAIN to print the header page. It is turn calls FHLPR, DATIM and DTLIST.

MESH

This subroutine is called from PRINT and UNITS. It stores a MEDIA number of a REGION number for general geometry type.

MESHU

This subroutine is called from IPSET and PRINT. It calculates a position of a given coordinate on the two-dimensional slice in each super box, and determines the super box type in which the given point exists.

MESHV

This subroutine is called from MESHU. It calculates a position of a given coordinate on the two-dimensional slice in each box type for each super box, and determines the box type in which the given point exists.

NSTART

NSTART is called from BEGIN at the end of each generation to provide neutron starting positions for the next generation. This is accomplished by adjusting the number of fission neutrons to be equal to the number per generation by randomly repeating existing fission positions if too few were stored in BEGIN.

PAXIS

This subroutine is called from PLOTER. It draws a frame, scales and titles.

PBLOC

This subroutine is called from GGLINE. It determines a crossing point where a straight line and a boundary surface of BLOCKs cross, and stores a flag whether the crossing point will be plotted.

PDYL

This subroutine is called from PLOTER. It calculates scaling factors of the axes.

PICTUR

This subroutine is called from KENO. It controls flow of geometrical graphic processing.

PLBOX

This subroutine is called from BOXLU and BOXLV. It calculates a size and coordinates of the origin for each box type and geometry type, and draws a crossing line.

PLBOX1

This subroutine is called from PLBOX. It draws a crossing line of a plane (1st order) except general geometry.

PLBOX2

This subroutine is called from PLBOX. It draws a crossing line of a surface (2nd order) except general geometry.

PLMSG

This subroutine is called from PLOTER. It draws the coordinate of the input points which define the two-dimensional slice and mesh interval used by CLINE-.

PLNO

This subroutine is called from IPSET. It draws material number of region number in a divided area.

PLOTE

This subroutine is called from GGLINE and PBLOC. It draws lines using the points stored by CLINE and PBLOC.

PLOTER

This subroutine is called from PICTUR. It controls graphic processings by a plotter, a graphic display or a G-COM.

POSIT

Subroutine POSIT is called from START to determine which region in a box a neutron at position x, y, z is in.

PREAD

PREAD is called from GGLINE. It reads upper left corner and lower right corner of a picture which defines two-dimensional slice.

PRINT

This subroutine is called from PICTUR. It prints out geometrical picture on a line printer. PRINT controls these processings.

QUADRA

This subroutine is called from JOMBYE and PLBOX2. It calculates solutions of a quadratic equation.

RDREF

Subroutine RDREF reads the reflector constants for an albedo problem, stores the kind of albedo to be used on each face, and determines how many different albedos are involved. It also checks to be certain that the albedo key NXX is consistent with the reflector constants read in. A message is printed starting how many differential albedos will be read, whether albedos were used from the previous case, and the albedo ID number of the albedo that will be used on each face. RDREF is called from KENO.

REA

Subroutine REA recorders the coefficients of the AMPX P0 and P1 transfer arrays to be compatible with KENO and is called from XSTAPE.

READSG

READSG is called from XSTAPE to read ANISN cross-section data from cards.

RESTRT

Subroutine RESTRT is responsible for reading and writing restart data. The restart data is read if the start type is negative, the starting generation is incremented by 1 and control is returned to the calling program. RESTRT is called from KENO.

WRTRST is an entry point in RESTRT. It is called from BEGIN to write out and save restart data at given generation intervals so a

problem can be restarted at the desired point without losing the advantage of calculations that were already completed.

FINRST is an entry point in RESTRT. It is called from KENO if restart data is to be read. It reads through the sets of saved restart data until it finds the designated starting point, reads and stores that data and checks to be sure the saved data is compatible with that specified in the problem to be restarted. If discrepancies are encountered, error messages are written.

SAVE

This subroutine is used to write out data that may be used in a subsequent case and to read in data from the previous case for use in the current problem. It is called from INPUT and KENO.

SFLRAN

SFLRAN picks a random number between -1 and 1. SFLRAN is called from AZIRN and GTISO.

SLBABS

SLBABS is called from INPUT. It checks card input data of intersecting geometry and prints out error messages.

SOCINP

This subroutine is called from START. It reads card input data for neutron source.

START

Subroutine START is called from KENO to provide the starting positions for the first generation of neutrons. Neutrons are allowed to start only in fissionable material unless x, y, and z are specified, in which case the neutron is started at that point. The starting positions are chosen from the desired starting distribution. The allowable distributions include flat over the array, cosine over the array, an arbitrary fraction started in unit N with the remainder started in a cosine distribution about unit N, all started at position x, y, z in unit N, all started at position x, y, z in box type M with a flat distribution over units of box type M, a flat distribution in fissile material in units of

box type M, and an arbitrary starting distribution in which alll starting points are read from cards.

STORE

This subroutine is called from XSTAPE to store the ANISN one-dimensional cross-section data.

STORE1 is an entry point in STORE. It is called from XSTAPE to store the ANISN two-dimensional cross-section data.

ST1D

This subroutine is called from XSTAPE to store the AMPX one-dimensional cross-section data in the proper arrays.

BABLE

This subroutine is called from FINALE. It prints out the neutron balance table.

TRANSX

This subroutine is called from BEGIN and START. It is a coordinate transformation subroutine.

UNITS

UNITS is called from MESHU and MESHV. It determines a region number where a given point exists.

VOLUME

Subroutine VOLUME is called from KENO to calculate and print the incremental and cumulative volume for each region in each box type and the reflector. It also calculates the total volume in the entire array that is occupied by each region. VOLUME also makes simple checks to be sure the input dimensions are not "wrong side out", that volumes do not become negative, that each box type contain at least one region, and that the last geometry region in every box type is a cube or cuboid.

WARR

This subroutine is called from INPUT and XSTAPE to print the two-dimensional part of the input cross section data (microscopic cross sections) and the two-dimensional probabilities for each mixture

(macroscopic cross sections that have been summed and normalized to supply probabilities).

XSTAPE

Subroutine XSTAPE is called from INPUT to read and print the mixing table and to read the appropriate microscopic cross-section data, fission spectra, energy levels and lethargies from disc, tape or cards in the desired format (MULTI-KENO, AMPX, or ANISN).

XXMOD

Subroutine XXMOD is called from KENO. It calculates new dimensions for specified geometry regions in a dimension search problem.

MULTI-KENO GENERALIZED GEOMETRY INTERFACES

The following subroutines are called from KENO if a generalized geometry region is encountered.

GEOM - determines track length and boundary crossing information
JOMIN - reads generalized geometry input data
LOKSET - initializes the generalized geometry routines with array addresses.
LOOKZ - locates x, y, and z in generalized geometry.

3.2 Tree structure of program

Tree structure of MULTI-KENO program is shown in Fig. 3.1.

3.3 Subroutine reference table

Subroutine reference table is shown in Table 3.1.

3.4 Common area reference table

Common area reference table is shown in Table 3.2.

3.5 Overlay structure

MULTI-KENO is made into overlay structure in order to reduce main memory required. Its structure is shown in Fig. 3.2.

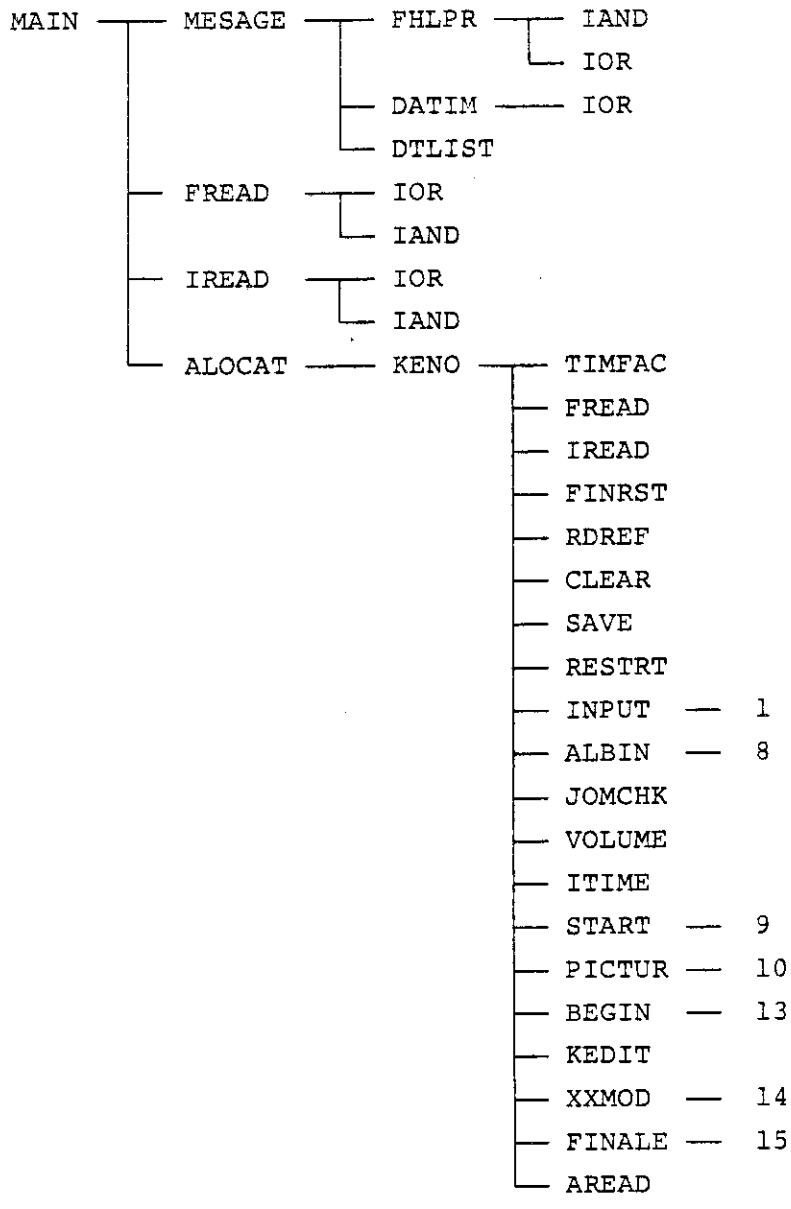
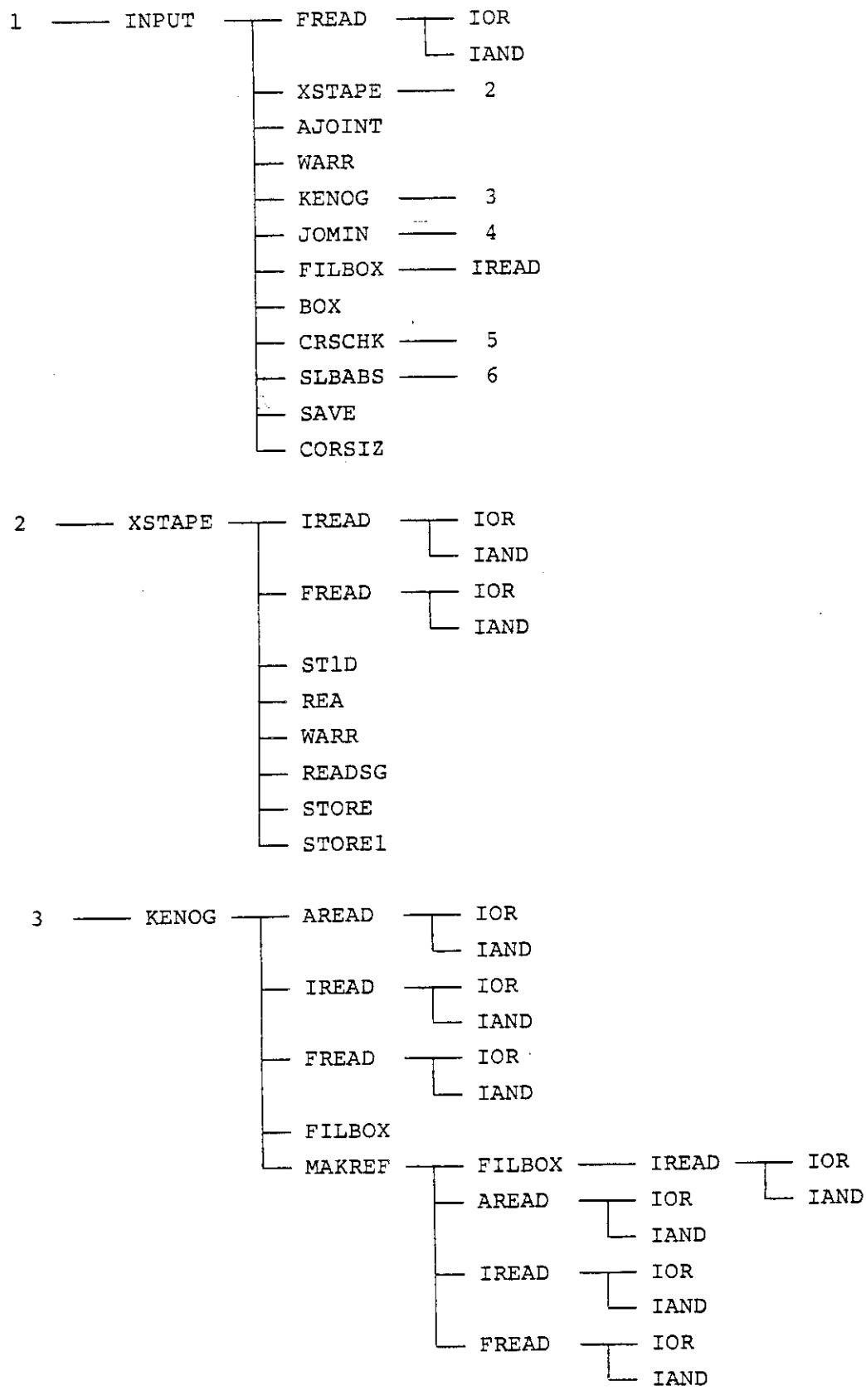
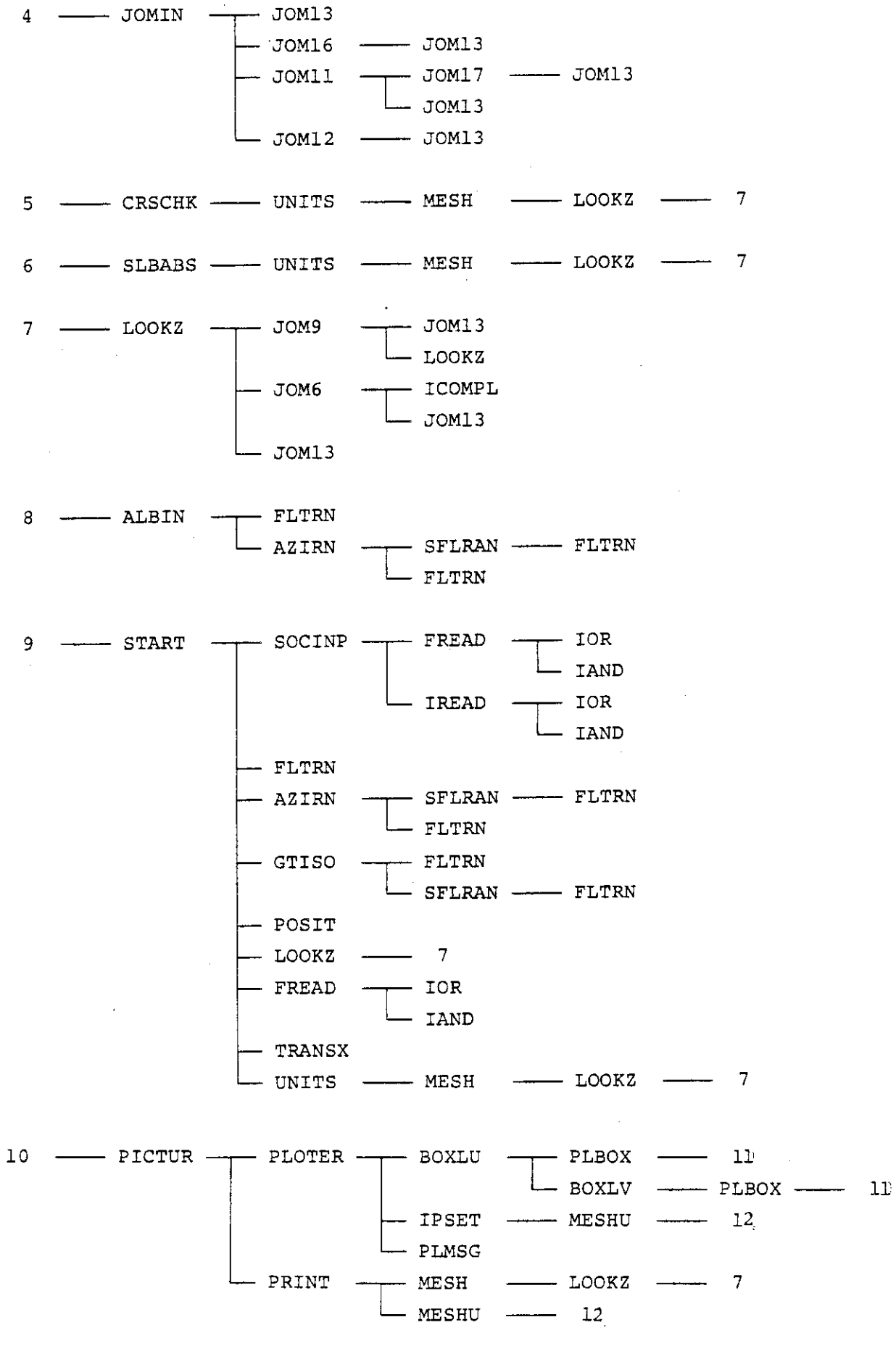


Fig. 3.1 Tree structure of MULTI-KENO


1 INPUT
FREAD
IOR
IAND
XSTAPE
2
AJOINT
WARR
KENOG
3
JOMIN
4
FILBOX
IREAD
BOX
CRSCHK
5
SLBABS
6
SAVE
CORSIZ
2 XSTAPE
IREAD
IOR
IAND
FREAD
IOR
IAND
ST1D
REA
WARR
READSG
STORE
STORE1
3 KENOG
AREAD
IOR
IAND
IREAD
IOR
IAND
FREAD
IOR
IAND
FILBOX
MAKREF
FILBOX
IREAD
IOR
IAND
AREAD
IOR
IAND
IREAD
IOR
IAND
FREAD
IOR
IAND


4 JOMIN
JOM13
JOM16
JOM13
JOM11
JOM17
JOM13
JOM13
JOM12
JOM13
5 CRSCHK
UNITS
MESH
LOOKZ
7
6 SLBABS
UNITS
MESH
LOOKZ
7
7 LOOKZ
JOM9
JOM13
LOOKZ
JOM6
ICOMPL
JOM13
JOM13
8 ALBIN
FLTRN
AZIRN
SFLRAN
FLTRN
FLTRN
9 START
SOCINP
FREAD
IOR
IAND
IREAD
IOR
IAND
FLTRN
AZIRN
SFLRAN
FLTRN
FLTRN
GTISO
FLTRN
SFLRAN
FLTRN
POSIT
LOOKZ
7
FREAD
IOR
IAND
TRANSX
UNITS
MESH
LOOKZ
7
10 PICTUR
PLOTER
BOXLU
PLBOX
11
BOXLV
PLBOX
11
IPSET
MESHU
12
PLMSG
PRINT
MESH
LOOKZ
7
MESHU
12

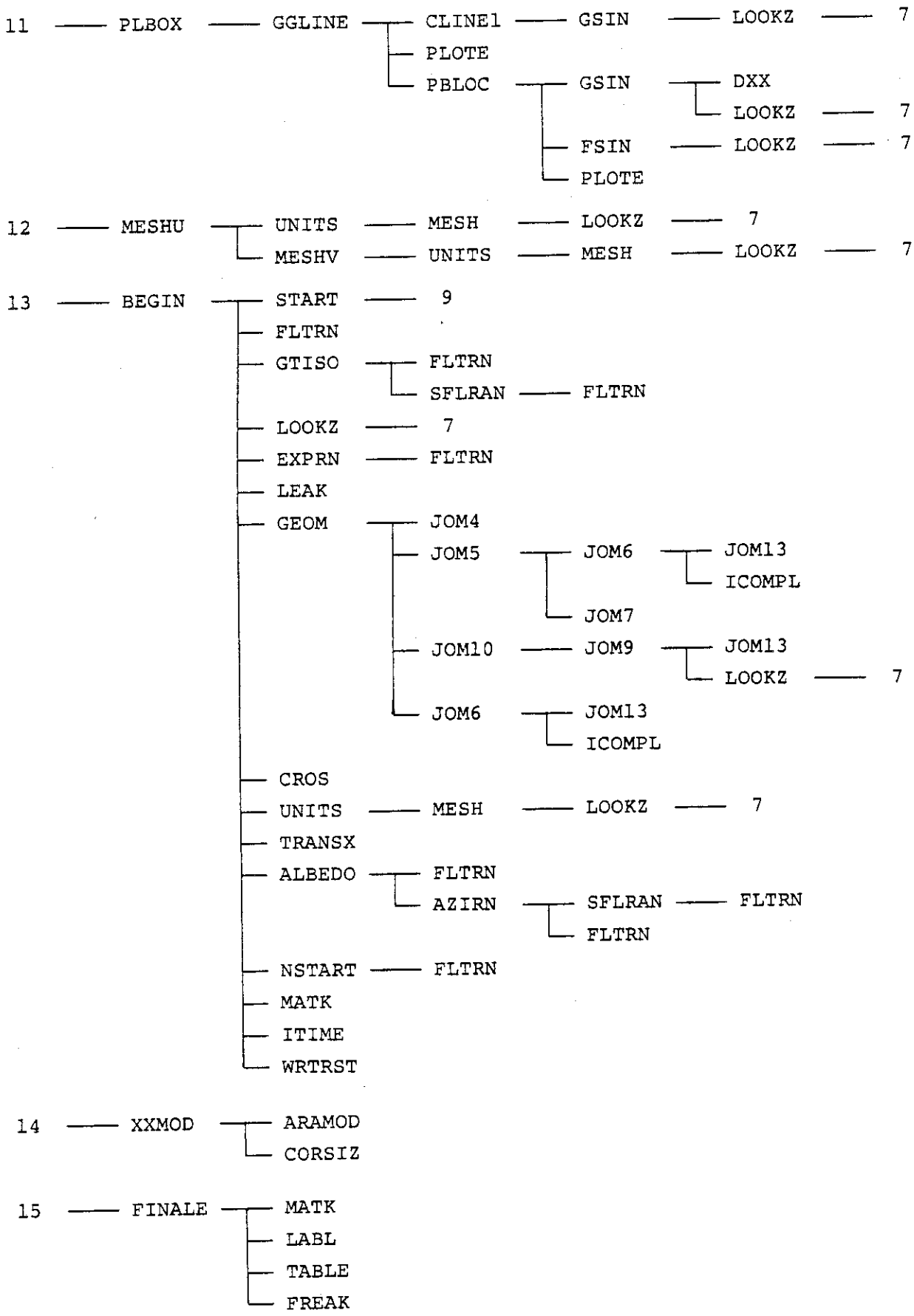

11 PLBOX GGLINE CLINE1 GSIN LOOKZ 7
PLOTE
PBLOC GSIN DXX
LOOKZ 7
FSIN LOOKZ 7
PLOTE
12 MESHU UNITS MESH LOOKZ 7
MESHV UNITS MESH LOOKZ 7
13 BEGIN START 9
FLTRN
GTISO FLTRN
SFLRAN FLTRN
LOOKZ 7
EXPRN FLTRN
LEAK
GEOM JOM4
JOM5 JOM6 JOM13
ICOMPL
JOM7
JOM10 JOM9 JOM13
LOOKZ 7
JOM6 JOM13
ICOMPL
CROS
UNITS MESH LOOKZ 7
TRANSX
ALBEDO FLTRN
AZIRN SFLRAN FLTRN
FLTRN
NSTART FLTRN
MATK
ITIME
WRTRST
14 XXMOD ARAMOD
CORSIZ
15 FINALE MATK
LABL
TABLE
FREAK

Table 3.1 Module cross reference table

Module name	This module calls following modules.	This module is called by following modules.
ABC	———	BLINE JOMBYE
AJOINT	———	INPUT
ALBIN	FLTRN AZIRN	KENO
ALOCAT	KENO	MAIN
ARAMOD	———	XXMOD
AREAD	IAND IOR	KENO KENOG MAKREF PICTUR
AZIRN	SFLRAN FLTRN	ALBIN BEGIN START
BEGIN	START FLTRN GTISO LOOKZ EXPRN LEAK GEOM CROS UNITS TRANSX ALBEDO AZIRN NSTART MATK ITIME WRTRST	KENO
BLINE	IDPLUS ABC	GGLINE
BOX	———	INPUT
BOXLU	PLBOX BOXLV	PLOTER
BOXLV	PLBOX	BOXLU
CLEAR	———	KENO
CLEARS	———	GGLINE
CLINE1	DXX JOMBYE GSINCK GSIN	GGLINE

Module name	This module calls following modules.	This module is called by following modules.
CORSIZ	IABS	INPUT XXMOD
CROS	———	BEGIN
CRSCHK	UNITS	INPUT
DATIM	IOR DATE TIME	MESAGE
DTLIST	———	MESAGE
DXX	———	CLINE1 GSIN PLBOX2
EXPRN	FLTRN	BEGIN
FHLPR	IAND IOR	MESAGE
FILBOX	IREAD	INPUT KENOG MAKREF
FINALE	MATK LABL TABLE FREAK	KENO
FLTRAN	———	ALBIN AZIRN BEGIN EXPRN GTISO NSTART SFLRAN START
FREAK	———	FINALE
FSIGN	LOOKZ	PBLOC
GEOM	JOM4 JOM5 JOM10 JOM6	BEGIN
GGLINE	PREAD IDSET BLINE CLEARS CLINE1 PLOTE PBLOC	PLBOX
GSIN	DXX LOOKZ	CLINE1 GSINCK PBLOC

Module name	This module calls following modules.	This module is called by following modules.
GSINCK	GSIN	CLINE1
GTISO	FLTRN SFLRAN	BEGIN START
IAND	———	AREAD FHLPR JOM5 JOM6
ICOMPL	———	JOM6
IDPLUS	———	BLINE
IDSET	———	GGLINE
INPUT	FREAD XSTAPE AJOINT WARR KENOG JOMIN FILBOX BOX CRSCHK SLBABS SAVE CORSIZ	KENO
IOR	———	AREAD DATIM FHLPR JOM6
IPSET	MESHU PLNO	PLOTER
ITIME	CLOCKM	BEGIN KENO
JOMBYE	ABC QUADRA	CLINE1
JOMCHK	———	KENO
JOMIN	JOM13 JOM16 JOM11 JOM12	INPUT
JOM10	JOM9	GEOM
JOM11	JOM17 JOM13	JOMIN
JOM12	JOM13	JOMIN

Module name	This module calls following modules.	This module is called by following modules.
JOM13	———	JOMIN JOM11 JOM12 JOM16 JOM17 JOM6
JOM16	JOM13	JOMIN
JOM17	JOM13	JOM11
JOM4	———	GEOM
JOM5	JOM6 IAND JOM7	GEOM
JOM6	IOR IAND ICOMPL JOM13	GEOM JOM5 LOOKZ
JOM7	———	JOM5
JOM9	JOM13 LOOKZ	JOM10 LOOKZ
KEDIT	———	KENO
KENO	TIMFAC FREAD IREAD FINRST RDREF CLEAR SAVE RESTRT INPUT ALBIN JOMCHK VOLUME ITIME START PICTUR BEGIN KEDIT XXMOD FINALE AREAD	ALOCAT
KENOG	AREAD IREAD FREAD FILBOX MAKREF	INPUT

Module name	This module calls following modules.	This module is called by following modules.
LABL	———	FINALE
LEAK	———	BEGIN
LOOKNZ	———	PREAD
LOOKZ	JOM9 JOM6 JOM13	BEGIN FSIGN GSIN JOM9
MAIN	MESAGE FREAD IREAD ALOCAT	———
MAKREF	FILBOX AREAD IREAD FREAD	KENOG
MATK	———	BEGIN FINALE
MESAGE	FHLPR DATIM DTLIST	MAIN
MESH	LOOKZ	PRINT UNITS
MESHU	UNITS MESHV	IPSET PRINT
MESHV	UNITS	MESHU
NSTART	FLTRN	BEGIN
PAXIS	———	PLOTER
PBLOC	GSIN FSIGN PLOTE	GGLINE
PDYL	———	PLOTER
PICTUR	IREAD AREAD FREAD PLOTER PRINT PLOT	KENO
PLBOX	PLBOX1 PLBOX2 GGLINE	BOXLU BOXLV
PLBOX1	———	PLBOX

Module name	This module calls following modules.	This module is called by following modules.
PLBOX2	DXX QUADRA	PLBOX
PLMSG	———	PLOTER
PLNO	———	IPSET
PLOTE	———	GGLINE PBLOC
PLOTER	SECOND PDYL PAXIS BOXLU IPSET PLMSG	PICTUR
POSIT	———	START
PREAD	LOOKNZ	GGLINE
PRINT	MESH MESHU	PICTUR
QUADRA	———	JOMBYE PLBOX2
RDREF	FREAD	KENO
REA	———	XSTAPE
READSG	———	XSTAPE
RESTRT	———	KENO
SAVE	———	INPUT KENO
SECOND	———	PLOTER
SFLRAN	———	AZIRN GTISO
SLBABS	UNITS	INPUT
SOCINP	IREAD FREAD	START
START	SOCINP FLTRN AZIRN GTISO POSIT LOOKZ FREAD TRANSX UNITS	BEGIN KENO
STORE	———	XSTAPE

Module name	This module calls following modules.	This module is called by following modules.
ST1D	———	XSTAPE
TABLE	———	FINALE
TIMFAC	———	KENO
TRANSX	———	BEGIN START
UNITS	MESH	BEGIN CRSCHK MESHU MESHV SLBABS START
VOLUME	———	KENO
WARR	———	INPUT XSTAPE
XSTAPE	IREAD FREAD ST1D REA WARR READSG STORE STORE1	INPUT
XXMOD	ARAMOD CORSIZ	KENO

Table 3.2 Common area reference table

1	BLANK COMMON	ABC , ALOCAT, BEGIN , BLINE , FSIGN , GEOM , GSIN , INPUT , JDUCT , MAIN , PLBOX ,PLOTER , PREAD, PRINT , START , UNITS
2	/ALBE /	ALBIN , BEGIN , KENO , RDREF , RESTRT
3	/DIMEN /	AJOINT, ALBIN , ARAMOD, BEGIN , BOX , BOXLU , CORSIZ, FILBOX, FINALE, FREAK , INPUT , IPSET , JOMCHK, KEDIT , KENO , KENOG , MAIN , LEAK , MAKREF, MESHU , NSTART, PICTUR, PLOTER, POSIT , PRINT , RESTRT, SOCINP, START , STORE , TRANSX, VOLUME, XSTAPE, XXMOD
4	/FINAL /	BEGIN , FINALE, KEDIT , KENO , START , XXMOD
5	/FREEK /	BEGIN , FINALE, FREAK , KEDIT , RESTRT
6	/GEOMA /	GEOM , JOMIN , JOM6 , LOOKZ , RESTRT
7	/GEOMC /	BEGIN , CROS , FSIGN , GEOM , GSIN ,JOM13 , JOM5 , LOOKZ , MESH , NSTART, PICTUR,POSIT , PRINT
8	/GEOMD /	JDUCT
9	/GEOMH /	BLOCKD*, JDUCT , JOMIN , JOM11 , JOM12 , JOM16 , JOM17
10	/GEOMT /	JOMIN , JOM13 , RESTRT
11	/GEOM39/	BLOCKD*, JOM9 , LOOKZ
12	/GEOM4 /	GEOM , JOM10 , JOM4 , JOM5
13	/GEOM56/	JOM5 , JOM6
14	/GEOM7 /	JOM5 , JOM7

NOTE : * means BLOCK DATA

15	/GEOM77/	JOM5 , JOM6 , JOM7 , LOOKZ
16	/GEOM9 /	GEOM . JOM10 . JOM13 . JOM4 . JOM5 ,JOM6 , JOM9 , LOOKNZ, LOOKZ , PREAD
17	/GPLCOM/	ABC , BLINE , CLEARS, CLINE1, FSIGN ,GGLINE, GSIN , IDPLUS, IDSET , JOMBYE, PBLOC ,PICTUR, PLOTE , PREAD
18	/JOMINC/	BEGIN , GEOM , IDPLUS, IDSET , INPUT ,JOMIN , JOM10 , JOM12 , JOM4 , JOM5 , JOM6 ,JOM7 , LOOKNZ, LOOKZ , MESH , PBLOC , PICTUR,PREAD , PRINT , RESTRT, VOLUME
19	/JOMINX/	JDUCT
20	/JOMIN8/	JDUCT
21	/LETER /	BLOCKD*, FHLPR
22	/LIFETM/	BEGIN , INPUT , KEDIT , KENO ,RESTRT, XSTAPE,
23	/NRC /	BLOCKD*, JOM11 , JOM5 , JOM6
24	/PICT /	FSIGN , GGLINE, GSIN , IDSET , IPSET, JOM13 , MESH , MESHU , PAXIS , PICTUR, PLBOX, PRINT , UNITS
25	/PL /	PLNO1
26	/PLTCOM/	BLINE , CLEARS, CLINE1, DXX , FSIGN, GGLINE, GSIN , GSINCK, IPSET , JOMBYE, PAXIS, PBLOC , PDYL , PICTUR, PLBOX , PLBOX1, PLBOX2,PLMSG , PLNO , PLOTE , PLOTER, PREAD
27	/POINT /	BEGIN , FSIGN , GEOM , GSIN , IDPLUS, INPUT, KENO , KENOG , PLBOX , PLOTER, PREAD , PRINT, START , UNITS

NOTE : * means BLOCK DATA

28 /PXYCOM/ BLINE , CLEARS, CLINE1, DXX , GGLINE, GSIN ,
JOMBYE, PAXIS , PBLOC , PLBOX2, PLOTE

29 /RESTAR/ BEGIN , KENO , MAIN , RESTRT, START

30 /SRCH / ARAMOD, FINALE, KEDIT , KENO , RESTRT, SOCINP,
START , XXMOD

31 /STARTD/ INPUT , KENO , RESTRT, SOCINP, START , XXMOD

32 /TITL / ALBIN , AREAD , BEGIN , BOX , CORSIZ, FILBOX,
FINALE, FREAK , INPUT , JOMCHK, KEDIT , KENO ,
KENOG , MAIN , MAKREF, PAXIS , PICTUR, POSIT ,
RDREF , SOCINP, START , VOLUME, XSTAPE, XXMOD

33 /UNIT / AJOINT, ALBIN , ARAMOD, AREAD , BEGIN , BLOCKD*,
BOX , CORSIZ, CROS , FILBOX, FINALE, FREAK ,
INPUT , JOMCHK, JOMIN , JOM11 , JOM12 , JOM13 ,
JOM16 , JOM17 , KEDIT , KENO , KENOG , MAIN ,
LABL , MAKREF, MATK , NSTART, POSIT , RDREF ,
READSG, RESTRT, SAVE , SLBABS, SOCINP, START ,
TABLE , VOLUME, WARR , XSTAPE,XXMOD

34 /UTABL / BLOCKD*, PICTUR

NOTE : * means BLOCK DATA

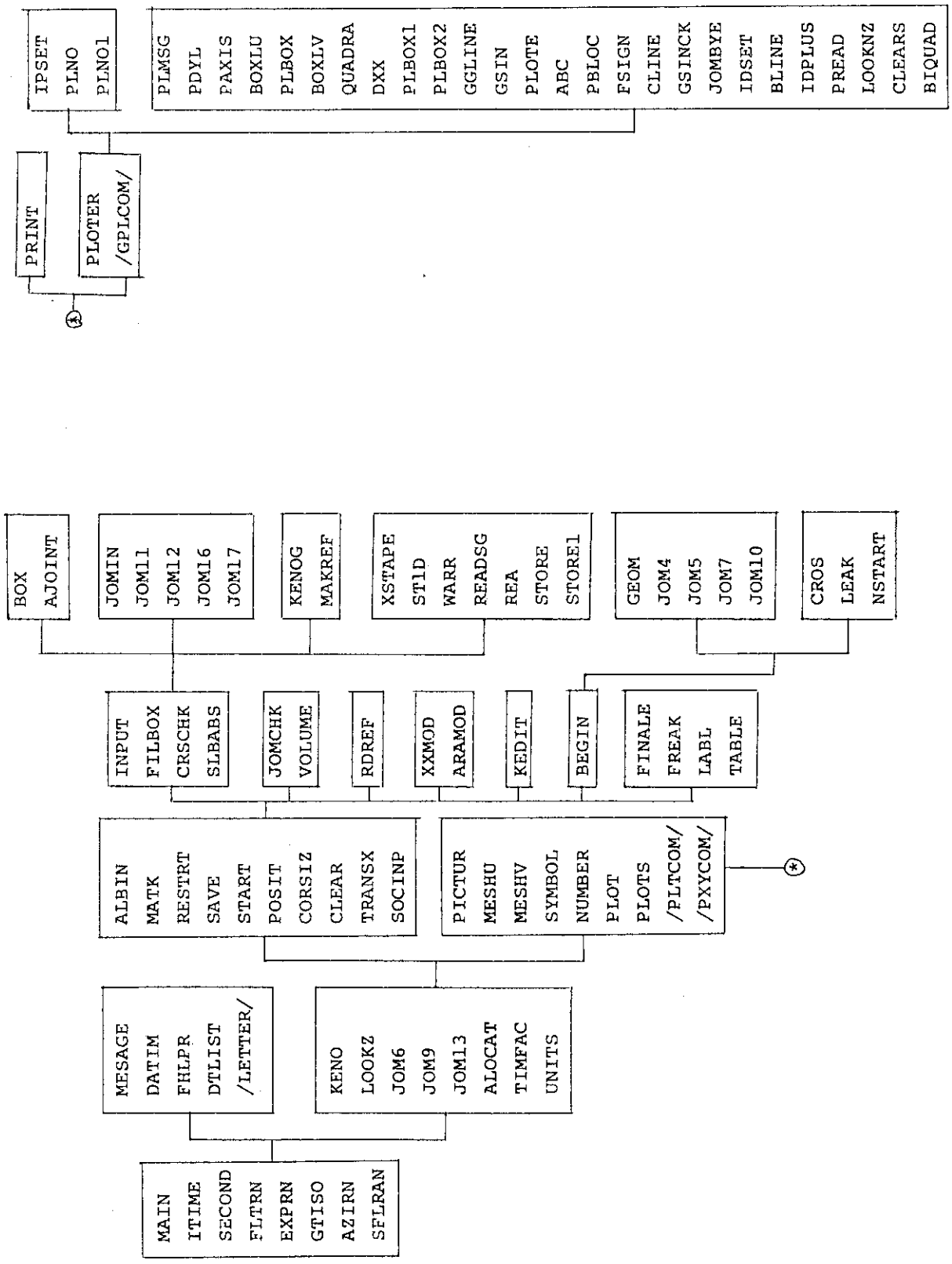


Fig. 3.2 Overlay structure of MULTI-KENO

4. MULTI-KENO Error Messages

MULTI-KENO prints error messages whenever an error is recognized. If a severe error is encountered, an error flag, MFLAG, is incremented and data reading continues. When all the data has been read, MFLAG is checked and if a severe error was encountered, the code will not execute the problem. There are a few errors that will cause termination of the data input at the time they occur rather than continuing on until all input data has been read. The following table lists the subroutines and the type of data they process.

Table 4.1 Directory of the type of data processed by each subroutine

Subroutine	Type of Data
KENO	Parameters
AREAD	All data
RDREF	Parameters
INPUT	Cross sections
XSTAPE	Cross sections
KENOG	Geometry
MAKREF	Geometry
CORSIZ	Geometry
FILBOX	Geometry
BOX	Geometry
ALBIN	Albedo
VOLUME	Geometry
RESTART	Restart data
START	Start
POSIT	Start
BEGIN	Execution
MATK	Execution
CROSS	Execution
KEDIT	Summarization
XXMOD	Search execution
ARAMOD	Search execution
FINALE	Summarization

The error messages are more or less arranged in the order in which the subroutines are called, and within each subroutine, in the order the messages appear. Error messages for errors encountered in processing the input parameters are printed by KENO, AREAD, and RDREF after printing the parameters and before the following messages:

STORAGE LOCATIONS REQOIRED FOR THIS JOB = _____

REMAINING AVAILABLE LOCATIONS = _____

If the above messages are written but none of the geometry data is printed, an error occurred in processing the input cross-section data in AREAD, INPUT, or XSTAPE.

If the heading GEOMETRY DESCRIPTION is printed but START TYPE = _____ has not been printed, an error occurred in processing the geometry data in AREAD, KENOG, MAKREF, CORSIZ, FILBOX, BOX, or VOLUME.

If the above message is printed but _____ MINUTES WERE REQUIRED FOR STARTING. was not printed, an error was encountered in using the start data or search data in subroutines AREAD, START, or POSIT. If the problem is a search problem, the heading READ SEARCH DATA is printed before an attempt is made read the search data.

At this point, all the input data has been read in. If the following message is written, a careful search through the printout prior to this message will reveal at least one other error message.

*********K-EFFECTIVE WERE NOT CALCULATED FOR THIS PROBLEM BECAUSE
ERRORS WERE ENCOUNTERED IN THE INPUT DATA *********

Even if the input data has been read in without triggering a fatal error flag, some error messages may be printed during execution if certain conditions are violated. These messages will appear somewhere after the following heading.

GENERATION, K-EFFECTIVE, ELAPSED TIME (MIN), AVG.K-EFF, DEVIATION, MATRIX,K-EFF

These messages will originate in BEGIN, MATK or CROSS. At completion of a problem a heading stating

LIFETIME = ____ ± ____ generation time = ____ ± ____

is printed unless the following message is printed.

NUMBER OF BATCHES RUN IS INSUFFICIENT TO EDIT
Any messages appearing after either of these messages originate in KEDIT, XXMOD, ARAMOD, or FINALE.

Always check through the computer printout to make sure no error messages were printed and the input data was entered correctly.

Error messages as printed by each subroutine are listed as follows:

The following error messages are found in subroutine KENO.

1. THE SEARCH TYPE WAS INCORRECTLY SPECIFIED, NO SEARCH WILL BE MADE.
The search parameter NSCH was less than zero or greater than 3.

2. **WARNING***WARNING***WARNING***WARNING***WARNING***WARNING**
MATRIX CALCULATIONS CANNOT BE MADE FOR A SINGLE UNIT, A 1X1X1 ARRAY OR AN ARRAY SEARCH. THE MATRIX FLAG HAS BEEN SET TO ZERO.
** WARNING***WARNING***WARNING***WARNING***WARNING***WARNING**
A matrix calculation was specified for a single-unit problem, a one-unit array, or an array search problem.

3. **THIS PROBLEM SPECIFIED DATA FROM A PREVIOUS CASE WHICH CONTAINED ERRORS, DID NOT EXIST, OR TERMINATED WITH AN END CASE CARD**
The error flag MFLAG is greater than 1, indicating that an "END CASE" card was encountered when attempting to read input data or an error was found in a case from which data was to be used for the present case. Often this error simply indicates that the input parameters are not of order.

4. *****ALBEDOS CANNOT BE USED WITH A SINGLE UNIT PROBLEM. THIS PROBLEM WILL NOT BE RUN*****
The parameter NXX was not zero and the input parameter SBOX was zero. If albedo is truly desired for a single-unit problem, the last geometry region must be a cube or cuboid, SBOX must be one, and SBXMAX=SBYMAX=SBZMAX=1.

5. *****AN ARRAY SEARCH CANNOT BE SPECIFIED FOR A SINGLE UNIT PROBLEM. THIS PROBLEM WILL NOT BE RUN.*****
NSCH was 2 and SBOX was zero on the parameter card (Beware: SBOX prints as one on the computer printout because the single unit logical flag is set true if SBOX=0. Then SBOX is set to 1). The parameters are out of order or the problem was incorrectly specified.

6. $$$NUMBER OF GEOMETRY CARD ( ) DOES NOT AGREE WITH THE NUMBER ( ) SPECIFIED FOR THE PREVIOUS CASE$$$.
   The problem specified geometry from the preceding case, but the number of geometry regions, KREFM, specified on the parameter cards of two cases does not agree. The parameters may be out of order or the problem was incorrectly specified.

7. $$$THE NUMBER OF BOX TYPES ( ) DOES NOT AGREE WITH THE NUMBER ( ) SPECIFIED FOR THE PREVIOUS CASE$$$.
   The problem specified geometry from the preceding case, but the number of box types, SBOX, does not agree for the two cases. The parameters are out of order or the problem was incorrectly specified.

8. $$$ALBEDOS FROM THE PREVIOUS CASE WERE SPECIFIED BUT NO ALBEDOS WERE USED IN THE PREVIOUS CASE$$$
   The parameters are out of order or the problem was incorrectly specified.

9. $$$THE NUMBER OF ENERGY GROUPS ( ) DOES NOT AGREE WITH THE NUMBER ( ) SPECIFIED FOR THE PREVIOUS CASE$$$
   The number of energy group, NGP, does not agree for the two cases. The parameters are out of order or the problem was incorrectly specified. The number of groups must always be the same as the previous case when using data from the previous case.

10. $$$THE NUMBER OF DOWNSCATTERS ( ) DOES NOT AGREE WITH THE NUMBER ( ) SPECIFIED FOR THE PREVIOUS CASE$$$
    The number of downscatters, NDS, does not agree for the two cases. The parameters are out of order or the problem was incorrectly specified.

11. **WARNING***WARNING***WARNING***WARNING***WARNING***WARNING**
    DATA FROM THE PREVIOUS CASE WAS SPECIFIED BUT INCONSISTENCIES WERE ENCOUNTERED. EXECUTION HAS BEEN CANCELED.
    WARNING*WARNING***WARNING***WARNING***WARNING***WARNING**
    The necessary parameters did not agree between the two cases when data from the preceding case was specified.

12. *****CROSS SECTIONS FROM THE PREVIOUS CASE CANNOT BE USED UNLESS BOTH PROBLEMS ARE FORWARD OR BOTH ARE ADJOINT*****
    The units digit of the parameter NADJ must agree if cross sections from the preceding case are specified.

13. *****DIFFERENTIAL ALBEDOS CANNOT BE USED IN AN ADJOINT PROBLEM*****
The parameter NXX was incorrectly specified or the data was out of order. Specular reflection (NXX=1) can be used in an adjoint problem but differential albedos ((NXX=2) cannot.

14. TOO MANY STORAGE LOCATIONS REQUIRED, THE PROBLEM IS TOO LARGE TO FIT IN THE AVAILABLE SPACE.
Increase the region allocated for this step sufficiently to contain the problem. For FACOM, HITACH or IBM users, increase the region allocated for this step by four times the absolute value of the REMAINING AVAILABLE LOCATIONS which is printed out immediately preceding this message.

15. *WARNING***WARNING***WARNING****WARNING****WARNING***WARNING*
NUMBER OF GENERATIONS WAS REDUCED FROM TO TO FIT IN AVAILABLE STORAGE.
IF THIS REDUCTION ALLOWS LESS THAN 25 GENERATIONS, THE EXECUTION PHASE HAS BEEN CANCELED.
*WARNING***WARNING****WARNING****WARNING****WARNING***WARNING*
To eliminate this problem, increase the region allocated for this step. See KENO core size requirements.

16. **********K-EFFECTIVE WERE NOT CALCULATED FOR THIS PROBLEM BECAUSE ERRORS WERE ENCOUNTERED IN THE INPUT DATA.**********
Check through the printout prior to this message. At least one other error message will be printed. Correct the input errors and this message will go away.

The following error messages are printed in subroutine AREAD.

1. *****ERROR IN INPUT CARD IMAGE PRINTED ON NEXT LINE.*****
An invalid character was encountered in the printed card. Either a key punch error was found or the data is out of order.

2. ON THE ABOVE CARD, CHARACTER NUMBER, ,(IMAGE=) IS NOT VALID IN AN INTEGER FIELD.
The card is mispunched or out of order.

3. ON THE ABOVE CARD, CHARACTER NUMBER, , (IMAGE=) IS NOT VALID IN A FLOATING FIELD.
The card is incorrectly punched or out of order.

Subroutine RDREF prints the following error message.

1. *****NXX DID NOT SPECIFY DIFFERENTIAL ALBEDOS BUT THE SURFACE DID. THE PROBLEM WILL NOT BE EXCUTED.*****
   The parameter NXX was one but at least one reflector constant, REFCST, waspositive. The problem is incorrectly specified or the cards are out of order.

The following error messages are printed in subroutine INPUT.

1. MIXTURE ( ) CONTAINS A FISSIONABLE MATERIAL BUT NO FISSION SPECTRUM WAS SPECIFIED THE PROBLEM WILL NOT BE EXECUTED.
   A fission cross section existed for the mixture specified but no material in that mixture was preceded by a minus sign.
2. THE MIXTURE NUMBER ON GEOMETRY CARD ( ) DOES NOT FALL IN THE SPECIFIED RANGE.
   MAT(I), the entry following the geometry word on the specified geometry card was negative or was larger than the number of mixtures (MATT) specified in the parameters.
3. THE INSIDE REFLECTOR DIMENSION DOES NOT EQUAL THE NUMBER OF UNITS TIMES THE UNIT DIMENSIONS.
   The core boundary is calculated by summing the dimensions of each unit in the array in each direction. If the dimensions thus computed do not agree with those specified on the CORE card, this message is printed. Either the array size (SBXMAX, SBYMAX, SBZMAX) was incorrectly specified, a box dimension was incorrectly specified, the mixed super box orientation is incorrect or the CORE card is incorrect.

The following error messages occur in subroutine XSTAPE.

1. ***THE NUMBER OF NUCLIDES REQUESTED FROM TAPE IS INCONSISTENT WITH THE TOTAL NUMBER SPECIFIED FOR THE PROBLEM.***
   The parameter NTAPE, the number of cross sections to be read from tape, is larger than the parameter NMAT, the number of input nuclides. The data is mispunched or out of order.
2. THE MIXTURE NUMBER DOES NOT FALL IN THE SPECIFIED RANGE.
   When reading mixing table, one of the mixtures, KAA(I), was zero or negative or was larger than the number of mixtures, MATT, specified in the parameters. Either the data is mispunched or is out of order.

3. CHECK INPUT DATA AND TAPE FOR CONSISTENCY. EITHER THE NUMBER OF GROUPS OR THE NUMBER OF DOWNSCATTERS ARE IMPROPERLY STATED.
   NDS= NDS= NGP= NGP1=
   The wrong tape was mounted or the parameters are incorrectly specified. NDS and NGP are parameters stated in the problem. NDS1 and NGP1 are read from the tape.

4. AT LEAST ONE NUCLIDE WAS NOT FOUND ON THE LIBRARY TAPE. A LIST OF THOSE REQUESTED FOLLOWS.
   The number of nuclides found on the tape is less than the parameter NTAPE (the number of nuclides to be read from tape). Either NTAPE is incorrectly specified, one of the ID numbers was incorrectly specified, the wrong tape was mounted, or one of the nuclides requested was not on the tape.

5. THE MIXING TABLE CONTAINS MORE NUCLIDES THAN REQUESTED IN THE PARAMETERS.
   A LIST OF THOSE REQUESTED FOLLOWS.
   The number of requested nuclides is more than NMAT (the number of input nuclides). Either NMAT was incorrectly specified, or one more of the input nuclide ID's were incorrectly specified.

The following error messages are found in subroutine KENOG.

1. *****A SINGLE UNIT PROBLEM CANNOT HAVE A CORE BOUNDARY REGION*****
   If a reflector exists, simply include those regions in KREFM and remove the core boundary card. An alternative is to change SBOX from 0 to 1 and set SBXMAX = SBYMAX = SBZMAX = 1 and leave the core boundary card in.

2. WARNING...A CORE BOUNDARY CARD IS REQUIRED ONLY IF AN EXTERNAL REFLECTOR IS PRESENT.
   NOTE ... A CORE BOUNDARY CARD IS NOT REQUIRED FOR ALBEDO REFLECTION.
   This is ju-t a warning message and does not cause termination of the problem. It does cause the problem to run less efficiently.

3. UNRECOGNIZABLE GE_METRY WORD_____MATERIAL_____.
   The geometry word is not one of those specified in the data guide. Either the card was mispunched or the data is out of order. Check to be sure the proper number of dimensions, the mixture number and the proper number of weights are on the preceding geometry region.

4. AN ERROR WAS FOUND IN THE HEMISPHERE DESIGNATION.
   The geometry word did not correctly specify the direction in which the hemisphere exists.

5. **********ERROR. . . .NHCYL = **********
   The hemicylinder geometry word was incorrectly specified.

6. MIXTURE IS NOT SPECIFIED IN THE MIXING TABLE.
   The mixture number MAT(I) specified on the previous geometry card is less than zero or greater than the parameter MATT (the number of mixtures in the problem). The data was mispunched or is out of order.

7. *********NEGETIVE WEIGHTS ARE NOT ALLOWED. THE PROBLEM WILL NOT BE RUN.*********
   One of the input value of weight average was negative. The data was mispunched or out of order.

8. **********
   ALBEDOS CANNOT BE USED UNLESS THE OUTERMOST GEOMETRY REGION IS A CUBE, CUBOID, OR GENERAL REGION.
   ****
   Either the albedo key NXX was incorrectly specified or the outermost geometry region was not a cube, cuboid, or general region.

9. NUMBER OF BOXES ON PARAMETER CARD DOES NOT AGREE WITH BOX DATA READ IN,
   SBOX= ITP=
   SBOX is the parameter starting how many super box types are in the problem. ITP is the number of super box types that were encountered when reading the geometry data. Either SBOX was incorrectly specified, the geometry data was incorrectly entered, or the parameter KREFM (the number of geometry cards to be read) was too small.

10. END OF CASE FLAG READ IN GEOMETRY DATA.
    More geometry data was specified than was found. Either the parameter KREFM (the number of geometry cards to be read) was too large, too few geometry cards were included, or too few entries were made for the material, dimensions, or weights. The data may be incorrectly punched or improperly arranged.

11. END OF KENO FLAG READ IN GEOMETRY DATA.
    The explanation is the same as 10 above.

The following error messages appear in subroutine MAKREF.

1. *****KREFM WAS NOT LARGE ENOUGH TO ALLOW ANY REFLECTOR REGIONS. THE PROBLEM WILL NOT BE RUN.*****
   The geometry word REFLECTOR has been encountered, invoking the automatic reflector option. However the parameter KREFM, the number of geometry cards to be read, is too small. KREFM must include the number of regions you wish to be made in the reflector, just as though the cards were actually punched. See the data guide for full details.

2. *****A WEIGHTING ID OF ___WAS SPECIFIED USING___ENERGY GROUPS BUT IT WAS NOT FOUND ON TAPE.*****
   The weighting ID, IDWT, was greater than 10 but was not found on the tape with the specified energy group structure. Either IDWT or NGP was incorrectly specified or the wrong tape was mounted.

3. *****A WEIGHTING ID OF ___ WAS SPECIFIED USING ___ ENERGY GROUPS BUT IT WAS NOT FOUND ON CARDS.*****
   The weighting ID, IDWT, was less than 10 but was not found on the input cards with the specified energy group structure. Either IDWT, NGP or the weights from cards are incorrect. Check the data guide for more details.

The following error message appears in subroutine CORSIZ.

1. *****THE ___ DIMENSIONS OF BOX TYPE ___ AT (__, __, __) DO NOT MATCH THOSE OF BOX TYPE___AT (__, __, __).*****
   FOR BOX TYPE ___+___=___AND- ___=___WHILE FOR BOX TYPE___+___= ___AND- ___=___.
   This message appears because the common faces of adjacent boxes or super boxes are not the same size. One or more of the diemsnions of one of the box types or super boxes specified in the message may be incorrect or the mixed box orientation data may be incorrect.

The following error message appear in subroutine FILBOX.

1. ARRAY DESCRIPTION ERROR MESSAGES.
   This message appears only if errors were encountered in the mixed box orientation data. One of the following messages will also be printed.

2. MIXED BOX ORIENTATION CARD NUMBER___CONTAINS___ERROR(S).
   This message can appear no more than 10 times. It tells which card is in error, and occurs only if some of the conditions explained in 3., below, exist.

3. LTYPE=___IX1=___IX2=___INCX=___IY1=___iy2=___
   INCY=___IZ1=___IZ2=___IZCZ=___
   This message appears in conjunction with error message 2., above, and is written if
   (a) LTYPE (the box type or super box type) is less than or equal to zero or if LTYPE is greater than the parameter SBOX, the number of super boxes, or NBOX, the number of box types ;
   (b) if IX1, IY1, or IZ1 is less than one;
   (c) if IX2 is less than IX1 or greater than SBXMAX or NBXMAX, if IY2 is less than IY1 or greater than SBYMAX or NBYMAX, or IZ2 is less than IZ1 or greater than SBZMAX or NBZMAX.
   (d) if INCX, INCY, or INCZ is not positive.
   Any of the above may result from data being mispunched or out of order. Further clarification may be derived from the data guide.

4. THE ABOVE MIXED BOX ORIENTATION CARD(S) CONTAIN(S) AT LEAST ONE OF THE FOLLOWING ERRORS
   This message follows message 3., above, if any errors were found. The messages listed in 5., below, then follows.

5. 1. IX1,IYL,IZ1,INCX,INCY,or INCZ IS LESS THAN OR EQUAL TO ZERO.
   2. IX2 IS LESS THAN IX1,IY2 IS LESS THAN IY1, OR IZ2 IS LESS THAN IZ1.
   3. IX2 IS GREATER THAN SBXMAX, IY2 IS GREATER THAN SBYMAX, OR IZ2 IS GREATER THAN SBZMAX.
   4. LTYPE IS LESS THAN 1 OR GREATER THAN SBOX.
      These error messages are printed if errors are found in the mixed box orientation data. The parameters SBOX, SBXMAX, SBYMAX, or SBZMAX may be incorrectly specified, but more than likely the mixed box orientation cards are incorrectly punched.

The following error messages appear in subroutine BOX.

1. ***AN ERROR EXISTS IN THE ARRAY DESCRIPTION.***
   X INDEX=___ Y INDEX=___ Z INDEX=___
   This message occurs if the box type stored in the mixed box orienta-

tion array, the array showing the position of each box type in the array is less than or equal to zero, or greater than SBOX, the number of super box types in the problem. This error usually results from leaving some positions in the array unfilled or from mispunching the mixed box orientation data. Check the mixed box orientation array print-out at the position indicated in the message and correct the input data.

The following error messages appear in subroutine ALBIN.

1. *****WARNING ... THE NXX PARAMETER INDICATED DIFFERENTIAL ALBEDOS BUT NONE WERE SPECIFIED ON THE REFLECTED FACES.*****
   This error occurs if NXX=2 or 3 and the reflector constants are all entered as zero or negative (i.e., none of the reflector constants (card 4) are positive).

2. ***** ___ DIFFERENTIAL ALBEDOS WERE SPECIFIED, BUT ONLY ___ COULD BE FOUND.*****
   THE ALBEDOS SPECIFIED WERE___,___,___,___,___,___.
   One of the albedo ID's was incorrectly specified or too few sets of albedo data were available.

3. *****DIFFERENTIAL ALBEDO ___ WAS SPECIFIED TO BE USED FROM THE PREVIOUS CASE, BUT COULD NOT BE FOUND.*****
   THE FOLLOWING DIFFERENTIAL ALBEDOS ARE SAVED FROM THE PREVIOUS CASE.
   ID=___,ID=___,ID=___,ID=___, etc.
   This message occurs if the specified albedo was not found in the saved data. The data is mispunched, incorrect or out of order.

The following error messages appear in subroutine VOLUME.

1. REGION NUMBER___CONTAINS AN ERROR IN THE DIMENSIONS.
   This message occurs if the positive x, y, or z dimension is smaller than the negative x, y, or z dimension. The data is mispunched or out of order. The positive dimension in a given direction must always be more positive than the negative dimension in that direction.

2. THE VOLUME DEFINED BY GEOMETRY CARD___IS NEGATIVE.
   This message occurs if the volume of any region becomes negative. This usually results from incorrect nesting of the regions.

3. a box volume must be greater than zero.
   This message occurs if the cumulative volume over a given box type is negative, data is incorrectly punched, the data is out of order, or a box is specified with no geometry regions.

4. INVALID GEOMETRY ENCOUNTERED FOR THE LAST GEOMETRY REGION.
   IGO=___.
   The last geometry card was not one of the allowed types. The data was entered incorrectly or the storage arrays have been destroyed.

5. THE LAST GEOMETRY CARD IN THE UNIT MUST BE A CUBE OR CUBOID.
   This message occurs if the last region in a given box type is not a cube or cuboid. The data is incorrectly punched or out of order.

The following error messages occur in subroutine RESTRT.

1. THE NUMBER OF GENERATIONS SPECIFIED IN THE RESTART PROBLEM ( ) IS LESS THAN THE NUMBER OF GENERATIONS ALREADY CALCULATED ( ).
   In order to run a restart problem, you must ask for more generations (NBA) than were run when generating restart information.

2. *****RESTART ERROR*****

	INPUT SPECIFICATIONS	OLD SPECIFICATIONS
RESTART COUNT		
NUMBER PER GENERATION		
NUMBER OF GROUPS		
NUMBER OF DOWNSCATTERS		
NUMBER OF MIXTURES		
NUMBER OF GEOMETRY CARDS		
NUMBER OF BOX TYPES		
NUMBER OF X UNITS		
NUMBER OF Y UNITS		
NUMBER OF Z UNITS		
ALBEDO TYPE		
SEARCH TYPE		
FLUX FLAG		
FISSION DENSITY FLAG		
ADJOINT FLAG		
MATRIX FLAG		
KMAX		

Check the input specifications and the old specifications. They do not agree for one or more of the parameters listed.

The following error messages occur in subroutine START.

1. AN ERROR HAS BEEN DETECTED IN THE DATA FOR START TYPE___.
   An error was encountered when reading in the data for the specified start type. For example, the box indices may fall outside the allowable range, the point where the neutron is to be started may not be within the specified box type, etc.

2. START TYPE___IS NOT APPLICABLE FOR A SINGLE UNIT PROBLEM START TYPE 0 WILL BE USED.
   Only start type 0, 3, or 6 can be used with a single unit problem. If a start type 0 was not acceptable, resubmit the problem with a start type 3 or 6.

3. *****INVALID GEOMETRY TYPE IN START.IGO=___*****
   An unrecognizable geometry type was encountered. The storage arrays have been destroyed.

4. NO NEUTRON STARTING POSITIONS WERE FOUND. YOU SHOULD SELECT ANOTHER STARTING OPTION.
   If after trying the allowed number of tries (maximum of (3 times the number per generation volume fraction of fissionable material) or (100 times the number per generation)), no starting positions were found, this message is printed. Carefully check the input data to be sure fissionable material exists where it is expected and to be sure the starting information was correctly specified.

5. THE CHOSEN START TYPE MAY NOT BE ADEQUATE. TO MANY ATTEMPTS MAY BE NEEDED TO START THE NEUTRONS.
   This message appears for start type 0, 1, or 5 if (3 times the number per generation)/(volume fraction of fissionable material) is greater than (100 times the number per generation). Look at the problem carefully and choose a better starting distribution.

6. ___NEUTRONS WERE INITIALLY STARTED. HOWEVER, ONLY _____ WERE STARTED FROM INDEPENDENT POSITIONS.
   This message indicates that the code encountered some difficulty starting the necessary number of neutrons and was forced to fill the

remaining starting positions from those already found. Try to pick a better starting distribution.

The following error messages occur in subroutine POSIT.

1. POSIT ERROR ILLEGAL GEOMETRY TYPE
   X=___Y=___Z=___K1=___K2=___IGEO=___
   This message is printed if the geometry type, IGEO, is outside the allowable range. It indicates that some of the storage array has been destroyed.

2. POSIT ERROR
   X=___Y=___Z=___K1=___K2=___
   An error has been encountered in processing the neutrons. Some of the storage arrays have probably been destroyed.

The following error messages appear in subroutine begin.

1. $$$MARK=___IS NOT ALLOWED, K=___,KOLD=___,KR=___$$$
   X=___Y=___Z=___X1=___Y1=___Z1=___
   This message is printed only if the generalized geometry portion of problem returns an invalid value for MARK. This message indicates that the program contains error.

2. SPLITTING BINS FULL
   This message indicates that a neutrons that a neutron was more than 25 times. After printing the message 10 times, execution will be terminated. Check the weighting values associated with the geometry regions.

3. $$$$ERROR IN DOWNSCATTERS, KR=___IG=___IGKR=___
   NDS=___FSP=___R=___
   This error occurs only if the storage arrays have been destroyed. FSP should be 1.

4. JOB PULLED. BATCH=___NEUTRON=___
   This message is printed when subtoutine PULL has determined that the time interval for a generation has been exceeded. It usually means the program has gone into a loop. Check the printed time intervals to determine whether this time interval is out of range. If it is not, increase TMAX and resubmit the problem. If it is looping, put in diagnostic print to locate the error is it cannot be found by

checking the input data.

5. EXECUTION TERMINATED DUE TO EXCESSIVE SPLITTING.
   This message is printed if the SPLITTING BINS FULL message was encountered more than 10 times.

The following error messages are printed in subroutine NSTART.

1. NO FISSIONS.
   This message occurs if an entire generation was tracked without causing fission. Check to be sure fissionable materials exist where they are supposed to be.
2. WARNING- ONLY___INDEPENDENT FISSION POINTS WERE GENERATED.
   This message indicates that less than NPB (number per generation) fission points were generated. It may become necessary to lower the value of RAKBAR in subroutine BEGIN if this message occurs frequently and the number of independent fission points is very different from NPB.

The following error message may originate from subroutine MATK.

1. The calculations done in subroutine MATK may result in exponent underflows for large unit matrices. These are considered to be of no significance and may be ignored.

The following error messages are printed in subroutine CROS.

1. *****CROSS ERROR__ __ __ __ __ __ __ __
   IGO,K,X,Y,Z,S1,Y1,Z1, are printed in that order. This error indicates that the geometry type, IGO, has been destroyed in the storage array.
2. *********ERROR.....NHCYL=___.*********
   This message is printed if NHCYL is outside the allowable range. Either the input data for hemicylinders was incorrect or the storage array has been destroyed.

The following error messages are printed in subroutine KEDIT.

1. *****WARNING*** NO VELOCITIES WERE READ. VELOCITIES WERE SET TO 1.0*****

The lifetime and generation time were calculated using velocities of 1.0 because the input data specified cross sections from cards but did not specify velocities from card. See the units digit of Parameter 26 of card 2 in the data guide.

2. **********
THE START TYPE WAS NOT ADEQUATE FOR THIS PROBLEM. CHOOSE A BETTER STARTING DISTRIBUTION FOR ANY SIMILAR PROBLEM.
****
This message indicates that subroutine START was unable to provide NPB, number per generation, independent starting positions. For any similar problem, a different choice of start type, NTYPST, or a different choice of starting positions for the specified start type is recommended.

3. NUMBER OF BATCHES RUN WAS INSUFFICIENT TO EDIT.
This message is printed if number of generations run was less than or equal to the parameter NSKIP+1. Either increase the allowed time, TMAX, increase the parameter NBA, the number of generations to be run, or decrease the number of generation to be skipped, NSKIP.

The following error messages occur in subroutine XXMOD.

1. ***A SEARCH WILL NOT BE PERFORMED BECAUSE LESS THAN 10 + NSKIP GENERATIONS WERE CALCULATED.***
In the calculation just completed, too few generations were calculated so the search option has been canceled. If the parameter NBA is less than to the equal to the parameter NSKIP+10, increase the value of NBA. Otherwise, increase the value of TMAX.

2. UNRECOGNIZABLE GEOMETRY WORD____
This error occurs if the storage array was destroyed.

3. **********ERROR.....NHCYL=___**********
This error occurs if the storage array has been destroyed.

4. THE SEARCH TYPE HAS BEEN INCORRECTLY SPECIFIED AS_____.
The search type parameter, NSCH, was not 1, 2, or 3. Correct the data and resubmit.

5. GEOMETRY ERROR IN SEARCH PACKAGE.
This error occurs if the geometry type, IGEO, is outside the allowable range. It indicates that some of the storage array has been destroyed.

6. A GENERALIZED REGION CAN NOT BE ALTERED.
   Nonzero search constants have been supplied for a generalized geometry region. This is not allowed. Either the problem was incorrectly specified, the data was mispunched, or cards are out of order.

7. THIS DIMENSION HAS ALREADY BEEN CALCULATED FOR REGION_____.
   If this message occurs, the search has returned to a point it has already calculated and the problem is terminated. Check input data and if it is correct, the search may be restarted with a different first guess or different search constants.

8. THE GEOMETRY TYPE IS UNDEFINED OR A SEARCH WAS ATTEMPTED ON A GENERAL REGION.
   This error if the geometry type, IGEO, is outside the allowable range, some of the storage array has been destroyed. If the search constants are nonzero for a generalized geometry region, set them to zero.

9. *****ILLEGAL GEOMETRY TYPE FOR REFLECTOR REGION___IN THE SEARCH PACKAGE.*****
   The geometry type, IGEO, is outside the allowable range or a generalized geometry region was specified in the reflector. Either a general card was out of order or some of the storage array was destroyed.

The following error messages occur in subroutine ARAMOD.

1. THE SEARCH PACKAGE DOES NOT APPLY TO MIXED BOXES.
   This message is self-explanatory. An array search cannot be made for a problem where SBOX is not 1.

2. THE SEARCH TYPE FOR AN ARRAY SEARCH IS INCORRECT. SEARCH TYPE_____ WAS SPECIFIED.
   Either the search parameter NSCH was incorrectly entered or some of the storage array has been destroyed.

3. ALL SEARCH CONSTANTS ARE ZERO. NO SEARCH WILL BE MADE.
   All the search constants were entered as zero. The data was incorrect or out of order.

4. THIS CASE HAS ALREADY BEEN CALCULATED.
   If this message occurs, the search has returned to a point that has already been calculated and the problem is terminated. If the input

data is correct, the search may be restarted with a different initial guess or different search constants if desired.

5. *******FURTHER CONVERGENCE IS IMPOSSIBLE USING THE SEARCH CONSTANTS SPECIFIED IN THIS PROBLEM.********
THE NUMBER OF UNITS IN THE X DIRECTION WERE _____, IN THE Y DIRECTION WERE _____, AND IN THE Z DIRECTION WERE _____ FOR THE LAST SEARCH.
The search cannot be converged with the data specified. If the data is correct, nothing more can be accomplished.

6. THERE IS NO FEASIBLE SOLUTION TO THE QUADRATIC EQUATION.
Using the data supplied for this problem resulted in a negative discriminant when solving the guadratic equation. Check input data carefully.

The following error messages occur in subroutine FINALE.

1. ********WARNING********WARNING*******WARNING*******WARNING*******
THE FISSION DENSITY AND FLUX WERE COMPUTED USING ARBITRARY VOLUMES (LISTED UNDER-TOTAL VOLUMES-) IN THE REGIONS DESCRIBED BY GENERALIZED GEOM. THEY MUST BE MULTIPLIED BY THE TRUE VOLUME OVER THE ARBITRARY VOLUME TO OBTAIN THE CORRECT VALUES.
This is a warning message. It appears because KENO does not know the volumes of regions internal to the generalized geometry portion. If fluxes the fission densities are to be used, they must be multiplied as indicated in the message.

Following error messages are added for MULTI-KENO.

(1) ***** ERROR ***** AFTER CELL BOUNDARY CARD NEED DUMMY CARD *****
This error occurs if the geometry card encounteres SUPER BOX, BOX TYPE, CORE BDY or REFLECTER after CELL BDY. In description of SUPER BOX type, the last geometry card must be a CUBE or CUBOID except single SUPER BOX prlblems.

(2) ***** ERROR ***** SUPER BOX NEED CALL BOUNDARY CARD *****
This error occurs if the CELL BDY cards is not specified in SUPER BOX. SUPER BOX must be used with CELL BOUNDARY in pairs.

5. MULTI-KENO Input Data Preparation

5.1 Free form input data program

MULTI-KENO allows data to be entered in an unformatted manner by separating each data item by one or more blanks. All 80 columns of any card may be used, and data, with certain exceptions noted below, can start or end in any column. Decimal data may be entered as in FORTRAN input. e.g., 1.733-4, 1.733E-4 or 0.0001733, is the same as 1.733×10^{-4}. Note that no imbedded blanks are allowed within a given number representation. Since blank are ignored, all zeros are must be entered.

Geometry description words, such as SUPER BOX, CYLINDER, SPHERE, etc., must begin in column 1 of a card and be separated by two or more blanks from the rest of the free-form data on the card. Additional card(s) following the geometry description word may be used, with the data in any columns 1-80 9nclusive. Each new geometry description word must start in column 1 of a new card.

MULTI-KENO has provisions for multiple entries of the same data value. This is done by entering the number of repeats, following by either R, *, or $, followed by the data value to be repeated. For example, 5R2 or 5*2 enters five successive 2's in the input data. There should be no blanks between the number of repeats and the repeat flag (R, *, or $), but each multiple entry must be separated from the rest of the data by 1 or more blanks. Multiple zeros may be specified as NZ where N is the number of zeros to be repeated. There should not be any blanks between the N and Z but the NZ must be separated from the rest of the data by one or more blanks.

Certain data items such as cross-section decks, fission spectra, and albedoes are entered in free form. Proper formats for these items are given in the data guide. The title card contains identification information only and no data. The END CASE and END KENO cards must be start in column 1 and can not contain any data.

An END CASE card is really a flag to signal the end of data for a given problem. This is particularly useful if one problem in set of stacked cases contains an error, because it helps prevent the code from reading into the next problem. Once the END CASE card is encountered, the program knows it has finished with the problem, whether or not it encountered all the expected data, and it immediately prepares to read

the data for a new problem. It should be noted that, if one problem expects to utilize data from the preceding prlblem, they MUST NOT be separated by an END CASE card. MOST errors encountered during the tracking procedure are presumed to be programming errors and result in termination of execution rather than continuing on to the next problem.

The END KENO card causes the program to cease excution.

5.2 MULTI-KENO logical unit numbers

The logical unit numbers used for MULTI-KENO are shown in Table 5.1.

Table 5.1 MULTI-KENO logical unit numbers

Unit Number	Function
4 or NXCUTE	AMPX working library
5	Input from cards
6	Printed output
10	Scratch unit
18	Scratch unit
41 or NXCUTE	Cross-section library
42	Albedo library if Hansen-Roach library is used.
43	WTAVG library for automatic reflector option.
44	Read restart data for MULTI-KENO
45	Write restart data for MULTI-KENO
51	Scratch unit
GDFILE	Output file for graphic processing. NOTE : The name of this file is determined for each computing system.

5.3 MULTI-KENO Data Guide

Card 1 Title card. FORMAT(20A4) Contains title only.

Card(s) 2 Parameter card. (Parameters are separated by one or more blanks. A new card may be started after any parameter.)

1 TMAX Maximum computer time (in minutes) to be allowed for problem, or for each iteration if a search is to be made.

2 NBA Number of generations.

3 NPB Number of neutrons per generation.

4 NSKIP Number of generations to be skipped. If fixed source problem option is used, NSKIP is ignored.

5 NGP Number of energy group.

6 NDS Number of downscatters or energy transfers (includes inscatter).

7 NMAT Number of input cross-section set.

8 MATT Number of mixtures.

9 NMIX Number of mixing table entries. (see card(s) 6)

10 KREFM Total number of geometry cards. This includes the regions generated by the automatic reflector option, the CELL BOUNDARY card, and the CORE BOUNDARY card, whether calculated by the automatic reflector option, or entered separately. Do not count the REFLECTOR card from the automatic reflector option and do not count SUPER BOX card and BOX TYPE cards. All other geometry cards must be included.

11 SBOX The number of SUPER BOX types.
NOTE : SBOX must be zero for a single unit. A single unit is a configuration that does not have to be enclosed in a cube or cuboid and can not be stacked into array.

12 SBXMAX Number of units in the x direction of the super box array. A value must be entered for a single unit problem, but it is not used.

13 SBYMAX Number of units in the y direction of the super box array. A value must be entered for a single unit problem, but it is not used.

14 SBZMAX Number of units in the z direction of the super box array. A value must be entered for a single unit problem, but it is not used.

15 NTAPE NTAPE is the number of input cross-section set to be read from a library. If NTAPE>0, read a MULTI-KENO cross-section library on logical unit 41. If NTAPE<0, read an AMPX working format cross-section library on logical unit 4.

16 NXX Specified albedo-k_∞ OPTIONS.
NOTE : Albedo can not be used for a single unit problem.

=0 No albedo or k_∞ to be used.

=1 Uses specular reflection (k_∞). Note that this consist of mirror image reflection, multiplying the weight (WT) by the absolute value of the reflector constant (card 4) for that face, and leaving the energy unchanged. NXX=1 can not be used for a problem that utilize both specular reflection and differential albedos.

=2 Read differential albedos from cards or page. If a combination of differential albedos and specular reflection are to be used, NXX must be 2.

=3 Use differential albedos from the previous case. Can not be used in the first case following an "END CASE" card.
NOTE : Differential albedos can not be used for an adjoint problems.

17 NSCH Search type.

=0 If no search.

=1 Search on dimensions.

=2 Search on the number of units (array search). Use only if SBOX=1 (parameter 11 or card 2).

=3 Search on dimensions using a small number of generations, NBA1 (given as parameter 4 of card 3). Once convergence has been achieved, an additional search is made using the number of generations read in as NBA (parameter 2 of card 3) interations. This option enables the user to minimize the hazards of a poor starting guess and yet still obtain a significant number of histories in a relatively shorter time interval than required if run using NSCH=1.

18 LIST Supplies print flags to MULTI-KENO (four-digit number).

THOUSAND

DIGIT

=0 PRINT ALL macroscopic cross sections.

=1 PRINT ONLY macroscopic 1-D cross sections.

=2 DO NOT PRINT any macroscopic cross sections.

HUNDREDS

DIGIT

=0 DO NOT PRINT ARRAY UNIT INTERACTION MATRIX. (Fission probability matrix by unit).

=1 PRINT array unit interaction matrix. Use only if MATRIX (parameter 26 of card 2) is 1 or 3.

TENS

DIGIT

=0 EDIT neutron balance table for each super box and summary.

=1 EDIT neutron balance table for each outer CELL BOUNDARY plug option 0.

=2 EDIT neutron balance table for each box type plus option 1.

=3 EDIT neutron balance table for all regions and summary.

UNITS

DIGIT

=0 read new cross section.

=1 use cross sections from the preceding case. If using cross sections from the preceding case, the units digit of NADJ (parameter 23, card 2) must be the same for both cases.
NOTE : For example, to use cross sections from the preceding case and new geometry NOX=01. To read new cross sections and to use the geometry from the preceding case, NOX=10.

19 NOXS Specifies whether to reuse macro cross sections and/or the geometry description from the preceding case (two-digit number).
NOTE : NOXS must always be zero for the first case following and END CASE card.

TENS DIGIT

=0 read new geometry.

=1 use geometry from the preceding case. However, the mixed box orientation data must be read in again if NBOX (parameter 11, card 2) is greater than 1.

UNIT DIGIT

=0 read new cross sections.

=1 use cross sections from the preceding case. If using cross sections from the preceding case, the units digit of NADJ (parameter 23, card 2) must be the same for both cases.
NOTE : For example, to use cross sections from the preceding case and new geometry, NOXS=01. To read new cross sections and to use the geometry from the preceding case, NOXS=10.

20 NTYPST The type of starting distribution to be used. NTYPST must be negative to read restart data. If NTYPST is negative, the absolute value of it specifies which set of restart data is to be used. The restart data is written sequentially on tape as described in NRSTRT, (parameter 25, card 2). Note that a problem that reads restart data consists only of a title card and parameter cares. All other data is read in from the restart units. Restart data is written on unit 45 and is read in from unit 44. Note that, whenever X, Y, and Z are used in the start information, they are actually integer position indicators that define the position of the specified init in the array.
$1 \leqq X \leqq$ SBXMAX, $1 \leqq Y \leqq$ SBYMAX and $1 \leqq Z \leqq$ SBZMAX.

=0 flat over the overall dimensions, in fissile material only.

=1 cosine over the overall array dimensions, in fissile material only.
Not applicable for single-unit problems.

=2 arbitrary fraction started in fissile material in unit (X,Y,Z), the rest started in fissile material with cosine distribution, over the array, about unit (X,Y,Z). Not applicable for single-unit problems.

=3 all are started at position (x,y,z) in cm, in unit (X,Y,Z).

=4 all are started at position (x,y,z) in cim, with all units of super box NBOXST (card 13) being equally probable. Not applicable for single-unit problems.

=5 flat distirbution in fissile material in units of super box type NBOXST (card 13). Not applicable for single-unit problems.

=6 starting distribution is arbitrarily input. This is the only way neutrons can be started in the reflector of an array.

=7 applicable for fixed source problem, using distributed source. If this option is used, card 14 is needed.

=8 applicable for fixed source prlblem, using point source. if this option is used, card 14 is needed.

NOTE : NTYPST must b3 0, 3, or 6 for a signel-unit problem. If any other value is specified, it will be run as a start type zero.

21 NFIX Neutron trace flag.

<0 neutron are traced to. NFIXth fission neutrons.

=0 only initial generated neutrons are treated.

>0 neutrons are traced to disappearance.

22 NFDEN Fission density flag.

=0 fission densities will be calculated.

≠0 fission densities will not be calcualted.

23 NADJ Calculation flag

=0 a forward calculation will be done.

=1 an adjoint calculation will be done.

24 NXCUTE =0, the logical device number, XSEC, is set to 41 for the MULTI-KENO cross-section library and 4 for AMPX cross-section library.
≠0, the logical device number for the input cross-section library, XSEC, is set equal to the absolute value of NXCUTE.

25 NRSTRT Specifies the number of generations between writing of restart data. The sets of restart data for each problem are numbered sequentially starting with 1. If NRSTRT = 0, no restart data will be generated.

26 MATRIX Flag for input velocities and matrix calculations.
TENS =0, read energy and lethargy from tape and calculate
DIGIT velocities.
=1, read velocities from cares.
=2, use velocities from the previous case. Note that NADJ (parameter 23, card 2) must be the same for both cases. Note that velocities are used to calculate lifetimes and generation times. Lifetime and generation time are incorrect if a differential albedo reflector is used.

UNITS DIGIT =0, no matrix k_{eff} will be calculated.
=1, matrix k_{eff} by array unit will be calculated.
=2, matrix k_{eff} by super box type will be calculated.
=3, matrix k_{eff} by both array unit and super box type will be calculated.
NOTE : The k_{eff} and co-factor k_{eff} will be printed. If the unit interaction matrix is to be printed, LIST (parameter 18, card 2) must include a 1 in the hundreds digit.

27 NPST Position of σ_t if ANISN format cross section are read from cards.
NPST=0 if cross sections other than ANISN format are to be used.

28 NPSGG Position of σ_{gg} if ANISN format cross sections are read from cards.
NPSGG=0 if cross sections other than ANISN format are to be used.

Card 3 Search parameters. Enter only if NSCH>0. (parameter 17, card 2).

1 CONSTK The desired k_{eff} for a search prlblem.

2 NSIG The maximum number of standard deviations k_{eff} may be from CONSTK for search completion.

3 NUMBR If NSCH=1 or 2 (parameter 17, card 2), NUMBER is the maximum number of iterations the search will run. If NSCH=3, NUMBER is the number of iterations allowed for coarse convergence.

4 NBXMA Enter only if NSCH=2 (!arameter 17, card 2). The maximum number of units that will be allowed in the X direction during an array search.

4(a) NBAl Enter if NSCH-3 (parameter 17, card 2). The number of batches to be run to achieve coarse convergence.
(See explanation for NSCH=3.)

5 NBYMA Enter only if NSCH-2 (parameter 17, card 2). Maximum number of units that will be allowed in the Y direction during an array search.

5(a) NUMBRF Enter only if NSCH-3 (parameter 17, card 2). The number of iterations to be run to achieve fine convergence. (See explanation for NSCH=3.) If coarse convergence was not achieved, fine convergence will not be attempted.

6 NBZMA Enter only if NSCH=2 (parameter 17, card 2). Maximum number of units that will be allowed in the Z direction during an array search.

Card 4 Reflector Constants. Enter only if NXX≠0 (parameter 16, card 2).

NOTE : Reflector constants should be the POSITIVE albedo ID for the faces using DIFFERENTIAL ALBEDOS, the NEGATIVE albedo ID for faces using SPECULAR ALBEDOS, and zero for faces having no albedo treatment. SPECULAR ALBEDOS may be used on some faces and DIFFERENTIAL ALBEDOS on others in problems where the use of DIFFERENTIAL ALBEDOS has been indicated in NXX (parameter 26, card 2). The absolute value of the reflector constant entered for specular albedo is the fractional return for that face. The value of the reflector constant is the albedo ID for differential albedo.

1 REFCST(1) Reflector constant for +x face of the array.
2 REFCST(2) Reflector constant for -x face of the array.
3 REFCST(3) Reflector constant for +y face of the array.
4 REFCST(4) Reflector constant for -y face of the array.
5 REFCST(5) Reflector constant for +z face of the array.
6 REFCST(6) Reflector constant for -z face of the array.

Card(s) 5 Velociites. Enter only if the TENS DIGIT of MATRIX is equal to 1. NGP (parameter 5, card 2) entries will be read. A velocity must be entered for each energy group. The units on the velocity is cm/sec.

Card(s) 6 Mixing Table. Enter only if the units digit of NOXS=0 (parameter 19, card 2).

1 KKA Mixture number. It must lie between 1 and MATT (parameter 8, card 2).

2 NMA Nuclide ID number. A negative nuclide ID number indicates that the fission spectrum for that nuclide will be used for mixture KKA. A negative nuclide ID MUST be specified in each mixture that contains fissionable material.

3 RHOA Number density (atoms/barn-cm); must be greater than zero.

Repeat, starting with KKA, for each nuclide. Each set of KKA, NMA, RHOA is mixing table entry.

NOTE : There must be NMIX (parameter 9, card 2) sets of entries.

Card(s) 7 Cross Sections from Cards. Enter only if units digit of NOXS=0 (parameter 19, card 2) and NTAPE <NMAT (parameter 15 and 7, card 2). There will be Nmat- NTAPE cross-section decks entered. Each cross-section deck consists of the card sequence 7(a), 7(b), and 7(c) described below.

NOTE : Cross sections must be formatted.

Card(s) 7-a Title Card. Format (17A4, A3, I1).
Cols. 1-71 XST Nuclide identification.
Cols. 72 IORDER Enter 0 if P0 component only; enter 1 if P1 is present.

Card(s) 7-b P0 and P1 cross-section sets.
First enter the P0 component for all energy groups.
Next, if IORDER=1 (Card 7-2), enter the P1 component for all energy groups.

NOTE : Both the P0 and P1 components must be entered in entered in either MULTI-KENO, KENO IV or ANISN format described under A and B below. All cross-section sets from cards must be entered in the same format for a given problem.
A. MULTI-KENO or KENO FORMAT, see next page.
B. ANISN FORMAT, enter only if NPST≠0 (parameter 27, card 2).

Card(s) 7-c Fission Spectrum. FORMAT (6E12.5) Enter only if $\nu\sigma_f \neq 0$ for at least one energy group. There must be NGP entries.
WARNING: Cross sections and fission spectrum cannot be read in free-form format.

Card(s) 8 Geometry Cards and Weights. Enter only if the tens digit on NOX=0 (parameter 19, card 2). Starting in column 1 on a new card, enter the geometry word, followed by at least two blanks. Then the mixture number, dimensions and weights are entered, separated by one or more blanks. This information may be carried over to a new card after any entry. Note that the geometry type must ALWAYS start in column. 1. A weight for each energy group must follow each geometry card (expect SUPER BOX, BOX TYPE or REFLECTOR cards, which are not counted as geometry cares). If SBOX $\geq$ 1 (parameter 11, card 2), SUPER BOX cards are needed, and start in column 1 and punch SUPER BOX, followed by two or more blanks. Then enter the super box type. If NBOX > 1 (See card(s) 8-a) BOX TYPE cards are needed, and start in column 1 and punch BOX or BOX TYPE, followed by two or more blanks ; if NBOX $\leq$ 1, BOX TYPE cards may not be entered. This card is followed by as many geometry cards and weights as are necessary to describe the box type. Repeat this process until all box types have been described. If SBOX $\geq$ 1 (parameter 11, card 2), enter a CELL BOUNDARY card next. The CELL BOUNDARY cards start in column 1 and punch CELL BDY, followed by two or more blanks. The mixture field contains a zero and the remainder of the field is punched with cuboid dimensions that fit tightly around the array of box types. Following the CELL BDY card are weights for each energy group. The remaining super box regions are described as any appropriate geometry type, in the manner illustrated under Card(s) 8-c. Repeat this process until all super box types have been described. NOTE : ALL REGIONS WITHIN A GIVEN BOX TYPE MUST BE DESCRIBED SO THAT EACH SUCCESSIVE REGION COMPLETELY ENCLOSES THE PREVIOUS REGION. THE ADJACENT FACES OF BOXES, WHICH ARE CONTAINED BY SAME SUPER BOX, IN CONTACT WITH EACH OTHER MUST BE THE SAME SIZE.

If an external reflector to an array is present, enter a CORE BOUNDARY card. The CORE BOUNDARY card starts in column 1 and the first four characters must be CORE followed by two or more blanks. The word CORE may be followed by a blank and the word BDY or BOUND, which then must be followed by two or more blanks.

The mixture field contains a zero and the remainder of the field is punched with cuboid dimensions that fit tightly around the array. Following the CORE card are weights for each energy group. The remaining reflector regions are described as any appropriate geometry type, in the manner illustrated under Card(s) 8-b. NOTE : EACH SUCCESSIVE REFLECTOR REGION MUST COMPLETELY ENCLOSE THE PREVIOUS REGION. A weight for each energy group must follow each reflector region card.

The REFLECTOR card starts in column 1 and says REFLECTOR; followed by two or more blanks followed by a mixture number. The next six entries indicate the desired reflector thickness on each face (+x, -x, +y, -y, +z, and -z, respectively). The reflector thickness must be either zero or positive. They cannot be negative. Following the thickness is the ID number of the weights to be read from tape. If the ID is less than 10, the weights will be read from cards as given in card(s) type 10. The REFLECTOR card may be replace the CORE BOUNDARY card or be placed at any point external to it. If it replaces the CORE BOUNDARY card, it calculates the core boundary, supplies the weights for it, and fills in the reflector regions and their associated weights until KREFM-1 (parameter 10, card 2) regions contain data. It then fills the last region with the remaining reflector thickness and supplies the weights associated with it. The thickness of each region is governed by data associated with the weights read from tape or cards (3 cm for water and paraffin, 5 ch for concrete, etc.). If KREFM (parameter 10, card 2) is too large so the maximum reflector thickness is used up before reaching KREFM regions, it simply pads with zero thickness regions until it accumulates KREFM regions. If the REFLECTOR card is external to the CORE BOUNDARY card, it follows the same procedure except it does not calculate the core boundary but starts creating regions at the point where the REFLECTOR card was read. NOTE: The first automatic reflector region always uses the weights for the first increment (i.e., 0-3 cm for water and paraffin, 0-5 cm for concrete, etc.). Therefore, exercise caution in choosing weights for any regions that occur between the CORE BOUNDARY card and the REFLECTOR card.

If the REFLECTOR card replaces the CORE BOUNDARY card, you need not be concerned.

Card(s) 8-a Super Box Type Card. If SBOX = 0, (parameter 11, card 2), do not enter a SUPER BOX TYPE Card.

Start in Col. 1 "SUPER BOX" (left adjusted).

1 I Super box number (between 1 and SBOX), starting two or more spaces after the geometry card.

2 NBOX Number of box types contained by SUPER BOX 1.

3 NBXMAX Number of units in the x direction of the array made by box types.

4 NBYMAX Number of units in the y direction of the array made by box types.

5 NBZMAX Number of units in the z direction of the array made by box types.

Card(s) 8-b Box Type Card. If NBOX = 0, (parameter 11, card 2), do not enter a Box Type Card. If NBOX = 1, a Box Type Card may be entered but is not necessary.

Start in Col. 1 "BOX TYPE" (1sft adjusted).
Starting two or more spaces after the geometry word, enter the box number (between 1 and NBOX).

Card(s) 8-c Geometry Cards. NOTE : All geometry words start in Col. 1.

FGEOM FGEOM may be one of the following and must be left adjusted:
CUBE, CUBOID, SPHERE, CYLINDER, XCYLINDER, YCYLINDER, HEMISPHERE, HEMISPHE+Z, HEMISPHE-Z, HEMISPHE+X, HEMISPHE-X, GENERAL, XHEMICYL+Y, XHEMICYL-Y, HEMISPHE+Y, HEMISPHE-Y, XHEMICYL+Z, XHEMICYL-Z, YHEMICYL+X, YHEMICYL-X, YHEMICYL+Z, YHEMICYL-Z, ZHEMICYL+X, ZHEMICYL-X, ZHEMICYL+Y, ZHEMICYL-Y, CORE BDY, CELL BDY, REFLECTOR.
NOTE : FGEOM may be no more than 12 characters long.

CUBE has +X = +Y = +Z and =X = -Y = =Z. Note that the +X dimension need not equal the -X dimension of the cube; i.e., the origin need not be at the center of the cube.

CUBOID is a rectangular parallel epiped and may be described anywhere relative to the origin.

SPHERE must be centered about the origin.

CYLINDER has its length described along the Z axis and its center line must lie on the Z axis.

XCYLINDER has its length described along the X axis and its center line must lie on the X axis.

YCYLINDER has its length described along the Y axis and its center line must lie on the Y axis.

HEMISPHERE must have its flat portion centered about the origin at Z = 0.0 and exists only in the positive Z direction.

HEMISPHERE(B)(C) must have its flat portion centered about the orogin at (c) = 0.0 and exists only in the BC direction. (B = _ or -, C = X, Y, or Z). For example, HEMISPHE+Z is the same as the previously described HEMISPHERE and HEMISPHE-Z is the mirror image of HEMISPHE+Z, therefore existing only in the negative Z direction.

(B)HEMICYL(C)(D) is a half cylinder whose axis is the B axis (B + X, Y, or Z) and exists only in the CD direction (C = + or -, D = X, Y, or Z). (Examples: ZHEMICYL+X, YHEMICYL-Z, XHEMICYL+Y).

GENERAL refers to generalized geometry. A GENERAL card must be entered for each generalized geometry media. The purpose of the GENERAL card is to set up a correspondence between each medium number and a mixture. The first GENERAL card should contain the MULTI-KENO mixture number corresponding to medium 1 as defined in GEOM, the second should contain the MULTI-KENO mixture number for medium 2, etc. The dimension specification portion of the GENERAL cards may be set to zero. MULTI-KENO automatically inserts the outer ZONE boundaries from the generalized geometry data for the dimensions of the last GENERAL card. Note that for a single-unit problem (SBOX = 0, parameter 11, card 2) a GENERAL card can be the last card entered. However, for an array problem the last card must be a cube or cuboid whose dimensions are as

large or large than the zone dimensions of the generalized geometry region.

Starting two or more spaces after the geometry word, the following data is entered, separated by one or more blanks. A new card may be started after any entry.

MAT — Mixture number. (enter a zero for a void)

XX(1) — Radius for sphere, cylinders, hemispheres, hemicylinders,
+x dimension for cube, cuboid, or general region.

XX(2) — -x dimension for cube cuboid, or general region,
+z for cylinder,
+x for x cylinder, +y for y cylinder, + length for hemicylinder, omit XX(2) for a sphere or hemisphere.

XX(3) — +y dimension for cuboid or general region, -z for cylinder, -x for x cylinder, -y for y cylinder,
- length for hemicylinder, omit XX(3) for a sphere, hemisphere, or cube.

XX(4) — -y dimension for cuboid or general region, omit for all other geometry types except CORE BDY.

XX(5) — +z dimension for cuboid or general region, omit for all other geometry types except CORE BDY.

XX(6) — -z dimension for cuboid or general region, omit for all other geometry types except CORE BDY and CELL BDY.

Weights

WTAGB — The weight which is given a neutron that survices Russian roulette.
Enter a value for each energy group. Enter a weight of 0.5 or 0.0 for all regions within the core. If a value of 0.0 is entered it is defaulted to 0.5 within the code.
Weights for some commonly used reflector materials are given in ORNL-TM-4660.

Repeat the card(s) 8-a, 8-b, 8-c sequence until SBOX super box types, each super box contains NBOX box types, have been

NOTE : The last geometry card for each box type must be a cube or cuboid.

Card(s) 8-c1 Core Boundary Card (must be cuboid). Enter only if there are additional regions external to the core. This card is needed only if one more of cards 8-c2 are used.

Starting in Col. 1.

CORE BDY (left adjusted).

MAT	Enter a mixture number (usually zero) ; leave two or more blanks between CORE BDY and MAT.
XX(1)	+x dimension for a cuboid or cube.
XX(2)	-x dimension for a cuboid or cube.
XX(3)	+y dimension for a cuboid, zero for a cube.
XX(4)	-y dimension for a cuboid, zero for a cube.
XX(5)	+z dimension for a cuboid, zero for a cube.
XX(6)	-z dimension for a cuboid, zero for a cube.

NOTE : These dimensions must fit tightly arround the array.

WTAVG	Enter a value for each energy group even through are not used.

Card(s) 8-c2 Reflector Geometry Cards. See card(s) 8-c.

FGEOM
MAT
XX(1).....XX(6)
Weights
Repeat the above card sequence until all reflector regions have been described.

Card(s) 8-c3 Automatic Reflector Card (must be cuboid). This card can be entered in the place of a core boundary card (in which case it calculates the core boundary and fills in any remaining regions) or it may be entered at any point external to the core boundary card (it then just fills in any remaining cuboidal regions). It must never be internal to any other geometry type. Use only one Automatic Reflector card per problem.

NOTE : All regions generated by the automatic reflector option must be counted in KREFM (card 2, parameter 10).

Starting in Col. 1.

REFLECTOR (left adjusted) Enter only if the automatic reflector option is to be exercised for putting an external reflector around an array.

MAT Enter the mixture number of the material comprising the reflector ; leave two or more blanks between REFLECTOR and MAT.

XX(1) The reflector thickness in the +x direction. Non-negative numbers only.

XX(2) The reflector thickness in the -x direction. Non-negative numbers only.

XX(3) The reflector thickness in the +y direction. Non-negative numbers only.

XX(4) The reflector thickness in the -y direction. Non-negative numbers only.

XX(5) The reflector thickness in the +z direction. Non-negative numbers only.

XX(6) The reflector thickness in the -z direction. Non-negative numbers only.

IDWT The ID of the appropriate set of WTs to be read from library. If IDWT is less than 10, the weights will be read from cards. (See card(s) 10.)
NOTE : Do NOT enter weights for the REFLECTOR card. They are automatically provided through reading IDWT.

Card(s) 9-a Mixed Box Orientation Card. Enter only if NBOX > 1. (parameter 2, card 8-a).
The first field contains the box type, followed by three sets of three fields that are treated like FORTRAN DO loops, followed by a field that indicates whether another set of mixed box data is to be read. The arrangement of boxes may be considered as consisting of a three-dimensional matrix of box type numbers, with the box position increasing in the positive X, Y, and Z directions, respectively. Each set of mixed box orientation data consists of the following parameters,

separated by one or more blanks.

LTYPE — The box type. LTYPE must be greater than zero and less than or equal to NBOX (parameter 2, card 8-a).

IX1 — The starting point in the x direction. IX1 must be at least 1 and less than or equal to NBXMAX (parameter 3, card 8-a).

IX2 — The ending point in the x direction. IX2 must be at least 1 and less than or equal to NBXMAX.

INCX — The number of boxes by which increments are made in the positive x direction. INCX must be greater than zero and less than or equal to NBXMAX.

IY1 — The starting point in the y direction. IY1 must be at least 1 and less than or equal to NBYMAX (parameter 4, card 8-a).

IY2 — The ending point in the y direction. IY2 must be at least 1 and less than or equal to NBYMAX.

INCY — The number of boxes by which increments are made in the positive y direction. INCY must be greater than zero and less than or equal to NBYMAX.

IZ1 — The starting point in the z direction. IZ 1 must be at least 1 and less than or equal to NBZMAX (parameter 5, card 8-a).

IZ2 — The ending point in the z direction. IZ2 must be at least 1 and less than or equal to NBZMAX.

INCZ — The number of boxes by which increments are made in the positive z direction. INCZ must be greater than zero and less than or equal to NBZMAX.

ISTP — Indicates whether to reac another set of mixed box orientation data.

=0, read another set of data.

≠0, do not read any more mixed box orientation data.

An important feature of this type of data description is that if any portion of an array is defined in a conflicting manner, the last card to define that portion will be the one that determines the array's box type configuration. To utilize this feature, one can fill an entire array with the most

prevalent box type and then superimpose the other box types in their proper places to accurately describe the array. The last set of mixed box orientation data must have a non-zero entry in the last field.
Repeat this card until box orientation of all super box have been described. This card must be entered in super box type sequence.

Card(s) 9-b Mixed Super Box Orientation Cards. Enter only if SBOX > 1 (parameter 11, card 2).
This card must be entered in the same manner as card 9-a.

LTYPE The super box type. LTYPE must be greater than zero and less than or equal to SBOX (parameter 11, card 2).

IX1 The starting point in the x direction. IX1 must be at least 1 and less than or equal to SBXMAX (parameter 12, card 2).

IX2 The ending point in the x direction. IX2 must be at least 1 and less than or equal to SBXMAX.

INCX The number of super boxes by which increments are made in the positive x direction. INCX must be greater than zero and less than or equal to SBXMAX.

IY1 The starting point in the y direction. IY1 must be at least 1 and less than or equal to SBYMAX (parameter 13, card 2).

IY2 The ending point in the y direction. IY2 must be at least 1 and less than or equal to SBYMAX.

INCY The number of super boxes by which increments are made in the positive y direction. INCY must be greater than zero and less than or equal to SBYMAX.

IZ1 The starting point in the z direction. IZ1 must be at least 1 and less than or equal to SBZMAX (parameter 14, card 2).

IZ2 The ending point in the z direction. IZ2 must be at least 1 and less than or equal to SBZMAX.

INCZ The number of super boxes by which increments are made in the positive z direction. INCZ must be greater than zero and less than or equal to SBZMAX.

ISTP — Indicates whether to read another set of mixed super box orientation data.
=0, read another set of data.
≠0, do not read any more mixed super box orientation data.

The data of this card have same features as card 9-a. The last set of mixed super box orientation data must have a nonzero entry in the last field.

Card(s) 10 Reflector Weights from Cards. Enter only if IDWT (card 8-c3) is less than 10.

WTTITL — Name of material being used for the reflector weights. Enter in Cols. 1-12.

IDWTT — Weight ID number (usually the ID number that will be put on the library, but may be anything. The code automatically sets equal to the value of IDWT (card 8-c3)).

ISUBST — Number of sets of weights associated with this IDWTT. Usually one since you need read in only 1 set of weights.

THICK — The thickness in cm of each weighting region or interval.

NUMINC — The number of intervals in the set of weights. (NUMINC*THICK=maximum thickness for which weights are given.)

NGPWT — The number of energy groups for this set of weights. It must be equal to NGP.

WTAVG(I,J) — The weight average for each interval and energy group. I=1 to NUMINC and J=1 to NGPWT. There are NUMINC*NGPWT entries.
NOTE : If SUBST is greater than 1, the data "THICK" through "WTAVG(I,J)" must be repeated ISUBST times.

Card(s) 11 Generalized Geometry Description, if any, as described in section 5.4.

Card(s) 12 Albedo Deck. Enter only if NXX=2 (parameter 16, card 2).
NOTE : ALBEDO data must be formatted. It consists of the following data :
(1) ATITLE format (18a4) Title card for the albedo deck.

(2) (WTCOS(I),I=1,NANG) format (6E12.5). WTCOS is the product of the fractional solid angle and the cosine of the polar angle for each polar angle. NANG is the number of polar angles and for the existing KENO Albedos is 4.
(3) (PLIM(I),I=1,NANG) format (6E12.5). PLIM is the cosines of the angular bounds for each of the polar angles.
(4) (CPOL(I),I=1,NANG) format (6E12.5). CPOL is the cosines of the polar angles.
(5) (SPOL(I),I=1,NANG) format (6E12.5). SPOL is the sines of the polar angles.
(6) ((((A(I,J,K,L),L=1,NANG),J=1,NGP),K=1,NANG),I=1,NGP) format (18A4). A(I,J,K,L) is the albedo data in hexidecimal form and represents the relative angular return tables for each input angle and energy.

Card 13 Data for special start options. Input if NTYPST ≥ 2 (parameter 20, card 2).
(Entered in free form.)

if NTYPST = 2 (parameter 20, card 2) Enter the X, Y, and Z coordinates (in terms of boxes) of the box about which the starting distribution is given.

NBXS The X index of the box.

NBYS The Y index of the box.

NBZS The Z index of the box.

FX The fraction of neutrons to be started as spike in box (NBXS,NBYS,NBZS) of the array.

if NTYPST = 3 (parameter 20, card 2) Enter the X, Y, and Z indices (in terms of boxes) of the box where the neutrons will be started as a spike at the coordinates x, y, and z in that box.

NBXS The X index of the box.

NBYS The Y index of the box.

NBZS The Z index of the box.

TFX The x coordinate of the spike in box (X, Y, and Z).

TFY The y coordinate of the spike in box (X, Y, and Z).

TFZ The z coordinate of the spike in box (X, Y, and Z).

if NTYPST = 4 (parameter 20, card 2) Enter the box type in which the neutrons will be started at the point (x, y, and z).

NBOXST The box type in which the neutrons will be started.

TFX The x coordinate of the point at which the neutrons will be started in the box type NBOXST.

TFY The y coordinate of the point at which the neutrons will be started in box type NBOXST.

TFZ The z coordinate of the point at which the neutrons will be started in box type NBOXST.

if NTYPST = 5 (parameter 20, card 2) Enter the box type in which the neutrons will be started.

NBOXST The box type in which the neutrons will be started.

if NTYPST = 6 (parameter 20, card 2)

LFIN The final neutron to be started at this point. The first LFIN must be ≥ 1. (The first neutron at this point is the one following the previous LFIN.) Points are read until LFIN = NPB (parameter 3, card 2), the number of neutrons per batch.

NBXS The X index of the super box.

NBYS The Y index of the super box.

NBZS The Z index of the super box.

TFX The x coordinate of the point.

TFY The y coordinate of the point.

TRZ The z coordinate of the point.

For example, assume there are 50 neutrons in a generation, and you wish to start the first five neutrons in super box (1,1,1) at x=1.0, y=0.0, z=0.0; the next 25 neutrons in box (1,2,1) at x=1.0, y=0.0, z=2.0; and the remaining neutrons in super box (1,2,2) at x=1.5, y=1.5, z=1.5. Then the input card could be entered as follows:

```
5 1 1 1 1.0 0.0 0.0 30 1 2 1 1.0 0.0 2.0 50 1 2 2
1.5 1.5 1.5
```

Card(s) 14 Search Constants. Enter only if NSCH = 1, 2, or 3. The physical significance of a search constant may best be described as a proportionality constant. For a dimension

search, the search constant (CONS) is proportional to the relative change in dimension $(XX_{new}-XX_{old})/XX_{old}$ divided by the k-effective $(k_{new}-k_{old})$ where X_{old} is the dimension that yielded a k-effective of k_{old} and XX_{new} is the dimension that yielded a k-effective of k_{new}. The search constants is positive if k=effective increases as the dimension increases and negative if k-effective decreases as the dimension increases.

if NSCH = or 3 (parameter 17, card 2) Enter one set for each geometry region, and in corresponding order. There will be one entry on a card for a sphere or hemisphere, three entries for a cylinder, xcylinder, or ycylinder, and six entries for a cube, cuboid or general region.
Each entry corresponds to a dimension and tells how that dimension will be altered. A value of zero means that dimension will be unchanged.
NOTE : Zeros should ALWAYS be entered for a general region because a search cannot be made for a general region.

CONS(1) Search constant for the radius of a sphere, hemisphere, cylinder, xcylinder, ycylinder, hemicylinder, +x dimension of cube or cuboid.

CONS(2) Search constant for +z of cylinder, +x of xcylinder, +y of ycylinder, +x of xhemicylinder, +y of yhemicylinder, +z of zhemicylinder, -x dimension of cube or cuboid.

CONS(3) Search constant for -z of cylinder, -x of ycylinder, -y of ycylinder, -x of xhemicylinder, -y of yhemicylinder, -z of zhemicylinder, +y dimension of cube or cuboid.

CONS(4) Search constant for -y dimension of cube or cuboid.

CONS(5) Search constant for +z dimension of cube or cuboid.

CONS(6) Search constant for -z dimension of cube or cuboid.

NOTE : If NSCH=1 or 3 and the problem contains a reflector that is to maintain its thickness even if the unit spacing changes, simply enter zero for all six search constant for each of the core boundary and reflector regions. The code will automatically calculate the new core boundary and maintain proper reflector thickness and weightings.

if NHCH = 2 (parameter 17, card 2) Enter only one set. There will be three entries; one for each coordinate direction of the array. The number of units in a given direction will be changed by an integer multiple of the search constant specified. For any array search, the search constant for a given direction represents the minimum number of units by which the array size can be changed in that direction. The change in the number of units in each direction maintains the proportionality of the search constants stated for those directions. The search constant is positive if k-effective increases as the array size increases and negative if k-effective decreases as the array size increases.

CONS(1) Search constant for changing the number of units in the X direction.

CONS(2) Search constant for changing the number of units in the Y direction.

CONS(3) Search constant for changing the number of units in the Z direction.

Card 15 Parameters for fixed source problem. Enter only if NTYPST = 7, or 8 (parameter 20, card 2).

Card(s) 15-a Fixed source spectrum data.

1 KR The region number. If KR is equal to zero, enter next card.

2 FIX(KR,NGP) The fixed source spectrum at region KR for each energy group.

Card(s) 15-b Parameters for point source. Enter only if NTYPST is equal to 8 (parameter 20, card 2).

1 FX Source ratio (%) at the point (Xs, Ys, Zs).

2 Xs The x coordinate of the point.

3 Ys The y coordinate of the point.

4 Zs The z coordinate of the point.

Repeat this card (card 14-b) until sum of Fx have been equal to 100.

Card 16 Data for graphic processing.

Card(s) 16-a

NUSE
: < 0, graphic output will not be done.
≧ 0, graphic output will be done. If NUSE greater than zero, NUSE characters, which is used for region (material) number in the graphic output, must be entered (card 15-b). If NUSE is equal to zero, default character will be used.

Card(s) 16-b This card(s) must be entered only if NUSE greater than zero.

ATABLE(NUSE)
: Enter NUSE characters which is used for region (material) numbers from 0 to NUSE-1.

Card(s) 16-c This card(s) must be entered only if NUSE is greater than zero.

ITP
: = 0, graphic processing will be ended with above data.
> 0, graphic processing will be started with following data.

IRG
: = 0, graphic output will be done on material.
> 0, graphic output will be done on region.

Card(s) 16-d Plotted area definition data. Enter only if NUSE is greater than or equal to zero, and ITP is greater than zero.

XUL
: The x coordinate of the upper left corner for a plotted area.

YUL
: The y coordinate of the upper left corner for a plotted area.

AUL
: The z coordinate of the upper left corner for a plotted area.

XLR
: The x coordinate of the lower right corner for a plotted area.

YLR
: The y coordinate of the lower right corner for a plotted area.

ZLR
: The z coordinate of the lower right corner for a plotted area.

Card(s) 16-e Plotted axis definition data. Enter only if NUSE is greater than or equal to zero, and ITP is greater than zero.

UX The direction cosine of plotted vertical axis with respect to the x axis.

UY The direction cosine of plotted vertical axis with respect to the y axis.

UZ The direction cosine of plotted vertical axis with respect the the z axis.

VX The direction cosine of plotted horizontal axis with respect to the x axis.

VY The direction cosine of plotted horizontal axis with respect to the y axis.

VZ The direction cosine of plotted horizontal axis with respect to the z axis.

Card 17 END CASE. This card is optional. It enables MULTI-KENO to read to the end of a case that contains an error and to start on a new case.

Card 18 END KENO. This card is optional and comes after the last card of the last case. No more data will be read after this card has been encountered.

5.4 MULTI-KENO General Geometry Input Data

If a GENERAL card is present in the input, then generalized GEOM data must be entered. The following GEOM input description is essentially the same as that found in ORNL-3622.

The outstanding feature of GEOM is its ability to describe multiple media may be included, while the permissible boundaries may be of any shape which can be described by quadric surfaces used singly or in combination.

The initial step in the geometric description of a system for GEOM is to enclose the entire system in a cuboid whose faces are parallel with the xy, yx, and xz coordinate planes. This cuboid is then divided into several smaller cuboids, called zones, by planes parallel to the coordinate planes and extending entirely across the system.

The zones, in turn, are then divided into smaller cuboids, called blocks, by planes again parallel to the coordinate axes but extending only across individual zones. The planes used as zone and block boundaries need not necessarily be boundaries between media; however, if a boundary between two media is a plane parallel to a coordinate plane, it is advantageous to make it a block or zone boundary. The use of the zone-block scheme allows complicated parts of the system under study to be divided into smaller blocks than may be needed for simpler regions. If the whole system is relatively simple or requires a similar description throughout, the system should be composed of one zone divided into many blocks rather than many zones of one block each.

Boundaries between media which are not also block boundaries may be any quadric surface. A quadric surface is defined by the zeros of a quadratic function, and divides all space into two regions. In one region, the function defining the surface will be positive; in the other it will be negative. Each block may contain a maximum of 32 such surfaces as medium boundaries. The surfaces will divide the block into sectors. A sector is defined as a volume positive to one set of quadric surfaces but negative to another set. Each sector must contain only one medium which may be the same as the medium in another sector. Spatial volumes containing a single medium which cannot be described by a single sector definition must be divided into two or more sectors. It is not necessary to mention every surface in the block in defining a sector. It is, in fact, more efficient to include in a sector definitionly those surfaces

which actually form the boundary of the sector. In addition sectors containing the same medium may overlap without error.

Care must be taken in the use of cones as quadric surfaces, since the quadratic equation describes a surface of two nappes. If, as is usual, the described surface is but one napper of the cone, a block boundary through the vertex must be used to cut off the surface.

Input to GEOM. (All alphabetic input must be left-adjusted.)

Card A : Format (I5)

a. An index which is not used in KENO but must be specified as a 2.

Card B : Format [A11,5(E10.5,A1)]

This card lists the zone boundaries in increasing order along the X axis, including the boundaries of the parallelpiped enclosing the entire system. Since the number of boundaries depends upon the problem, commas in the A1 fields separating the boundaries are used to indicate that the list continues, while the absence of a comma following the last boundary indicates that the list has ended. The all field is for the programmer's convenience and will be ignored by the code.

Card(s) B' : Format [6(E10.5,A1)]

If the number of boundaries exceeds the five allowed by the format of card B, the list is continued on as many cards B' as are required.

Card C : Format [A11,5(E10.5,A1)]

Identical with card B except that the listing is of the zone boundaries in order along the Y axis.

Card C' : Format [6(E10.5,A11)]

Identical with card B' but continues the Y axis zone boundaries.

Card D : Format [A11,5(E10.5,A1)]

Identical with card B except that the listing is of the zone boundaries in order along the Z axis.

Card D' : Format [6(E10.5,A1)]

Identical with card B' but continues the Z axis zone boundaries.

Cards E through P : Constitute a complete zone description. This set so cards must be included once for each zone.

a l m n
Card E : Format (A6,I5,I5,I5)

a. The word ZONE.

l,m,n: Each zone is located in the system by three integers: l, m, and n. These specify the zone as being the lth in the X direction, the mth in the Y direction, and the nth in the Z direction. The integers l, m, and n run from 1 to the maximum number of zones in each direction.

Card F : Format [A11,5(E10.5,A1)]

This card lists the block boundaries in this zone in increasing order along the X axis, including the boundaries of the zone.

Card(s) F' : Format [A11,5(E10.5,A1)]

This is a block list continuation card similar to card B' of the zone listing.

Cards G, G'

The same as cards F and F' except that the block boundaries along the Y axis are listed.

Cards H, H'

The same as cards F and F' except that the block boundaries along the Z axis are listed.

Cards J through P : Constitute a complete block description. This set of cards must be included once for each block in the zone.

a l m n
Card J : Format (A6,I5,I5,I5)

a. The word BLOCK.

l,m,n : Each block is located in the zone by three integers:

l, m, and n. These specify the block as being the lth in the direction, the mth in the Y direction, and the nth in the Z direction, within the given zone. The integers l, m, and n run from 1 to the maximum number of blocks in each direction.

Card K : Format [A12,10(I5,A1)]
(a, b)

a. The word MEDIA.

b. A list of the media, sector by sector, in the block. As with other lists, a comma in the A1 field indicates that the list continues; its termination is indicated by the absence of the comma. A media number of 1000 signifies an internal void, while a media number of 0 signifies an external void.

Card(s) K' : Format [12(I5,A1)]

The continuation, if required, of the medium list.

Card L : Format [A12,10(I5,A1)]
(a, b)

a. The word SURFACES.

b. A list of the quadric surfaces appearing in the block. Commas in the A1 field indicate that the list continues; a blank indicates the end of the list. The number appearing in this list derive from the order in which the surfaces are mathematically described on card R, which will be described later in the input.

Card L' : Format [8(I5,A1)]

The continuation, if needed, of the list begun on card L.

Card M : Format [A6,18I3)
(a, b)

a. The word SECTOR.

b. The designation of each sector with reference to its position relative to the quadric surfaces. For every sector in the block there must be a card M, which will have as many references as there are surfaces in the block. The status of the sector is listed according to the following key:

+1 : The sector is on the positive side of the surface.

-1 : The sector is on the negative side of the surface.

0 : The surface is not needed in the definition of the sector.

The order in which each reference to a quadric surface appears on each card M must correspond to the order in which the quadric surfaces are listed on card L.

If there is only one sector in a block, cards L and M should be omitted.

Card Q : Format (^{a}I5,11A6)

a. The total number of quadric surfaces in the entire system. The alphabetic data in the A6 fields is ignored by the code.

Card R : Format [4(^{a}E10.5,^{b}A5,^{c}A1)]

Each quadric surface is described by writing the quadratic function whose zeros define the surface, in a fixed field format resembling the normal manner of writing functions. Each term in the function is specified by :

a. The coefficient of the term.

b. May be XSQ, YSQ, ZSQ (used for x^2, y^2, and z^2) XZ, YX, YZ, XY, ZX, YZ, X, Y, Z, or blank.

c. A nonblank character in this field indicates the end of the function. The next function must start on a new card.

ACKNOWLEDGEMENT

The authors wish to express their thanks to J. Hirata and K. Satoh for their critical reading and encouragement. Thanks are also rendered to H. Okuno and Y. Tominaga of their valuable suggestions.

References

1) L.M. PERTIE and N.F. CROSS, "KENO-IV-An Improved Monte Carlo Criticality Program", ORNL 4938 (1975)

2) J. KATAKURA, Y. NAITO and Y. KOMURO, "Development of the Computer Code System JACS for Criticality Safety", Trans. of the ANS Vol. 41 (1982)

3) W.W. ENGLE, Jr., "A USERS MANUAL FOR ANISN: A One Dimensional Discrete Ordinates Transport Code with Anisotropic Scattering", K-1693, (1967)

Card Q : Format (I5[a],11A6)

a. The total number of quadric surfaces in the entire system. The alphabetic data in the A6 fields is ignored by the code.

Card R : Format [4(E10.5[a],A5[b],A1[c])]

Each quadric surface is described by writing the quadratic function whose zeros define the surface, in a fixed field format resembling the normal manner of writing functions. Each term in the function is specified by :

a. The coefficient of the term.

b. May be XSQ, YSQ, ZSQ (used for x^2, y^2, and z^2) XZ, YX, YZ, XY, ZX, YZ, X, Y, Z, or blank.

c. A nonblank character in this field indicates the end of the function. The next function must start on a new card.

ACKNOWLEDGEMENT

The authors wish to express their thanks to J. Hirata and K. Satoh for their critical reading and encouragement. Thanks are also rendered to H. Okuno and Y. Tominaga of their valuable suggestions.

References

1) L.M. PERTIE and N.F. CROSS, "KENO-IV-An Improved Monte Carlo Criticality Program", ORNL 4938 (1975)

2) J. KATAKURA, Y. NAITO and Y. KOMURO, "Development of the Computer Code System JACS for Criticality Safety", Trans. of the ANS Vol. 41 (1982)

3) W.W. ENGLE, Jr., "A USERS MANUAL FOR ANISN: A One Dimensional Discrete Ordinates Transport Code with Anisotropic Scattering", K-1693, (1967)

Card Q : Format (I5,11A6)
                a

a. The total number of quadric surfaces in the entire system.
   The alphabetic data in the A6 fields is ignored by the code.

Card R : Format [4(E10.5,A5,A1)]
                a   b c

Each quadric surface is described by writing the quadratic function whose zeros define the surface, in a fixed field format resembling the normal manner of writing functions. Each term in the function is specified by :

a. The coefficient of the term.
b. May be XSQ, YSQ, ZSQ (used for x^2, y^2, and z^2)
   XZ, YX, YZ, XY, ZX, YZ, X, Y, Z, or blank.
c. A nonblank character in this field indicates the end of the function. The next function must start on a new card.

ACKNOWLEDGEMENT

The authors wish to express their thanks to J. Hirata and K. Satoh for their critical reading and encouragement. Thanks are also rendered to H. Okuno and Y. Tominaga of their valuable suggestions.

References

1) L.M. PERTIE and N.F. CROSS, "KENO-IV-An Improved Monte Carlo Criticality Program", ORNL 4938 (1975)
2) J. KATAKURA, Y. NAITO and Y. KOMURO, "Development of the Computer Code System JACS for Criticality Safety", Trans. of the ANS Vol. 41 (1982)
3) W.W. ENGLE, Jr., "A USERS MANUAL FOR ANISN: A One Dimensional Discrete Ordinates Transport Code with Anisotropic Scattering", K-1693, (1967)

APPENDIX A : Sample problem input

This appendix contains a set of 6 sample problems that demonstrate some of the options available in MULTI-KENO. Included for each sample problem is a brief problem description followed by the card input data necessary to excute the problem.

SAMPLE PROBLEM 1 : SUPER 1

This sample is consisted of two super boxes, each of which contains 2x2x1 array of cylinders. The graphic output of this sample is shown in Fig. A-1 and A-2.

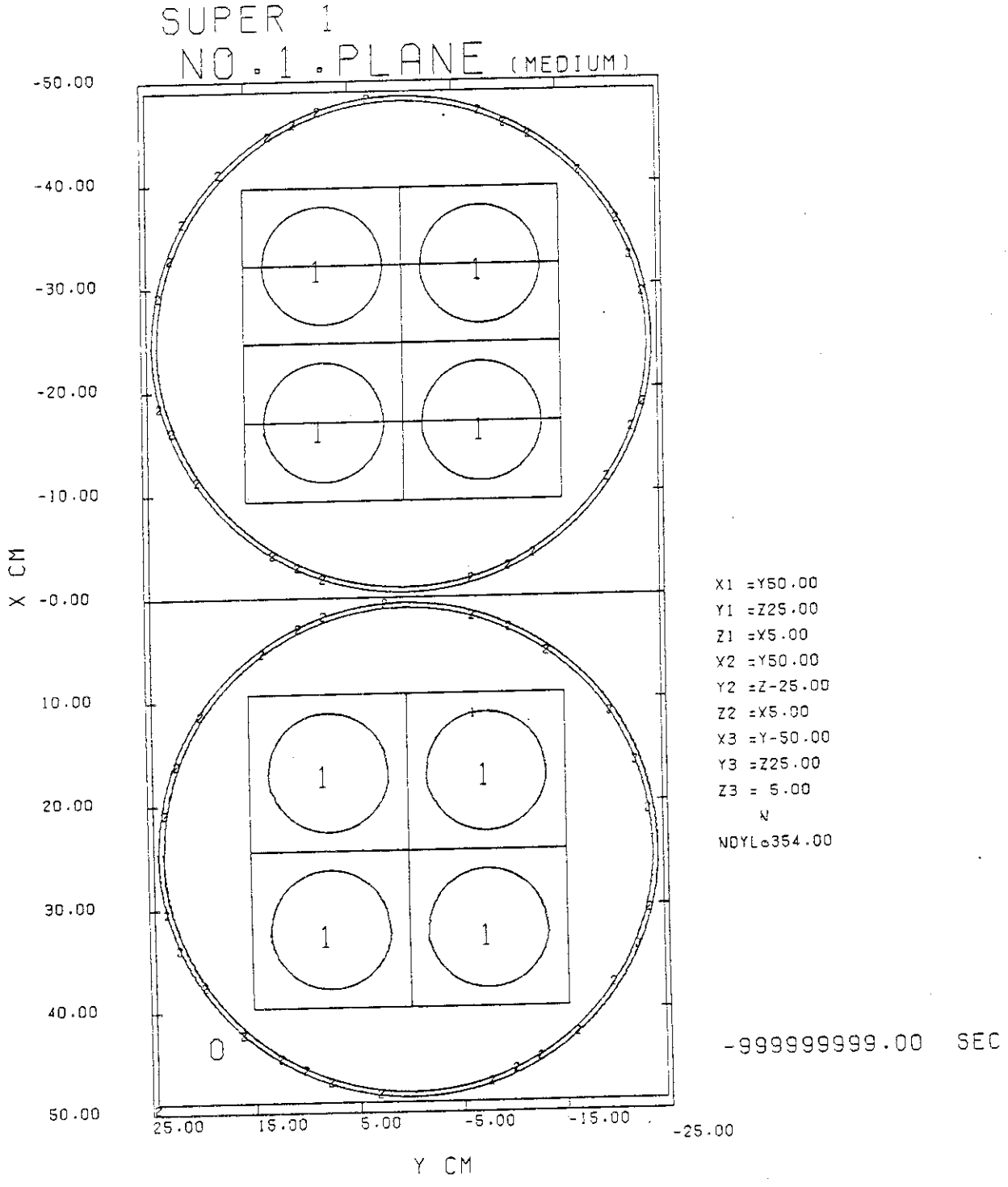


Fig. A-1 SUPER 1

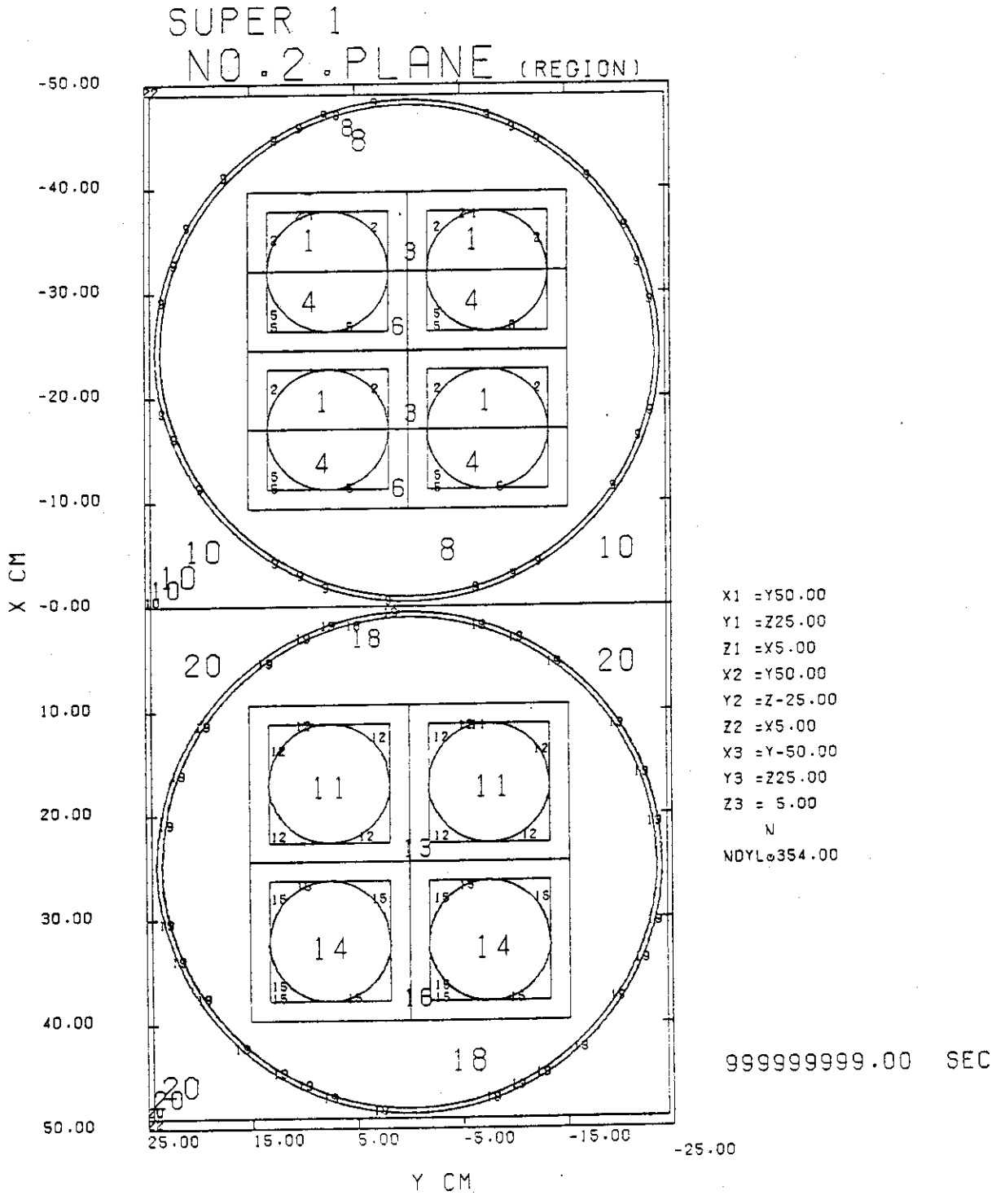


Fig. A-2 SUPER 1

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
   1  SUPER 1
   2 ** PARAMETER CARD
   3   2.3  103  300    3   16    6    6    2    6   22    2    2    1    2
   4     6    0    0   30    0    0    0    0    0    0    0    0    0    0
   5 **MIXING TABLE
   6           1    -92500 4.48006-2
   7           1     92800 2.65780-3
   8           1     92400 4.82700-4
   9           1     92600 9.57000-5
  10           2      1101 8.25810-2
  11           2      6100 3.97020-2
  12 *** GEOMETRY CARD AND WEIGHTS. **************************************************
  13 SUPER BOX       1    2    4    2    1
  14 BOX TYPE        1
  15 ZHEMICYL-X      1  5.748   5.3825 -5.3825                              16*0.5
  16 CUBOID          0  0.0    -5.748   5.748  -5.748   5.3825 -5.3825     16*0.5
  17 CUBOID          0  0.0    -7.585   7.585  -7.585   7.22   -7.22       16*0.5
  18 BOX TYPE        2
  19 ZHEMICYL+X      1  5.748   5.3825 -5.3825                              16*0.5
  20 CUBOID          0  5.748   0.0     5.748  -5.748   5.3825 -5.3825     16*0.5
  21 CUBOID          0  7.585   0.0     7.585  -7.585   7.22   -7.22       16*0.5
  22 CELL BDY        0 15.17  -15.17   15.17  -15.17    7.22   -7.22       16*0.5
  23 CYLINDER        0 23.5     7.22   -7.22                               16*0.5
  24 CYLINDER        2 24.0     7.22   -7.22                               16*0.5
  25 CUBOID          0 24.5   -24.5    24.5   -24.5     7.22   -7.22       16*0.5
  26 ************************************************
  27 SUPER BOX       2    2    2    2    1
  28 BOX TYPE        1
  29 CYLINDER        1 5.748   5.3825 -5.3825                              16*0.5
  30 CUBOID          0  5.748  -5.748   5.748  -5.748   5.3825 -5.3825     16*0.5
  31 CUBOID          0  7.585  -7.585   7.585  -7.585   7.22   -7.22       16*0.5
  32 BOX TYPE        2
  33 CYLINDER        1  5.748   5.3825 -5.3825                              16*0.5
  34 CUBOID          0  5.748  -5.748   5.748  -5.748   5.3825 -5.3825     16*0.5
  35 CUBOID          0 7.585  -7.585   7.585  -7.585   7.22   -7.22       16*0.5
  36 CELL BDY        0 15.17  -15.17   15.17  -15.17    7.22   -7.22       16*0.5
  37 CYLINDER        0 23.5     7.22   -7.22                               16*0.5
  38 CYLINDER        2 24.0     7.22   -7.22                               16*0.5
  39 CUBOID          0 24.5   -24.5    24.5   -24.5     7.22   -7.22       16*0.5
  40 CORE BDY        0 49.0   -49.0    24.5   -24.5    14.44  -14.44       16*0.5
  41 CUBOID          2 50.0   -50.0    25.0   -25.0    14.94  -14.94       16*0.5
  42   1  1  3  2  1  2  1  1  1  1  0    2  2  4  2  1  2  1  1  1  1  1
  43   1  1  1  1  1  2  1  1  1  1  0    2  2  2  1  1  2  1  1  1  1  1
  44   1  1  1  1  1  1  1  1  2  1  0    2  2  2  1  1  1  1  1  2  1  1
  45   0
  46   1  0
  47 -60.0      30.0       5.0       60.0      -30.0      5.0
  48  1.0        0.0       0.0        0.0        1.0      0.0
  49 118 98 0.0 0.0 3
  50   1  1
  51 -60.0      30.0       5.0       60.0      -30.0      5.0
  52  1.0        0.0       0.0        0.0        1.0      0.0
  53  118 98 0.0 0.0 1
  54   0  0
  55 END KENO
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

SAMPLE PROBLEM 2 : GENRL 1

This sample is the same as sample problem 1 except it is used general geometry option. The graphic output of this sample is shown in Fig. A-3.

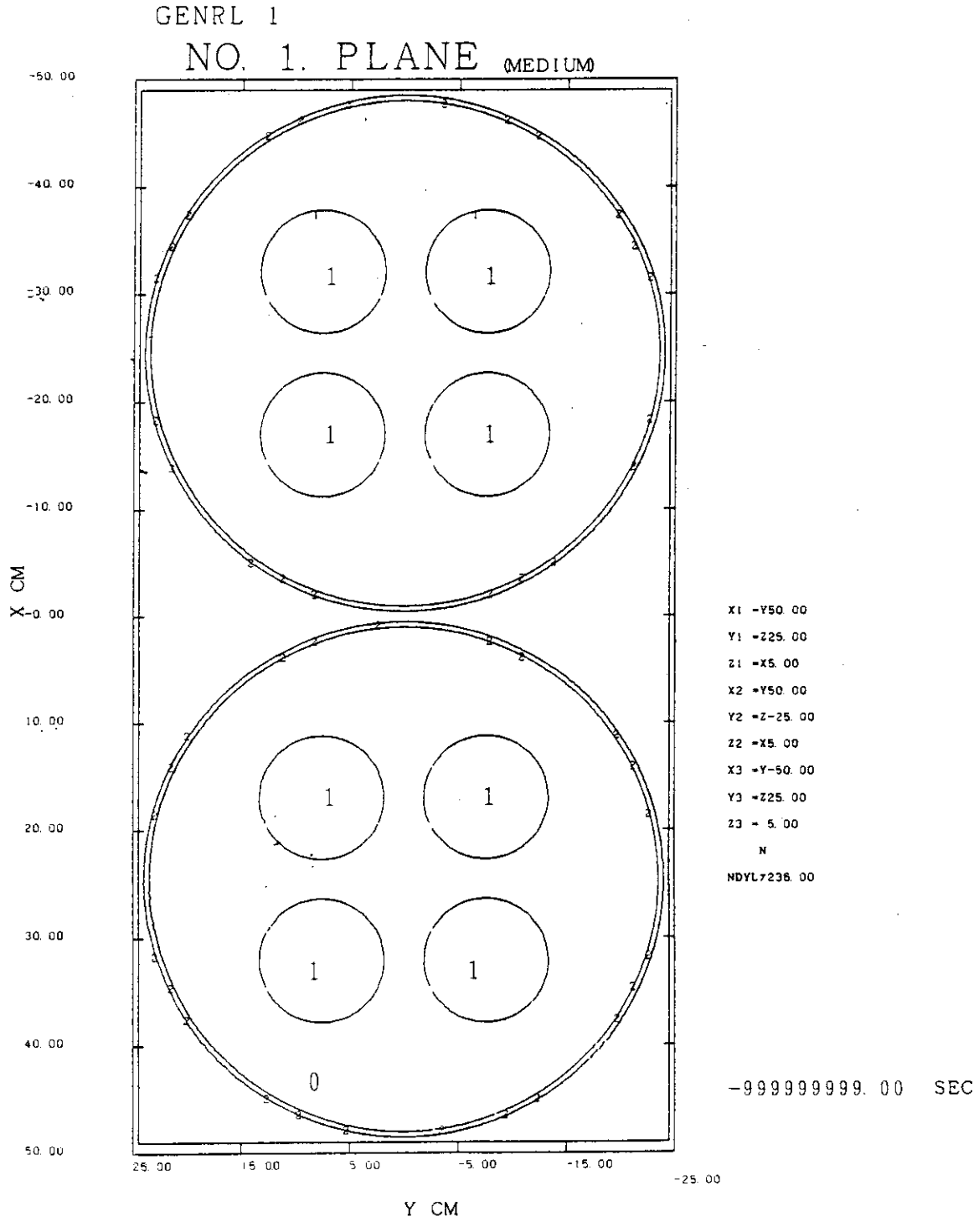


Fig. A-3 GENRL 1

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
   1  GENRL 1
   2   0.3  103  300    3   16    6    6    3    7    7    1    1    1    1
   3     6    0    0   30    0    0    0    0    0    0    0    0    0    0
   4          1    -92500 4.48006-2
   5          1     92800 2.65780-3
   6          1     92400 4.82700-4
   7          1     92600 9.57000-5
   8          2      1101 8.25810-2
   9          2      6100 3.97020-2
  10          3      6100 3.97020-20
  11 SUPER BOX      1    1    1    1    1
  12 BOX TYPE       1
  13 GENERAL        1  0.0     0.0     0.0     0.0     0.0     0.0     16*0.5
  14 GENERAL        2  0.0     0.0     0.0     0.0     0.0     0.0     16*0.5
  15 GENERAL        0 49.0   -49.0    24.5   -24.5    14.44  -14.44    16*0.5
  16 GENERAL        3 49.0   -49.0    24.5   -24.5    14.44  -14.44    16*0.5
  17 CUBOID         0 49.0   -49.0    24.5   -24.5    14.44  -14.44    16*0.5
  18 CORE BDY       0 49.0   -49.0    24.5   -24.5    14.44  -14.44    16*0.5
  19 CUBOID         2 50.0  -50.0    25.0   -25.0    14.94  -14.94     16*0.5
  20     2     FEMALE SINGLE
  21 X-ZONE      -49.0     , 0.0     , 49.0
  22 Y-ZONE      -24.5     , 24.5
  23 Z-ZONE      -14.44    ,-12.6025  , -1.8375  ,  1.8375  , 12.6025  , 14.44
  24   14.44
  25 ZONE       1    1    1
  26 X-BLOCK     -49.0     , 0.0
  27 Y-BLOCK     -24.5     , 24.5
  28 Z-BLOCK     -14.44    ,-12.6025
  29 BLOCK      1    1    1
  30 MEDIA           4,    2,    4
  31 SURFACES        5,    6
  32 SECTOR -1
  33 SECTOR +1 -1
  34 SECTOR    +1
  35 ZONE       1    1    2
  36 X-BLOCK     -49.0     , 0.0
  37 Y-BLOCK     -24.5     , 24.5
  38 Z-BLOCK     -12.6025  , -1.8375
  39 BLOCK      1    1    1
  40 MEDIA           1,    1,    1,    4,    2,    4
  41 SURFACES        1,    2,    3,    4,    5,    6
  42 SECTOR -1
  43 SECTOR    -1
  44 SECTOR       -1
  45 SECTOR          -1
  46 SECTOR +1 +1 +1 +1 -1
  47 SECTOR             +1 -1
  48 SECTOR                +1
  49 ZONE       1    1    3
  50 X-BLOCK     -49.0     , 0.0
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
  51 Y-BLOCK     -24.5      , 24.5
  52 Z-BLOCK      -1.8375  ,  1.8375
  53 BLOCK      1     1     1
  54 MEDIA             4,     2,     4
  55 SURFACES          5,     6
  56 SECTOR -1
  57 SECTOR +1 -1
  58 SECTOR    +1
  59 ZONE       1     1     4
  60 X-BLOCK     -49.0      , 0.0
  61 Y-BLOCK     -24.5      , 24.5
  62 Z-BLOCK       1.8375  , 12.6025
  63 BLOCK      1     1     1
  64 MEDIA             1,     1,     1,     1,     4,     2,     4
  65 SURFACES          1,     2,     3,     4,     5,     6
  66 SECTOR -1
  67 SECTOR    -1
  68 SECTOR        -1
  69 SECTOR           -1
  70 SECTOR +1 +1 +1 +1 -1
  71 SECTOR               +1 -1
  72 SECTOR                  +1
  73 ZONE       1     1     5
  74 X-BLOCK     -49.0      , 0.0
  75 Y-BLOCK     -24.5      , 24.5
  76 Z-BLOCK      12.6025  , 14.44
  77 BLOCK      1     1     1
  78 MEDIA             4,     2,     4
  79 SURFACES          5,     6
  80 SECTOR -1
  81 SECTOR +1 -1
  82 SECTOR    +1
  83 ZONE       2     1     1
  84 X-BLOCK      0.0       , 49.0
  85 Y-BLOCK     -24.5      , 24.5
  86 Z-BLOCK     -14.44     ,-12.6025
  87 BLOCK      1     1     1
  88 MEDIA             4,     2,     4
  89 SURFACES         11,    12
  90 SECTOR -1
  91 SECTOR +1 -1
  92 SECTOR    +1
  93 ZONE       2     1     2
  94 X-BLOCK      0.0       , 49.0
  95 Y-BLOCK     -24.5      , 24.5
  96 Z-BLOCK     -12.6025   , -1.8375
  97 BLOCK      1     1     1
  98 MEDIA             1,     1,     1,     1,     4,     2,     4
  99 SURFACES          7,     8,     9,    10,    11,    12
 100 SECTOR -1
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
 101 SECTOR    -1
 102 SECTOR       -1
 103 SECTOR          -1
 104 SECTOR +1 +1 +1 +1 -1
 105 SECTOR             +1 -1
 106 SECTOR                +1
 107 ZONE      2    1    3
 108 X-BLOCK     0.0      , 49.0
 109 Y-BLOCK    -24.5     , 24.5
 110 Z-BLOCK     -1.8375  ,  1.8375
 111 BLOCK     1    1    1
 112 MEDIA           4,    2,    4
 113 SURFACES       11,   12
 114 SECTOR -1
 115 SECTOR +1 -1
 116 SECTOR    +1
 117 ZONE      2    1    4
 118 X-BLOCK     0.0      , 49.0
 119 Y-BLOCK    -24.5     , 24.5
 120 Z-BLOCK      1.8375  , 12.6025
 121 BLOCK     1    1    1
 122 MEDIA           1,    1,    1,    1,    4,    2,    4
 123 SURFACES        7,    8,    9,   10,   11,   12
 124 SECTOR -1
 125 SECTOR    -1
 126 SECTOR       -1
 127 SECTOR          -1
 128 SECTOR +1 +1 +1 +1 -1
 129 SECTOR             +1 -1
 130 SECTOR                +1
 131 ZONE      2    1    5
 132 X-BLOCK     0.0      , 49.0
 133 Y-BLOCK    -24.5     , 24.5
 134 Z-BLOCK     12.6025  , 14.44
 135 BLOCK     1    1    1
 136 MEDIA           4,    2,    4
 137 SURFACES       11,   12
 138 SECTOR -1
 139 SECTOR +1 -1
 140 SECTOR    +1
 141    12
 142  1.0      XSQ    1.0      YSQ    64.17    X      15.17    Y
 143 1053.93995     ¥
 144  1.0      XSQ    1.0      YSQ    33.83    X      15.17    Y
 145 310.609946     ¥
 146  1.0      XSQ    1.0      YSQ    64.17    X     -15.17    Y
 147 1053.93995     ¥
 148  1.0      XSQ    1.0      YSQ    33.83    X     -15.17    Y
 149 310.609946     ¥
 150  1.0      XSQ    1.0      YSQ    49.0     X      48.0          ¥
 151  1.0      XSQ    1.0      YSQ    49.0     X      24.25         ¥
 152  1.0      XSQ    1.0      YSQ   -64.17    X      15.17    Y
 153 1053.93995     ¥
 154  1.0      XSQ    1.0      YSQ   -33.83    X      15.17    Y
 155 310.609946     ¥
 156  1.0      XSQ    1.0      YSQ   -64.17    X     -15.17    Y
 157 1053.93995     ¥
 158  1.0      XSQ    1.0      YSQ   -33.83    X     -15.17    Y
 159 310.609946     ¥
 160  1.0      XSQ    1.0      YSQ   -49.0     X      48.0          ¥
 161  1.0      XSQ    1.0      YSQ   -49.0     X      24.25         ¥
 162   0
 163  1  0
 164 -50.0 25.0 5.0 50.0 -25.0 5.0
 165 1.0 0.0 0.0 0.0 1.0 0.0
 166 118 98 0.0 0.0 2
 167 0 0
 168 END KENO
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

SAMPLE PROBLEM 3 : SUPER 2

This sample is consisted of two super boxes. One contains 5x4x1 array of cylinders. Another contains 2x2x1 array of cylinders. The graphic output of this sample is shown in Fig. A-4 and A-5.

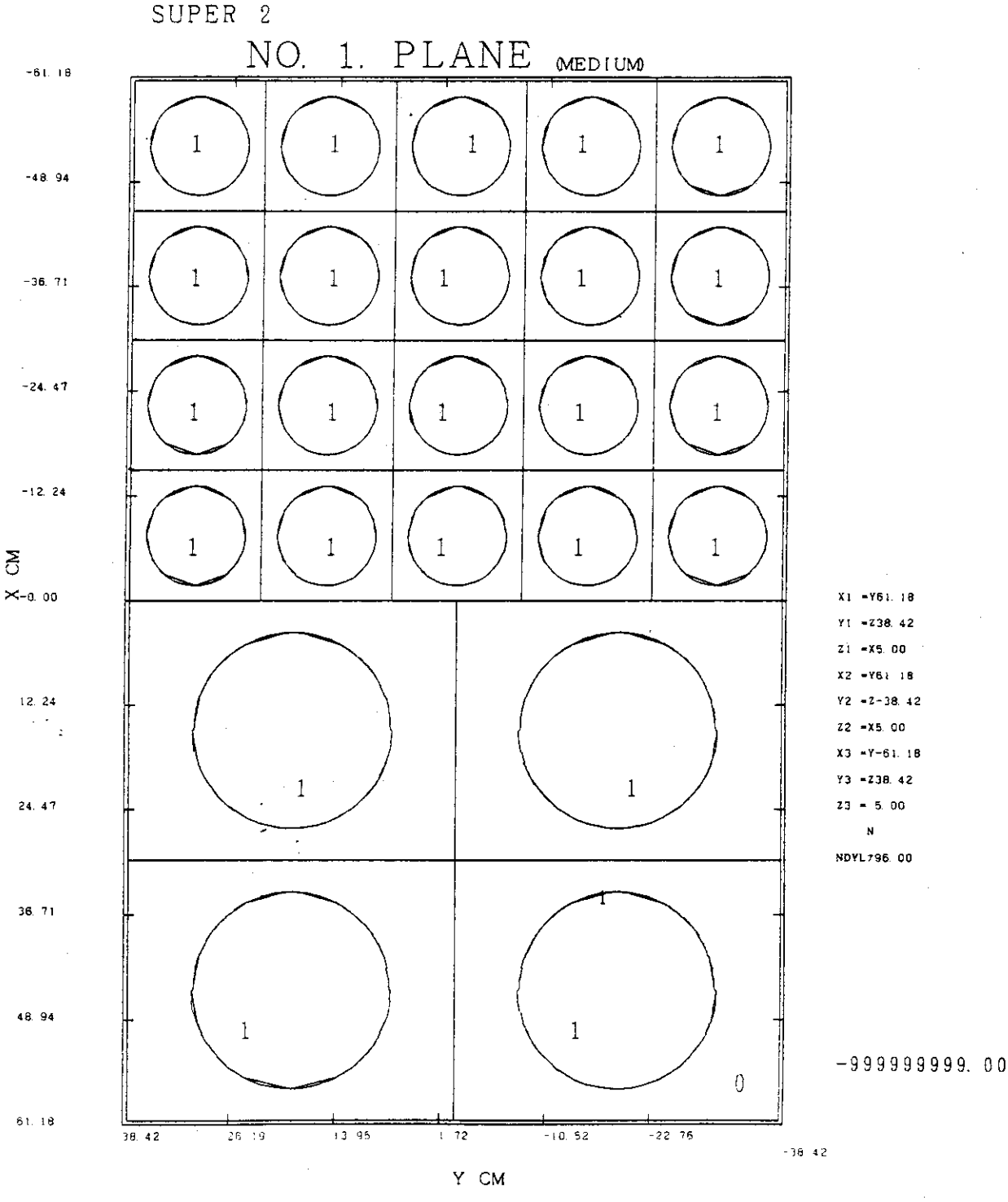


Fig. A-4 SUPER 2

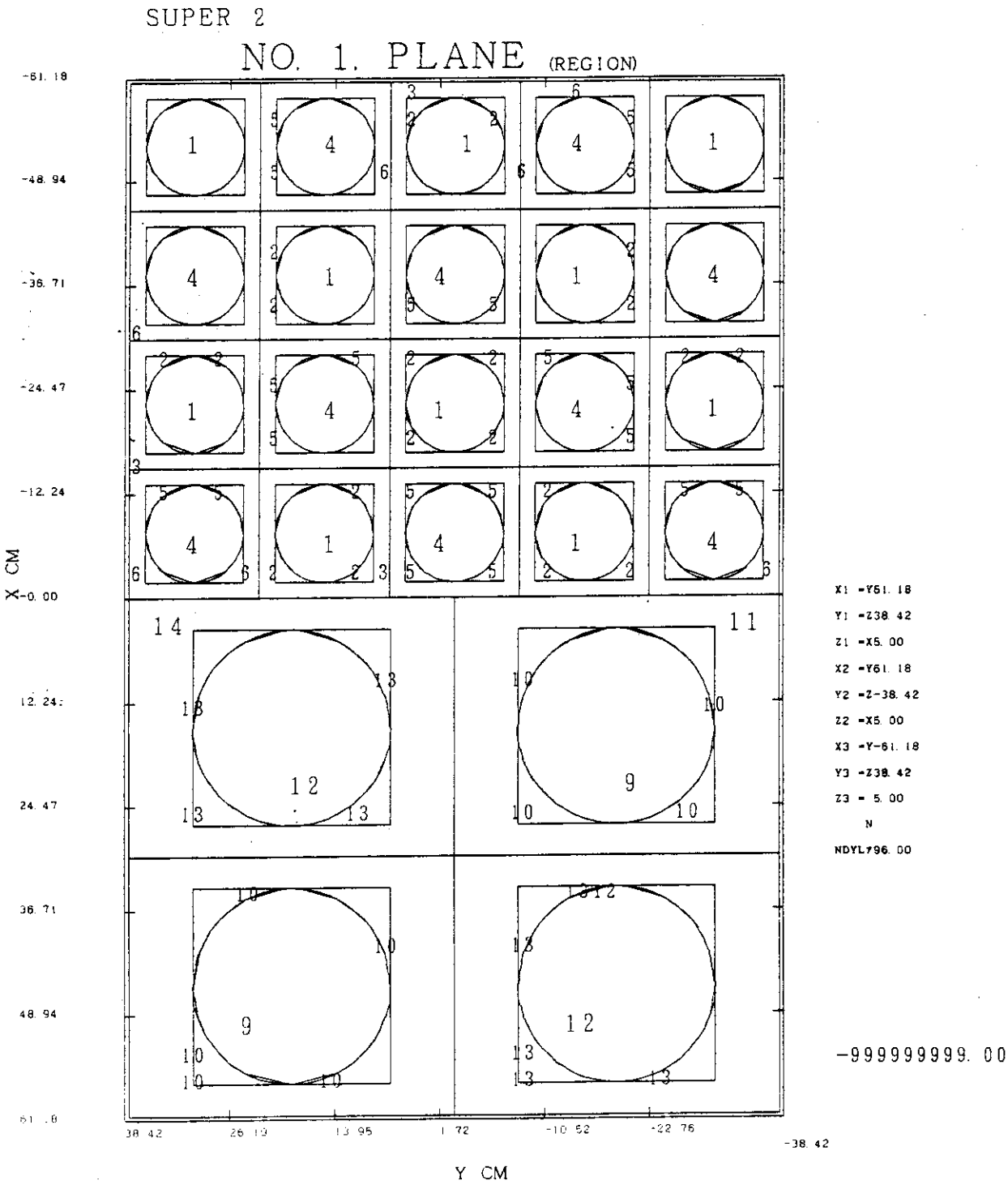


Fig. A-5 SUPER 2

SAMPLE PROBLEM 4 : GENRL 2

This sample is the same as sample problem 3 except it is used general geometry option. The graphic output of this sample is shown in Fig. A-6.

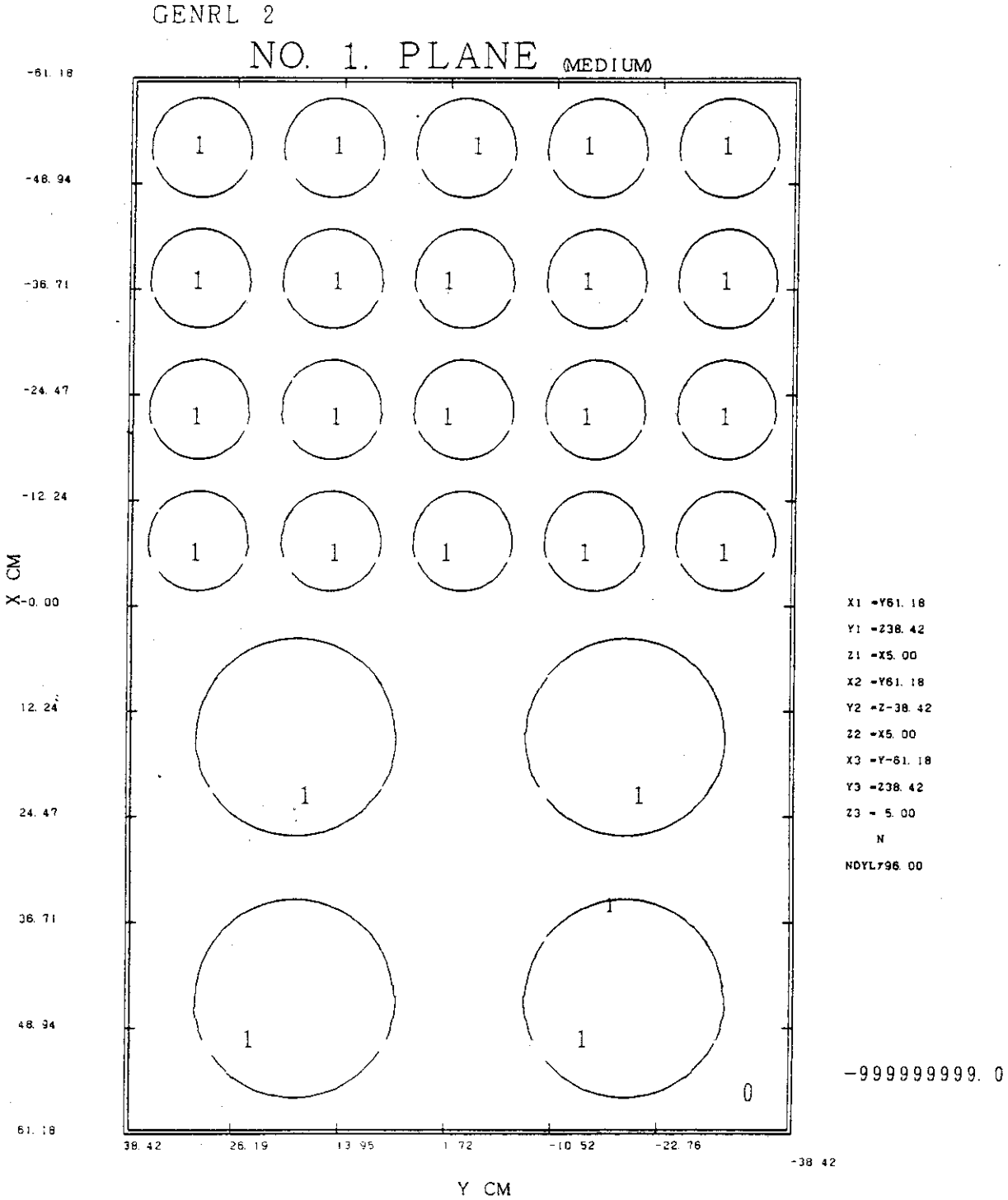


Fig. A-6 GENRL 2

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
   1  GENRL 2
   2  10.0  103  300    3   16    6    6    2    6    6    1    1    1    1
   3     6    0    0   20    0    0    0    0    0    0    0    0    0    0
   4          1    -92500 4.48006-2
   5          1     92800 2.65780-3
   6          1     92400 4.82700-4
   7          1     92600 9.57000-5
   8          2      1101 8.25810-2
   9          2      6100 3.97020-2
  10 SUPER BOX       1    1    1    1    1
  11 GENERAL         1  0.0     0.0     0.0     0.0     0.0     0.0     16*0.5
  12 GENERAL         2  0.0     0.0     0.0     0.0     0.0     0.0     16*0.5
  13 GENERAL         0 60.68  -60.68   37.925 -37.925   7.22   -7.22    16*0.5
  14 CUBOID          0 60.69  -60.69   37.926 -37.926   7.23   -7.23    16*0.5
  15 CORE BDY        0 60.69  -60.69   37.926 -37.926   7.23   -7.23    16*0.5
  16 CUBOID          2 61.18  -61.18   38.425 -38.425   7.23   -7.23    16*0.5
  17     2      FEMALE SINGLE
  18 X-ZONE      -60.68    , 60.68
  19 Y-ZONE      -37.925   , 37.925
  20 Z-ZONE       -7.22    , -5.3825  ,  5.3825  ,  7.22
  21 ZONE        1    1    1
  22 X-BLOCK     -60.68    , 60.68
  23 Y-BLOCK     -37.925   , 37.925
  24 X-BLOCK      -7.22    , -5.3825
  25 BLOCK       1    1    1
  26 MEDIA            3
  27 ZONE        1    1    2
  28 X-BLOCK     -60.68    , 60.68
  29 Y-BLOCK     -37.925   , 37.925
  30 Z-BLOCK      -5.3825  ,  5.3825
  31 BLOCK       1    1    1
  32 MEDIA          1,    1,    1,    1,    1,    1,    1,    1,    1,    1,
  33     1,    1,    1,    1,    1,    1,    1,    1,    1,    1,    1,    1,
  34     1,    1,    3
  35 SURFACES       1,    2,    3,    4,    5,    6,    7,    8,    9,   10,
  36    11,   12,   13,   14,   15,   16,   17,   18,   19,   20,   21,   22,
  37    23,   24
  38 SECTOR -1
  39
  40 SECTOR    -1
  41
  42 SECTOR       -1
  43
  44 SECTOR          -1
  45
  46 SECTOR             -1
  47
  48 SECTOR                -1
  49
  50 SECTOR                   -1
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
  51
  52 SECTOR                        -1
  53
  54 SECTOR                           -1
  55
  56 SECTOR                              -1
  57
  58 SECTOR                                 -1
  59
  60 SECTOR                                    -1
  61
  62 SECTOR                                       -1
  63
  64 SECTOR                                          -1
  65
  66 SECTOR                                             -1
  67
  68 SECTOR                                                -1
  69
  70 SECTOR                                                   -1
  71
  72 SECTOR                                                      -1
  73
  74 SECTOR                                                         -1
  75
  76 SECTOR                                                            -1
  77
  78 SECTOR                                                               -1
  79
  80 SECTOR                                                                  -1
  81
  82 SECTOR
  83  -1
  84 SECTOR
  85     -1
  86 SECTOR +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1 +1
  87  +1 +1
  88 ZONE       1     1     3
  89 X-BLOCK     -60.68     , 60.68
  90 Y-BLOCK     -37.925    , 37.925
  91 X-BLOCK       5.3825   ,  7.22
  92 BLOCK      1     1     1
  93 MEDIA            3
  94    24
  95  1.0       XSQ     1.0       YSQ     106.19    X       60.68     Y
  96 3706.55512       ¥
  97  1.0       XSQ     1.0       YSQ      75.85    X       60.68     Y
  98 2325.78172       ¥
  99  1.0       XSQ     1.0       YSQ      45.51    X       60.68     Y
 100 1405.26612       ¥
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
 101  1.0       XSQ     1.0       YSQ      15.17    X       60.68     Y
 102 945.008321      ¥
 103  1.0       XSQ     1.0       YSQ     106.19    X       30.34     Y
 104 3016.16842      ¥
 105  1.0       XSQ     1.0       YSQ      75.85    X       30.34     Y
 106 1635.39502      ¥
 107  1.0       XSQ     1.0       YSQ      45.51    X       30.34     Y
 108 714.879421      ¥
 109  1.0       XSQ     1.0       YSQ      15.17    X       30.34     Y
 110 254.621621      ¥
 111  1.0       XSQ     1.0       YSQ     106.19    X     2786.03952      ¥
 112  1.0       XSQ     1.0       YSQ      75.85    X     1405.26612      ¥
 113  1.0       XSQ     1.0       YSQ      45.51    X     484.750521      ¥
 114  1.0       XSQ     1.0       YSQ      15.17    X     24.4927210      ¥
 115  1.0       XSQ     1.0       YSQ     106.19    X      -30.34     Y
 116 3016.16842      ¥
 117  1.0       XSQ     1.0       YSQ      75.85    X      -30.34     Y
 118 1635.39502      ¥
 119  1.0       XSQ     1.0       YSQ      45.51    X      -30.34     Y
 120 714.879421      ¥
 121  1.0       XSQ     1.0       YSQ      15.17    X      -30.34     Y
 122 254.621621      ¥
 123  1.0       XSQ     1.0       YSQ     106.19    X      -60.68     Y
 124 3706.55512      ¥
 125  1.0       XSQ     1.0       YSQ      75.85    X      -60.68     Y
 126 2325.78172      ¥
 127  1.0       XSQ     1.0       YSQ      45.51    X      -60.68     Y
 128 1405.26612      ¥
 129  1.0       XSQ     1.0       YSQ      15.17    X      -60.68     Y
 130 945.008321      ¥
 131  1.0       XSQ     1.0       YSQ     -30.34    X       37.925    Y
 132 457.547290      ¥
 133  1.0       XSQ     1.0       YSQ     -91.02    X       37.925    Y
 134 2298.57849      ¥
 135  1.0       XSQ     1.0       YSQ     -30.34    X      -37.925    Y
 136 457.547290      ¥
 137  1.0       XSQ     1.0       YSQ     -91.02    X      -37.925    Y
 138 2298.57849      ¥
 139   0
 140   1  0
 141 -61.18   38.425   5.0    61.18  -38.425   5.0
 142   1.0       0.0        0.0       0.0       1.0       0.0
 143  96 100 0.0 0.0 1
 144   0  0
 145 END KENO
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

SAMPLE PROBLEM 5 : INTRSCT

This sample contains intersecting geometry. The graphic output of this sample is shown in Fig. A-7 and A-8.

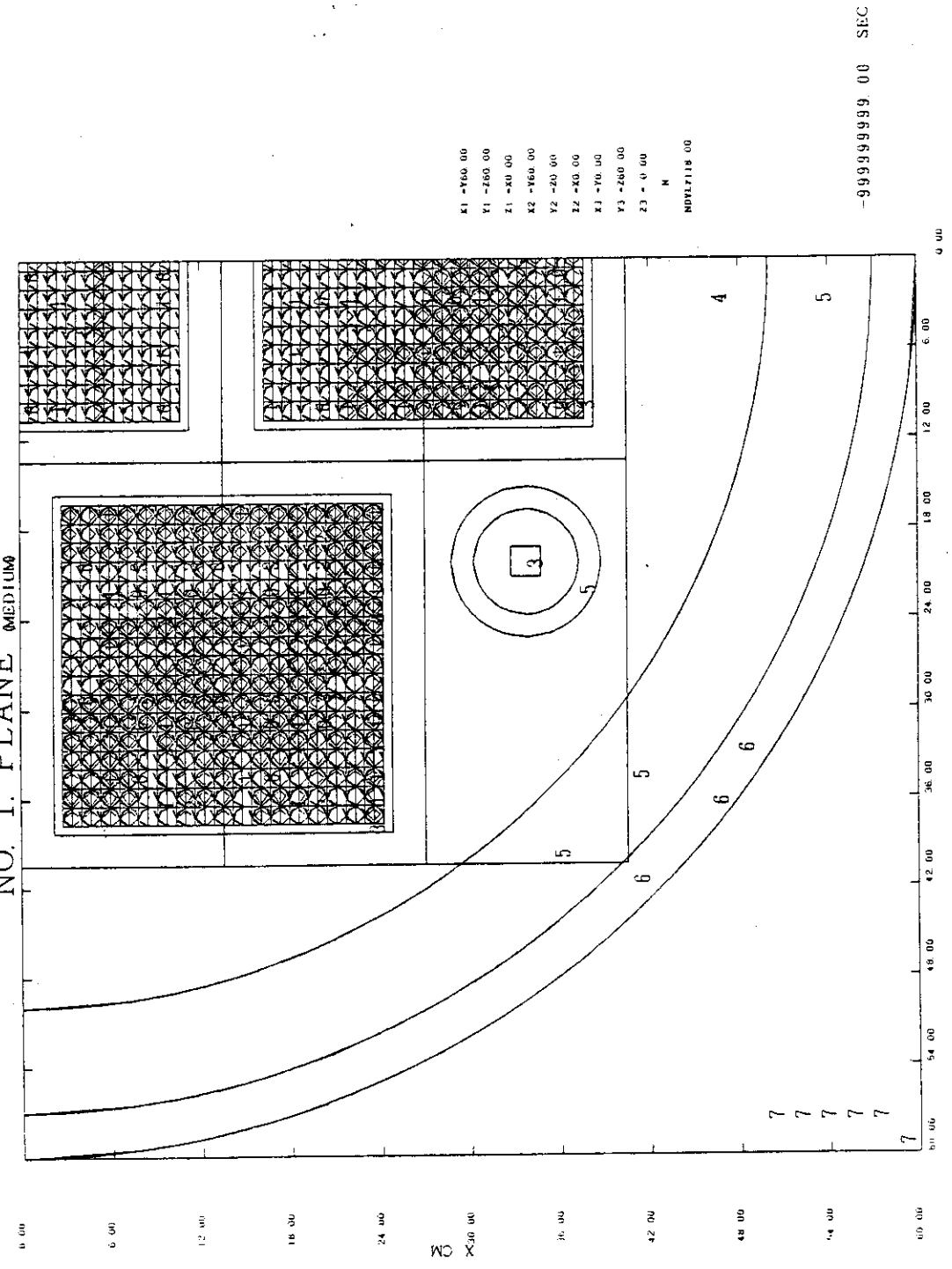


Fig. A-7 INTRSCT

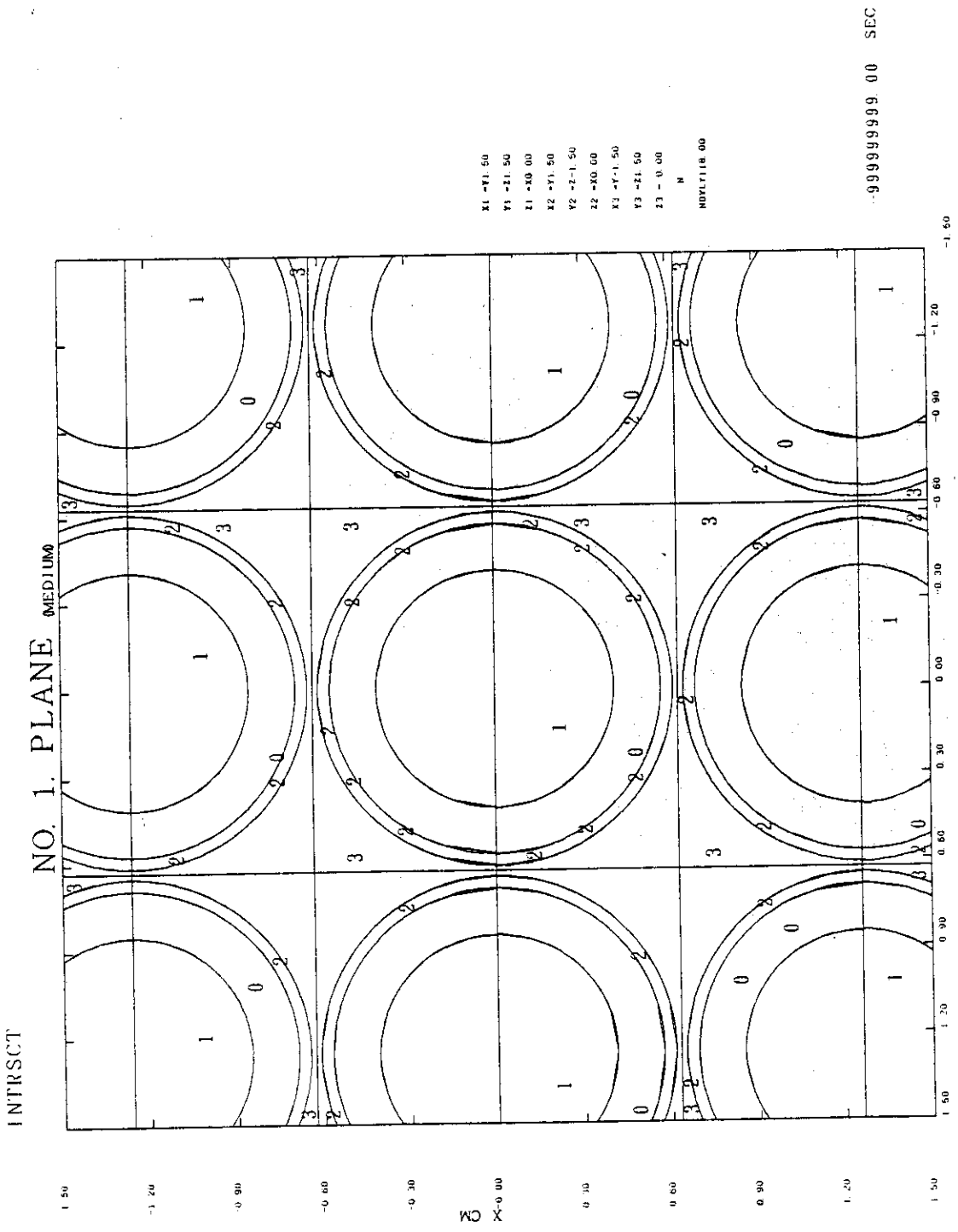


Fig. A-8 INTRSCT

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
   1 INTRSCT
   2   4.5  103  300    3   16    6   14    7   22   38    4    6    3    1
   3    14    0    0   20    0    0    0    0    0    0    0    0    0    0
   4          1   -92500 7.90446-4
   5          1    92800 2.21742-2
   6          1     8100 4.59294-2
   7          2    40100 4.24660-2
   8          3     1101 6.67593-2
   9          3     8100 3.33797-2
  10          4    12100 6.69031-4
  11          4    13100 4.90267-2
  12          4    14100 6.94757-3
  13          4    26100 3.49400-4
  14          4    28100 6.92420-4
  15          5    24100 1.77161-2
  16          5    25100 1.25574-3
  17          5    26100 5.85278-2
  18          5    28100 8.50907-3
  19          6    25100 1.07568-3
  20          6    26100 8.35959-2
  21          7     1101 4.09866-2
  22          7     5100 7.73088-4
  23          7     6100 2.49906-2
  24          7     8100 2.22465-2
  25          7    13100 2.28119-3
  26 SUPER BOX    1    2   17   17    1
  27 BOX TYPE     1
  28 ZHEMICYL-X   1   0.4095 183.0  -183.0                          16*0.5
  29 ZHEMICYL-X   0   0.571  183.0  -183.0                          16*0.5
  30 ZHEMICYL-X   2   0.612  183.0  -183.0                          16*0.5
  31 CUBOID       3   0.0     -0.63   0.63  -0.63  183.0  -183.0  16*0.5
  32 BOX TYPE     2
  33 ZHEMICYL+X   1   0.4095 183.0  -183.0                          16*0.5
  34 ZHEMICYL+X   0   0.571  183.0  -183.0                          16*0.5
  35 ZHEMICYL+X   2   0.612  183.0  -183.0                          16*0.5
  36 CUBOID       3   0.63     0.0    0.63  -0.63  183.0  -183.0  16*0.5
  37 CELL BDY     0   0.0    -10.71  10.71 -10.71  183.0  -183.0  16*0.5
  38 CUBOID       3   0.0    -11.3   11.3  -11.3   183.0  -183.0  16*0.5
  39 CUBOID       4   0.0    -13.5   13.5  -13.5   183.0  -183.0  16*0.5
  40 SUPER BOX    2    2   17   17    1
  41 BOX TYPE     1
  42 ZHEMICYL-X   1   0.4095 183.0  -183.0                          16*0.5
  43 ZHEMICYL-X   0   0.571  183.0  -183.0                          16*0.5
  44 ZHEMICYL-X   2   0.612  183.0  -183.0                          16*0.5
  45 CUBOID       3   0.0     -0.63   0.63  -0.63  183.0  -183.0  16*0.5
  46 BOX TYPE     2
  47 ZHEMICYL+X   1   0.4095 183.0  -183.0                          16*0.5
  48 ZHEMICYL+X   0   0.571  183.0  -183.0                          16*0.5
  49 ZHEMICYL+X   2   0.612  183.0  -183.0                          16*0.5
  50 CUBOID       3   0.63     0.0    0.63  -0.63  183.0  -183.0  16*0.5
    ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
  51 CELL BDY        0  10.71      0.0     10.71   -10.71   183.0   -183.0   16*0.5
  52 CUBOID          3  11.3       0.0     11.3    -11.3    183.0   -183.0   16*0.5
  53 CUBOID          4  13.5       0.0     13.5    -13.5    183.0   -183.0   16*0.5
  54 SUPER BOX       3    1     1    1     1
  55 BOX TYPE        1
  56 CUBOID          3   1.0      -1.0      1.0     -1.0    183.0   -183.0   16*0.5
  57 CELL BDY        0   1.0      -1.0      1.0     -1.0    183.0   -183.0   16*0.5
  58 CYLINDER        3   3.5     183.0   -183.0                              16*0.5
  59 CYLINDER        5   5.0     183.0   -183.0                              16*0.5
  60 CUBOID          4   6.75     -6.75    20.25    -6.75   183.0   -183.0   16*0.5
  61 SUPER BOX       4    1     1    1     1
  62 BOX TYPE        1
  63 CUBOID          3   1.0      -1.0      1.0     -1.0    183.0   -183.0   16*0.5
  64 CELL BDY        0   1.0      -1.0      1.0     -1.0    183.0   -183.0   16*0.5
  65 CYLINDER        3   3.5     183.0   -183.0                              16*0.5
  66 CYLINDER        5   5.0     183.0   -183.0                              16*0.5
  67 CUBOID          4   6.75     -6.75     6.75   -20.25   183.0   -183.0   16*0.5
  68 CORE BDY        0  40.5     -40.5     40.5    -40.5    183.0   -183.0   16*0.5
  69 CYLINDER        4  50.0     183.0   -183.0                              16*0.5
  70 CYLINDER        5  57.0     183.0   -183.0                              16*0.5
  71 CYLINDER        6  60.0     183.0   -183.0                              16*0.5
  72 CYLINDER        7  89.5     183.0   -183.0                              16*0.5
  73 CUBOID          0 200.0    -200.0    200.0   -200.0    203.0   -203.0   16*0.5
  74   1  1 17  2  1 17  1  1  1  1  0  2  2 16  2  1 17  1  1  1  1  1
  75   1  2 16  2  1 17  1  1  1  1  0  2  1 17  2  1 17  1  1  1  1  1
  76   1  2  4  2  1  3  2  1  1  1  0  1  1  5  2  2  2  1  1  1  1  0
  77   2  3  5  2  1  3  2  1  1  1  0  2  2  6  2  2  2  1  1  1  1  0
  78   3  1  6  5  3  3  1  1  1  1  0  4  1  6  5  1  1  1  1  1  1  1
  79   0
  80   1  0
  81    0.0   60.0  0.0    60.0     0.0  0.0
  82    1.0    0.0  0.0     0.0     1.0  0.0
  83     59  98  0.0  0.0  2
  84   1  0
  85  -1.5    1.5  0.0     1.5    -1.5  0.0
  86    1.0    0.0  0.0     0.0     1.0  0.0
  87     59  98  0.0  0.0  2
  88   0  0
  89 END KENO
  90   1  0
  91 -100.0  100.0  0.0   100.0  -100.0  0.0
  92    1.0    0.0  0.0     0.0     1.0  0.0
  93     59  98  0.0  0.0  2
  94   1  1
  95  -60.0   60.0  0.0    60.0   -60.0  0.0
  96    1.0    0.0  0.0     0.0     1.0  0.0
  97     59  98  0.0  0.0  2
  98   1  0
  99   25.0   29.0  0.0    41.0    13.0  0.0
 100    1.0    0.0  0.0     0.0     1.0  0.0
 101     59  98  0.0  0.0  2
 102   1  1
 103   25.0   29.0  0.0    41.0    13.0  0.0
 104    1.0    0.0  0.0     0.0     1.0  0.0
 105     59  98  0.0  0.0  2
    ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

SAMPLE PROBLEM 6 : FIXSOU

This sample is a fixed source problem. The graphic output of this sample is shown in Fig. A-9 and A-10.

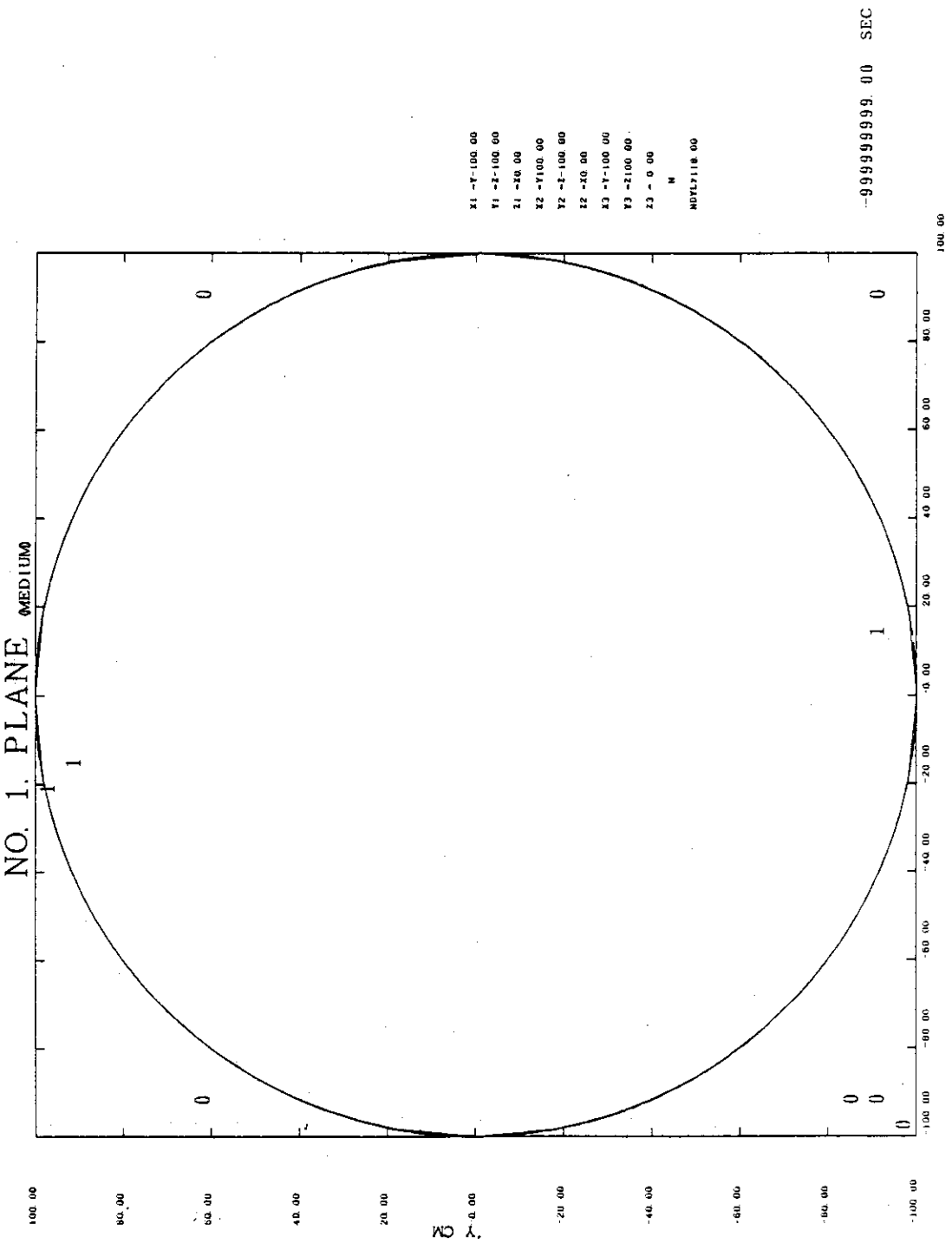


Fig. A-9 FIXSOU

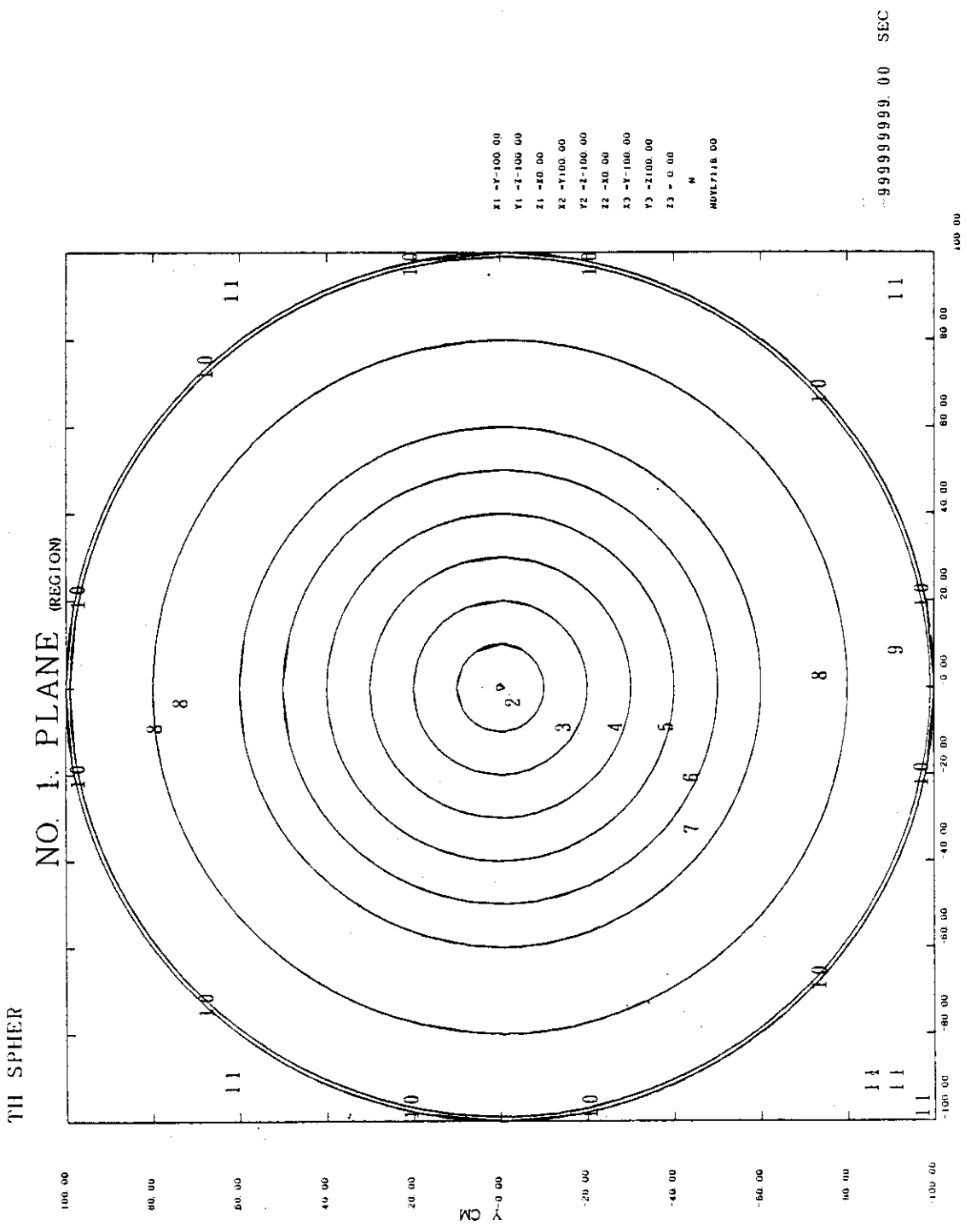


Fig. A-10 FIXSOU

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
   1 TH SPHERE WITH POINT SOURCE AT CENTER (27 GROUP, P3, S12, 1 M RADIUS)
   2   0.5  103 1000    0   26   10    1    1    1   13    0    1    1    1
   3     0    0    0   30    0    8   -1    0    0    0    0    0    4    5
   4          1        -1 2.9300-2
   5   CROSS  SECTION                                                     0
   6  1.0          0.33         0.9696       6.30         3.475        0.0
   7  0.0          0.0          0.0          0.0          0.0          0.0
   8  0.0          0.0
   9  1.0          0.17         0.396        7.5          4.095        0.045
  10  0.0          0.0          0.0          0.0          0.0          0.0
  11  0.0          0.0
  12  1.0          0.17         0.3159.      7.7          4.532        0.135
  13  0.14         0.0          0.0          0.0          0.0          0.0
  14  0.0          0.0
  15  1.0          0.16         0.1768       6.7          4.062        0.368
  16  0.47         0.57         0.0          0.0          0.0          0.0
  17  0.0          0.0
  18  1.0          0.14         0.0          6.9          5.56         0.928
  19  0.77         0.83         0.91         0.0          0.0          0.0
  20  0.0          0.0
  21  1.0          0.17         0.0          7.6          7.031        0.74
  22  1.02         0.99         0.85         1.03         0.0           .0
  23  0.0          0.0
  24  1.0          0.19         0.0          9.7          9.106        0.379
  25  0.31         0.36         0.55         0.45         0.05         0.0
  26  0.0          0.0
  27  1.0          0.27         0.0          11.5         10.852       0.384
  28  0.02         0.11         0.12         0.23         0.14         0.22
  29  0.0          0.0
  30  1.0          0.41         0.0          12.7         12.084       0.348
  31  0.02         0.0          0.03         0.04         0.07         0.05
  32  0.06         0.0
  33  1.0          0.52         0.0          13.33        12.67        0.206
  34  0.0          0.0          0.0          0.01         0.0          0.02
  35  0.01         0.02
  36  1.0          0.59         0.0          13.34        12.607        0.14
  37  0.03         0.0          0.0          0.0          0.0          0.0
  38  0.0          0.0
  39  1.0          0.82         0.0          11.4         10.463       0.149
  40  0.0          0.0          0.0          0.0          0.0          0.0
  41  0.0          0.0
  42  1.0          0.9          0.0          10.4          9.391       0.117
  43  0.0          0.0          0.0          0.0           0.0         0.0
  44  0.0          0.0
  45  1.0          0.89         0.0          10.44        9.443        0.109
  46  0.0          0.0          0.0          0.0          0.0          0.0
  47  0.0          0.0
  48  1.0          0.7          0.0          10.58        9.759        0.107
  49  0.0          0.0          0.0          0.0          0.0          0.0
  50  0.0          0.0
    ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

INPUT DATA IMAGE LIST

```
CARD          1          2          3          4          5          6          7          8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
  51  1.0          0.94         0.0          7.92         6.879        0.121
  52  0.0          0.0          0.0          0.0          0.0          0.0
  53  0.0          0.0
  54  1.0          1.12         0.0          9.02         7.789        0.101
  55  0.0          0.0          0.0          0.0          0.0          0.0
  56  0.0          0.0
  57  1.0          1.06         0.0          9.0          7.826        0.111
  58  0.0          0.0          0.0          0.0          0.0          0.0
  59  0.0          0.0
  60  1.0          1.79         0.0          12.8         10.892       0.114
  61  0.0          0.0          0.0          0.0          0.0          0.0
  62  0.0          0.0
  63  1.0          0.48         0.0          10.58         9.972       0.118
  64  0.0          0.0          0.0          0.0           0.0         0.0
  65  0.0          0.0
  66  1.0          0.46         0.0          12.5         11.906       0.128
  67  0.0          0.0          0.0          0.0          0.0          0.0
  68  0.0          0.0
  69  1.0          0.67         0.0          12.7         11.866       0.134
  70  0.0          0.0          0.0          0.0          0.0          0.0
  71  0.0          0.0
  72  1.0          0.99         0.0          13.0         11.866       0.134
  73  0.0          0.0          0.0          0.0          0.0          0.0
  74  0.0          0.0
  75  1.0          1.45          0.0         13.5         11.866       0.134
  76  0.0          0.0          0.0          0.0          0.0          0.0
  77  0.0          0.0
  78  1.0          2.11         0.0          14.1         11.866        0.134
  79  0.0          0.0          0.0          0.0          0.0          0.0
  80  0.0          0.0
  81  1.0          7.56         0.0         19.6          12.0         0.134
  82  0.0          0.0          0.0          0.0          0.0          0.0
  83  0.0          0.0
  84  0.016        0.088        0.184        0.270        0.202        0.141
  85  0.061        0.024        0.010        0.003        0.001        0.0
  86  0.0          0.0          0.0          0.0          0.0          0.0
  87  0.0          0.0          0.0          0.0          0.0          0.0
  88  0.0          0.0
  89 SUPER BOX      1    1    1    1    1
  90 BOX TYPE       1
  91 SPHERE         1    1.0                        26*0.5
  92 SPHERE         1   10.0                        26*0.5
  93 SPHERE         1   20.0                        26*0.5
  94 SPHERE         1   30.0                        26*0.5
  95 SPHERE         1   40.0                        26*0.5
  96 SPHERE         1   50.0                        26*0.5
  97 SPHERE         1   60.0                        26*0.5
  98 SPHERE         1   80.0                        26*0.5
  99 SPHERE         1   99.0                        26*0.5
 100 SPHERE         1  100.0                        26*0.5
 101 CUBE           0  100.0  -100.0                26*0.5
 102 CELL BDY       0  100.0  -100.0  100.0  -100.0  100.0  -100.0  26*0.5
 103 CUBOID         0  100.0  -100.0  100.0  -100.0  100.0  -100.0  26*0.5
 104 1  0.016  0.088  0.184  0.270  0.202  0.141  0.061  0.024 0.010  0.003
 105  0.001  15*0.0   0
 106  100  0.0  0.0  0.0
 107   0
 108   1  0
 109 -100.0  100.0  0.0   100.0 -100.0  0.0
 110    0.0    1.0  0.0     1.0    0.0  0.0
 111     59   98  0.0  0.0    2
 112   1  1
 113 -100.0  100.0  0.0   100.0 -100.0  0.0
 114    0.0    1.0  0.0     1.0    0.0  0.0
 115     59   98  0.0  0.0    2
 116   0  0
 117 END KENO
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

AAPENDIX B : Sample JCL

This appendix contains a set of 2 sample JCL's. Sample 1 is available if the size of common area 'D' can be used with no extension. Sample 2 is available if the size of common area 'D' is extended.

SAMPLE JCL 1

```
----+----1----+----2----+----3----+----4----+----5----+----6----+
//JCLG JOB
//  EXEC JCLG
//SYSIN DD DATA,DLM='++'
// JUSER 70519246,MA.YOKOTA,0951.200,KENO
 C.5 T.6 I.3 W.4 P.0 GRP
 OPTP MSGLEVEL=(1,1),PASSWORD=3804
//STEP1 EXEC PGM=V5
//STEPLIB  DD DSN=J9246.MKENOV6.LOAD,DISP=SHR
//FT05F001 DD DSN=J9246.MKENOV6.DATA(SUPER1),DISP=SHR
//FT06F001 DD SYSOUT=*
//FT10F001 DD SPACE=(TRK,(20,20)),UNIT=WK10
//FT18F001 DD SPACE=(TRK,(20,20)),UNIT=WK10
//FT41F001 DD DSN=J3375.KENO4LIB.DATA(XSEC),DISP=SHR,LABEL=(,,,IN)
//FT51F001 DD SPACE=(TRK,(20,20)),UNIT=WK10
//MPTMST   DD DSN=SYS10.KPATNLIB,DISP=SHR
//GDFILE   DD SYSOUT=(H,KNGWTR)
++
//
----+----1----+----2----+----3----+----4----+----5----+----6----+
```

SAMPLE JCL 2

```
----+----1----+----2----+----3----+----4----+----5----+----6----+
//JCLG JOB
//  EXEC JCLG
// JUSER 70519246,MA.YOKOTA,0951.200,KENO
 C.5 T.6 I.3 W.4 P.0 GRP
 OPTP MSGLEVEL=(1,1),PASSWORD=3804
//FORT EXEC FORTHE
//SYSLIN DD DSN=&&OBJ,DISP=(,PASS),SPACE=(TRK,(10,10),RLSE),
//          DCB=BLKSIZE=3200,UNIT=WK10
//SYSIN DD *
          SUBROUTINE ALOCAT ( PROGM )
          COMMON D( 500000 )
          CALL PROGM( D,500000 )
          RETURN
          END
/*
//LINK EXEC LKED,A=OVLY
//SYSLMOD DD DSN=&&LM,DISP=(,PASS),UNIT=WK10,
//           SPACE=(TRK,(60,10,1),RLSE)
//SYSLIN  DD DSN=&&OBJ,DISP=(OLD,DELETE,DELETE)
//        DD DSN=J9246.MKENOV4.DATA(OVLY),DISP=SHR
//MKENO4  DD DSN=J9246.MKENOV6.LOAD,DISP=SHR
//GO EXEC PGM=TEMPNAME
//STEPLIB DD DSN=&&lm,DISP=(OLD,DELETE,DELETE)
//FT05F001 DD DSN=J9246.MKENOV4.DATA(SUPER1),DISP=SHR
//FT06F001 DD SYSOUT=*
//FT10F001 DD SPACE=(TRK,(20,10)),UNIT=WK10
//FT18F001 DD SPACE=(TRK,(20,10)),UNIT=WK10
//FT41F001 DD DSN=J3375.KENO4LIB.DATA(XSEC),DISP=SHR,LABEL=(,,,IN)
//FT51F001 DD SPACE=(TRK,(20,10)),UNIT=WK10
//MPTMST   DD DSN=SYS10.KPATNLIB,DISP=SHR
//GDFILE   DD SYSOUT=(H,KNGWTR)
++
//
----+----1----+----2----+----3----+----4----+----5----+----6----+
```

APPENDIX C : Sample output list

This appendix contains a set of 2 sample output lists, whose input data is shown in APPENDIX A. One is the 'SUPER 1', another is the 'GENRL 1'. In these cases, HANSEN-ROACH libraly is used.

SAMPLE OUTPUT LIST 1 : SUPER 1

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
   1  SUPER 1
   2 ** PARAMETER CARD
   3   2.3  103  300    3   16    6    6    2    6   22    2    2    1    2
   4     6    0    0   30    0    0    0    0    0    0    0    0    0    0
   5 **MIXING TABLE
   6           1    -92500 4.48006-2
   7           1     92800 2.65780-3
   8           1     92400 4.82700-4
   9           1     92600 9.57000-5
  10           2      1101 8.25810-2
  11           2      6100 3.97020-2
  12 *** GEOMETRY CARD AND WEIGHTS. **************************************************
  13 SUPER BOX       1    2    4    2    1
  14 BOX TYPE        1
  15 ZHEMICYL-X      1  5.748   5.3825 -5.3825                                16*0.5
  16 CUBOID          0  0.0    -5.748   5.748  -5.748   5.3825 -5.3825       16*0.5
  17 CUBOID          0  0.0    -7.585   7.585  -7.585   7.22   -7.22         16*0.5
  18 BOX TYPE        2
  19 ZHEMICYL+X      1  5.748   5.3825 -5.3825                                16*0.5
  20 CUBOID          0  5.748   0.0     5.748  -5.748   5.3825 -5.3825       16*0.5
  21 CUBOID          0  7.585   0.0     7.585  -7.585   7.22   -7.22         16*0.5
  22 CELL BDY        0 15.17  -15.17   15.17  -15.17    7.22   -7.22         16*0.5
  23 CYLINDER        0 23.5     7.22   -7.22                                 16*0.5
  24 CYLINDER        2 24.0     7.22   -7.22                                 16*0.5
  25 CUBOID          0 24.5   -24.5    24.5   -24.5     7.22   -7.22         16*0.5
  26 ************************************************
  27 SUPER BOX       2    2    2    2    1
  28 BOX TYPE        1
  29 CYLINDER        1 5.748   5.3825 -5.3825                                16*0.5
  30 CUBOID          0  5.748  -5.748   5.748  -5.748   5.3825 -5.3825       16*0.5
  31 CUBOID          0  7.585  -7.585   7.585  -7.585   7.22   -7.22         16*0.5
  32 BOX TYPE        2
  33 CYLINDER        1  5.748   5.3825 -5.3825                                16*0.5
  34 CUBOID          0  5.748  -5.748   5.748  -5.748   5.3825 -5.3825       16*0.5
  35 CUBOID          0 7.585  -7.585   7.585  -7.585   7.22   -7.22         16*0.5
  36 CELL BDY        0 15.17  -15.17   15.17  -15.17    7.22  -7.22         16*0.5
  37 CYLINDER        0 23.5     7.22   -7.22                                 16*0.5
  38 CYLINDER        2 24.0     7.22   -7.22                                 16*0.5
  39 CUBOID          0 24.5    -24.5    24.5   -24.5     7.22   -7.22         16*0.5
  40 CORE BDY        0 49.0    -49.0    24.5   -24.5    14.44  -14.44         16*0.5
  41 CUBOID          2 50.0    -50.0    25.0   -25.0    14.94  -14.94         16*0.5
  42   1  1  3  2  1  2  1  1  1  1  0    2  2  4  2  1  2  1  1  1  1  1
  43   1  1  1  1  1  2  1  1  1  1  0    2  2  2  1  1  2  1  1  1  1  1
  44   1  1  1  1  1  1  1  1  2  1  0    2  2  2  1  1  1  1  1  2  1  1
  45   0
  46   1  0
  47 -60.0      30.0       5.0       60.0       -30.0      5.0
  48  1.0        0.0       0.0        0.0         1.0      0.0
  49 118 98 0.0 0.0 3
  50   1  1
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
  51 -60.0      30.0       5.0       60.0      -30.0      5.0
  52  1.0        0.0       0.0        0.0        1.0      0.0
  53  118 98 0.0 0.0 1
  54   0  0
  55 END KENO
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

SUPER 1

NUMBER OF GENERATIONS	103
NUMBER PER GENERATION	300
NUMBER OF GENERATIONS TO BE SKIPPED	3
NUMBER OF ENERGY GROUPS	16
MAX. NUMBER OF ENERGY TRANSFERS	6
NUMBER OF INPUT NUCLIDES	6
NUMBER OF MIXTURES	2
NUMBER OF MIXING TABLE ENTRIES	6
NUMBER OF GEOMETRY CARDS	22
NUMBER OF BOX TYPES	2
NUMBER OF UNITS IN X DIRECTION	2
NUMBER OF UNITS IN Y DIRECTION	1
NUMBER OF UNITS IN Z DIRECTION	2
NUMBER OF NUCLIDES READ FROM TAPE	6
ALBEDO TYPE	0
SEARCH TYPE	0

MAXIMUM TIME = 2.3000 MINUTES

STORAGE LOCATIONS REQUIRED FOR THIS JOB = 27007
REMAINING AVAILABLE LOCATIONS= 104065

START TYPE	0
GENERATIONS BETWEEN CHECKPOINTS	0
LIST INPUT X-SECTIONS READ FROM TAPE	NO
LIST 1-D MIXTURE X SECTIONS	YES
LIST 2-D MIXTURE X-SECTIONS	YES
BALANCE TABLE TYPE	3
USE X-SECTIONS FROM PREVIOUS CASE	NO
USE GEOMETRY FROM PREVIOUS CASE	NO
USE VELOCITIES FROM PREVIOUS CASE	NO
COMPUTE MATRIX K-EFFECTIVE BY UNIT	NO
COMPUTE MATRIX K-EFFECTIVE BY BOX TYPE	NO
LIST FISS PROB MATRIX BY UNIT	NO
ADJOINT CALCULATION	NO
USE EXPONENTIAL TRANSFORM	NO
O/N = K-EFFCTIVE/FIXED SOURCE PROB.	0
CALCULATE FISSION DENSITIES	YES

SUPER 1

MIXTURE	NUCLIDE	DENSITY
1	-92500	4.48006E-02
1	92800	2.65780E-03
1	92400	4.82700E-04
1	92600	9.57000E-05
2	1101	8.25810E-02
2	6100	3.97020E-02

CROSS SECTIONS READ FROM TAPE

NUCLIDE =	1101	HYDROGEN X(E)	HANSEN ROACH
NUCLIDE =	6100	CARBON	HANSEN ROACH
NUCLIDE =	92400	U-234	MIHALCZO MOD OF H-R U-238
NUCLIDE =	92500	U-235 YR	HANSEN ROACH
NUCLIDE =	92600	U-236	MIHALCZO MOD OF H-R U-238
NUCLIDE =	92800	U-238 Y	HANSEN ROACH

SUPER 1

MIXTURE = 1

GP.	ABSORPTION PROBABILITY	NU*FISSION PROBABILITY	NON-ABSORPTION PROBABILITY	TOTAL CROSS-SECTION	FISSION SPECTRUM
1	2.88282E-01	8.16362E-01	7.11718E-01	2.03826E-01	2.04000E-01
2	2.79495E-01	6.86119E-01	7.20504E-01	2.16334E-01	5.48000E-01
3	2.71457E-01	6.27380E-01	7.28542E-01	2.23507E-01	7.16000E-01
4	2.45009E-01	5.38731E-01	7.54990E-01	2.50360E-01	8.96000E-01
5	1.96930E-01	4.14508E-01	8.03070E-01	3.80508E-01	9.86000E-01
6	2.39931E-01	4.61768E-01	7.60215E-01	5.94246E-01	1.00000E+00
7	3.44514E-01	6.38682E-01	6.55486E-01	7.21796E-01	1.00000E+00
8	5.06884E-01	8.72719E-01	4.93116E-01	9.93835E-01	1.00000E+00
9	7.21710E-01	1.18113E+00	2.78289E-01	1.73778E+00	1.00000E+00
10	8.52618E-01	1.28837E+00	1.47382E-01	3.23737E+00	1.00000E+00
11	8.86332E-01	1.14093E+00	1.13668E-01	4.19760E+00	1.00000E+00
12	8.84983E-01	8.92047E-01	1.15017E-01	4.14836E+00	1.00000E+00
13	7.85621E-01	1.47950E+00	2.14379E-01	2.22565E+00	1.00000E+00
14	8.82566E-01	1.89106E+00	1.17435E-01	4.06296E+00	1.00000E+00
15	9.54627E-01	1.93100E+00	4.53733E-02	1.05157E+01	1.00000E+00
16	9.82873E-01	2.03304E+00	1.71272E-02	2.78582E+01	1.00000E+00

CUMULATIVE TRANSFER PROBABILITIES

FROM I	TO I+ 0	I+ 1	I+ 2	I+ 3	I+ 4	I+ 5
1	3.9857E-01	4.8931E-01	6.1384E-01	8.3220E-01	9.7991E-01	1.0000E+00
2	5.4663E-01	6.2288E-01	8.3538E-01	9.7801E-01	1.0000E+00	1.0000E+00
3	6.9055E-01	8.5777E-01	9.7875E-01	1.0000E+00	1.0000E+00	1.0000E+00
4	8.8815E-01	9.7967E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
5	9.8742E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
6	9.9433E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
7	9.9486E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
8	9.9503E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
9	9.9503E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
10	9.9490E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
I =	11 THRU I=	14 SAME AS ABOVE				
15	9.9591E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
16	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00

MUBAR

FROM I	TO I+ 0	I+ 1	I+ 2	I+ 3	I+ 4	I+ 5
1	0.0	0.0	0.0	0.0	0.0	0.0
I =	2 THRU I=	16 SAME AS ABOVE				

SUPER 1

MIXTURE = 2

GP.	ABSORPTION PROBABILITY	NU*FISSION PROBABILITY	NON-ABSORPTION PROBABILITY	TOTAL CROSS-SECTION	FISSION SPECTRUM
1	0.0	0.0	1.00000E+00	1.67254E-01	0.0
2	0.0	0.0	9.99999E-01	2.33100E-01	0.0
3	0.0	0.0	9.99999E-01	3.68355E-01	0.0
4	0.0	0.0	1.00000E+00	4.55157E-01	0.0
5	0.0	0.0	1.00000E+00	6.85995E-01	0.0
6	0.0	0.0	1.00003E+00	1.13493E+00	0.0
7	0.0	0.0	9.99999E-01	1.35306E+00	0.0
8	5.85257E-05	0.0	9.99941E-01	1.41102E+00	0.0
9	2.34103E-04	0.0	9.99764E-01	1.41102E+00	0.0
10	4.68205E-04	0.0	9.99531E-01	1.41102E+00	0.0
11	8.19360E-04	0.0	9.99179E-01	1.41102E+00	0.0
12	1.45904E-03	0.0	9.98541E-01	1.41499E+00	0.0
13	2.62627E-03	0.0	9.97373E-01	1.41499E+00	0.0
14	3.47661E-03	0.0	9.96523E-01	1.66273E+00	0.0
15	4.80345E-03	0.0	9.95197E-01	2.24075E+00	0.0
16	6.18326E-03	0.0	9.93817E-01	3.89238E+00	0.0

CUMULATIVE TRANSFER PROBABILITIES

FROM I	TO I+ 0	I+ 1	I+ 2	I+ 3	I+ 4	I+ 5
1	1.9342E-01	6.8055E-01	7.9460E-01	9.0866E-01	9.7729E-01	1.0000E+00
2	2.2132E-01	5.3378E-01	7.9275E-01	9.4828E-01	9.9114E-01	1.0000E+00
3	1.9459E-01	6.8300E-01	9.2064E-01	9.8655E-01	9.9753E-01	1.0000E+00
4	2.8980E-01	8.3562E-01	9.7206E-01	9.9510E-01	9.9909E-01	1.0000E+00
5	4.8378E-01	9.1658E-01	9.8531E-01	9.9735E-01	9.9952E-01	1.0000E+00
6	4.5508E-01	9.0727E-01	9.8330E-01	9.9691E-01	9.9909E-01	1.0000E+00
7	4.3686E-01	8.9936E-01	9.8169E-01	9.9445E-01	9.9817E-01	1.0000E+00
8	4.2409E-01	8.9734E-01	9.6875E-01	9.8982E-01	9.9696E-01	1.0000E+00
9	4.2557E-01	8.3094E-01	9.4334E-01	9.8314E-01	9.9438E-01	1.0000E+00
10	3.0123E-01	7.7240E-01	9.3161E-01	9.7728E-01	9.9087E-01	1.0000E+00
11	2.7197E-01	7.8814E-01	9.2977E-01	9.7188E-01	9.9297E-01	1.0000E+00
12	2.9074E-01	7.7013E-01	9.0830E-01	9.7738E-01	1.0000E+00	1.0000E+00
13	2.5917E-01	7.1175E-01	9.2732E-01	1.0000E+00	1.0000E+00	1.0000E+00
14	3.2264E-01	8.3553E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
15	8.0530E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
16	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00

MUBAR

FROM I	TO I+ 0	I+ 1	I+ 2	I+ 3	I+ 4	I+ 5
1	1.0211E-02	5.6558E-01	5.4978E-01	4.1126E-01	2.5180E-01	1.0870E-01
2	2.4011E-02	6.4515E-01	5.8276E-01	3.5763E-01	1.7355E-01	8.0000E-02
3	1.6129E-01	6.1831E-01	4.6792E-01	2.2449E-01	1.0204E-01	0.0
4	1.7467E-01	5.8304E-01	3.0984E-01	1.2598E-01	4.5455E-02	0.0
5	4.2127E-01	5.0651E-01	2.2242E-01	9.0000E-02	5.5556E-02	0.0
6	4.5727E-01	5.4258E-01	2.3732E-01	1.0160E-01	3.3333E-02	0.0
7	4.7738E-01	5.4765E-01	2.4092E-01	1.1005E-01	6.5574E-02	3.3333E-02
8	4.8539E-01	5.4961E-01	2.5410E-01	1.4167E-01	8.1967E-02	3.8462E-02
9	4.8722E-01	5.7735E-01	3.3177E-01	1.8824E-01	1.0417E-01	6.2500E-02
10	4.2374E-01	6.1688E-01	3.6300E-01	2.0256E-01	1.2069E-01	7.0513E-02
11	3.9067E-01	6.1789E-01	3.5691E-01	2.1140E-01	1.2500E-01	4.1667E-02
12	3.8497E-01	6.1886E-01	3.7902E-01	2.2673E-01	7.2351E-02	0.0
13	3.5989E-01	6.3896E-01	4.0011E-01	1.2882E-01	0.0	0.0

```
14  6.1788E-01  6.2191E-01  1.8182E-01  0.0         0.0         0.0
15  4.5986E-01  3.8040E-01  0.0         0.0         0.0         0.0
16  2.5618E-01  0.0         0.0         0.0         0.0         0.0
```

```
 SUPER 1
GEOMETRY DESCRIPTION

 0   SUPER BOX   1    NBOX =  2    NBXMAX =  4    NBYMAX =  2    NBZMAX =  1
REGION
 1   BOX TYPE    1
REGION
  1  Z HEMICYL   1  RADIUS = 5.7480E+00   +Z = 5.3825E+00   -Z =-5.3825E+00    X HEMICYLINDER HAVING ITS LENGTH ALONG THE Z AXIS.
  2  CUBOID      0      +X = 0.0          -X =-5.7480E+00   +Y = 5.7480E+00   -Y =-5.7480E+00   +Z = 5.3825E+00   -Z =-5.3825E+00
  3  CUBOID      0      +X = 0.0          -X =-7.5850E+00   +Y = 7.5850E+00   -Y =-7.5850E+00   +Z = 7.2200E+00   -Z =-7.2200E+00
 2   BOX TYPE    2
REGION
  1  Z HEMICYL   1  RADIUS = 5.7480E+00   +Z = 5.3825E+00   -Z =-5.3825E+00    X HEMICYLINDER HAVING ITS LENGTH ALONG THE Z AXIS.
  2  CUBOID      0      +X = 5.7480E+00   -X = 0.0          +Y = 5.7480E+00   -Y =-5.7480E+00   +Z = 5.3825E+00   -Z =-5.3825E+00
  3  CUBOID      0      +X = 7.5850E+00   -X = 0.0          +Y = 7.5850E+00   -Y =-7.5850E+00   +Z = 7.2200E+00   -Z =-7.2200E+00

CELL BDY.
  1  CELL BDY    0      +X = 1.5170E+01   -X =-1.5170E+01   +Y = 1.5170E+01   -Y =-1.5170E+01   +Z = 7.2200E+00   -Z =-7.2200E+00
  2  CYLINDER    0  RADIUS = 2.3500E+01   +Z = 7.2200E+00   -Z =-7.2200E+00
  3  CYLINDER    2  RADIUS = 2.4000E+01   +Z = 7.2200E+00   -Z =-7.2200E+00
  4  CUBOID      0      +X = 2.4500E+01   -X =-2.4500E+01   +Y = 2.4500E+01   -Y =-2.4500E+01   +Z = 7.2200E+00   -Z =-7.2200E+00

 0   SUPER BOX   2    NBOX =  2    NBXMAX =  2    NBYMAX =  2    NBZMAX =  1
REGION
 1   BOX TYPE    1
```

```
REGION
  1  CYLINDER    1  RADIUS = 5.7480E+00   +Z = 5.3825E+00   -Z =-5.3825E+00
  2  CUBOID      0      +X = 5.7480E+00   -X =-5.7480E+00   +Y = 5.7480E+00   -Y =-5.7480E+00   +Z = 5.3825E+00   -Z =-5.3825E+00
  3  CUBOID      0      +X = 7.5850E+00   -X =-7.5850E+00   +Y = 7.5850E+00   -Y =-7.5850E+00   +Z = 7.2200E+00   -Z =-7.2200E+00
 2   BOX TYPE    2
REGION
  1  CYLINDER    1  RADIUS = 5.7480E+00   +Z = 5.3825E+00   -Z =-5.3825E+00
  2  CUBOID      0      +X = 5.7480E+00   -X =-5.7480E+00   +Y = 5.7480E+00   -Y =-5.7480E+00   +Z = 5.3825E+00   -Z =-5.3825E+00
  3  CUBOID      0      +X = 7.5850E+00   -X =-7.5850E+00   +Y = 7.5850E+00   -Y =-7.5850E+00   +Z = 7.2200E+00   -Z =-7.2200E+00

CELL BDY.
  1  CELL BDY    0      +X = 1.5170E+01   -X =-1.5170E+01   +Y = 1.5170E+01   -Y =-1.5170E+01   +Z = 7.2200E+00   -Z =-7.2200E+00
  2  CYLINDER    0  RADIUS = 2.3500E+01   +Z = 7.2200E+00   -Z =-7.2200E+00
  3  CYLINDER    2  RADIUS = 2.4000E+01   +Z = 7.2200E+00   -Z =-7.2200E+00
  4  CUBOID      0      +X = 2.4500E+01   -X =-2.4500E+01   +Y = 2.4500E+01   -Y =-2.4500E+01   +Z = 7.2200E+00   -Z =-7.2200E+00

REFLECTOR
  1  CORE BDY    0      +X = 4.9000E+01   -X =-4.9000E+01   +Y = 2.4500E+01   -Y =-2.4500E+01   +Z = 1.4440E+01   -Z =-1.4440E+01
  2  CUBOID      2      +X = 5.0000E+01   -X =-5.0000E+01   +Y = 2.5000E+01   -Y =-2.5000E+01   +Z = 1.4940E+01   -Z =-1.4940E+01
```

```
 SUPER 1

WEIGHTING FUNCTION

BOX TYPE   1                                                  GROUP    WTLOW     WTAVG     WT HI

        REGION   1 DEFINED GEOMETRY CARD   1

                                                             1  0.166667  0.500000  1.500000
                                                           GROUPS I TO    16 SAME AS ABOVE

        REGION   2 DEFINED GEOMETRY CARD   2

                                                             1  0.166667  0.500000  1.500000
                                                           GROUPS I TO    16 SAME AS ABOVE

        REGION   3 DEFINED GEOMETRY CARD   3

                                                             1  0.166667  0.500000  1.500000
                                                           GROUPS I TO    16 SAME AS ABOVE

BOX TYPE   2                                                  GROUP    WTLOW     WTAVG     WT HI

        REGION   1 DEFINED GEOMETRY CARD   4

                                                             1  0.166667  0.500000  1.500000
                                                           GROUPS I TO    16 SAME AS ABOVE

        REGION   2 DEFINED GEOMETRY CARD   5

                                                             1  0.166667  0.500000  1.500000
                                                           GROUPS I TO    16 SAME AS ABOVE

        REGION   3 DEFINED GEOMETRY CARD   6

                                                             1  0.166667  0.500000  1.500000
                                                           GROUPS I TO    16 SAME AS ABOVE

CELL BDY.

        REGION   1 DEFINED GEOMETRY CARD   7

                                                             1  0.166667  0.500000  1.500000
                                                           GROUPS I TO    16 SAME AS ABOVE

        REGION   2 DEFINED GEOMETRY CARD   8

                                                             1  0.166667  0.500000  1.500000
                                                           GROUPS I TO    16 SAME AS ABOVE

        REGION   3 DEFINED GEOMETRY CARD   9

                                                             1  0.166667  0.500000  1.500000
                                                           GROUPS I TO    16 SAME AS ABOVE

        REGION   4 DEFINED GEOMETRY CARD  10

                                                             1  0.166667  0.500000  1.500000
                                                           GROUPS I TO    16 SAME AS ABOVE

BOX TYPE   1                                                  GROUP    WTLOW     WTAVG     WT HI

        REGION   1 DEFINED GEOMETRY CARD  11

                                                             1  0.166667  0.500000  1.500000
                                                           GROUPS I TO    16 SAME AS ABOVE

        REGION   2 DEFINED GEOMETRY CARD  12

                                                             1  0.166667  0.500000  1.500000
                                                           GROUPS I TO    16 SAME AS ABOVE

        REGION   3 DEFINED GEOMETRY CARD  13

                                                             1  0.166667  0.500000  1.500000
```

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                                                    GROUPS I TO   16 SAME AS ABOVE

BOX TYPE   2                                        GROUP   WTLOW    WTAVG    WT HI

        REGION   1 DEFINED GEOMETRY CARD  14
                                                     1  0.166667  0.500000  1.500000
                                                    GROUPS I TO   16 SAME AS ABOVE
        REGION   2 DEFINED GEOMETRY CARD  15
                                                     1  0.166667  0.500000  1.500000
                                                    GROUPS I TO   16 SAME AS ABOVE
        REGION   3 DEFINED GEOMETRY CARD  16
                                                     1  0.166667  0.500000  1.500000
                                                    GROUPS I TO   16 SAME AS ABOVE
CELL BDY.
        REGION   1 DEFINED GEOMETRY CARD  17
                                                     1  0.166667  0.500000  1.500000
                                                    GROUPS I TO   16 SAME AS ABOVE
        REGION   2 DEFINED GEOMETRY CARD  18
                                                     1  0.166667  0.500000  1.500000
                                                    GROUPS I TO   16 SAME AS ABOVE
        REGION   3 DEFINED GEOMETRY CARD  19
                                                     1  0.166667  0.500000  1.500000
                                                    GROUPS I TO   16 SAME AS ABOVE
        REGION   4 DEFINED GEOMETRY CARD  20
                                                     1  0.166667  0.500000  1.500000
                                                    GROUPS I TO   16 SAME AS ABOVE
REFLECTOR
        REGION   1 DEFINED GEOMETRY CARD  21
                                                     1  0.166667  0.500000  1.500000
                                                    GROUPS I TO   16 SAME AS ABOVE
        REGION   2 DEFINED GEOMETRY CARD  22
                                                     1  0.166667  0.500000  1.500000
                                                    GROUPS I TO   16 SAME AS ABOVE
```

```
 SUPER 1
SUPER BOX     1 ARRAY DESCRIPTION

Z =      1

  1    2    1    2

  1    2    1    2


 SUPER 1
SUPER BOX     2 ARRAY DESCRIPTION

Z =      1

  1    2

  1    2


 SUPER 1
CORE ARRAY DESCRIPTION

Z =      1

  1    2

Z =      2

  1    2

STORAGE LOCATIONS REQUIRED FOR THIS JOB =      27007
REMAINING AVAILABLE LOCATIONS=     104021
```

```
 SUPER 1

 VOLUMES

 SUPER BOX TYPE     1

 BOX TYPE     1
          REGION DEFINED BY GEOMETRY CARD       1   VOLUME =     5.58685E+02 CM**3        CUMULATIVE VOLUME =     5.58685E+02 CM**3
          REGION DEFINED BY GEOMETRY CARD       2   VOLUME =     1.52655E+02 CM**3        CUMULATIVE VOLUME =     7.11340E+02 CM**3
          REGION DEFINED BY GEOMETRY CARD       3   VOLUME =     9.50190E+02 CM**3        CUMULATIVE VOLUME =     1.66153E+03 CM**3

 BOX TYPE     2
          REGION DEFINED BY GEOMETRY CARD       4   VOLUME =     5.58685E+02 CM**3        CUMULATIVE VOLUME =     5.58685E+02 CM**3
          REGION DEFINED BY GEOMETRY CARD       5   VOLUME =     1.52655E+02 CM**3        CUMULATIVE VOLUME =     7.11340E+02 CM**3
          REGION DEFINED BY GEOMETRY CARD       6   VOLUME =     9.50190E+02 CM**3        CUMULATIVE VOLUME =     1.66153E+03 CM**3

REFLECTOR VOLUMES -  GEOMETRY CARD      7 IS THE CELL BOUNDARY CARD
          REGION DEFINED BY GEOMETRY CARD       8   VOLUME =     1.17604E+04 CM**3        CUMULATIVE VOLUME =     2.50526E+04 CM**3
          REGION DEFINED BY GEOMETRY CARD       9   VOLUME =     1.07741E+03 CM**3        CUMULATIVE VOLUME =     2.61300E+04 CM**3
          REGION DEFINED BY GEOMETRY CARD      10   VOLUME =     8.54044E+03 CM**3        CUMULATIVE VOLUME =     3.46704E+04 CM**3

 TOTAL VOLUMES
    1       2.23474E+03
    2       6.10621E+02
    3       3.80076E+03
    4       2.23474E+03
    5       6.10621E+02
    6       3.80076E+03

 SUPER BOX TYPE     2

 BOX TYPE     1
          REGION DEFINED BY GEOMETRY CARD      11   VOLUME =     1.11737E+03 CM**3        CUMULATIVE VOLUME =     1.11737E+03 CM**3
          REGION DEFINED BY GEOMETRY CARD      12   VOLUME =     3.05310E+02 CM**3        CUMULATIVE VOLUME =     1.42268E+03 CM**3
          REGION DEFINED BY GEOMETRY CARD      13   VOLUME =     1.90038E+03 CM**3        CUMULATIVE VOLUME =     3.32306E+03 CM**3

 BOX TYPE     2
          REGION DEFINED BY GEOMETRY CARD      14   VOLUME =     1.11737E+03 CM**3        CUMULATIVE VOLUME =     1.11737E+03 CM**3
          REGION DEFINED BY GEOMETRY CARD      15   VOLUME =     3.05310E+02 CM**3        CUMULATIVE VOLUME =     1.42268E+03 CM**3
          REGION DEFINED BY GEOMETRY CARD      16   VOLUME =     1.90038E+03 CM**3        CUMULATIVE VOLUME =     3.32306E+03 CM**3

REFLECTOR VOLUMES -  GEOMETRY CARD     17 IS THE CELL BOUNDARY CARD
          REGION DEFINED BY GEOMETRY CARD      18   VOLUME =     1.17604E+04 CM**3        CUMULATIVE VOLUME =     2.50526E+04 CM**3
          REGION DEFINED BY GEOMETRY CARD      19   VOLUME =     1.07741E+03 CM**3        CUMULATIVE VOLUME =     2.61300E+04 CM**3
          REGION DEFINED BY GEOMETRY CARD      20   VOLUME =     8.54044E+03 CM**3        CUMULATIVE VOLUME =     3.46704E+04 CM**3

 TOTAL VOLUMES
   11       2.23474E+03
   12       6.10621E+02
   13       3.80076E+03
   14       2.23474E+03
   15       6.10621E+02
   16       3.80076E+03

REFLECTOR VOLUMES -  GEOMETRY CARD     21 IS THE CORE BOUNDARY CARD
          REGION DEFINED BY GEOMETRY CARD      22   VOLUME =     1.07182E+04 CM**3        CUMULATIVE VOLUME =     1.49400E+05 CM**3

 TOTAL VOLUMES
    1       4.46948E+03
    2       1.22124E+03
    3       7.60152E+03
    4       4.46948E+03
```

```
    5       1.22124E+03
    6       7.60152E+03
    7       0.0
    8       2.35207E+04
    9       2.15481E+03
   10       1.70809E+04
   11       4.46948E+03
   12       1.22124E+03
   13       7.60152E+03
   14       4.46948E+03
   15       1.22124E+03
   16       7.60152E+03
   17       0.0
   18       2.35207E+04
   19       2.15481E+03
   20       1.70809E+04
   21       0.0
   22       1.07182E+04

VOLUME FRACTION OF THE CORE CONTAINING FISSILE MATERIAL= 0.12891E+00

START TYPE =    0

 THE NEUTRONS WERE STARTED IN THE ARRAY WITH A FLAT DISTRIBUTION.

  300 NEUTRONS WERE INITIALLY STARTED
0.00583 MINUTES WERE REQUIRED FOR STARTING.


 SUPER 1

MATERIAL GEOMETRY

      UPPER  LEFT          LOWER RIGHT
      COORDINATES          COORDINATES

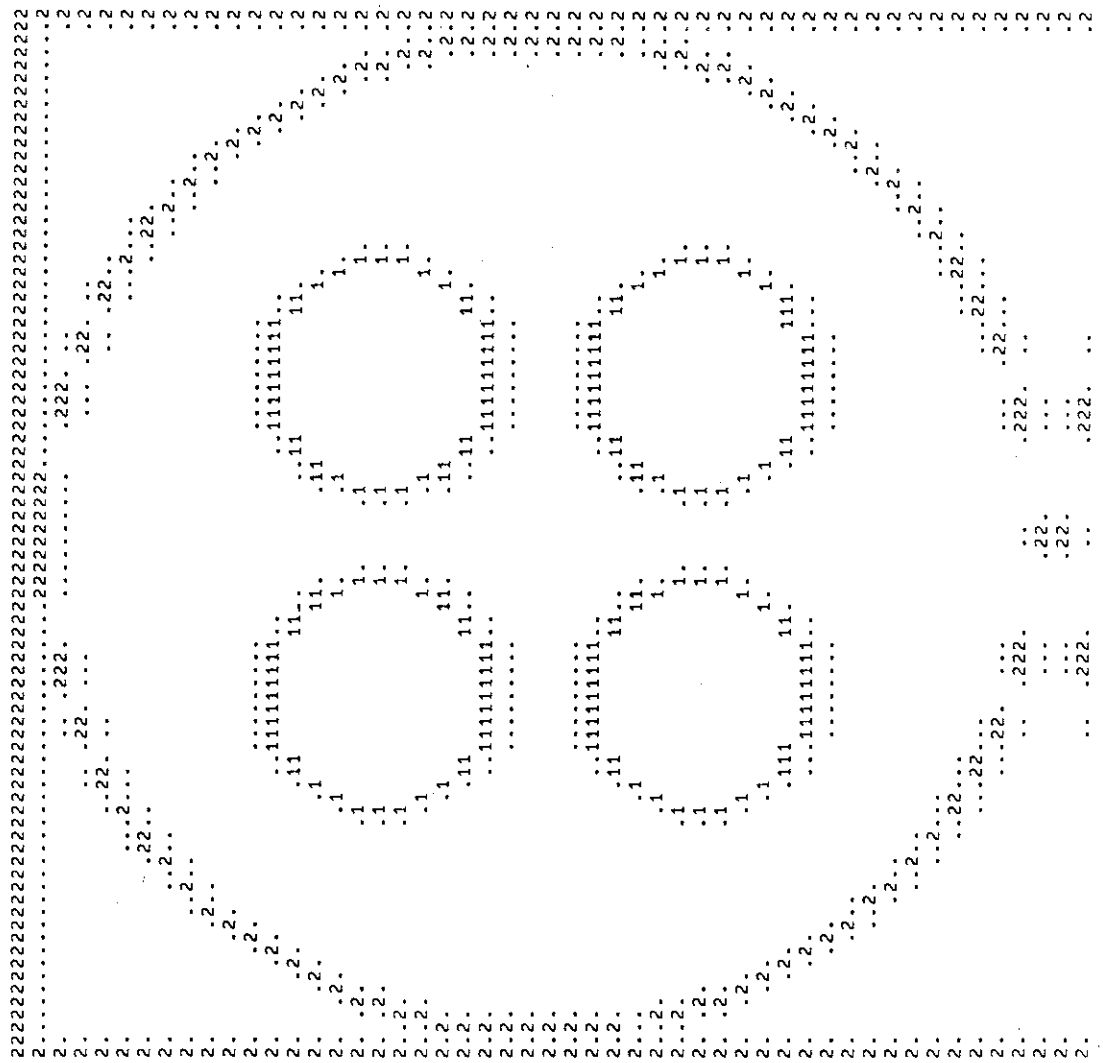
X     -0.6000E+02           0.6000E+02
Y      0.3000E+02          -0.3000E+02
Z      0.5000E+01           0.5000E+01

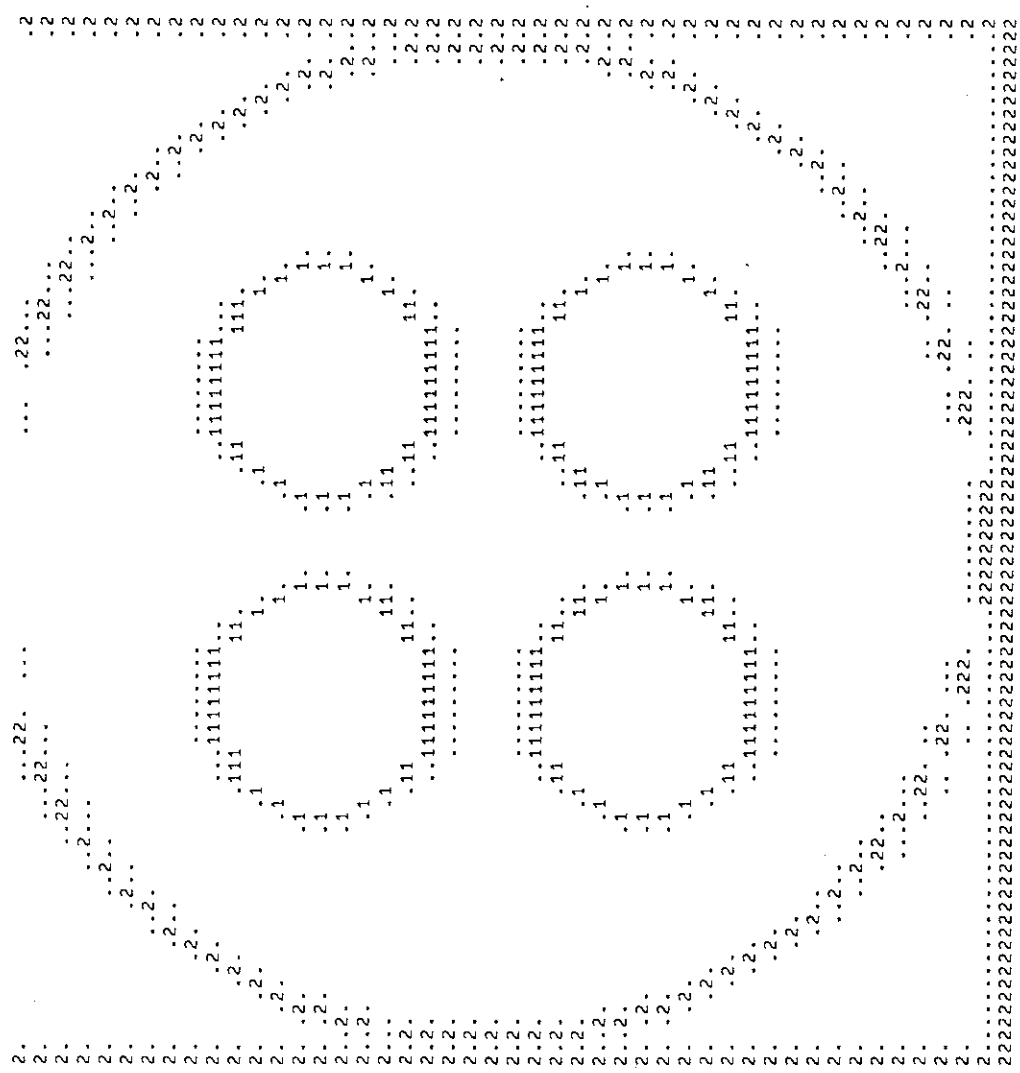
          U AXIS      V AXIS
          (DOWN)      (ACROSS)

X         1.00000      0.0
Y         0.0          1.00000
Z         0.0          0.0

NU=  118   NV=   98     DELU= 0.1017E+01     DELV=-0.6122E+00


***** PLOTTER INFORMATION *****
```





SUPER 1

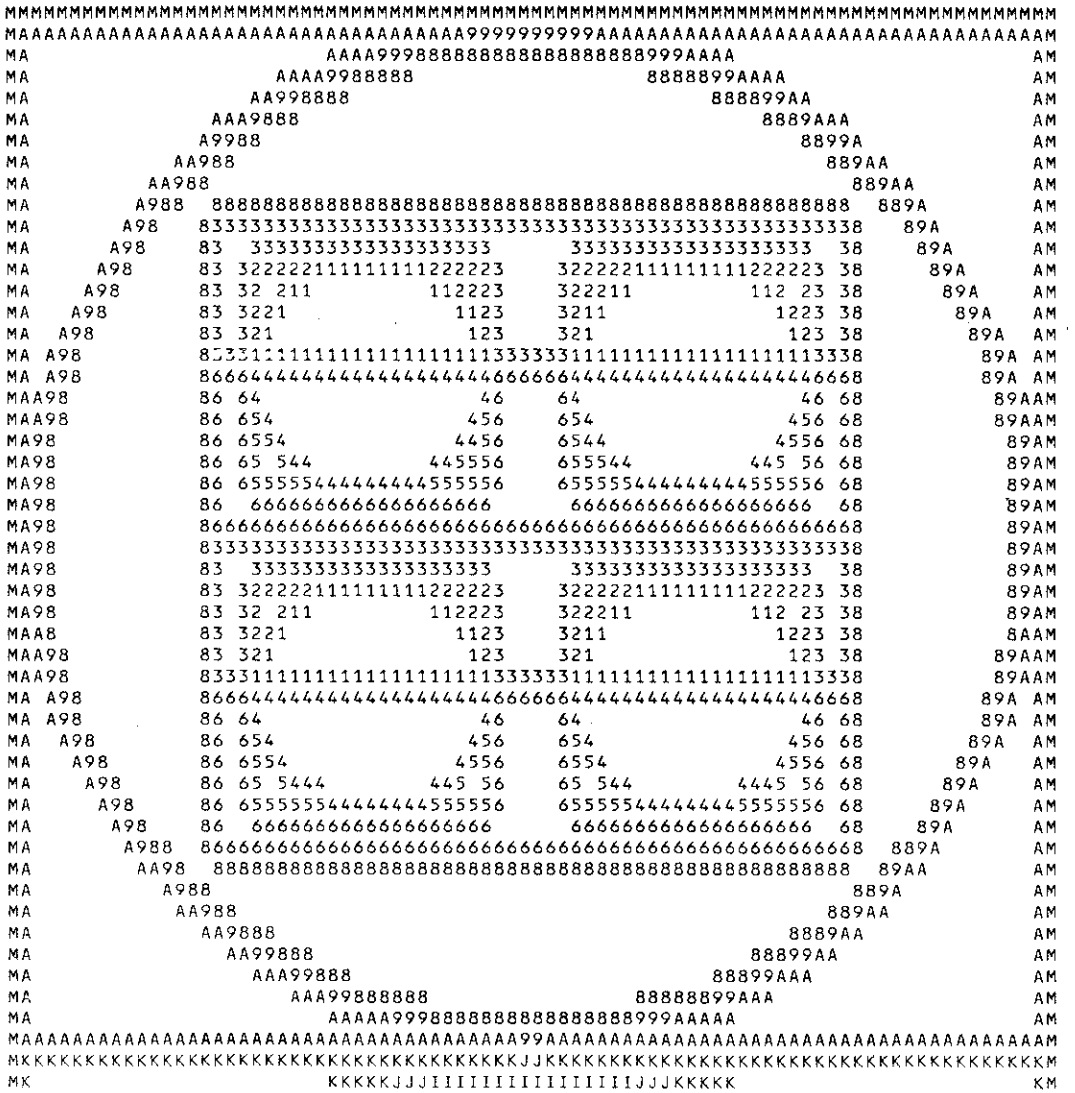
REGION GEOMETRY

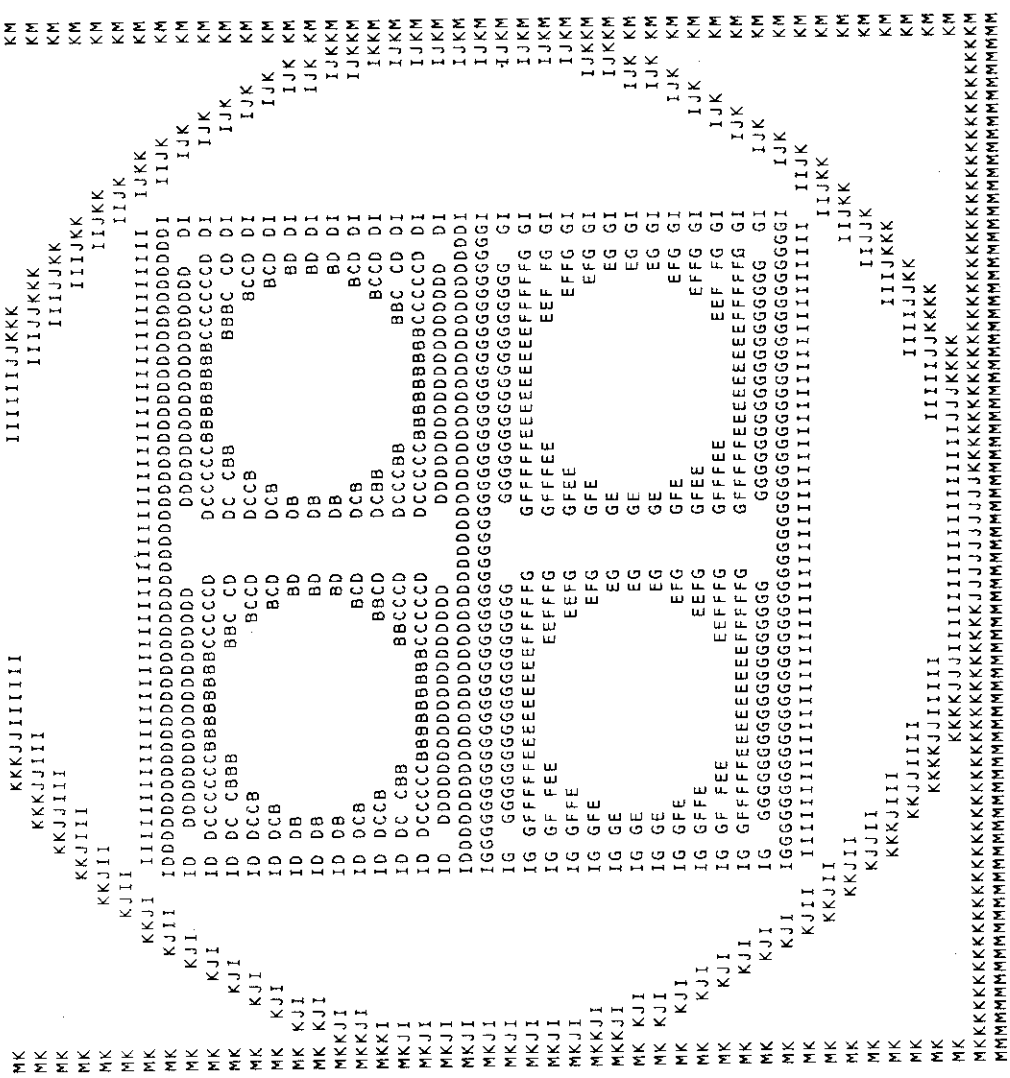
	UPPER LEFT COORDINATES	LOWER RIGHT COORDINATES
X	-0.6000E+02	0.6000E+02
Y	0.3000E+02	-0.3000E+02
Z	0.5000E+01	0.5000E+01

	U AXIS (DOWN)	V AXIS (ACROSS)
X	1.00000	0.0
Y	0.0	1.00000
Z	0.0	0.0

NU= 118 NV= 98 DELU= 0.1017E+01 DELV=-0.6122E+00

***** PLOTTER INFORMATION *****





SUPER 1

GENERATION	K-EFFECTIVE	ELAPSED TIME(MIN)	AVG. K-EFF	DEVIATION	MATRIX K-EFF
1	8.91472E-01	4.08000E-01	1.00000E+00	0.0	0.0
2	9.81045E-01	4.17333E-01	1.00000E+00	0.0	0.0
3	9.88553E-01	4.27333E-01	9.88553E-01	0.0	0.0
4	1.05279E+00	4.40500E-01	1.02067E+00	3.21228E-02	0.0
5	1.00943E+00	4.53333E-01	1.01692E+00	1.89363E-02	0.0
6	9.81183E-01	4.65833E-01	1.00799E+00	1.60960E-02	0.0
7	1.00855E+00	4.78167E-01	1.00810E+00	1.24775E-02	0.0
8	9.97726E-01	4.90667E-01	1.00637E+00	1.03257E-02	0.0
9	9.84135E-01	5.03000E-01	1.00319E+00	9.29018E-03	0.0
10	9.73607E-01	5.16000E-01	9.99496E-01	8.85181E-03	0.0
11	1.01340E+00	5.28667E-01	1.00104E+00	7.96363E-03	0.0
12	9.56169E-01	5.40500E-01	9.96554E-01	8.41371E-03	0.0
13	9.57260E-01	5.53667E-01	9.92981E-01	8.40745E-03	0.0
14	9.28500E-01	5.66333E-01	9.87608E-01	9.36859E-03	0.0
15	9.60578E-01	5.78500E-01	9.85529E-01	8.86587E-03	0.0
16	9.62244E-01	5.90833E-01	9.83865E-01	8.37474E-03	0.0
17	9.69045E-01	6.02833E-01	9.82877E-01	7.85950E-03	0.0
18	9.31153E-01	6.14500E-01	9.79645E-01	8.03120E-03	0.0
19	9.58971E-01	6.27500E-01	9.78428E-01	7.64768E-03	0.0
20	9.23613E-01	6.40167E-01	9.75382E-01	7.83200E-03	0.0
21	9.94337E-01	6.52667E-01	9.76379E-01	7.47769E-03	0.0
22	8.99450E-01	6.64333E-01	9.72532E-01	8.07084E-03	0.0
23	9.98713E-01	6.76667E-01	9.73778E-01	7.77924E-03	0.0
24	9.35741E-01	6.89167E-01	9.72049E-01	7.61919E-03	0.0
25	1.00095E+00	7.01000E-01	9.73305E-01	7.38995E-03	0.0
26	9.30152E-01	7.14333E-01	9.71507E-01	7.30083E-03	0.0
27	1.01718E+00	7.27667E-01	9.73334E-01	7.23621E-03	0.0
28	9.95844E-01	7.41167E-01	9.74199E-01	7.00747E-03	0.0
29	9.95963E-01	7.53667E-01	9.75005E-01	6.79068E-03	0.0
30	9.52644E-01	7.65833E-01	9.74206E-01	6.59230E-03	0.0
31	9.81224E-01	7.78333E-01	9.74448E-01	6.36708E-03	0.0
32	9.89441E-01	7.90833E-01	9.74948E-01	6.17100E-03	0.0
33	1.01285E+00	8.03833E-01	9.76170E-01	6.09374E-03	0.0
34	9.69496E-01	8.16333E-01	9.75961E-01	5.90530E-03	0.0
35	9.39167E-01	8.29000E-01	9.74846E-01	5.83165E-03	0.0
36	9.35154E-01	8.41167E-01	9.73678E-01	5.77742E-03	0.0
37	8.69313E-01	8.53000E-01	9.70696E-01	6.35304E-03	0.0
38	9.66509E-01	8.65833E-01	9.70580E-01	6.17453E-03	0.0
39	9.70800E-01	8.78500E-01	9.70586E-01	6.00520E-03	0.0
40	1.00454E+00	8.91833E-01	9.71479E-01	5.91370E-03	0.0
41	9.89020E-01	9.03833E-01	9.71928E-01	5.77769E-03	0.0
42	9.79758E-01	9.16500E-01	9.72124E-01	5.63466E-03	0.0
43	9.65888E-01	9.29167E-01	9.71972E-01	5.49845E-03	0.0
44	9.58904E-01	9.41333E-01	9.71660E-01	5.37610E-03	0.0
45	1.01241E+00	9.54167E-01	9.72608E-01	5.33411E-03	0.0
46	1.03045E+00	9.67333E-01	9.73922E-01	5.37561E-03	0.0
47	9.76811E-01	9.80000E-01	9.73986E-01	5.25508E-03	0.0
48	9.31603E-01	9.92167E-01	9.73065E-01	5.22180E-03	0.0
49	9.28662E-01	1.00417E+00	9.72120E-01	5.19723E-03	0.0
50	1.00247E+00	1.01667E+00	9.72752E-01	5.12782E-03	0.0
51	1.02010E+00	1.02933E+00	9.73718E-01	5.11386E-03	0.0
52	9.54499E-01	1.04167E+00	9.73334E-01	5.02474E-03	0.0
53	9.59920E-01	1.05433E+00	9.73071E-01	4.93212E-03	0.0
54	9.90490E-01	1.06717E+00	9.73405E-01	4.84858E-03	0.0
55	9.63596E-01	1.07967E+00	9.73220E-01	4.75990E-03	0.0
56	9.76231E-01	1.09150E+00	9.73276E-01	4.67129E-03	0.0
57	9.64054E-01	1.10450E+00	9.73108E-01	4.58879E-03	0.0
58	1.01378E+00	1.11817E+00	9.73834E-01	4.56413E-03	0.0
59	9.61052E-01	1.13050E+00	9.73610E-01	4.48906E-03	0.0

60	9.45639E-01	1.14267E+00	9.73128E-01	4.43751E-03	0.0
61	9.42780E-01	1.15483E+00	9.72613E-01	4.39161E-03	0.0
62	9.05193E-01	1.16717E+00	9.71489E-01	4.46206E-03	0.0
63	1.01186E+00	1.17950E+00	9.72151E-01	4.43783E-03	0.0
64	1.00427E+00	1.19250E+00	9.72669E-01	4.39664E-03	0.0
65	1.02445E+00	1.20517E+00	9.73491E-01	4.40415E-03	0.0
66	9.56667E-01	1.21733E+00	9.73228E-01	4.34255E-03	0.0
67	9.54826E-01	1.22983E+00	9.72945E-01	4.28465E-03	0.0
68	9.71291E-01	1.24250E+00	9.72920E-01	4.21984E-03	0.0
69	1.00904E+00	1.25500E+00	9.73459E-01	4.19088E-03	0.0
70	9.17371E-01	1.26717E+00	9.72634E-01	4.21114E-03	0.0
71	9.62314E-01	1.27967E+00	9.72484E-01	4.15229E-03	0.0
72	9.99610E-01	1.29183E+00	9.72871E-01	4.11076E-03	0.0
73	1.01945E+00	1.30483E+00	9.73527E-01	4.10532E-03	0.0
74	9.13795E-01	1.31667E+00	9.72698E-01	4.13194E-03	0.0
75	9.25217E-01	1.32850E+00	9.72047E-01	4.12709E-03	0.0
76	9.61051E-01	1.34100E+00	9.71898E-01	4.07375E-03	0.0
77	8.77913E-01	1.35267E+00	9.70645E-01	4.21041E-03	0.0
78	8.86833E-01	1.36483E+00	9.69542E-01	4.29863E-03	0.0
79	9.28470E-01	1.37683E+00	9.69009E-01	4.27585E-03	0.0
80	1.09249E+00	1.39033E+00	9.70592E-01	4.50783E-03	0.0
81	9.77884E-01	1.40233E+00	9.70684E-01	4.45163E-03	0.0
82	9.22501E-01	1.41433E+00	9.70082E-01	4.43648E-03	0.0
83	9.30641E-01	1.42650E+00	9.69594E-01	4.40858E-03	0.0
84	9.84115E-01	1.43950E+00	9.69771E-01	4.35838E-03	0.0
85	9.06373E-01	1.45183E+00	9.69008E-01	4.37264E-03	0.0
86	8.76373E-01	1.46350E+00	9.67905E-01	4.45869E-03	0.0
87	9.30879E-01	1.47533E+00	9.67469E-01	4.42735E-03	0.0
88	1.06608E+00	1.48833E+00	9.68616E-01	4.52356E-03	0.0
89	9.64698E-01	1.50100E+00	9.68571E-01	4.47161E-03	0.0
90	9.53919E-01	1.51283E+00	9.68404E-01	4.42351E-03	0.0
91	1.04780E+00	1.52583E+00	9.69296E-01	4.46365E-03	0.0
92	1.04818E+00	1.53867E+00	9.70172E-01	4.50017E-03	0.0
93	9.33191E-01	1.55117E+00	9.69766E-01	4.46895E-03	0.0
94	9.82310E-01	1.56350E+00	9.69902E-01	4.42239E-03	0.0
95	9.86430E-01	1.57683E+00	9.70080E-01	4.37836E-03	0.0
96	9.92822E-01	1.58983E+00	9.70322E-01	4.33831E-03	0.0
97	9.51989E-01	1.60167E+00	9.70129E-01	4.29706E-03	0.0
98	9.85683E-01	1.61450E+00	9.70290E-01	4.25519E-03	0.0
99	9.67543E-01	1.62750E+00	9.70262E-01	4.21143E-03	0.0
100	8.96766E-01	1.63900E+00	9.69512E-01	4.23517E-03	0.0
101	9.69448E-01	1.65150E+00	9.69511E-01	4.19238E-03	0.0
102	9.73500E-01	1.66417E+00	9.69551E-01	4.15039E-03	0.0
103	8.81721E-01	1.67650E+00	9.68681E-01	4.20007E-03	0.0

THE MATRIX K-EFF IS THE LARGEST EIGENVALUE OF THE MATRIX OF FISSION PROBABILITIES BY UNIT.
THERE ARE NBXMAX * NBYMAX * NBZMAX UNITS IN AN ARRAY.

SUPER 1

LIFETIME = 3.90982E-07 + OR - 3.40958E-08 GENERATION TIME = 3.40561E-07 + OR - 4.59485E-08

NO. OF INITIAL GENERATIONS SKIPPED	AVERAGE K-EFFECTIVE	DEVIATION	67 PER CENT CONFIDENCE INTERVAL	95 PER CENT CONFIDENCE INTERVAL	99 PER CENT CONFIDENCE INTERVAL	NUMBER OF HISTORIES
3	0.96848	+ OR - 0.00423	0.96425 TO 0.97271	0.96002 TO 0.97695	0.95579 TO 0.98118	30000
4	0.96763	+ OR - 0.00419	0.96344 TO 0.97182	0.95926 TO 0.97600	0.95507 TO 0.98019	29700
5	0.96720	+ OR - 0.00421	0.96300 TO 0.97141	0.95879 TO 0.97562	0.95458 TO 0.97983	29400
6	0.96706	+ OR - 0.00425	0.96281 TO 0.97131	0.95856 TO 0.97556	0.95432 TO 0.97981	29100
7	0.96663	+ OR - 0.00427	0.96236 TO 0.97090	0.95809 TO 0.97517	0.95382 TO 0.97944	28800
8	0.96630	+ OR - 0.00430	0.96200 TO 0.97061	0.95769 TO 0.97491	0.95339 TO 0.97921	28500
9	0.96611	+ OR - 0.00435	0.96177 TO 0.97046	0.95742 TO 0.97480	0.95308 TO 0.97915	28200
10	0.96603	+ OR - 0.00439	0.96164 TO 0.97042	0.95725 TO 0.97481	0.95286 TO 0.97921	27900
11	0.96552	+ OR - 0.00441	0.96111 TO 0.96993	0.95670 TO 0.97433	0.95229 TO 0.97874	27600
12	0.96562	+ OR - 0.00446	0.96116 TO 0.97008	0.95671 TO 0.97453	0.95225 TO 0.97899	27300
17	0.96621	+ OR - 0.00469	0.96151 TO 0.97090	0.95682 TO 0.97560	0.95212 TO 0.98029	25800
22	0.96773	+ OR - 0.00485	0.96288 TO 0.97258	0.95803 TO 0.97744	0.95317 TO 0.98229	24300
27	0.96715	+ OR - 0.00505	0.96210 TO 0.97221	0.95704 TO 0.97726	0.95199 TO 0.98232	22800
32	0.96604	+ OR - 0.00536	0.96067 TO 0.97140	0.95531 TO 0.97676	0.94995 TO 0.98213	21300
37	0.96761	+ OR - 0.00550	0.96212 TO 0.97311	0.95662 TO 0.97861	0.95113 TO 0.98410	19800
42	0.96643	+ OR - 0.00590	0.96052 TO 0.97233	0.95462 TO 0.97823	0.94872 TO 0.98413	18300
47	0.96442	+ OR - 0.00627	0.95815 TO 0.97069	0.95189 TO 0.97695	0.94562 TO 0.98322	16800
52	0.96412	+ OR - 0.00668	0.95744 TO 0.97081	0.95076 TO 0.97749	0.94407 TO 0.98417	15300
57	0.96339	+ OR - 0.00739	0.95600 TO 0.97078	0.94861 TO 0.97817	0.94122 TO 0.98556	13800
62	0.96457	+ OR - 0.00805	0.95652 TO 0.97262	0.94847 TO 0.98067	0.94042 TO 0.98872	12300
67	0.96099	+ OR - 0.00883	0.95216 TO 0.96982	0.94333 TO 0.97865	0.93449 TO 0.98748	10800
72	0.95922	+ OR - 0.00997	0.94926 TO 0.96919	0.93929 TO 0.97915	0.92933 TO 0.98912	9300
77	0.96302	+ OR - 0.01099	0.95203 TO 0.97401	0.94104 TO 0.98500	0.93005 TO 0.99599	7800
82	0.96335	+ OR - 0.01122	0.95213 TO 0.97458	0.94091 TO 0.98580	0.92969 TO 0.99702	6300
87	0.97513	+ OR - 0.01247	0.96266 TO 0.98760	0.95019 TO 1.00006	0.93773 TO 1.01253	4800
92	0.95649	+ OR - 0.01130	0.94519 TO 0.96779	0.93390 TO 0.97908	0.92260 TO 0.99038	3300

SUPER 1

NO. OF INITIAL GENERATIONS SKIPPED	AVERAGE K-EFFECTIVE	DEVIATION	67 PER CENT CONFIDENCE INTERVAL	95 PER CENT CONFIDENCE INTERVAL	99 PER CENT CONFIDENCE INTERVAL	NUMBER OF HISTORIES
97	0.94578	+ OR - 0.01817	0.92761 TO 0.96394	0.90944 TO 0.98211	0.89128 TO 1.00027	1800

ELAPSED TIME 1.67650MINUTES

SUPER 1

**** FISSION DENSITIES ****

	REGION	FISSION DENSITY	PERCENT DEVIATION	TOTAL FISSIONS
SUPER BOX TYPE 1				
BOX TYPE 1	1	4.701E-05	1.52	2.101E-01
	2	0.0	0.0	0.0
	3	0.0	0.0	0.0
BOX TYPE 2	1	4.890E-05	1.87	2.185E-01
	2	0.0	0.0	0.0
	3	0.0	0.0	0.0
CELL BDY.	1	0.0	0.0	0.0
	2	0.0	0.0	0.0
	3	0.0	0.0	0.0
	4	0.0	0.0	0.0
SUPER BOX TYPE 2				
BOX TYPE 1	1	6.413E-05	1.44	2.866E-01
	2	0.0	0.0	0.0
	3	0.0	0.0	0.0
BOX TYPE 2	1	5.665E-05	2.21	2.532E-01
	2	0.0	0.0	0.0
	3	0.0	0.0	0.0
CELL BDY.	1	0.0	0.0	0.0
	2	0.0	0.0	0.0
	3	0.0	0.0	0.0
	4	0.0	0.0	0.0
REFLECTOR	1	0.0	0.0	0.0
	2	0.0	0.0	0.0

SUPER 1

SUPER BOX TYPE 1 BOX TYPE 1 ZHEM 1 MIXTURE = 1 VOLUME = 4.46948E+03

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	4.27000E-02	0.0	9.40714E-03	1.54569E-02	1.00734E-02	1.71641E-02	1.00003E+00
2	0.0	7.45000E-02	2.18509E-03	2.81387E-02	2.34424E-02	2.00097E-02	3.32323E-02	1.00004E+00
3	0.0	3.61667E-02	7.38117E-03	2.37090E-02	9.72991E-03	1.24719E-02	2.13138E-02	1.00003E+00
4	0.0	4.06000E-02	2.18628E-02	5.77344E-02	7.72986E-03	2.12096E-02	3.36420E-02	1.00004E+00
5	0.0	2.06333E-02	2.13535E-02	8.04561E-02	7.71845E-04	1.99338E-02	2.12386E-02	1.00003E+00
6	0.0	2.90000E-03	4.34747E-03	1.72680E-02	7.52099E-05	5.45134E-03	1.79794E-03	9.99597E-01
7	0.0	0.0	7.52099E-05	1.31394E-03	1.70784E-05	6.77634E-04	-5.77763E-04	9.99997E-01
8	0.0	0.0	1.70784E-05	5.67314E-04	8.21861E-06	5.42269E-04	-4.85414E-04	9.99997E-01
9	0.0	0.0	8.21861E-06	1.15304E-04	0.0	4.55494E-04	-5.07609E-04	1.00002E+00
10	0.0	0.0	0.0	1.66667E-05	0.0	2.41322E-04	-2.66369E-04	9.99987E-01
11	0.0	0.0	0.0	1.66667E-05	0.0	1.09011E-04	-1.06324E-04	9.99997E-01
12	0.0	0.0	0.0	5.00000E-05	0.0	2.18367E-04	-1.96747E-04	9.99997E-01
13	0.0	0.0	0.0	3.09259E-05	0.0	1.15239E-04	-1.15759E-04	9.99995E-01
14	0.0	0.0	0.0	1.66667E-05	1.66667E-05	8.60408E-05	-8.08227E-05	9.99999E-01
15	0.0	0.0	1.66667E-05	0.0	0.0	8.39839E-05	-7.13090E-05	1.00000E+00
16	0.0	0.0	0.0	0.0	0.0	1.49845E-04	-1.52456E-04	0.0
SUM	0.0	2.17500E-01	5.72472E-02	2.18840E-01	5.72481E-02	9.18285E-02	1.25828E-01	1.00002E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	1.	4.33238E-06	0.	0.0	0.	0.0	1156.	2.48630E-02
2	10.	4.61299E-05	0.	0.0	4.	4.82907E-05	2527.	5.15138E-02
3	33.	1.60828E-04	0.	0.0	11.	1.29777E-04	1816.	3.32547E-02
4	163.	7.80758E-04	0.	0.0	76.	9.02110E-04	4107.	6.41955E-02
5	379.	1.84964E-03	0.	0.0	154.	1.80822E-03	5723.	7.86612E-02
6	197.	9.18970E-04	0.	0.0	83.	9.92675E-04	1384.	1.59601E-02
7	30.	1.36261E-04	0.	0.0	15.	1.77999E-04	99.	1.08102E-03
8	22.	8.94935E-05	0.	0.0	11.	1.37488E-04	38.	3.92201E-04
9	27.	7.45981E-05	0.	0.0	1.	1.42654E-05	13.	9.86372E-05
10	12.	3.81350E-05	0.	0.0	1.	1.30872E-05	0.	0.0
11	5.	1.11200E-05	0.	0.0	1.	1.38066E-05	0.	0.0
12	12.	2.38573E-05	0.	0.0	3.	4.54772E-05	0.	0.0
13	5.	1.56601E-05	0.	0.0	1.	1.51398E-05	2.	1.42593E-05
14	3.	4.78258E-06	0.	0.0	2.	2.66673E-05	0.	0.0
15	4.	3.99174E-06	0.	0.0	0.	0.0	0.	0.0
16	9.	2.61114E-06	0.	0.0	0.	0.0	0.	0.0
SUM	912.	4.16115E-03	0.	0.0	363.	4.32499E-03	16865.	2.70034E-01

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	5.08482E-06	0.0	1.71641E-02	2.85262E-02	3.81371E-05	3.43
2	9.84501E-06	0.0	3.32323E-02	4.91209E-02	7.24952E-05	2.72
3	6.31418E-06	0.0	2.13138E-02	2.88245E-02	4.61303E-05	2.89
4	9.96638E-06	0.0	3.36420E-02	4.66360E-02	7.78465E-05	2.38
5	6.29190E-06	0.0	2.12386E-02	4.19577E-02	5.93297E-05	2.80
6	5.32635E-07	0.0	1.79794E-03	1.04916E-02	8.68769E-06	5.89
7	-1.71161E-07	0.0	-5.77763E-04	1.25624E-03	5.98542E-07	18.02
8	-1.43803E-07	0.0	-4.85414E-04	9.33643E-04	2.83759E-07	19.33
9	-1.50378E-07	0.0	-5.07609E-04	7.45448E-04	7.93643E-08	29.72
10	-7.89114E-08	0.0	-2.66369E-04	3.64655E-04	2.48087E-08	50.46
11	-3.14983E-08	0.0	-1.06324E-04	1.40324E-04	2.97032E-09	64.56
12	-5.82860E-08	0.0	-1.96747E-04	2.20110E-04	1.56373E-08	38.73
13	-3.42935E-08	0.0	-1.15759E-04	2.17021E-04	1.63794E-08	60.16
14	-2.39436E-08	0.0	-8.08227E-05	1.84359E-04	4.02650E-09	58.57
15	-2.11251E-08	0.0	-7.13090E-05	1.69881E-04	1.48421E-09	55.44
16	-4.51647E-08	0.0	-1.52456E-04	3.09950E-04	1.48898E-09	44.17
SUM	3.72763E-05	0.0	1.25828E-01	2.10098E-01	3.03656E-04	1.58

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	1.19178E-02	2.37754E-03	3.91849E-03	-1.04972E-03	0.0	0.0	1.71641E-02
2	2.43478E-02	4.84635E-03	5.24554E-03	-1.20737E-03	0.0	0.0	3.32323E-02
3	1.45284E-02	3.21545E-03	3.86731E-03	-2.97342E-04	0.0	0.0	2.13138E-02
4	2.35641E-02	4.96729E-03	5.94066E-03	-8.30023E-04	0.0	0.0	3.36420E-02
5	1.50042E-02	3.87946E-03	2.88533E-03	-5.30390E-04	0.0	0.0	2.12386E-02
6	1.12956E-03	5.14622E-04	2.72453E-04	-1.18693E-04	0.0	0.0	1.79794E-03
7	-3.14078E-04	-1.58221E-04	-2.55673E-06	-1.02908E-04	0.0	0.0	-5.77763E-04
8	-3.18811E-04	-8.82112E-05	-8.17772E-05	3.38548E-06	0.0	0.0	-4.85414E-04
9	-3.48957E-04	-2.90763E-05	-1.21775E-04	-7.80125E-06	0.0	0.0	-5.07609E-04
10	-1.59951E-04	-6.60994E-05	-4.03188E-05	0.0	0.0	0.0	-2.66369E-04
11	-9.94036E-05	0.0	-6.92052E-06	0.0	0.0	0.0	-1.06324E-04
12	-1.54995E-04	1.78127E-05	-5.77871E-05	-1.77764E-06	0.0	0.0	-1.96747E-04
13	-1.15759E-04	0.0	0.0	0.0	0.0	0.0	-1.15759E-04
14	-6.72113E-05	-1.36115E-05	0.0	0.0	0.0	0.0	-8.08227E-05
15	-7.13090E-05	0.0	0.0	0.0	0.0	0.0	-7.13090E-05
16	-1.37691E-04	-1.47644E-05	0.0	0.0	0.0	0.0	-1.52456E-04
SUM	8.87033E-02	1.94485E-02	2.18186E-02	-4.14263E-03	0.0	0.0	1.25828E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	7.66320E-06	5.72632E-06	9.43770E-06	-1.06028E-06	0.0	0.0	5.08482E-06
2	1.56559E-05	1.16724E-05	1.26339E-05	-1.21956E-06	0.0	0.0	9.84501E-06
3	9.34196E-06	7.74442E-06	9.31445E-06	-3.00334E-07	0.0	0.0	6.31418E-06
4	1.51532E-05	1.19637E-05	1.43081E-05	-8.38406E-07	0.0	0.0	9.96638E-06
5	9.64848E-06	9.34376E-06	6.94936E-06	-5.35717E-07	0.0	0.0	6.29190E-06
6	7.26340E-07	1.23949E-06	6.56217E-07	-1.19886E-07	0.0	0.0	5.32635E-07
7	-2.01961E-07	-3.81084E-07	-6.15803E-09	-1.03943E-07	0.0	0.0	-1.71161E-07
8	-2.05004E-07	-2.12462E-07	-1.96965E-07	3.41954E-09	0.0	0.0	-1.43803E-07
9	-2.24388E-07	-7.00320E-08	-2.93302E-07	-7.87977E-09	0.0	0.0	-1.50378E-07
10	-1.02853E-07	-1.59204E-07	-9.71102E-08	0.0	0.0	0.0	-7.89114E-08
11	-6.39192E-08	0.0	-1.66685E-08	0.0	0.0	0.0	-3.14983E-08
12	-9.96663E-08	4.29028E-08	-1.39183E-07	-1.79553E-09	0.0	0.0	-5.82860E-08
13	-7.44365E-08	0.0	0.0	0.0	0.0	0.0	-3.42935E-08
14	-4.32187E-08	-3.27840E-08	0.0	0.0	0.0	0.0	-2.39436E-08
15	-4.58537E-08	0.0	0.0	0.0	0.0	0.0	-2.11251E-08
16	-8.85394E-08	-3.55608E-08	0.0	0.0	0.0	0.0	-4.51647E-08
SUM	5.70391E-05	4.68418E-05	5.25503E-05	-4.18438E-06	0.0	0.0	3.72763E-05

SUPER 1

SUPER BOX TYPE 1 BOX TYPE 1 CUBO 2 MIXTURE = 0 VOLUME = 1.22124E+03

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	0.0	0.0	0.0	1.86265E-07	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	6.14673E-07	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	6.25849E-07	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	2.68221E-06	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	2.46614E-06	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	2.09548E-08	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	-2.32831E-10	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	-5.82077E-11	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	-1.45519E-11	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	2.91038E-11	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	5.82077E-11	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	1.45519E-11	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUM	0.0	0.0	0.0	0.0	0.0	0.0	6.59612E-06	0.0

GRP.	NUMBER KILLED WT	NUMBER SPLIT WT	NUMBER BORN WT	NUMBER SURV WT
1	0. 0.0	0. 0.0	0. 0.0	0. 0.0
2	0. 0.0	0. 0.0	0. 0.0	0. 0.0
3	0. 0.0	0. 0.0	0. 0.0	0. 0.0
4	0. 0.0	0. 0.0	0. 0.0	0. 0.0
5	0. 0.0	0. 0.0	0. 0.0	0. 0.0
6	0. 0.0	0. 0.0	0. 0.0	0. 0.0
7	0. 0.0	0. 0.0	0. 0.0	0. 0.0
8	0. 0.0	0. 0.0	0. 0.0	0. 0.0
9	0. 0.0	0. 0.0	0. 0.0	0. 0.0
10	0. 0.0	0. 0.0	0. 0.0	0. 0.0
11	0. 0.0	0. 0.0	0. 0.0	0. 0.0
12	0. 0.0	0. 0.0	0. 0.0	0. 0.0
13	0. 0.0	0. 0.0	0. 0.0	0. 0.0
14	0. 0.0	0. 0.0	0. 0.0	0. 0.0
15	0. 0.0	0. 0.0	0. 0.0	0. 0.0
16	0. 0.0	0. 0.0	0. 0.0	0. 0.0
SUM	0. 0.0	0. 0.0	0. 0.0	0. 0.0

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	4.26190E-06	1.71641E-02	1.71642E-02	0.0	2.06953E-05	5.19
2	8.25177E-06	3.32323E-02	3.32329E-02	0.0	3.93084E-05	4.17
3	5.29240E-06	2.13138E-02	2.13145E-02	0.0	2.42210E-05	5.28
4	8.35402E-06	3.36420E-02	3.36447E-02	0.0	4.03187E-05	3.25
5	5.27418E-06	2.12386E-02	2.12411E-02	0.0	2.98941E-05	4.45
6	4.46435E-07	1.79794E-03	1.79796E-03	0.0	4.81219E-06	10.12
7	-1.43459E-07	-5.77763E-04	-5.77763E-04	0.0	1.11302E-06	29.09
8	-1.20529E-07	-4.85414E-04	-4.85414E-04	0.0	8.43562E-07	25.25
9	-1.26040E-07	-5.07609E-04	-5.07609E-04	0.0	7.54002E-07	33.38
10	-6.61397E-08	-2.66369E-04	-2.66369E-04	0.0	1.67440E-07	40.38
11	-2.64004E-08	-1.06324E-04	-1.06324E-04	0.0	1.96968E-07	54.82
12	-4.88526E-08	-1.96747E-04	-1.96747E-04	0.0	1.46846E-07	51.23
13	-2.87432E-08	-1.15759E-04	-1.15759E-04	0.0	2.26403E-07	47.06
14	-2.00684E-08	-8.08227E-05	-8.08227E-05	0.0	8.92380E-08	70.14
15	-1.77061E-08	-7.13090E-05	-7.13090E-05	0.0	1.14655E-07	66.23
16	-3.78549E-08	-1.52456E-04	-1.52456E-04	0.0	1.06303E-07	44.12
SUM	3.12448E-05	1.25828E-01	1.25834E-01	0.0	1.63008E-04	2.18

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	-1.04972E-03	5.29014E-03	3.20678E-03	2.86308E-03	2.54744E-03	4.30654E-03	1.71642E-02
2	-1.20737E-03	1.20536E-02	5.14482E-03	6.17741E-03	5.48494E-03	5.57952E-03	3.32329E-02
3	-2.97342E-04	7.17505E-03	3.26748E-03	3.38381E-03	3.49390E-03	4.29158E-03	2.13145E-02
4	-8.30023E-04	1.15730E-02	4.93146E-03	6.10409E-03	5.27276E-03	6.59345E-03	3.36447E-02
5	-5.30390E-04	7.31631E-03	3.33908E-03	3.23380E-03	4.41412E-03	3.46816E-03	2.12411E-02
6	-1.18693E-04	6.41700E-04	3.56185E-05	3.00304E-04	5.67114E-04	3.71915E-04	1.79796E-03
7	-1.02908E-04	5.09359E-06	-6.58602E-05	-1.59114E-04	-2.22433E-04	-3.25427E-05	-5.77763E-04
8	3.38548E-06	-1.85262E-04	-4.91800E-05	-1.59546E-05	-8.99583E-05	-1.48445E-04	-4.85414E-04
9	-7.80125E-06	-1.10448E-04	-4.14414E-05	-1.35848E-04	-2.58624E-05	-1.86208E-04	-5.07609E-04
10	0.0	-1.73573E-04	2.76328E-05	1.28258E-05	-9.29362E-05	-4.03188E-05	-2.66369E-04
11	0.0	-2.03681E-05	-2.86135E-05	-3.11932E-05	-2.63882E-05	2.38810E-07	-1.06324E-04
12	-1.77764E-06	-6.51988E-05	2.21752E-05	-9.05311E-05	-3.62784E-06	-5.77871E-05	-1.96747E-04
13	0.0	-6.94616E-05	-3.74226E-05	2.11222E-06	-1.09873E-05	0.0	-1.15759E-04
14	0.0	-5.66362E-05	-1.72169E-05	0.0	-1.36115E-05	6.64191E-06	-8.08227E-05
15	0.0	-2.05337E-05	-1.23917E-05	-3.83836E-05	0.0	0.0	-7.13090E-05
16	0.0	-9.48374E-05	-2.41271E-05	-1.87269E-05	-1.47644E-05	0.0	-1.52456E-04
SUM	-4.14263E-03	4.32585E-02	1.96988E-02	2.15877E-02	2.12797E-02	2.41527E-02	1.25834E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	-1.06028E-06	5.34322E-06	6.47802E-06	5.78366E-06	4.81889E-06	8.14654E-06	4.26190E-06
2	-1.21956E-06	1.21748E-05	1.03930E-05	1.24790E-05	1.03756E-05	1.05545E-05	8.25177E-06
3	-3.00334E-07	7.24695E-06	6.60065E-06	6.83560E-06	6.60926E-06	8.11821E-06	5.29240E-06
4	-8.38406E-07	1.16897E-05	9.96193E-06	1.23307E-05	9.97416E-06	1.24725E-05	8.35402E-06
5	-5.35717E-07	7.38944E-06	6.74522E-06	6.53258E-06	8.34994E-06	6.56052E-06	5.27418E-06
6	-1.19886E-07	6.48159E-07	7.19543E-08	6.06653E-07	1.07279E-06	7.03539E-07	4.46435E-07
7	-1.03943E-07	5.14467E-09	-1.33046E-07	-3.21432E-07	-4.20770E-07	-6.15606E-08	-1.43459E-07
8	3.41954E-09	-1.87126E-07	-9.93501E-08	-3.22303E-08	-1.70172E-07	-2.80810E-07	-1.20529E-07
9	-7.87977E-09	-1.11560E-07	-8.37169E-08	-2.74431E-07	-4.89232E-08	-3.52245E-07	-1.26040E-07
10	0.0	-1.75320E-07	5.58218E-08	2.59097E-08	-1.75805E-07	-7.62701E-08	-6.61397E-08
11	0.0	-2.05731E-08	-5.78030E-08	-6.30143E-08	-4.99179E-08	4.51746E-10	-2.64004E-08
12	-1.79553E-09	-6.58550E-08	4.47967E-08	-1.82885E-07	-6.86275E-09	-1.09314E-07	-4.88526E-08
13	0.0	-7.01608E-08	-7.55986E-08	4.26694E-09	-2.07845E-08	0.0	-2.87432E-08
14	0.0	-5.72064E-08	-3.47804E-08	0.0	-2.57485E-08	1.25643E-08	-2.00684E-08
15	0.0	-2.07404E-08	-2.50328E-08	-7.75398E-08	0.0	0.0	-1.77061E-08
16	0.0	-9.57919E-08	-4.87399E-08	-3.78309E-08	-2.79294E-08	0.0	-3.78549E-08
SUM	-4.18438E-06	4.36930E-05	3.97932E-05	4.36090E-05	4.02537E-05	4.56885E-05	3.12448E-05

SUPER 1

SUPER BOX TYPE 1 BOX TYPE 1 CUBO 3 MIXTURE = 0 VOLUME = 7.60152E+03

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	0.0	0.0	0.0	-1.86265E-08	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	-3.31551E-07	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	1.11759E-08	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	-9.87202E-07	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	-7.45058E-09	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	-2.07219E-08	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	9.31323E-10	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	2.91038E-11	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	1.74623E-10	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	1.45519E-11	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	4.36557E-11	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	4.36557E-11	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	1.89175E-10	0.0
SUM	0.0	0.0	0.0	0.0	0.0	0.0	-1.35272E-06	0.0

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
2	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
3	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
4	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
5	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
6	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
7	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
8	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
9	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
10	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
11	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
12	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
13	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
14	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
15	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
16	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
SUM	0.	0.0		0.	0.0		0.	0.0		0.	0.0	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	2.41806E-06	1.71642E-02	1.71642E-02	0.0	1.91934E-05	3.90
2	4.68174E-06	3.32329E-02	3.32326E-02	0.0	3.70611E-05	3.05
3	3.00274E-06	2.13145E-02	2.13145E-02	0.0	2.31667E-05	3.31
4	4.73966E-06	3.36447E-02	3.36437E-02	0.0	3.76005E-05	2.71
5	2.99240E-06	2.12411E-02	2.12411E-02	0.0	2.76658E-05	3.40
6	2.53290E-07	1.79796E-03	1.79794E-03	0.0	5.00476E-06	7.68
7	-8.13942E-08	-5.77763E-04	-5.77763E-04	0.0	1.55522E-06	12.85
8	-6.83841E-08	-4.85414E-04	-4.85413E-04	0.0	1.15871E-06	13.01
9	-7.15109E-08	-5.07609E-04	-5.07609E-04	0.0	8.70975E-07	20.32
10	-3.75256E-08	-2.66369E-04	-2.66369E-04	0.0	3.81355E-07	44.38
11	-1.49787E-08	-1.06324E-04	-1.06324E-04	0.0	2.18747E-07	34.14
12	-2.77174E-08	-1.96747E-04	-1.96747E-04	0.0	2.07481E-07	26.70
13	-1.63079E-08	-1.15759E-04	-1.15759E-04	0.0	1.52973E-07	30.87
14	-1.13861E-08	-8.08227E-05	-8.08226E-05	0.0	7.91566E-08	43.72
15	-1.00459E-08	-7.13090E-05	-7.13089E-05	0.0	1.24711E-07	47.66
16	-2.14776E-08	-1.52456E-04	-1.52456E-04	0.0	1.79715E-07	29.15
SUM	1.77271E-05	1.25834E-01	1.25833E-01	0.0	1.54620E-04	1.78

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	-2.20106E-03	6.46957E-03	3.16615E-03	3.02289E-03	2.23513E-03	4.47155E-03	1.71642E-02
2	-3.81598E-03	1.33423E-02	5.46570E-03	6.49830E-03	6.51089E-03	5.23144E-03	3.32326E-02
3	-1.21951E-03	7.60471E-03	3.23469E-03	4.38644E-03	3.86071E-03	3.44746E-03	2.13145E-02
4	-2.51033E-03	1.39793E-02	5.12939E-03	6.37092E-03	5.19197E-03	5.48252E-03	3.36437E-02
5	-1.65072E-03	8.32760E-03	3.92996E-03	3.61650E-03	3.97005E-03	3.04768E-03	2.12411E-02
6	-5.32798E-04	1.02465E-03	1.95231E-04	3.91376E-04	3.76866E-04	3.42612E-04	1.79794E-03
7	-3.13105E-04	1.26367E-04	-1.47236E-05	-2.80418E-04	-2.06477E-04	1.10594E-04	-5.77763E-04
8	-1.75125E-04	-1.45845E-04	-9.19738E-05	-3.27593E-05	-2.15721E-05	-1.81385E-05	-4.85413E-04
9	2.52237E-05	-5.27903E-05	-8.29946E-05	-1.98413E-04	-4.23462E-06	-1.94400E-04	-5.07609E-04
10	-2.00910E-06	-2.11550E-04	7.35753E-06	-4.67890E-05	8.02119E-08	-1.34588E-05	-2.66369E-04
11	-6.19336E-05	-9.97983E-06	-2.77283E-05	0.0	-6.94071E-06	2.58277E-07	-1.06324E-04
12	-4.51378E-05	-1.73423E-04	-1.38106E-05	-4.17011E-05	2.38949E-05	5.34303E-05	-1.96747E-04
13	3.02706E-05	-1.19582E-04	-3.12228E-05	-2.84797E-05	3.32551E-05	0.0	-1.15759E-04
14	2.37312E-05	-7.37255E-05	-4.79176E-05	1.70893E-05	0.0	0.0	-8.08226E-05
15	-3.95648E-05	-7.20423E-06	7.11561E-06	-5.12500E-05	1.95945E-05	0.0	-7.13089E-05
16	-4.47604E-05	-1.59711E-05	-5.16715E-05	-3.94153E-05	0.0	-6.37311E-07	-1.52456E-04
SUM	-1.25328E-02	5.00643E-02	2.07735E-02	2.35843E-02	2.19832E-02	2.19609E-02	1.25833E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	-1.25597E-06	3.69149E-06	3.61332E-06	3.44979E-06	2.42809E-06	4.85743E-06	2.41806E-06
2	-2.17741E-06	7.61296E-06	6.23748E-06	7.41596E-06	7.07258E-06	5.68270E-06	4.68174E-06
3	-6.95908E-07	4.33905E-06	3.69149E-06	5.00589E-06	4.19387E-06	3.74493E-06	3.00274E-06
4	-1.43255E-06	7.97725E-06	5.85364E-06	7.27051E-06	5.63975E-06	5.95545E-06	4.73966E-06
5	-9.42022E-07	4.75124E-06	4.48486E-06	4.12727E-06	4.31259E-06	3.31072E-06	2.99240E-06
6	-3.04026E-07	5.84713E-07	2.22810E-07	4.46663E-07	4.09403E-07	3.72191E-07	2.53290E-07
7	-1.78668E-07	7.21093E-08	-1.68037E-08	-3.20032E-07	-2.24306E-07	1.20144E-07	-8.13942E-08
8	-9.99324E-08	-8.32242E-08	-1.04967E-07	-3.73875E-08	-2.34347E-08	-1.97047E-08	-6.83841E-08
9	1.43936E-08	-3.01239E-08	-9.47190E-08	-2.26442E-07	-4.60029E-09	-2.11186E-07	-7.15109E-08
10	-1.14645E-09	-1.20718E-07	8.39690E-09	-5.33988E-08	8.71407E-11	-1.46210E-08	-3.75256E-08
11	-3.53414E-08	-5.69479E-09	-3.16454E-08	0.0	-7.54002E-09	2.80573E-10	-1.49787E-08
12	-2.57572E-08	-9.89610E-08	-1.57616E-08	-4.75921E-08	2.59582E-08	5.80440E-08	-2.77174E-08
13	1.72734E-08	-6.82378E-08	-3.56336E-08	-3.25029E-08	3.61266E-08	0.0	-1.63079E-08
14	1.35418E-08	-4.20703E-08	-5.46869E-08	1.95034E-08	0.0	0.0	-1.13861E-08
15	-2.25770E-08	-4.11097E-09	8.12081E-09	-5.84900E-08	2.12865E-08	0.0	-1.00459E-08
16	-2.55418E-08	-9.11367E-09	-5.89710E-08	-4.49835E-08	0.0	-6.92345E-10	-2.14776E-08
SUM	-7.15163E-06	2.85664E-05	2.37069E-05	2.69147E-05	2.38798E-05	2.38556E-05	1.77271E-05

SUPER 1

SUMMARY FOR SUPER BOX TYPE 1 BOX TYPE 1 VOLUME = 1.32922E+04

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		4.27000E-02	0.0	9.40714E-03	1.54569E-02	1.00734E-02	1.71642E-02	1.00002E+00
2	0.0		7.45000E-02	2.18509E-03	2.81387E-02	2.34424E-02	2.00097E-02	3.32326E-02	1.00003E+00
3	0.0		3.61667E-02	7.38117E-03	2.37090E-02	9.72991E-03	1.24719E-02	2.13145E-02	1.00001E+00
4	0.0		4.06000E-02	2.18628E-02	5.77344E-02	7.72986E-03	2.12096E-02	3.36437E-02	1.00002E+00
5	0.0		2.06333E-02	2.13535E-02	8.04561E-02	7.71845E-04	1.99338E-02	2.12411E-02	9.99970E-01
6	0.0		2.90000E-03	4.34747E-03	1.72680E-02	7.52099E-05	5.45134E-03	1.79794E-03	9.99597E-01
7	0.0		0.0	7.52099E-05	1.31394E-03	1.70784E-05	6.77634E-04	-5.77763E-04	9.99997E-01
8	0.0		0.0	1.70784E-05	5.67314E-04	8.21861E-06	5.42269E-04	-4.85413E-04	9.99991E-01
9	0.0		0.0	8.21861E-06	1.15304E-04	0.0	4.55494E-04	-5.07609E-04	1.00002E+00
10	0.0		0.0	0.0	1.66667E-05	0.0	2.41322E-04	-2.66369E-04	9.99969E-01
11	0.0		0.0	0.0	1.66667E-05	0.0	1.09011E-04	-1.06324E-04	9.99999E-01
12	0.0		0.0	0.0	5.00000E-05	0.0	2.18367E-04	-1.96747E-04	9.99994E-01
13	0.0		0.0	0.0	3.09259E-05	0.0	1.15239E-04	-1.15759E-04	9.99992E-01
14	0.0		0.0	0.0	1.66667E-05	1.66667E-05	8.60408E-05	-8.08226E-05	9.99995E-01
15	0.0		0.0	1.66667E-05	0.0	0.0	8.39839E-05	-7.13089E-05	9.99996E-01
16	0.0		0.0	0.0	0.0	0.0	1.49845E-04	-1.52456E-04	0.0
SUM	0.0		2.17500E-01	5.72472E-02	2.18840E-01	5.72481E-02	9.18285E-02	1.25833E-01	1.00000E+00

GRP.	NUMBER KILLED	WT	NUMBER SPLIT	WT	NUMBER BORN	WT	NUMBER SURV	WT
1	1.	4.33238E-06	0.	0.0	0.	0.0	1156.	2.48630E-02
2	10.	4.61299E-05	0.	0.0	4.	4.82907E-05	2527.	5.15138E-02
3	33.	1.60828E-04	0.	0.0	11.	1.29777E-04	1816.	3.32547E-02
4	163.	7.80758E-04	0.	0.0	76.	9.02110E-04	4107.	6.41955E-02
5	379.	1.84964E-03	0.	0.0	154.	1.80822E-03	5723.	7.86612E-02
6	197.	9.18970E-04	0.	0.0	83.	9.92675E-04	1384.	1.59601E-02
7	30.	1.36261E-04	0.	0.0	15.	1.77999E-04	99.	1.08102E-03
8	22.	8.94935E-05	0.	0.0	11.	1.37488E-04	38.	3.92201E-04
9	27.	7.45981E-05	0.	0.0	1.	1.42654E-05	13.	9.86372E-05
10	12.	3.81350E-05	0.	0.0	1.	1.30872E-05	0.	0.0
11	5.	1.11200E-05	0.	0.0	1.	1.38066E-05	0.	0.0
12	12.	2.38573E-05	0.	0.0	3.	4.54772E-05	0.	0.0
13	5.	1.56601E-05	0.	0.0	1.	1.51398E-05	2.	1.42593E-05
14	3.	4.78258E-06	0.	0.0	2.	2.66673E-05	0.	0.0
15	4.	3.99174E-06	0.	0.0	0.	0.0	0.	0.0
16	9.	2.61114E-06	0.	0.0	0.	0.0	0.	0.0
SUM	912.	4.16115E-03	0.	0.0	363.	4.32499E-03	16865.	2.70034E-01

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	2.41806E-06	0.0	1.71642E-02	2.85262E-02	2.57011E-05	3.12
2	4.68174E-06	0.0	3.32326E-02	4.91209E-02	4.91820E-05	2.55
3	3.00274E-06	0.0	2.13145E-02	2.88245E-02	3.09851E-05	2.81
4	4.73966E-06	0.0	3.36437E-02	4.66360E-02	5.13827E-05	2.11
5	2.99240E-06	0.0	2.12411E-02	4.19577E-02	3.85176E-05	2.75
6	2.53290E-07	0.0	1.79794E-03	1.04916E-02	6.22544E-06	5.73
7	-8.13942E-08	0.0	-5.77763E-04	1.25624E-03	1.19291E-06	13.16
8	-6.83841E-08	0.0	-4.85413E-04	9.33643E-04	8.35556E-07	12.13
9	-7.15109E-08	0.0	-5.07609E-04	7.45448E-04	5.94050E-07	19.65
10	-3.75256E-08	0.0	-2.66369E-04	3.64655E-04	2.41813E-07	42.87
11	-1.49787E-08	0.0	-1.06324E-04	1.40324E-04	1.44192E-07	33.63
12	-2.77174E-08	0.0	-1.96747E-04	2.20110E-04	1.37404E-07	25.95
13	-1.63079E-08	0.0	-1.15759E-04	2.17021E-04	1.13790E-07	29.53
14	-1.13861E-08	0.0	-8.08226E-05	1.84359E-04	5.48205E-08	45.84
15	-1.00459E-08	0.0	-7.13089E-05	1.69881E-04	8.23521E-08	44.45
16	-2.14776E-08	0.0	-1.52456E-04	3.09950E-04	1.13042E-07	28.47
SUM	1.77271E-05	0.0	1.25833E-01	2.10098E-01	2.05504E-04	1.54

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	-2.20106E-03	6.46957E-03	3.16615E-03	3.02289E-03	2.23513E-03	4.47155E-03	1.71642E-02
2	-3.81598E-03	1.33423E-02	5.46570E-03	6.49830E-03	6.51089E-03	5.23144E-03	3.32326E-02
3	-1.21951E-03	7.60471E-03	3.23469E-03	4.38644E-03	3.86071E-03	3.44746E-03	2.13145E-02
4	-2.51033E-03	1.39793E-02	5.12939E-03	6.37092E-03	5.19197E-03	5.48252E-03	3.36437E-02
5	-1.65072E-03	8.32760E-03	3.92996E-03	3.61650E-03	3.97005E-03	3.04768E-03	2.12411E-02
6	-5.32798E-04	1.02465E-03	1.95231E-04	3.91376E-04	3.76866E-04	3.42612E-04	1.79794E-03
7	-3.13105E-04	1.26367E-04	-1.47236E-05	-2.80418E-04	-2.06477E-04	1.10594E-04	-5.77763E-04
8	-1.75125E-04	-1.45845E-04	-9.19738E-05	-3.27593E-05	-2.15721E-05	-1.81385E-05	-4.85413E-04
9	2.52237E-05	-5.27903E-05	-8.29946E-05	-1.98413E-04	-4.23462E-06	-1.94400E-04	-5.07609E-04
10	-2.00910E-06	-2.11550E-04	7.35753E-06	-4.67890E-05	8.02119E-08	-1.34588E-05	-2.66369E-04
11	-6.19336E-05	-9.97983E-06	-2.77283E-05	0.0	-6.94071E-06	2.58277E-07	-1.06324E-04
12	-4.51378E-05	-1.73423E-04	-1.38106E-05	-4.17011E-05	2.38949E-05	5.34303E-05	-1.96747E-04
13	3.02706E-05	-1.19582E-04	-3.12228E-05	-2.84797E-05	3.32551E-05	0.0	-1.15759E-04
14	2.37312E-05	-7.37255E-05	-4.79176E-05	1.70893E-05	0.0	0.0	-8.08226E-05
15	-3.95648E-05	-7.20423E-06	7.11561E-06	-5.12500E-05	1.95945E-05	0.0	-7.13089E-05
16	-4.47604E-05	-1.59711E-05	-5.16715E-05	-3.94153E-05	0.0	-6.37311E-07	-1.52456E-04
SUM	-1.25328E-02	5.00643E-02	2.07735E-02	2.35843E-02	2.19832E-02	2.19609E-02	1.25833E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	-1.25597E-06	3.69149E-06	3.61332E-06	3.44979E-06	2.42809E-06	4.85743E-06	2.41806E-06
2	-2.17741E-06	7.61296E-06	6.23748E-06	7.41596E-06	7.07258E-06	5.68270E-06	4.68174E-06
3	-6.95908E-07	4.33905E-06	3.69149E-06	5.00589E-06	4.19387E-06	3.74493E-06	3.00274E-06
4	-1.43255E-06	7.97725E-06	5.85364E-06	7.27051E-06	5.63975E-06	5.95545E-06	4.73966E-06
5	-9.42022E-07	4.75124E-06	4.48486E-06	4.12727E-06	4.31259E-06	3.31072E-06	2.99240E-06
6	-3.04026E-07	5.84713E-07	2.22810E-07	4.46663E-07	4.09403E-07	3.72191E-07	2.53290E-07
7	-1.78668E-07	7.21093E-08	-1.68037E-08	-3.20032E-07	-2.24306E-07	1.20144E-07	-8.13942E-08
8	-9.99324E-08	-8.32242E-08	-1.04967E-07	-3.73875E-08	-2.34347E-08	-1.97047E-08	-6.83841E-08
9	1.43936E-08	-3.01239E-08	-9.47190E-08	-2.26442E-07	-4.60029E-09	-2.11186E-07	-7.15109E-08
10	-1.14645E-09	-1.20718E-07	8.39690E-09	-5.33988E-08	8.71407E-11	-1.46210E-08	-3.75256E-08
11	-3.53414E-08	-5.69479E-09	-3.16454E-08	0.0	-7.54002E-09	2.80573E-10	-1.49787E-08
12	-2.57572E-08	-9.89610E-08	-1.57616E-08	-4.75921E-08	2.59582E-08	5.80440E-08	-2.77174E-08
13	1.72734E-08	-6.82378E-08	-3.56336E-08	-3.25029E-08	3.61266E-08	0.0	-1.63079E-08
14	1.35418E-08	-4.20703E-08	-5.46869E-08	1.95034E-08	0.0	0.0	-1.13861E-08
15	-2.25770E-08	-4.11097E-09	8.12081E-09	-5.84900E-08	2.12865E-08	0.0	-1.00459E-08
16	-2.55418E-08	-9.11367E-09	-5.89710E-08	-4.49835E-08	0.0	-6.92345E-10	-2.14776E-08
SUM	-7.15163E-06	2.85664E-05	2.37069E-05	2.69147E-05	2.38798E-05	2.38556E-05	1.77271E-05

SUPER 1

SUPER BOX TYPE 1 BOX TYPE 2 ZHEM 1 MIXTURE = 1 VOLUME = 4.46948E+03

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	4.60333E-02	0.0	1.08170E-02	1.59339E-02	1.08395E-02	1.92499E-02	1.00003E+00
2	0.0	7.55000E-02	2.14330E-03	2.91802E-02	2.38780E-02	2.05904E-02	3.31542E-02	1.00004E+00
3	0.0	3.56667E-02	7.67506E-03	2.31349E-02	1.05468E-02	1.25915E-02	2.00932E-02	1.00003E+00
4	0.0	3.97000E-02	2.20904E-02	6.05060E-02	7.06084E-03	2.19486E-02	3.27252E-02	1.00006E+00
5	0.0	2.14000E-02	2.22795E-02	8.40104E-02	1.13275E-03	2.08738E-02	2.17138E-02	1.00002E+00
6	0.0	2.86667E-03	4.36311E-03	1.75232E-02	1.65304E-04	5.62699E-03	1.30348E-03	9.99574E-01
7	0.0	0.0	1.65304E-04	1.74373E-03	0.0	9.57174E-04	-8.69267E-04	9.99985E-01
8	0.0	0.0	0.0	3.84715E-04	0.0	4.74652E-04	-5.51695E-04	9.99977E-01
9	0.0	0.0	0.0	1.02850E-04	0.0	4.37062E-04	-5.02741E-04	1.00000E+00
10	0.0	0.0	0.0	3.33333E-05	0.0	2.73584E-04	-2.87541E-04	9.99988E-01
11	0.0	0.0	0.0	1.66667E-05	0.0	1.98903E-04	-2.07744E-04	9.99995E-01
12	0.0	0.0	0.0	1.66667E-05	0.0	1.18395E-04	-1.17116E-04	9.99988E-01
13	0.0	0.0	0.0	7.38078E-05	0.0	1.68922E-04	-1.41209E-04	9.99996E-01
14	0.0	0.0	0.0	1.66667E-05	0.0	9.63589E-06	5.74862E-06	1.00000E+00
15	0.0	0.0	0.0	0.0	0.0	1.01867E-04	-1.06709E-04	0.0
16	0.0	0.0	0.0	0.0	0.0	2.61298E-04	-2.65851E-04	0.0
SUM	0.0	2.21166E-01	5.87167E-02	2.27560E-01	5.87177E-02	9.54719E-02	1.25195E-01	1.00003E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	2.	8.66475E-06	0.	0.0	0.	0.0	1229.	2.67499E-02
2	9.	4.16277E-05	0.	0.0	2.	2.40066E-05	2588.	5.30242E-02
3	37.	1.79406E-04	0.	0.0	6.	7.04228E-05	1864.	3.35810E-02
4	166.	8.06327E-04	0.	0.0	63.	7.54107E-04	4282.	6.65148E-02
5	398.	1.93627E-03	0.	0.0	169.	1.97787E-03	5992.	8.23262E-02
6	206.	9.70836E-04	0.	0.0	70.	8.33395E-04	1390.	1.65219E-02
7	45.	1.97804E-04	0.	0.0	10.	1.20403E-04	145.	1.57706E-03
8	26.	1.00256E-04	0.	0.0	2.	2.32118E-05	35.	3.51382E-04
9	27.	7.70578E-05	0.	0.0	1.	1.13791E-05	12.	8.61838E-05
10	19.	4.24894E-05	0.	0.0	2.	2.85315E-05	0.	0.0
11	10.	2.24659E-05	0.	0.0	1.	1.36244E-05	0.	0.0
12	8.	1.15615E-05	0.	0.0	1.	1.28410E-05	0.	0.0
13	7.	2.70184E-05	0.	0.0	4.	5.47311E-05	1.	7.14115E-06
14	0.	0.0	0.	0.0	1.	1.53845E-05	0.	0.0
15	7.	4.84173E-06	0.	0.0	0.	0.0	0.	0.0
16	14.	4.55327E-06	0.	0.0	0.	0.0	0.	0.0
SUM	981.	4.43117E-03	0.	0.0	332.	3.93990E-03	17538.	2.80740E-01

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	5.70274E-06	1.71642E-02	1.92499E-02	3.06956E-02	4.03091E-05	3.30
2	9.82185E-06	3.32329E-02	3.31542E-02	5.05464E-02	7.63965E-05	2.90
3	5.95256E-06	2.13145E-02	2.00932E-02	2.91009E-02	4.82760E-05	3.29
4	9.69478E-06	3.36447E-02	3.27252E-02	4.82610E-02	8.02611E-05	2.38
5	6.43266E-06	2.12411E-02	2.17138E-02	4.39361E-02	6.13799E-05	2.42
6	3.86155E-07	1.79796E-03	1.30348E-03	1.08296E-02	8.65019E-06	5.83
7	-2.57519E-07	-5.77763E-04	-8.69267E-04	1.77447E-03	8.04870E-07	17.27
8	-1.63439E-07	-4.85414E-04	-5.51695E-04	8.17225E-04	2.32307E-07	29.78
9	-1.48936E-07	-5.07609E-04	-5.02741E-04	7.15282E-04	7.66323E-08	29.05
10	-8.51834E-08	-2.66369E-04	-2.87541E-04	4.13405E-04	2.91418E-08	34.37
11	-6.15437E-08	-1.06324E-04	-2.07744E-04	2.56038E-04	1.38225E-08	41.46
12	-3.46953E-08	-1.96747E-04	-1.17116E-04	1.19340E-04	7.55432E-09	53.09
13	-4.18328E-08	-1.15759E-04	-1.41209E-04	3.18117E-04	1.30439E-08	39.02
14	1.70302E-09	-8.08227E-05	5.74862E-06	2.06467E-05	5.77365E-11	100.00
15	-3.16123E-08	-7.13090E-05	-1.06709E-04	2.06056E-04	3.65041E-09	48.95
16	-7.87577E-08	-1.52456E-04	-2.65851E-04	5.40487E-04	1.46649E-09	54.63
SUM	3.70888E-05	1.25834E-01	1.25195E-01	2.18550E-01	3.16457E-04	1.75

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	1.19843E-02	2.67107E-03	3.54485E-03	1.04972E-03	0.0	0.0	1.92499E-02
2	2.07778E-02	6.09881E-03	5.07019E-03	1.20737E-03	0.0	0.0	3.31542E-02
3	1.35620E-02	3.31290E-03	2.92094E-03	2.97342E-04	0.0	0.0	2.00932E-02
4	2.12869E-02	5.55991E-03	5.04841E-03	8.30023E-04	0.0	0.0	3.27252E-02
5	1.39270E-02	3.86348E-03	3.39288E-03	5.30390E-04	0.0	0.0	2.17138E-02
6	7.21157E-04	2.07356E-04	2.56278E-04	1.18693E-04	0.0	0.0	1.30348E-03
7	-8.26664E-04	-1.40182E-04	-5.32881E-06	1.02908E-04	0.0	0.0	-8.69267E-04
8	-4.71789E-04	-2.32033E-05	-5.33175E-05	-3.38548E-06	0.0	0.0	-5.51695E-04
9	-4.20902E-04	-4.80688E-05	-4.15710E-05	7.80125E-06	0.0	0.0	-5.02741E-04
10	-2.07600E-04	-4.81491E-05	-3.17919E-05	0.0	0.0	0.0	-2.87541E-04
11	-1.83735E-04	0.0	-2.40097E-05	0.0	0.0	0.0	-2.07744E-04
12	-8.67796E-05	-3.21137E-05	0.0	1.77764E-06	0.0	0.0	-1.17116E-04
13	-1.15039E-04	-2.61697E-05	0.0	0.0	0.0	0.0	-1.41209E-04
14	5.74862E-06	0.0	0.0	0.0	0.0	0.0	5.74862E-06
15	-1.06709E-04	0.0	0.0	0.0	0.0	0.0	-1.06709E-04
16	-2.56186E-04	-9.66436E-06	0.0	0.0	0.0	0.0	-2.65851E-04
SUM	7.95891E-02	2.13860E-02	2.00775E-02	4.14263E-03	0.0	0.0	1.25195E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	7.70597E-06	6.43329E-06	8.53778E-06	1.06028E-06	0.0	0.0	5.70274E-06
2	1.33602E-05	1.46890E-05	1.22116E-05	1.21956E-06	0.0	0.0	9.82185E-06
3	8.72048E-06	7.97912E-06	7.03507E-06	3.00334E-07	0.0	0.0	5.95256E-06
4	1.36891E-05	1.33910E-05	1.21591E-05	8.38406E-07	0.0	0.0	9.69478E-06
5	8.95574E-06	9.30527E-06	8.17176E-06	5.35717E-07	0.0	0.0	6.43266E-06
6	4.63718E-07	4.99428E-07	6.17261E-07	1.19886E-07	0.0	0.0	3.86155E-07
7	-5.31568E-07	-3.37637E-07	-1.28348E-08	1.03943E-07	0.0	0.0	-2.57519E-07
8	-3.03372E-07	-5.58865E-08	-1.28418E-07	-3.41954E-09	0.0	0.0	-1.63439E-07
9	-2.70651E-07	-1.15777E-07	-1.00126E-07	7.87977E-09	0.0	0.0	-1.48936E-07
10	-1.33493E-07	-1.15970E-07	-7.65726E-08	0.0	0.0	0.0	-8.51834E-08
11	-1.18146E-07	0.0	-5.78287E-08	0.0	0.0	0.0	-6.15437E-08
12	-5.58017E-08	-7.73477E-08	0.0	1.79553E-09	0.0	0.0	-3.46953E-08
13	-7.39733E-08	-6.30313E-08	0.0	0.0	0.0	0.0	-4.18328E-08
14	3.69652E-09	0.0	0.0	0.0	0.0	0.0	1.70302E-09
15	-6.86169E-08	0.0	0.0	0.0	0.0	0.0	-3.16123E-08
16	-1.64735E-07	-2.32772E-08	0.0	0.0	0.0	0.0	-7.87577E-08
SUM	5.11784E-05	5.15081E-05	4.83567E-05	4.18438E-06	0.0	0.0	3.70888E-05

SUPER 1

SUPER BOX TYPE 1 BOX TYPE 2 CUBO 2 MIXTURE = 0 VOLUME = 1.22124E+03

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	0.0	0.0	0.0	2.08616E-07	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	9.35048E-07	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	6.03497E-07	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	4.14625E-06	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	2.37301E-06	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	1.37370E-08	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	-3.49246E-09	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	-2.91038E-11	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	-8.73115E-11	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	-7.27596E-11	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUM	0.0	0.0	0.0	0.0	0.0	0.0	8.27694E-06	0.0

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
2	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
3	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
4	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
5	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
6	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
7	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
8	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
9	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
10	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
11	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
12	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
13	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
14	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
15	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
16	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
SUM	0.	0.0		0.	0.0		0.	0.0		0.	0.0	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	4.77982E-06	1.92499E-02	1.92501E-02	0.0	2.36216E-05	5.91
2	8.23244E-06	3.31542E-02	3.31551E-02	0.0	4.56878E-05	4.38
3	4.98930E-06	2.00932E-02	2.00938E-02	0.0	2.86842E-05	5.70
4	8.12673E-06	3.27252E-02	3.27294E-02	0.0	4.44258E-05	3.50
5	5.39214E-06	2.17138E-02	2.17161E-02	0.0	3.37925E-05	4.26
6	3.23660E-07	1.30348E-03	1.30350E-03	0.0	6.26055E-06	9.05
7	-2.15841E-07	-8.69267E-04	-8.69270E-04	0.0	1.49584E-06	20.46
8	-1.36987E-07	-5.51695E-04	-5.51695E-04	0.0	1.15918E-06	25.68
9	-1.24831E-07	-5.02741E-04	-5.02740E-04	0.0	6.24258E-07	25.81
10	-7.13968E-08	-2.87541E-04	-2.87541E-04	0.0	3.89592E-07	40.53
11	-5.15831E-08	-2.07744E-04	-2.07744E-04	0.0	2.06129E-07	40.79
12	-2.90800E-08	-1.17116E-04	-1.17116E-04	0.0	2.05049E-07	43.89
13	-3.50623E-08	-1.41209E-04	-1.41209E-04	0.0	9.45039E-08	39.11
14	1.42739E-09	5.74862E-06	5.74862E-06	0.0	7.32013E-08	65.55
15	-2.64960E-08	-1.06709E-04	-1.06709E-04	0.0	1.13999E-07	44.04
16	-6.60110E-08	-2.65851E-04	-2.65851E-04	0.0	4.80501E-07	44.15
SUM	3.10881E-05	1.25195E-01	1.25203E-01	0.0	1.87314E-04	2.24

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	5.57048E-03	1.04972E-03	2.38180E-03	3.21590E-03	2.76597E-03	4.26624E-03	1.92501E-02
2	7.03751E-03	1.20737E-03	5.77741E-03	6.59763E-03	6.96180E-03	5.57337E-03	3.31551E-02
3	5.29679E-03	2.97342E-04	3.57000E-03	3.41013E-03	4.05067E-03	3.46883E-03	2.00938E-02
4	8.73164E-03	8.30023E-04	5.91470E-03	5.72072E-03	5.90585E-03	5.62643E-03	3.27294E-02
5	5.82395E-03	5.30390E-04	3.66897E-03	3.74264E-03	4.21414E-03	3.73605E-03	2.17161E-02
6	-6.04974E-05	1.18693E-04	3.30864E-04	4.36750E-04	2.35910E-04	2.41778E-04	1.30350E-03
7	-5.71283E-04	1.02908E-04	-7.28006E-05	-1.43683E-04	-1.12413E-04	-7.19985E-05	-8.69270E-04
8	-4.03938E-04	-3.38548E-06	-4.51742E-05	3.81716E-05	-7.81756E-05	-5.91942E-05	-5.51695E-04
9	-2.15001E-04	7.80125E-06	-1.36725E-04	-4.29232E-05	-2.85940E-05	-8.72997E-05	-5.02740E-04
10	-1.84194E-04	0.0	-1.85663E-05	-6.61621E-05	-3.74005E-05	1.87810E-05	-2.87541E-04
11	-1.45771E-04	0.0	-3.79632E-05	0.0	0.0	-2.40097E-05	-2.07744E-04
12	-5.86451E-05	1.77764E-06	-7.38391E-05	4.57179E-05	-3.21271E-05	0.0	-1.17116E-04
13	-8.78624E-05	0.0	-8.09933E-06	-1.90773E-05	-2.61697E-05	0.0	-1.41209E-04
14	2.34774E-05	0.0	-2.34774E-05	5.74862E-06	0.0	0.0	5.74862E-06
15	1.16985E-05	0.0	-4.35647E-05	-2.52492E-05	-3.30528E-05	-1.65409E-05	-1.06709E-04
16	-1.91573E-04	0.0	-8.29837E-06	-3.28073E-05	-9.66436E-06	-2.35073E-05	-2.65851E-04
SUM	3.05768E-02	4.14263E-03	2.11752E-02	2.28835E-02	2.37767E-02	2.26489E-02	1.25203E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	5.62635E-06	1.06028E-06	4.81145E-06	6.49645E-06	5.23227E-06	8.07029E-06	4.77982E-06
2	7.10781E-06	1.21956E-06	1.16709E-05	1.33279E-05	1.31694E-05	1.05429E-05	8.23244E-06
3	5.34981E-06	3.00334E-07	7.21177E-06	6.88880E-06	7.66247E-06	6.56184E-06	4.98930E-06
4	8.81882E-06	8.38406E-07	1.19482E-05	1.15563E-05	1.11717E-05	1.06432E-05	8.12673E-06
5	5.88210E-06	5.35717E-07	7.41161E-06	7.56040E-06	7.97166E-06	7.06725E-06	5.39214E-06
6	-6.11083E-08	1.19886E-07	6.68386E-07	8.82293E-07	4.46263E-07	4.57365E-07	3.23660E-07
7	-5.77032E-07	1.03943E-07	-1.47067E-07	-2.90258E-07	-2.12649E-07	-1.36198E-07	-2.15841E-07
8	-4.08002E-07	-3.41954E-09	-9.12578E-08	7.71116E-08	-1.47883E-07	-1.11976E-07	-1.36987E-07
9	-2.17164E-07	7.87977E-09	-2.76201E-07	-8.67104E-08	-5.40907E-08	-1.65143E-07	-1.24831E-07
10	-1.86047E-07	0.0	-3.75064E-08	-1.33656E-07	-7.07496E-08	3.55277E-08	-7.13968E-08
11	-1.47238E-07	0.0	-7.66906E-08	0.0	0.0	-4.54185E-08	-5.15831E-08
12	-5.92355E-08	1.79553E-09	-1.49165E-07	9.23562E-08	-6.07740E-08	0.0	-2.90800E-08
13	-8.87468E-08	0.0	-1.63617E-08	-3.85387E-08	-4.95047E-08	0.0	-3.50623E-08
14	2.37137E-08	0.0	-4.74273E-08	1.16130E-08	0.0	0.0	1.42739E-09
15	1.18162E-08	0.0	-8.80063E-08	-5.10066E-08	-6.25252E-08	-3.12901E-08	-2.64960E-08
16	-1.93501E-07	0.0	-1.67638E-08	-6.62750E-08	-1.82818E-08	-4.44681E-08	-6.60110E-08
SUM	3.08822E-05	4.18438E-06	4.27758E-05	4.62267E-05	4.49772E-05	4.28438E-05	3.10881E-05

SUPER 1

SUPER BOX TYPE 1 BOX TYPE 2 CUBO 3 MIXTURE = 0 VOLUME = 7.60152E+03

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	0.0	0.0	0.0	-4.84288E-08	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	-1.71363E-07	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	-2.38419E-07	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	-4.88013E-07	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	-6.70552E-07	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	-7.45058E-09	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	8.84756E-09	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	6.75209E-09	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	2.61934E-10	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	5.82077E-11	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	1.45519E-11	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	-3.63798E-12	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	4.36557E-11	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	6.98492E-10	0.0
SUM	0.0	0.0	0.0	0.0	0.0	0.0	-1.60732E-06	0.0

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
2	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
3	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
4	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
5	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
6	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
7	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
8	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
9	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
10	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
11	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
12	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
13	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
14	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
15	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
16	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
SUM	0.	0.0		0.	0.0		0.	0.0		0.	0.0	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	2.71191E-06	1.92501E-02	1.92501E-02	0.0	2.03867E-05	3.72
2	4.67080E-06	3.31551E-02	3.31549E-02	0.0	3.96387E-05	3.05
3	2.83074E-06	2.00938E-02	2.00935E-02	0.0	2.59487E-05	3.90
4	4.61078E-06	3.27294E-02	3.27289E-02	0.0	4.07727E-05	2.83
5	3.05923E-06	2.17161E-02	2.17155E-02	0.0	3.10213E-05	3.24
6	1.83633E-07	1.30350E-03	1.30349E-03	0.0	6.07843E-06	6.63
7	-1.22460E-07	-8.69270E-04	-8.69262E-04	0.0	1.54440E-06	13.76
8	-7.77208E-08	-5.51695E-04	-5.51688E-04	0.0	1.27727E-06	16.07
9	-7.08251E-08	-5.02740E-04	-5.02740E-04	0.0	7.27770E-07	16.78
10	-4.05082E-08	-2.87541E-04	-2.87541E-04	0.0	3.53005E-07	24.60
11	-2.92666E-08	-2.07744E-04	-2.07744E-04	0.0	2.73973E-07	29.10
12	-1.64990E-08	-1.17116E-04	-1.17116E-04	0.0	2.26748E-07	33.55
13	-1.98932E-08	-1.41209E-04	-1.41209E-04	0.0	1.36292E-07	32.94
14	8.09854E-10	5.74862E-06	5.74862E-06	0.0	8.14000E-08	53.32
15	-1.50330E-08	-1.06709E-04	-1.06709E-04	0.0	1.31587E-07	37.66
16	-3.74524E-08	-2.65851E-04	-2.65850E-04	0.0	1.87923E-07	27.03
SUM	1.76382E-05	1.25203E-01	1.25202E-01	0.0	1.68786E-04	1.82

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	4.12969E-03	2.20106E-03	2.71422E-03	3.51934E-03	2.66690E-03	4.01886E-03	1.92501E-02
2	4.92143E-03	3.81598E-03	5.66179E-03	6.38177E-03	6.80737E-03	5.56659E-03	3.31549E-02
3	3.91593E-03	1.21951E-03	3.62513E-03	4.13447E-03	3.90948E-03	3.28901E-03	2.00935E-02
4	6.26139E-03	2.51033E-03	6.74756E-03	5.67676E-03	5.06738E-03	6.46544E-03	3.27289E-02
5	3.50119E-03	1.65072E-03	3.93639E-03	4.20905E-03	4.75877E-03	3.65935E-03	2.17155E-02
6	-4.51375E-04	5.32798E-04	9.38084E-05	6.78772E-04	1.76937E-04	2.72550E-04	1.30349E-03
7	-7.86313E-04	3.13105E-04	-1.05421E-04	-1.56746E-04	-1.69562E-04	3.56753E-05	-8.69262E-04
8	-8.09668E-04	1.75125E-04	3.64581E-05	-6.48863E-06	-1.77633E-04	2.30517E-04	-5.51688E-04
9	-3.24255E-04	-2.52237E-05	-5.78859E-05	-1.19352E-04	-5.81246E-05	8.21005E-05	-5.02740E-04
10	-2.34663E-04	2.00910E-06	-2.74133E-05	-6.85811E-05	8.60141E-06	3.25054E-05	-2.87541E-04
11	-2.09390E-04	6.19336E-05	-1.30138E-04	9.62263E-05	-2.31258E-05	-3.24998E-06	-2.07744E-04
12	-1.56263E-04	4.51378E-05	-5.72017E-05	3.41224E-05	3.20029E-05	-1.49142E-05	-1.17116E-04
13	-7.28068E-05	-3.02706E-05	-5.90410E-05	-5.96734E-06	2.43222E-05	2.55488E-06	-1.41209E-04
14	3.05402E-06	-2.37312E-05	-1.23496E-05	3.87754E-05	-6.64191E-06	6.64191E-06	5.74862E-06
15	-2.75219E-06	3.95648E-05	-6.08409E-05	-3.30870E-05	-3.30528E-05	-1.65409E-05	-1.06709E-04
16	-2.75949E-04	4.47604E-05	-2.12246E-05	-6.63723E-06	-8.37956E-06	1.57920E-06	-2.65850E-04
SUM	1.94092E-02	1.25328E-02	2.22838E-02	2.43724E-02	2.29752E-02	2.36286E-02	1.25202E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	2.35638E-06	1.25597E-06	3.09753E-06	4.01640E-06	2.89707E-06	4.36567E-06	2.71191E-06
2	2.80808E-06	2.17741E-06	6.46120E-06	7.28305E-06	7.39468E-06	6.04680E-06	4.67080E-06
3	2.23448E-06	6.95908E-07	4.13707E-06	4.71834E-06	4.24676E-06	3.57286E-06	2.83074E-06
4	3.57219E-06	1.43255E-06	7.70041E-06	6.47831E-06	5.50452E-06	7.02316E-06	4.61078E-06
5	1.99800E-06	9.42022E-07	4.49214E-06	4.80337E-06	5.16938E-06	3.97506E-06	3.05923E-06
6	-2.57567E-07	3.04026E-07	1.07059E-07	7.74661E-07	1.92208E-07	2.96083E-07	1.83633E-07
7	-4.48699E-07	1.78668E-07	-1.20314E-07	-1.78888E-07	-1.84203E-07	3.87560E-08	-1.22460E-07
8	-4.62026E-07	9.99324E-08	4.16086E-08	-7.40514E-09	-1.92971E-07	2.50422E-07	-7.77208E-08
9	-1.85030E-07	-1.43936E-08	-6.60635E-08	-1.36213E-07	-6.31436E-08	8.91899E-08	-7.08251E-08
10	-1.33906E-07	1.14645E-09	-3.12860E-08	-7.82694E-08	9.34413E-09	3.53122E-08	-4.05082E-08
11	-1.19485E-07	3.53414E-08	-1.48522E-07	1.09820E-07	-2.51227E-08	-3.53061E-09	-2.92666E-08
12	-8.91690E-08	2.57572E-08	-6.52824E-08	3.89429E-08	3.47664E-08	-1.62021E-08	-1.64990E-08
13	-4.15460E-08	-1.72734E-08	-6.73817E-08	-6.81033E-09	2.64224E-08	2.77549E-09	-1.98932E-08
14	1.74272E-09	-1.35418E-08	-1.40942E-08	4.42531E-08	-7.21543E-09	7.21543E-09	8.09854E-10
15	-1.57052E-09	2.25770E-08	-6.94358E-08	-3.77611E-08	-3.59069E-08	-1.79692E-08	-1.50330E-08
16	-1.57466E-07	2.55418E-08	-2.42229E-08	-7.57485E-09	-9.10312E-09	1.71556E-09	-3.74524E-08
SUM	1.10744E-05	7.15163E-06	2.54303E-05	2.78142E-05	2.49574E-05	2.56672E-05	1.76382E-05

SUPER 1

SUMMARY FOR SUPER BOX TYPE 1 BOX TYPE 2 VOLUME = 1.32922E+04

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		4.60333E-02	0.0	1.08170E-02	1.59339E-02	1.08395E-02	1.92501E-02	1.00002E+00
2	0.0		7.55000E-02	2.14330E-03	2.91802E-02	2.38780E-02	2.05904E-02	3.31549E-02	1.00003E+00
3	0.0		3.56667E-02	7.67506E-03	2.31349E-02	1.05468E-02	1.25915E-02	2.00935E-02	1.00002E+00
4	0.0		3.97000E-02	2.20904E-02	6.05060E-02	7.06084E-03	2.19486E-02	3.27289E-02	9.99999E-01
5	0.0		2.14000E-02	2.22795E-02	8.40104E-02	1.13275E-03	2.08738E-02	2.17155E-02	9.99982E-01
6	0.0		2.86667E-03	4.36311E-03	1.75232E-02	1.65304E-04	5.62699E-03	1.30349E-03	9.99573E-01
7	0.0		0.0	1.65304E-04	1.74373E-03	0.0	9.57174E-04	-8.69262E-04	9.99967E-01
8	0.0		0.0	0.0	3.84715E-04	0.0	4.74652E-04	-5.51688E-04	9.99677E-01
9	0.0		0.0	0.0	1.02850E-04	0.0	4.37062E-04	-5.02740E-04	9.99981E-01
10	0.0		0.0	0.0	3.33333E-05	0.0	2.73584E-04	-2.87541E-04	9.99980E-01
11	0.0		0.0	0.0	1.66667E-05	0.0	1.98903E-04	-2.07744E-04	9.99977E-01
12	0.0		0.0	0.0	1.66667E-05	0.0	1.18395E-04	-1.17116E-04	9.99991E-01
13	0.0		0.0	0.0	7.38078E-05	0.0	1.68922E-04	-1.41209E-04	9.99996E-01
14	0.0		0.0	0.0	1.66667E-05	0.0	9.63589E-06	5.74862E-06	1.00000E+00
15	0.0		0.0	0.0	0.0	0.0	1.01867E-04	-1.06709E-04	0.0
16	0.0		0.0	0.0	0.0	0.0	2.61298E-04	-2.65850E-04	0.0
SUM	0.0		2.21166E-01	5.87167E-02	2.27560E-01	5.87177E-02	9.54719E-02	1.25202E-01	1.00000E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	2.	8.66475E-06	0.	0.0	0.	0.0	1229.	2.67499E-02
2	9.	4.16277E-05	0.	0.0	2.	2.40066E-05	2588.	5.30242E-02
3	37.	1.79406E-04	0.	0.0	6.	7.04228E-05	1864.	3.35810E-02
4	166.	8.06327E-04	0.	0.0	63.	7.54107E-04	4282.	6.65148E-02
5	398.	1.93627E-03	0.	0.0	169.	1.97787E-03	5992.	8.23262E-02
6	206.	9.70836E-04	0.	0.0	70.	8.33395E-04	1390.	1.65219E-02
7	45.	1.97804E-04	0.	0.0	10.	1.20403E-04	145.	1.57706E-03
8	26.	1.00256E-04	0.	0.0	2.	2.32118E-05	35.	3.51382E-04
9	27.	7.70578E-05	0.	0.0	1.	1.13791E-05	12.	8.61838E-05
10	19.	4.24894E-05	0.	0.0	2.	2.85315E-05	0.	0.0
11	10.	2.24659E-05	0.	0.0	1.	1.36244E-05	0.	0.0
12	8.	1.15615E-05	0.	0.0	1.	1.28410E-05	0.	0.0
13	7.	2.70184E-05	0.	0.0	4.	5.47311E-05	1.	7.14115E-06
14	0.	0.0	0.	0.0	1.	1.53845E-05	0.	0.0
15	7.	4.84173E-06	0.	0.0	0.	0.0	0.	0.0
16	14.	4.55327E-06	0.	0.0	0.	0.0	0.	0.0
SUM	981.	4.43117E-03	0.	0.0	332.	3.93990E-03	17538.	2.80740E-01

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	2.71191E-06	0.0	1.92501E-02	3.06956E-02	2.73827E-05	2.94
2	4.67080E-06	0.0	3.31549E-02	5.05464E-02	5.25540E-05	2.72
3	2.83074E-06	0.0	2.00935E-02	2.91009E-02	3.37076E-05	3.26
4	4.61078E-06	0.0	3.27289E-02	4.82610E-02	5.43861E-05	2.31
5	3.05923E-06	0.0	2.17155E-02	4.39361E-02	4.14840E-05	2.45
6	1.83633E-07	0.0	1.30349E-03	1.08296E-02	6.95992E-06	5.14
7	-1.22460E-07	0.0	-8.69262E-04	1.77447E-03	1.29127E-06	13.40
8	-7.77208E-08	0.0	-5.51688E-04	8.17225E-04	9.15050E-07	15.35
9	-7.08251E-08	0.0	-5.02740E-04	7.15282E-04	4.99316E-07	15.96
10	-4.05082E-08	0.0	-2.87541E-04	4.13405E-04	2.47468E-07	24.12
11	-2.92666E-08	0.0	-2.07744E-04	2.56038E-04	1.80265E-07	27.60
12	-1.64990E-08	0.0	-1.17116E-04	1.19340E-04	1.51051E-07	32.12
13	-1.98932E-08	0.0	-1.41209E-04	3.18117E-04	9.10106E-08	31.04
14	8.09854E-10	0.0	5.74862E-06	2.06467E-05	5.32956E-08	51.78
15	-1.50330E-08	0.0	-1.06709E-04	2.06056E-04	8.69529E-08	36.90
16	-3.74524E-08	0.0	-2.65850E-04	5.40487E-04	1.52109E-07	28.19
SUM	1.76382E-05	0.0	1.25202E-01	2.18550E-01	2.20142E-04	1.65

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	4.12969E-03	2.20106E-03	2.71422E-03	3.51934E-03	2.66690E-03	4.01886E-03	1.92501E-02
2	4.92143E-03	3.81598E-03	5.66179E-03	6.38177E-03	6.80737E-03	5.56659E-03	3.31549E-02
3	3.91593E-03	1.21951E-03	3.62513E-03	4.13447E-03	3.90948E-03	3.28901E-03	2.00935E-02
4	6.26139E-03	2.51033E-03	6.74756E-03	5.67676E-03	5.06738E-03	6.46544E-03	3.27289E-02
5	3.50119E-03	1.65072E-03	3.93639E-03	4.20905E-03	4.75877E-03	3.65935E-03	2.17155E-02
6	-4.51375E-04	5.32798E-04	9.38084E-05	6.78772E-04	1.76937E-04	2.72550E-04	1.30349E-03
7	-7.86313E-04	3.13105E-04	-1.05421E-04	-1.56746E-04	-1.69562E-04	3.56753E-05	-8.69262E-04
8	-8.09668E-04	1.75125E-04	3.64581E-05	-6.48863E-06	-1.77633E-04	2.30517E-04	-5.51688E-04
9	-3.24255E-04	-2.52237E-05	-5.78859E-05	-1.19352E-04	-5.81246E-05	8.21005E-05	-5.02740E-04
10	-2.34663E-04	2.00910E-06	-2.74133E-05	-6.85811E-05	8.60141E-06	3.25054E-05	-2.87541E-04
11	-2.09390E-04	6.19336E-05	-1.30138E-04	9.62263E-05	-2.31258E-05	-3.24998E-06	-2.07744E-04
12	-1.56263E-04	4.51378E-05	-5.72017E-05	3.41224E-05	3.20029E-05	-1.49142E-05	-1.17116E-04
13	-7.28068E-05	-3.02706E-05	-5.90410E-05	-5.96734E-06	2.43222E-05	2.55488E-06	-1.41209E-04
14	3.05402E-06	-2.37312E-05	-1.23496E-05	3.87754E-05	-6.64191E-06	6.64191E-06	5.74862E-06
15	-2.75219E-06	3.95648E-05	-6.08409E-05	-3.30870E-05	-3.30528E-05	-1.65409E-05	-1.06709E-04
16	-2.75949E-04	4.47604E-05	-2.12246E-05	-6.63723E-06	-8.37956E-06	1.57920E-06	-2.65850E-04
SUM	1.94092E-02	1.25328E-02	2.22838E-02	2.43724E-02	2.29752E-02	2.36286E-02	1.25202E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	2.35638E-06	1.25597E-06	3.09753E-06	4.01640E-06	2.89707E-06	4.36567E-06	2.71191E-06
2	2.80808E-06	2.17741E-06	6.46120E-06	7.28305E-06	7.39468E-06	6.04680E-06	4.67080E-06
3	2.23448E-06	6.95908E-07	4.13707E-06	4.71834E-06	4.24676E-06	3.57286E-06	2.83074E-06
4	3.57219E-06	1.43255E-06	7.70041E-06	6.47831E-06	5.50452E-06	7.02316E-06	4.61078E-06
5	1.99800E-06	9.42022E-07	4.49214E-06	4.80337E-06	5.16938E-06	3.97506E-06	3.05923E-06
6	-2.57567E-07	3.04026E-07	1.07059E-07	7.74661E-07	1.92208E-07	2.96083E-07	1.83633E-07
7	-4.48699E-07	1.78668E-07	-1.20314E-07	-1.78888E-07	-1.84203E-07	3.87560E-08	-1.22460E-07
8	-4.62026E-07	9.99324E-08	4.16086E-08	-7.40514E-09	-1.92971E-07	2.50422E-07	-7.77208E-08
9	-1.85030E-07	-1.43936E-08	-6.60635E-08	-1.36213E-07	-6.31436E-08	8.91899E-08	-7.08251E-08
10	-1.33906E-07	1.14645E-09	-3.12860E-08	-7.82694E-08	9.34413E-09	3.53122E-08	-4.05082E-08
11	-1.19485E-07	3.53414E-08	-1.48522E-07	1.09820E-07	-2.51227E-08	-3.53061E-09	-2.92666E-08
12	-8.91690E-08	2.57572E-08	-6.52824E-08	3.89429E-08	3.47664E-08	-1.62021E-08	-1.64990E-08
13	-4.15460E-08	-1.72734E-08	-6.73817E-08	-6.81033E-09	2.64224E-08	2.77549E-09	-1.98932E-08
14	1.74272E-09	-1.35418E-08	-1.40942E-08	4.42531E-08	-7.21543E-09	7.21543E-09	8.09854E-10
15	-1.57052E-09	2.25770E-08	-6.94358E-08	-3.77611E-08	-3.59069E-08	-1.79692E-08	-1.50330E-08
16	-1.57466E-07	2.55418E-08	-2.42229E-08	-7.57485E-09	-9.10312E-09	1.71556E-09	-3.74524E-08
SUM	1.10744E-05	7.15163E-06	2.54303E-05	2.78142E-05	2.49574E-05	2.56672E-05	1.76382E-05

SUPER 1

SUMMARY FOR SUPER BOX TYPE 1 CELL BDY VOLUME = 2.65845E+04

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		8.87333E-02	0.0	2.02242E-02	3.13909E-02	2.09130E-02	3.64144E-02	1.00002E+00
2	0.0		1.50000E-01	4.32838E-03	5.73189E-02	4.73204E-02	4.06001E-02	6.63872E-02	1.00003E+00
3	0.0		7.18333E-02	1.50562E-02	4.68439E-02	2.02767E-02	2.50634E-02	4.14083E-02	1.00001E+00
4	0.0		8.03000E-02	4.39532E-02	1.18240E-01	1.47907E-02	4.31582E-02	6.63711E-02	1.00002E+00
5	0.0		4.20333E-02	4.36330E-02	1.64467E-01	1.90460E-03	4.08076E-02	4.29573E-02	9.99967E-01
6	0.0		5.76666E-03	8.71058E-03	3.47912E-02	2.40514E-04	1.10783E-02	3.10143E-03	9.99585E-01
7	0.0		0.0	2.40514E-04	3.05766E-03	1.70784E-05	1.63481E-03	-1.44703E-03	9.99995E-01
8	0.0		0.0	1.70784E-05	9.52030E-04	8.21861E-06	1.01692E-03	-1.03711E-03	9.99980E-01
9	0.0		0.0	8.21861E-06	2.18154E-04	0.0	8.92556E-04	-1.01035E-03	1.00001E+00
10	0.0		0.0	0.0	5.00000E-05	0.0	5.14905E-04	-5.53910E-04	9.99978E-01
11	0.0		0.0	0.0	3.33333E-05	0.0	3.07913E-04	-3.14068E-04	9.99972E-01
12	0.0		0.0	0.0	6.66666E-05	0.0	3.36762E-04	-3.13862E-04	9.99990E-01
13	0.0		0.0	0.0	1.04734E-04	0.0	2.84161E-04	-2.56967E-04	9.99989E-01
14	0.0		0.0	0.0	3.33333E-05	1.66667E-05	9.56767E-05	-7.50741E-05	9.99998E-01
15	0.0		0.0	1.66667E-05	0.0	0.0	1.85851E-04	-1.78018E-04	9.99988E-01
16	0.0		0.0	0.0	0.0	0.0	4.11142E-04	-4.18306E-04	0.0
SUM	0.0		4.38666E-01	1.15964E-01	4.46401E-01	1.15966E-01	1.87301E-01	2.51035E-01	1.00000E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	3.	1.29971E-05	0.	0.0	0.	0.0	2385.	5.16129E-02
2	19.	8.77575E-05	0.	0.0	6.	7.22973E-05	5115.	1.04538E-01
3	70.	3.40234E-04	0.	0.0	17.	2.00200E-04	3680.	6.68357E-02
4	329.	1.58709E-03	0.	0.0	139.	1.65622E-03	8389.	1.30710E-01
5	777.	3.78591E-03	0.	0.0	323.	3.78609E-03	11715.	1.60987E-01
6	403.	1.88981E-03	0.	0.0	153.	1.82607E-03	2774.	3.24820E-02
7	75.	3.34066E-04	0.	0.0	25.	2.98402E-04	244.	2.65808E-03
8	48.	1.89749E-04	0.	0.0	13.	1.60700E-04	73.	7.43582E-04
9	54.	1.51656E-04	0.	0.0	2.	2.56444E-05	25.	1.84821E-04
10	31.	8.06244E-05	0.	0.0	3.	4.16188E-05	0.	0.0
11	15.	3.35860E-05	0.	0.0	2.	2.74310E-05	0.	0.0
12	20.	3.54189E-05	0.	0.0	4.	5.83181E-05	0.	0.0
13	12.	4.26785E-05	0.	0.0	5.	6.98709E-05	3.	2.14004E-05
14	3.	4.78258E-06	0.	0.0	3.	4.20518E-05	0.	0.0
15	11.	8.83347E-06	0.	0.0	0.	0.0	0.	0.0
16	23.	7.16440E-06	0.	0.0	0.	0.0	0.	0.0
SUM	1893.	8.59233E-03	0.	0.0	695.	8.26488E-03	34403.	5.50774E-01

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	5.06675E-06	0.0	3.64144E-02	5.92218E-02	0.0	0.0
2	9.23722E-06	0.0	6.63872E-02	9.96673E-02	0.0	0.0
3	5.76161E-06	0.0	4.14083E-02	5.79254E-02	0.0	0.0
4	9.23497E-06	0.0	6.63711E-02	9.48970E-02	0.0	0.0
5	5.97714E-06	0.0	4.29573E-02	8.58938E-02	0.0	0.0
6	4.31538E-07	0.0	3.10143E-03	2.13212E-02	0.0	0.0
7	-2.01342E-07	0.0	-1.44703E-03	3.03071E-03	0.0	0.0
8	-1.44305E-07	0.0	-1.03711E-03	1.75087E-03	0.0	0.0
9	-1.40582E-07	0.0	-1.01035E-03	1.46073E-03	0.0	0.0
10	-7.70718E-08	0.0	-5.53910E-04	7.78060E-04	0.0	0.0
11	-4.36998E-08	0.0	-3.14068E-04	3.96362E-04	0.0	0.0
12	-4.36713E-08	0.0	-3.13862E-04	3.39450E-04	0.0	0.0
13	-3.57548E-08	0.0	-2.56967E-04	5.35137E-04	0.0	0.0
14	-1.04459E-08	0.0	-7.50741E-05	2.05005E-04	0.0	0.0
15	-2.47697E-08	0.0	-1.78018E-04	3.75937E-04	0.0	0.0
16	-5.82037E-08	0.0	-4.18306E-04	8.50436E-04	0.0	0.0
SUM	3.49293E-05	0.0	2.51035E-01	4.28649E-01	0.0	0.0

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	5.57499E-03	5.02432E-03	5.68755E-03	6.73508E-03	4.90203E-03	8.49041E-03	3.64144E-02
2	7.89611E-03	1.03682E-02	1.22498E-02	1.17577E-02	1.33177E-02	1.07977E-02	6.63872E-02
3	5.04411E-03	6.47669E-03	7.49876E-03	7.88211E-03	7.77017E-03	6.73645E-03	4.14083E-02
4	9.43491E-03	1.08075E-02	1.16185E-02	1.23054E-02	1.02582E-02	1.19466E-02	6.63711E-02
5	5.44205E-03	6.38720E-03	7.52675E-03	8.16555E-03	8.72872E-03	6.70700E-03	4.29573E-02
6	9.66579E-05	4.76645E-04	4.14770E-04	9.44416E-04	5.53786E-04	6.15154E-04	3.10143E-03
7	-6.37685E-04	-2.22685E-05	-2.87822E-04	-2.69488E-04	-3.76038E-04	1.46269E-04	-1.44703E-03
8	-6.81026E-04	-2.74492E-04	-6.04737E-05	-3.42897E-05	-1.99205E-04	2.12379E-04	-1.03711E-03
9	-2.36929E-04	-1.40116E-04	-1.87918E-04	-2.70728E-04	-6.23593E-05	-1.12299E-04	-1.01035E-03
10	-2.52752E-04	-1.93461E-04	-8.16402E-05	-5.37856E-05	8.68166E-06	1.90465E-05	-5.53910E-04
11	-1.74117E-04	-4.52526E-05	-5.21728E-05	-9.46733E-06	-3.00665E-05	-2.99171E-06	-3.14068E-04
12	-1.69981E-04	-1.59705E-04	-4.38695E-05	-3.47214E-05	5.58978E-05	3.85161E-05	-3.13862E-04
13	-6.26433E-05	-1.29746E-04	-7.69079E-05	-4.78030E-05	5.75772E-05	2.55488E-06	-2.56967E-04
14	-3.79833E-05	-3.26883E-05	-3.74294E-05	3.30268E-05	-6.64191E-06	6.64191E-06	-7.50741E-05
15	1.01142E-05	-2.00707E-05	-6.65917E-05	-7.14705E-05	-1.34583E-05	-1.65409E-05	-1.78018E-04
16	-1.33783E-04	-1.58137E-04	-5.50936E-05	-6.38550E-05	-8.37956E-06	9.41886E-07	-4.18306E-04
SUM	3.11120E-02	3.83646E-02	4.40462E-02	4.69677E-02	4.49566E-02	4.55878E-02	2.51035E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	6.36241E-06	5.73401E-06	6.49092E-06	7.68643E-06	2.66249E-06	4.61131E-06	5.06675E-06
2	9.01124E-06	1.18328E-05	1.39802E-05	1.34185E-05	7.23301E-06	5.86414E-06	9.23722E-06
3	5.75648E-06	7.39150E-06	8.55793E-06	8.99543E-06	4.21996E-06	3.65864E-06	5.76161E-06
4	1.07676E-05	1.23344E-05	1.32601E-05	1.40441E-05	5.57150E-06	6.48862E-06	9.23497E-06
5	6.21044E-06	7.28929E-06	8.58976E-06	9.31878E-06	4.74051E-06	3.64246E-06	5.97714E-06
6	1.10312E-07	5.43977E-07	4.73362E-07	1.07784E-06	3.00797E-07	3.34133E-07	4.31538E-07
7	-7.27770E-07	-2.54142E-08	-3.28481E-07	-3.07556E-07	-2.04253E-07	7.94496E-08	-2.01342E-07
8	-7.77235E-07	-3.13268E-07	-6.90169E-08	-3.91338E-08	-1.08203E-07	1.15359E-07	-1.44305E-07
9	-2.70398E-07	-1.59910E-07	-2.14465E-07	-3.08973E-07	-3.38720E-08	-6.09981E-08	-1.40582E-07
10	-2.88457E-07	-2.20791E-07	-9.31734E-08	-6.13838E-08	4.71563E-09	1.03456E-08	-7.70718E-08
11	-1.98714E-07	-5.16454E-08	-5.95432E-08	-1.08048E-08	-1.63313E-08	-1.62501E-09	-4.36998E-08
12	-1.93993E-07	-1.82266E-07	-5.00669E-08	-3.96264E-08	3.03623E-08	2.09210E-08	-4.36713E-08
13	-7.14928E-08	-1.48075E-07	-8.77725E-08	-5.45560E-08	3.12745E-08	1.38775E-09	-3.57548E-08
14	-4.33491E-08	-3.73061E-08	-4.27170E-08	3.76924E-08	-3.60772E-09	3.60772E-09	-1.04459E-08
15	1.15430E-08	-2.29060E-08	-7.59990E-08	-8.15670E-08	-7.31021E-09	-8.98459E-09	-2.47697E-08
16	-1.52683E-07	-1.80476E-07	-6.28766E-08	-7.28756E-08	-4.55156E-09	5.11606E-10	-5.82037E-08
SUM	3.55058E-05	4.37838E-05	5.02681E-05	5.36022E-05	2.44164E-05	2.47592E-05	3.49293E-05

SUPER 1

SUPER BOX TYPE 1 CELL BDY CYLI 2 MIXTURE = 0 VOLUME = 2.35207E+04

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	0.0	0.0	0.0	-4.76837E-07	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	-1.78814E-06	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	-1.95578E-06	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	-8.04663E-06	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	-7.71880E-06	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	-8.82428E-08	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	3.11993E-08	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	2.86382E-08	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	1.14087E-08	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	1.86265E-09	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	-2.32831E-10	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	1.30967E-10	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	3.78350E-10	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUM	0.0	0.0	0.0	0.0	0.0	0.0	-2.00008E-05	0.0

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
2	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
3	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
4	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
5	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
6	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
7	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
8	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
9	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
10	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
11	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
12	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
13	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
14	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
15	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
16	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
SUM	0.	0.0		0.	0.0		0.	0.0		0.	0.0	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	3.25007E-06	3.64144E-02	3.64139E-02	0.0	9.20854E-06	3.89
2	5.92513E-06	6.63872E-02	6.63854E-02	0.0	1.77729E-05	2.65
3	3.69566E-06	4.14083E-02	4.14063E-02	0.0	1.15068E-05	3.34
4	5.92313E-06	6.63711E-02	6.63630E-02	0.0	1.92491E-05	2.63
5	3.83340E-06	4.29573E-02	4.29496E-02	0.0	1.47863E-05	3.03
6	2.76806E-07	3.10143E-03	3.10134E-03	0.0	4.57087E-06	6.07
7	-1.29150E-07	-1.44703E-03	-1.44700E-03	0.0	2.37954E-06	8.92
8	-9.25628E-08	-1.03711E-03	-1.03708E-03	0.0	1.72975E-06	9.72
9	-9.01762E-08	-1.01035E-03	-1.01034E-03	0.0	1.00302E-06	13.13
10	-4.94384E-08	-5.53910E-04	-5.53910E-04	0.0	5.62307E-07	18.32
11	-2.80316E-08	-3.14068E-04	-3.14068E-04	0.0	2.22898E-07	19.03
12	-2.80132E-08	-3.13862E-04	-3.13861E-04	0.0	3.71557E-07	19.88
13	-2.29353E-08	-2.56967E-04	-2.56968E-04	0.0	2.82352E-07	23.90
14	-6.70061E-09	-7.50741E-05	-7.50740E-05	0.0	1.64121E-07	42.35
15	-1.58887E-08	-1.78018E-04	-1.78017E-04	0.0	2.64623E-07	22.49
16	-3.73353E-08	-4.18306E-04	-4.18306E-04	0.0	4.34699E-07	24.96
SUM	2.24039E-05	2.51035E-01	2.51015E-01	0.0	8.45088E-05	1.60

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	1.74322E-02	7.39401E-03	1.15877E-02	0.0	0.0	0.0	3.64139E-02
2	3.32693E-02	1.70392E-02	1.60770E-02	0.0	0.0	0.0	6.63854E-02
3	2.03982E-02	1.05676E-02	1.04405E-02	0.0	0.0	0.0	4.14063E-02
4	3.45230E-02	1.55963E-02	1.62438E-02	0.0	0.0	0.0	6.63630E-02
5	2.07418E-02	1.17387E-02	1.04690E-02	0.0	0.0	0.0	4.29496E-02
6	7.33327E-04	1.90314E-03	4.64873E-04	0.0	0.0	0.0	3.10134E-03
7	-1.64557E-03	-3.14717E-04	5.13282E-04	0.0	0.0	0.0	-1.44700E-03
8	-1.33718E-03	7.40562E-05	2.26047E-04	0.0	0.0	0.0	-1.03708E-03
9	-9.48706E-04	-3.38141E-05	-2.78182E-05	0.0	0.0	0.0	-1.01034E-03
10	-5.13931E-04	-8.23966E-05	4.24169E-05	0.0	0.0	0.0	-5.53910E-04
11	-3.54108E-04	5.01916E-05	-1.01514E-05	0.0	0.0	0.0	-3.14068E-04
12	-5.68604E-04	-3.47243E-05	2.89468E-04	0.0	0.0	0.0	-3.13861E-04
13	-3.02381E-04	1.38438E-04	-9.30256E-05	0.0	0.0	0.0	-2.56968E-04
14	-1.15904E-04	-2.15816E-05	6.24118E-05	0.0	0.0	0.0	-7.50740E-05
15	-1.95736E-04	5.32775E-05	-3.55590E-05	0.0	0.0	0.0	-1.78017E-04
16	-4.74590E-04	5.03237E-05	5.96030E-06	0.0	0.0	0.0	-4.18306E-04
SUM	1.20641E-01	6.41176E-02	6.62556E-02	0.0	0.0	0.0	2.51015E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	4.08769E-06	2.13086E-06	3.33932E-06	0.0	0.0	0.0	3.25007E-06
2	7.80102E-06	4.91015E-06	4.63280E-06	0.0	0.0	0.0	5.92513E-06
3	4.78326E-06	3.04527E-06	3.00874E-06	0.0	0.0	0.0	3.69566E-06
4	8.09571E-06	4.49466E-06	4.68123E-06	0.0	0.0	0.0	5.92313E-06
5	4.86392E-06	3.38296E-06	3.01696E-06	0.0	0.0	0.0	3.83340E-06
6	1.71969E-07	5.48475E-07	1.33971E-07	0.0	0.0	0.0	2.76806E-07
7	-3.85897E-07	-9.06993E-08	1.47924E-07	0.0	0.0	0.0	-1.29150E-07
8	-3.13578E-07	2.13426E-08	6.51453E-08	0.0	0.0	0.0	-9.25628E-08
9	-2.22478E-07	-9.74495E-09	-8.01711E-09	0.0	0.0	0.0	-9.01762E-08
10	-1.20520E-07	-2.37462E-08	1.22243E-08	0.0	0.0	0.0	-4.94384E-08
11	-8.30408E-08	1.44649E-08	-2.92556E-09	0.0	0.0	0.0	-2.80316E-08
12	-1.33342E-07	-1.00074E-08	8.34229E-08	0.0	0.0	0.0	-2.80132E-08
13	-7.09103E-08	3.98971E-08	-2.68094E-08	0.0	0.0	0.0	-2.29353E-08
14	-2.71803E-08	-6.21967E-09	1.79867E-08	0.0	0.0	0.0	-6.70061E-09
15	-4.59015E-08	1.53543E-08	-1.02479E-08	0.0	0.0	0.0	-1.58887E-08
16	-1.11295E-07	1.45030E-08	1.71772E-09	0.0	0.0	0.0	-3.73353E-08
SUM	2.82893E-05	1.84774E-05	1.90934E-05	0.0	0.0	0.0	2.24039E-05

SUPER 1

SUPER BOX TYPE 1 CELL BDY CYLI 3 MIXTURE = 2 VOLUME = 2.15481E+03

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	4.68837E-04	1.73766E-03	0.0	-1.73768E-03	0.0
2	0.0	0.0	8.30994E-04	1.54303E-03	6.14603E-03	0.0	-5.31523E-03	1.00023E+00
3	0.0	0.0	2.47659E-03	1.26422E-03	5.88312E-03	0.0	-3.40645E-03	9.99967E-01
4	0.0	0.0	6.15121E-03	3.71272E-03	1.07090E-02	0.0	-4.55807E-03	1.00004E+00
5	0.0	0.0	1.12833E-02	9.47052E-03	1.10368E-02	0.0	2.46387E-04	1.00001E+00
6	0.0	0.0	1.25878E-02	6.52826E-03	7.83857E-03	0.0	4.75058E-03	9.99890E-01
7	0.0	0.0	8.32104E-03	3.65044E-03	4.72668E-03	0.0	3.59428E-03	1.00001E+00
8	0.0	0.0	5.48438E-03	2.79439E-03	3.41773E-03	3.63594E-07	2.06626E-03	1.00000E+00
9	0.0	0.0	3.77927E-03	1.79378E-03	2.51169E-03	1.00817E-06	1.26657E-03	1.00000E+00
10	0.0	0.0	1.91701E-03	6.65422E-04	1.32314E-03	9.31498E-07	5.92949E-04	9.99996E-01
11	0.0	0.0	1.75812E-03	5.85743E-04	1.30372E-03	1.54943E-06	4.52850E-04	9.99998E-01
12	0.0	0.0	1.38743E-03	3.42925E-04	6.24641E-04	1.39754E-06	7.72510E-04	9.99996E-01
13	0.0	0.0	8.79495E-04	2.11282E-04	5.70863E-04	2.05954E-06	3.06574E-04	9.99998E-01
14	0.0	0.0	5.62409E-04	1.18558E-04	3.92131E-04	1.78166E-06	1.68497E-04	1.00000E+00
15	0.0	0.0	5.34397E-04	1.09588E-03	4.19493E-04	7.31418E-06	1.07590E-04	1.00000E+00
16	0.0	0.0	6.87386E-04	5.66931E-03	0.0	3.52734E-05	6.52111E-04	1.00000E+00
SUM	0.0	0.0	5.86408E-02	3.99153E-02	5.86412E-02	5.16790E-05	-4.02515E-05	9.99987E-01

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	0.	0.0	0.	0.0	0.	0.0	72.	2.20649E-03
2	0.	0.0	0.	0.0	0.	0.0	269.	7.68905E-03
3	0.	0.0	0.	0.0	0.	0.0	287.	7.14734E-03
4	0.	0.0	0.	0.0	0.	0.0	691.	1.44210E-02
5	0.	0.0	0.	0.0	0.	0.0	1141.	2.05053E-02
6	0.	0.0	0.	0.0	0.	0.0	801.	1.43658E-02
7	0.	0.0	0.	0.0	0.	0.0	468.	8.37712E-03
8	0.	0.0	0.	0.0	0.	0.0	335.	6.21211E-03
9	0.	0.0	0.	0.0	0.	0.0	236.	4.30546E-03
10	0.	0.0	0.	0.0	0.	0.0	108.	1.98856E-03
11	0.	0.0	0.	0.0	0.	0.0	102.	1.88946E-03
12	0.	0.0	0.	0.0	1.	1.11150E-05	55.	9.50896E-04
13	0.	0.0	0.	0.0	0.	0.0	43.	7.82143E-04
14	0.	0.0	0.	0.0	0.	0.0	28.	5.10689E-04
15	0.	0.0	0.	0.0	0.	0.0	87.	1.51537E-03
16	0.	0.0	0.	0.0	0.	0.0	359.	5.66931E-03
SUM	0.	0.0	0.	0.0	1.	1.11150E-05	5082.	9.85358E-02

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	2.99107E-06	3.64139E-02	3.46762E-02	0.0	6.87528E-06	4.26
2	5.26775E-06	6.63854E-02	6.10702E-02	0.0	1.40302E-05	3.42
3	3.27777E-06	4.14063E-02	3.79999E-02	0.0	8.63885E-06	3.83
4	5.33113E-06	6.63630E-02	6.18050E-02	0.0	1.54042E-05	2.89
5	3.72596E-06	4.29496E-02	4.31959E-02	0.0	1.42743E-05	3.14
6	6.77286E-07	3.10134E-03	7.85193E-03	0.0	5.84655E-06	3.91
7	1.85218E-07	-1.44700E-03	2.14728E-03	0.0	2.98533E-06	6.31
8	8.87746E-08	-1.03708E-03	1.02918E-03	0.0	1.89526E-06	7.36
9	2.21021E-08	-1.01034E-03	2.56235E-04	0.0	1.47529E-06	9.48
10	3.36738E-09	-5.53910E-04	3.90387E-05	0.0	6.43017E-07	11.44
11	1.19710E-08	-3.14068E-04	1.38782E-04	0.0	5.26469E-07	16.36
12	3.95618E-08	-3.13861E-04	4.58649E-04	0.0	3.55426E-07	13.22
13	4.27891E-09	-2.56968E-04	4.96064E-05	0.0	2.52753E-07	19.76
14	8.05841E-09	-7.50740E-05	9.34230E-05	0.0	1.57391E-07	26.57
15	-6.07486E-09	-1.78017E-04	-7.04273E-05	0.0	3.04446E-07	19.39
16	2.01674E-08	-4.18306E-04	2.33805E-04	0.0	6.58722E-07	18.75
SUM	2.16483E-05	2.51015E-01	2.50974E-01	0.0	7.43231E-05	1.63

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	1.53968E-02	7.54829E-03	1.17311E-02	0.0	0.0	0.0	3.46762E-02
2	2.72619E-02	1.72350E-02	1.65733E-02	0.0	0.0	0.0	6.10702E-02
3	1.66248E-02	1.06335E-02	1.07416E-02	0.0	0.0	0.0	3.79999E-02
4	2.91889E-02	1.61945E-02	1.64215E-02	0.0	0.0	0.0	6.18050E-02
5	2.04956E-02	1.19023E-02	1.07981E-02	0.0	0.0	0.0	4.31959E-02
6	5.28803E-03	2.08663E-03	4.77263E-04	0.0	0.0	0.0	7.85193E-03
7	1.74589E-03	-1.95013E-04	5.96401E-04	0.0	0.0	0.0	2.14728E-03
8	6.98256E-04	1.25073E-04	2.05856E-04	0.0	0.0	0.0	1.02918E-03
9	3.11262E-04	-4.90802E-05	-5.94639E-06	0.0	0.0	0.0	2.56235E-04
10	7.48454E-05	-7.95252E-05	4.37185E-05	0.0	0.0	0.0	3.90387E-05
11	1.37216E-04	2.37873E-05	-2.22211E-05	0.0	0.0	0.0	1.38782E-04
12	1.86245E-04	1.85595E-06	2.70549E-04	0.0	0.0	0.0	4.58649E-04
13	4.19355E-06	1.38438E-04	-9.30256E-05	0.0	0.0	0.0	4.96064E-05
14	7.01816E-05	-3.91704E-05	6.24118E-05	0.0	0.0	0.0	9.34230E-05
15	-1.05218E-04	5.32775E-05	-1.84869E-05	0.0	0.0	0.0	-7.04273E-05
16	2.07068E-04	4.12548E-05	-1.45173E-05	0.0	0.0	0.0	2.33805E-04
SUM	1.17586E-01	6.56208E-02	6.77674E-02	0.0	0.0	0.0	2.50974E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	3.53518E-06	2.08563E-06	3.24110E-06	0.0	0.0	0.0	2.99107E-06
2	6.25920E-06	4.76164E-06	4.57878E-06	0.0	0.0	0.0	5.26775E-06
3	3.81712E-06	2.93787E-06	2.96780E-06	0.0	0.0	0.0	3.27777E-06
4	6.70189E-06	4.47434E-06	4.53702E-06	0.0	0.0	0.0	5.33113E-06
5	4.70610E-06	3.28862E-06	2.98349E-06	0.0	0.0	0.0	3.72596E-06
6	1.21424E-06	5.76561E-07	1.31870E-07	0.0	0.0	0.0	6.77286E-07
7	4.00893E-07	-5.38843E-08	1.64792E-07	0.0	0.0	0.0	1.85218E-07
8	1.60335E-07	3.45590E-08	5.68803E-08	0.0	0.0	0.0	8.87746E-08
9	7.14722E-08	-1.35614E-08	-1.64309E-09	0.0	0.0	0.0	2.21021E-08
10	1.71861E-08	-2.19737E-08	1.20799E-08	0.0	0.0	0.0	3.36738E-09
11	3.15077E-08	6.57270E-09	-6.13993E-09	0.0	0.0	0.0	1.19710E-08
12	4.27658E-08	5.12798E-10	7.47555E-08	0.0	0.0	0.0	3.95618E-08
13	9.62928E-10	3.82520E-08	-2.57040E-08	0.0	0.0	0.0	4.27891E-09
14	1.61152E-08	-1.08232E-08	1.72450E-08	0.0	0.0	0.0	8.05841E-09
15	-2.41603E-08	1.47212E-08	-5.10816E-09	0.0	0.0	0.0	-6.07486E-09
16	4.75471E-08	1.13992E-08	-4.01128E-09	0.0	0.0	0.0	2.01674E-08
SUM	2.69983E-05	1.81303E-05	1.87231E-05	0.0	0.0	0.0	2.16483E-05

SUPER 1

SUPER BOX TYPE 1 CELL BDY CUBO 4 MIXTURE = 0 VOLUME = 1.70809E+04

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	0.0	0.0	0.0	1.75089E-07	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	4.58211E-07	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	5.02914E-07	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	2.58163E-06	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	2.84985E-06	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	-1.86265E-08	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	3.25963E-08	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	6.28643E-09	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	9.31323E-10	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	1.89175E-10	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	1.30967E-10	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	4.65661E-10	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	-1.45519E-11	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	4.36557E-11	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	1.60071E-10	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	2.91038E-10	0.0
SUM	0.0	0.0	0.0	0.0	0.0	0.0	6.59014E-06	0.0

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
2	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
3	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
4	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
5	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
6	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
7	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
8	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
9	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
10	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
11	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
12	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
13	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
14	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
15	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
16	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
SUM	0.	0.0		0.	0.0		0.	0.0		0.	0.0	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	2.27170E-06	3.46762E-02	3.46764E-02	0.0	5.80627E-06	5.26
2	4.00084E-06	6.10702E-02	6.10707E-02	0.0	1.15069E-05	3.56
3	2.48947E-06	3.79999E-02	3.80004E-02	0.0	7.05807E-06	4.48
4	4.04911E-06	6.18050E-02	6.18075E-02	0.0	1.24528E-05	3.15
5	2.83002E-06	4.31959E-02	4.31988E-02	0.0	1.11532E-05	3.96
6	5.14391E-07	7.85193E-03	7.85191E-03	0.0	4.42331E-06	5.44
7	1.40674E-07	2.14728E-03	2.14731E-03	0.0	2.09190E-06	7.71
8	6.74239E-08	1.02918E-03	1.02919E-03	0.0	1.43408E-06	11.07
9	1.67864E-08	2.56235E-04	2.56236E-04	0.0	1.16908E-06	12.80
10	2.55750E-09	3.90387E-05	3.90389E-05	0.0	5.96592E-07	17.09
11	9.09186E-09	1.38782E-04	1.38783E-04	0.0	4.09945E-07	18.38
12	3.00469E-08	4.58649E-04	4.58650E-04	0.0	2.77279E-07	19.68
13	3.24979E-09	4.96064E-05	4.96064E-05	0.0	2.34249E-07	24.86
14	6.12029E-09	9.34230E-05	9.34231E-05	0.0	1.89004E-07	29.31
15	-4.61379E-09	-7.04273E-05	-7.04271E-05	0.0	3.01858E-07	24.46
16	1.53170E-08	2.33805E-04	2.33805E-04	0.0	7.09147E-07	22.06
SUM	1.64421E-05	2.50974E-01	2.50981E-01	0.0	5.98134E-05	1.75

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	3.22912E-05	3.63149E-03	4.55074E-03	5.11159E-03	8.65771E-03	1.26926E-02	3.46764E-02
2	-3.25037E-03	7.20378E-03	9.67925E-03	9.10661E-03	1.96227E-02	1.87087E-02	6.10707E-02
3	-2.15144E-03	4.43482E-03	6.06676E-03	5.57784E-03	1.21100E-02	1.19624E-02	3.80004E-02
4	-1.27745E-03	7.83787E-03	9.15244E-03	8.99371E-03	1.86710E-02	1.84300E-02	6.18075E-02
5	-1.34976E-03	5.35724E-03	6.43545E-03	6.97730E-03	1.36908E-02	1.20878E-02	4.31988E-02
6	-3.14734E-04	8.61256E-04	1.55831E-03	1.86871E-03	2.84235E-03	1.03602E-03	7.85191E-03
7	3.17431E-05	4.83498E-04	3.58113E-04	4.55110E-04	-1.12436E-04	9.31281E-04	2.14731E-03
8	-1.30866E-04	1.59007E-04	1.43407E-04	2.62445E-04	2.22957E-04	3.72240E-04	1.02919E-03
9	-3.03737E-05	-8.67636E-05	1.11827E-04	2.93581E-04	-2.37965E-04	2.05930E-04	2.56236E-04
10	6.53068E-05	-2.05170E-05	-3.79579E-06	-2.43728E-06	7.02035E-06	-6.53818E-06	3.90389E-05
11	-6.37378E-05	-8.73743E-05	8.87278E-05	8.07523E-05	1.58054E-04	-3.76399E-05	1.38783E-04
12	-1.08289E-05	1.18525E-04	-2.91856E-05	1.92176E-05	-6.04983E-06	3.66972E-04	4.58650E-04
13	-4.60309E-05	-3.66010E-05	-1.27470E-05	-6.14208E-06	1.22879E-04	2.82487E-05	4.96064E-05
14	-7.91053E-07	-5.07086E-05	8.39100E-05	4.65819E-05	-3.18235E-05	4.62543E-05	9.34231E-05
15	-2.79968E-05	-1.09690E-04	2.10184E-05	-4.75359E-05	6.58391E-06	8.71928E-05	-7.04271E-05
16	-1.15952E-05	-3.78074E-05	1.02238E-05	8.64668E-05	1.11808E-04	7.47092E-05	2.33805E-04
SUM	-8.53662E-03	2.96580E-02	3.82144E-02	3.88238E-02	7.58351E-02	7.69858E-02	2.50981E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	2.28112E-08	2.56617E-06	3.21572E-06	3.61203E-06	1.80290E-06	2.64296E-06	2.27170E-06
2	-2.29668E-06	5.09044E-06	6.83970E-06	6.43503E-06	4.08559E-06	3.89523E-06	4.00084E-06
3	-1.52033E-06	3.13383E-06	4.28698E-06	3.94149E-06	2.52173E-06	2.49104E-06	2.48947E-06
4	-9.02725E-07	5.53844E-06	6.46739E-06	6.35524E-06	3.88779E-06	3.83762E-06	4.04911E-06
5	-9.53867E-07	3.78558E-06	4.54743E-06	4.93033E-06	2.85092E-06	2.51723E-06	2.83002E-06
6	-2.22405E-07	6.08616E-07	1.10119E-06	1.32054E-06	5.91903E-07	2.15750E-07	5.14391E-07
7	2.24312E-08	3.41663E-07	2.53059E-07	3.21603E-07	-2.34142E-08	1.93936E-07	1.40674E-07
8	-9.24755E-08	1.12364E-07	1.01339E-07	1.85458E-07	4.64300E-08	7.75175E-08	6.74239E-08
9	-2.14638E-08	-6.13112E-08	7.90230E-08	2.07460E-07	-4.95555E-08	4.28843E-08	1.67864E-08
10	4.61495E-08	-1.44983E-08	-2.68238E-09	-1.72235E-09	1.46191E-09	-1.36157E-09	2.55750E-09
11	-4.50407E-08	-6.17435E-08	6.26998E-08	5.70639E-08	3.29143E-08	-7.83841E-09	9.09186E-09
12	-7.65230E-09	8.37563E-08	-2.06242E-08	1.35802E-08	-1.25984E-09	7.64205E-08	3.00469E-08
13	-3.25279E-08	-2.58643E-08	-9.00773E-09	-4.34032E-09	2.55890E-08	5.88268E-09	3.24979E-09
14	-5.59003E-10	-3.58335E-08	5.92953E-08	3.29173E-08	-6.62714E-09	9.63231E-09	6.12029E-09
15	-1.97841E-08	-7.75125E-08	1.48528E-08	-3.35914E-08	1.37110E-09	1.81576E-08	-4.61379E-09
16	-8.19388E-09	-2.67168E-08	7.22476E-09	6.11022E-08	2.32837E-08	1.55579E-08	1.53170E-08
SUM	-6.03231E-06	2.09573E-05	2.70035E-05	2.74341E-05	1.57910E-05	1.60305E-05	1.64421E-05

SUPER 1

SUMMARY FOR SUPER BOX TYPE 1 VOLUME = 6.93408E+04

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		8.87333E-02	0.0	2.06930E-02	3.31285E-02	2.09130E-02	3.46764E-02	1.00003E+00
2	0.0		1.50000E-01	5.15937E-03	5.88619E-02	5.34665E-02	4.06001E-02	6.10707E-02	1.00004E+00
3	0.0		7.18333E-02	1.75328E-02	4.81082E-02	2.61599E-02	2.50634E-02	3.80004E-02	1.00003E+00
4	0.0		8.03000E-02	5.01044E-02	1.21953E-01	2.54997E-02	4.31582E-02	6.18075E-02	1.00006E+00
5	0.0		4.20333E-02	5.49163E-02	1.73937E-01	1.29414E-02	4.08076E-02	4.31988E-02	1.00002E+00
6	0.0		5.76666E-03	2.12983E-02	4.13194E-02	8.07908E-03	1.10783E-02	7.85191E-03	9.99721E-01
7	0.0		0.0	8.56155E-03	6.70810E-03	4.74376E-03	1.63481E-03	2.14731E-03	1.00000E+00
8	0.0		0.0	5.50146E-03	3.74642E-03	3.42595E-03	1.01728E-03	1.02919E-03	9.99998E-01
9	0.0		0.0	3.78748E-03	2.01194E-03	2.51169E-03	8.93564E-04	2.56236E-04	9.99997E-01
10	0.0		0.0	1.91701E-03	7.15422E-04	1.32314E-03	5.15837E-04	3.90389E-05	9.99996E-01
11	0.0		0.0	1.75812E-03	6.19076E-04	1.30372E-03	3.09463E-04	1.38783E-04	9.99997E-01
12	0.0		0.0	1.38743E-03	4.09592E-04	6.24641E-04	3.38160E-04	4.58650E-04	9.99995E-01
13	0.0		0.0	8.79495E-04	3.16016E-04	5.70863E-04	2.86220E-04	4.96064E-05	9.99997E-01
14	0.0		0.0	5.62409E-04	1.51891E-04	4.08797E-04	9.74584E-05	9.34231E-05	1.00000E+00
15	0.0		0.0	5.51064E-04	1.09588E-03	4.19493E-04	1.93165E-04	-7.04271E-05	9.99999E-01
16	0.0		0.0	6.87386E-04	5.66931E-03	0.0	4.46416E-04	2.33805E-04	1.00000E+00
SUM	0.0		4.38666E-01	1.74604E-01	4.86316E-01	1.74607E-01	1.87352E-01	2.50981E-01	1.00002E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	3.	1.29971E-05	0.	0.0	0.	0.0	2457.	5.38194E-02
2	19.	8.77575E-05	0.	0.0	6.	7.22973E-05	5384.	1.12227E-01
3	70.	3.40234E-04	0.	0.0	17.	2.00200E-04	3967.	7.39830E-02
4	329.	1.58709E-03	0.	0.0	139.	1.65622E-03	9080.	1.45131E-01
5	777.	3.78591E-03	0.	0.0	323.	3.78609E-03	12856.	1.81493E-01
6	403.	1.88981E-03	0.	0.0	153.	1.82607E-03	3575.	4.68479E-02
7	75.	3.34066E-04	0.	0.0	25.	2.98402E-04	712.	1.10352E-02
8	48.	1.89749E-04	0.	0.0	13.	1.60700E-04	408.	6.95569E-03
9	54.	1.51656E-04	0.	0.0	2.	2.56444E-05	261.	4.49028E-03
10	31.	8.06244E-05	0.	0.0	3.	4.16188E-05	108.	1.98856E-03
11	15.	3.35860E-05	0.	0.0	2.	2.74310E-05	102.	1.88946E-03
12	20.	3.54189E-05	0.	0.0	5.	6.94331E-05	55.	9.50896E-04
13	12.	4.26785E-05	0.	0.0	5.	6.98709E-05	46.	8.03543E-04
14	3.	4.78258E-06	0.	0.0	3.	4.20518E-05	28.	5.10689E-04
15	11.	8.83347E-06	0.	0.0	0.	0.0	87.	1.51537E-03
16	23.	7.16440E-06	0.	0.0	0.	0.0	359.	5.66931E-03
SUM	1893.	8.59233E-03	0.	0.0	696.	8.27600E-03	39485.	6.49310E-01

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	2.27170E-06	0.0	3.46764E-02	5.92218E-02	1.49434E-05	2.64
2	4.00084E-06	0.0	6.10707E-02	9.96673E-02	2.88015E-05	2.09
3	2.48947E-06	0.0	3.80004E-02	5.79254E-02	1.83115E-05	2.60
4	4.04911E-06	0.0	6.18075E-02	9.48970E-02	3.03510E-05	1.79
5	2.83002E-06	0.0	4.31988E-02	8.58938E-02	2.35424E-05	2.18
6	5.14391E-07	0.0	7.85191E-03	2.13212E-02	5.34930E-06	3.72
7	1.40674E-07	0.0	2.14731E-03	3.03071E-03	1.89143E-06	6.59
8	6.74239E-08	0.0	1.02919E-03	1.75087E-03	1.33447E-06	7.94
9	1.67864E-08	0.0	2.56236E-04	1.46073E-03	8.83646E-07	9.31
10	2.55750E-09	0.0	3.90389E-05	7.78060E-04	4.51469E-07	12.91
11	9.09186E-09	0.0	1.38783E-04	3.96362E-04	2.55146E-07	14.20
12	3.00469E-08	0.0	4.58650E-04	3.39450E-04	2.60675E-07	15.10
13	3.24979E-09	0.0	4.96064E-05	5.35137E-04	2.00591E-07	17.12
14	6.12029E-09	0.0	9.34231E-05	2.05005E-04	1.27845E-07	27.29
15	-4.61379E-09	0.0	-7.04271E-05	3.75937E-04	2.06034E-07	17.68
16	1.53170E-08	0.0	2.33805E-04	8.50436E-04	3.93434E-07	17.40
SUM	1.64421E-05	0.0	2.50981E-01	4.28649E-01	1.27303E-04	1.34

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	3.22912E-05	3.63149E-03	4.55074E-03	5.11159E-03	8.65771E-03	1.26926E-02	3.46764E-02
2	-3.25037E-03	7.20378E-03	9.67925E-03	9.10661E-03	1.96227E-02	1.87087E-02	6.10707E-02
3	-2.15144E-03	4.43482E-03	6.06676E-03	5.57784E-03	1.21100E-02	1.19624E-02	3.80004E-02
4	-1.27745E-03	7.83787E-03	9.15244E-03	8.99371E-03	1.86710E-02	1.84300E-02	6.18075E-02
5	-1.34976E-03	5.35724E-03	6.43545E-03	6.97730E-03	1.36908E-02	1.20878E-02	4.31988E-02
6	-3.14734E-04	8.61256E-04	1.55831E-03	1.86871E-03	2.84235E-03	1.03602E-03	7.85191E-03
7	3.17431E-05	4.83498E-04	3.58113E-04	4.55110E-04	-1.12436E-04	9.31281E-04	2.14731E-03
8	-1.30866E-04	1.59007E-04	1.43407E-04	2.62445E-04	2.22957E-04	3.72240E-04	1.02919E-03
9	-3.03737E-05	-8.67636E-05	1.11827E-04	2.93581E-04	-2.37965E-04	2.05930E-04	2.56236E-04
10	6.53068E-05	-2.05170E-05	-3.79579E-06	-2.43728E-06	7.02035E-06	-6.53818E-06	3.90389E-05
11	-6.37378E-05	-8.73743E-05	8.87278E-05	8.07523E-05	1.58054E-04	-3.76399E-05	1.38783E-04
12	-1.08289E-05	-1.18525E-04	-2.91856E-05	1.92176E-05	-6.04983E-06	3.66972E-04	4.58650E-04
13	-4.60309E-05	-3.66010E-05	-1.27470E-05	-6.14208E-06	1.22879E-04	2.82487E-05	4.96064E-05
14	-7.91053E-07	-5.07086E-05	8.39100E-05	4.65819E-05	-3.18235E-05	4.62543E-05	9.34231E-05
15	-2.79968E-05	-1.09690E-04	2.10184E-05	-4.75359E-05	6.58391E-06	8.71928E-05	-7.04271E-05
16	-1.15952E-05	-3.78074E-05	1.02238E-05	8.64668E-05	1.11808E-04	7.47092E-05	2.33805E-04
SUM	-8.53662E-03	2.96580E-02	3.82144E-02	3.88238E-02	7.58351E-02	7.69858E-02	2.50981E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	2.28112E-08	2.56617E-06	3.21572E-06	3.61203E-06	1.80290E-06	2.64296E-06	2.27170E-06
2	-2.29668E-06	5.09044E-06	6.83970E-06	6.43503E-06	4.08559E-06	3.89523E-06	4.00084E-06
3	-1.52033E-06	3.13383E-06	4.28698E-06	3.94149E-06	2.52173E-06	2.49104E-06	2.48947E-06
4	-9.02725E-07	5.53844E-06	6.46739E-06	6.35524E-06	3.88779E-06	3.83762E-06	4.04911E-06
5	-9.53867E-07	3.78558E-06	4.54743E-06	4.93033E-06	2.85092E-06	2.51723E-06	2.83002E-06
6	-2.22405E-07	6.08616E-07	1.10119E-06	1.32054E-06	5.91903E-07	2.15750E-07	5.14391E-07
7	2.24312E-08	3.41663E-07	2.53059E-07	3.21603E-07	-2.34142E-08	1.93936E-07	1.40674E-07
8	-9.24755E-08	1.12364E-07	1.01339E-07	1.85458E-07	4.64300E-08	7.75175E-08	6.74239E-08
9	-2.14638E-08	-6.13112E-08	7.90230E-08	2.07460E-07	-4.95555E-08	4.28843E-08	1.67864E-08
10	4.61495E-08	-1.44983E-08	-2.68238E-09	-1.72235E-09	1.46191E-09	-1.36157E-09	2.55750E-09
11	-4.50407E-08	-6.17435E-08	6.26998E-08	5.70639E-08	3.29143E-08	-7.83841E-09	9.09186E-09
12	-7.65230E-09	8.37563E-08	-2.06242E-08	1.35802E-08	-1.25984E-09	7.64205E-08	3.00469E-08
13	-3.25279E-08	-2.58643E-08	-9.00773E-09	-4.34032E-09	2.55890E-08	5.88268E-09	3.24979E-09
14	-5.59003E-10	-3.58335E-08	5.92953E-08	3.29173E-08	-6.62714E-09	9.63231E-09	6.12029E-09
15	-1.97841E-08	-7.75125E-08	1.48528E-08	-3.35914E-08	1.37110E-09	1.81576E-08	-4.61379E-09
16	-8.19388E-09	-2.67168E-08	7.22476E-09	6.11022E-08	2.32837E-08	1.55579E-08	1.53170E-08
SUM	-6.03231E-06	2.09573E-05	2.70035E-05	2.74341E-05	1.57910E-05	1.60305E-05	1.64421E-05

SUPER 1

SUPER BOX TYPE 2 BOX TYPE 1 CYLI 1 MIXTURE = 1 VOLUME = 4.46948E+03

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		6.05000E-02	0.0	1.39083E-02	2.20954E-02	1.45794E-02	2.38352E-02	1.00004E+00
2	0.0		1.04100E-01	3.05065E-03	3.99022E-02	3.20011E-02	2.78842E-02	4.72877E-02	1.00004E+00
3	0.0		5.09667E-02	1.06945E-02	3.30159E-02	1.41056E-02	1.75143E-02	3.01591E-02	1.00004E+00
4	0.0		5.31667E-02	3.03873E-02	7.79814E-02	1.00646E-02	2.85338E-02	4.50906E-02	1.00006E+00
5	0.0		2.52333E-02	2.92361E-02	1.04114E-01	9.46902E-04	2.57144E-02	2.80316E-02	1.00003E+00
6	0.0		4.10000E-03	5.84397E-03	2.29430E-02	1.88954E-04	7.30358E-03	2.45151E-03	9.99603E-01
7	0.0		0.0	1.88954E-04	1.61176E-03	0.0	8.81967E-04	-7.59297E-04	9.99995E-01
8	0.0		0.0	0.0	7.80271E-04	8.83181E-06	7.00023E-04	-6.00757E-04	9.99997E-01
9	0.0		0.0	8.83181E-06	2.05235E-04	0.0	4.51440E-04	-4.11447E-04	9.99999E-01
10	0.0		0.0	0.0	6.66667E-05	0.0	3.22152E-04	-3.11171E-04	9.99995E-01
11	0.0		0.0	0.0	0.0	0.0	6.60406E-05	-7.45099E-05	0.0
12	0.0		0.0	0.0	5.00000E-05	0.0	2.30723E-04	-2.10709E-04	9.99997E-01
13	0.0		0.0	0.0	7.37605E-05	0.0	1.41947E-04	-1.06921E-04	9.99997E-01
14	0.0		0.0	0.0	0.0	0.0	6.41815E-05	-7.27214E-05	0.0
15	0.0		0.0	0.0	0.0	0.0	8.36407E-05	-8.76160E-05	0.0
16	0.0		0.0	0.0	1.66667E-05	0.0	2.60673E-04	-2.48549E-04	9.99977E-01
SUM	0.0		2.98066E-01	7.94103E-02	2.94669E-01	7.94113E-02	1.24732E-01	1.73972E-01	1.00003E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	0.	0.0	0.	0.0	1.	1.23343E-05	1668.	3.59860E-02
2	15.	6.92746E-05	0.	0.0	8.	9.61394E-05	3530.	7.17693E-02
3	38.	1.86419E-04	0.	0.0	26.	3.06645E-04	2577.	4.66871E-02
4	208.	1.01332E-03	0.	0.0	98.	1.15309E-03	5504.	8.64103E-02
5	504.	2.46318E-03	0.	0.0	229.	2.68849E-03	7426.	1.01244E-01
6	245.	1.15824E-03	0.	0.0	96.	1.15389E-03	1833.	2.15321E-02
7	45.	2.01671E-04	0.	0.0	11.	1.35385E-04	129.	1.42843E-03
8	28.	1.09636E-04	0.	0.0	17.	2.17733E-04	54.	5.05774E-04
9	25.	8.08825E-05	0.	0.0	9.	1.12044E-04	7.	5.52347E-05
10	19.	4.72058E-05	0.	0.0	4.	5.81858E-05	0.	0.0
11	6.	8.46936E-06	0.	0.0	0.	0.0	0.	0.0
12	10.	2.06712E-05	0.	0.0	3.	4.06852E-05	0.	0.0
13	6.	1.66575E-05	0.	0.0	4.	5.16837E-05	1.	7.09382E-06
14	4.	8.54001E-06	0.	0.0	0.	0.0	0.	0.0
15	7.	3.97542E-06	0.	0.0	0.	0.0	0.	0.0
16	15.	4.28085E-06	0.	0.0	1.	1.64051E-05	0.	0.0
SUM	1175.	5.39241E-03	0.	0.0	507.	6.04270E-03	22729.	3.65625E-01

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	9.99162E-06	3.46762E-02	2.38352E-02	4.12862E-02	5.32689E-05	3.00
2	1.98229E-05	6.10702E-02	4.72877E-02	6.84515E-02	1.02168E-04	2.06
3	1.26426E-05	3.79999E-02	3.01591E-02	4.04784E-02	6.65706E-05	3.01
4	1.89018E-05	6.18050E-02	4.50906E-02	6.27407E-02	1.04776E-04	2.25
5	1.17508E-05	4.31959E-02	2.80316E-02	5.41249E-02	7.71429E-05	2.41
6	1.02766E-06	7.85193E-03	2.45151E-03	1.40564E-02	1.13187E-05	5.83
7	-3.18295E-07	2.14728E-03	-7.59297E-04	1.63505E-03	8.34805E-07	15.76
8	-2.51835E-07	1.02918E-03	-6.00757E-04	1.20525E-03	3.76122E-07	21.30
9	-1.72477E-07	2.56235E-04	-4.11447E-04	7.38813E-04	7.08573E-08	27.13
10	-1.30442E-07	3.90387E-05	-3.11171E-04	4.86795E-04	2.78743E-08	32.99
11	-3.12343E-08	1.38782E-04	-7.45099E-05	8.50108E-05	3.85317E-09	46.55
12	-8.83286E-08	4.58649E-04	-2.10709E-04	2.32565E-04	2.10046E-08	40.73
13	-4.48209E-08	4.96064E-05	-1.06921E-04	2.67318E-04	1.16393E-08	42.77
14	-3.04846E-08	9.34230E-05	-7.27214E-05	1.37521E-04	2.82092E-09	56.63
15	-3.67284E-08	-7.04273E-05	-8.76160E-05	1.69187E-04	2.67208E-09	60.68
16	-1.04191E-07	2.33805E-04	-2.48549E-04	5.39196E-04	2.25811E-09	38.67
SUM	7.29284E-05	2.50974E-01	1.73972E-01	2.86634E-01	4.16602E-04	1.37

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	1.63065E-02	3.08963E-03	4.43903E-03	0.0	0.0	0.0	2.38352E-02
2	3.31191E-02	6.86835E-03	7.30025E-03	0.0	0.0	0.0	4.72877E-02
3	2.08545E-02	4.79113E-03	4.51349E-03	0.0	0.0	0.0	3.01591E-02
4	3.01675E-02	7.98446E-03	6.93861E-03	0.0	0.0	0.0	4.50906E-02
5	1.87616E-02	4.40985E-03	4.86013E-03	0.0	0.0	0.0	2.80316E-02
6	1.72931E-03	3.65927E-04	3.56275E-04	0.0	0.0	0.0	2.45151E-03
7	-5.57674E-04	-7.53681E-05	-1.26255E-04	0.0	0.0	0.0	-7.59297E-04
8	-4.77410E-04	-5.74052E-05	-6.59416E-05	0.0	0.0	0.0	-6.00757E-04
9	-2.60954E-04	-3.72640E-05	-1.13229E-04	0.0	0.0	0.0	-4.11447E-04
10	-2.50205E-04	-6.09663E-05	0.0	0.0	0.0	0.0	-3.11171E-04
11	-3.15453E-05	-2.63127E-05	-1.66519E-05	0.0	0.0	0.0	-7.45099E-05
12	-1.63458E-04	-6.92143E-06	-4.03297E-05	0.0	0.0	0.0	-2.10709E-04
13	-5.58025E-05	-2.51222E-05	-2.59963E-05	0.0	0.0	0.0	-1.06921E-04
14	-7.27214E-05	0.0	0.0	0.0	0.0	0.0	-7.27214E-05
15	-7.44862E-05	-1.31299E-05	0.0	0.0	0.0	0.0	-8.76160E-05
16	-2.05406E-04	-4.31429E-05	0.0	0.0	0.0	0.0	-2.48549E-04
SUM	1.18788E-01	2.71637E-02	2.80194E-02	0.0	0.0	0.0	1.73972E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	1.04853E-05	7.44133E-06	1.06914E-05	0.0	0.0	0.0	9.99162E-06
2	2.12960E-05	1.65424E-05	1.75827E-05	0.0	0.0	0.0	1.98229E-05
3	1.34099E-05	1.15395E-05	1.08707E-05	0.0	0.0	0.0	1.26426E-05
4	1.94001E-05	1.92306E-05	1.67116E-05	0.0	0.0	0.0	1.89018E-05
5	1.20653E-05	1.06212E-05	1.17057E-05	0.0	0.0	0.0	1.17503E-05
6	1.11201E-06	8.81353E-07	8.58106E-07	0.0	0.0	0.0	1.02766E-06
7	-3.58599E-07	-1.81528E-07	-3.04092E-07	0.0	0.0	0.0	-3.18295E-07
8	-3.06987E-07	-1.38264E-07	-1.58824E-07	0.0	0.0	0.0	-2.51835E-07
9	-1.67801E-07	-8.97526E-08	-2.72718E-07	0.0	0.0	0.0	-1.72477E-07
10	-1.60889E-07	-1.46841E-07	0.0	0.0	0.0	0.0	-1.30442E-07
11	-2.02845E-08	-6.33755E-08	-4.01072E-08	0.0	0.0	0.0	-3.12343E-08
12	-1.05108E-07	-1.66707E-08	-9.71363E-08	0.0	0.0	0.0	-8.83286E-08
13	-3.58826E-08	-6.05082E-08	-6.26135E-08	0.0	0.0	0.0	-4.48209E-08
14	-4.67619E-08	0.0	0.0	0.0	0.0	0.0	-3.04846E-08
15	-4.78967E-08	-3.16240E-08	0.0	0.0	0.0	0.0	-3.67284E-08
16	-1.32082E-07	-1.03912E-07	0.0	0.0	0.0	0.0	-1.04191E-07
SUM	7.63862E-05	6.54237E-05	6.74846E-05	0.0	0.0	0.0	7.29284E-05

SUPER 1

SUPER BOX TYPE 2 BOX TYPE 1 CUBO 2 MIXTURE = 0 VOLUME = 1.22124E+03

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	0.0	0.0	0.0	3.98606E-07	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	1.48639E-06	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	1.42679E-06	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	5.44265E-06	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	4.35859E-06	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	5.68107E-08	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	-1.39698E-09	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	-1.45519E-11	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	-5.82077E-11	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	-4.36557E-11	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	-2.32831E-10	0.0
SUM	0.0	0.0	0.0	0.0	0.0	0.0	1.31686E-05	0.0

GRP.	NUMBER KILLED WT	NUMBER SPLIT WT	NUMBER BORN WT	NUMBER SURV WT
1	0. 0.0	0. 0.0	0. 0.0	0. 0.0
2	0. 0.0	0. 0.0	0. 0.0	0. 0.0
3	0. 0.0	0. 0.0	0. 0.0	0. 0.0
4	0. 0.0	0. 0.0	0. 0.0	0. 0.0
5	0. 0.0	0. 0.0	0. 0.0	0. 0.0
6	0. 0.0	0. 0.0	0. 0.0	0. 0.0
7	0. 0.0	0. 0.0	0. 0.0	0. 0.0
8	0. 0.0	0. 0.0	0. 0.0	0. 0.0
9	0. 0.0	0. 0.0	0. 0.0	0. 0.0
10	0. 0.0	0. 0.0	0. 0.0	0. 0.0
11	0. 0.0	0. 0.0	0. 0.0	0. 0.0
12	0. 0.0	0. 0.0	0. 0.0	0. 0.0
13	0. 0.0	0. 0.0	0. 0.0	0. 0.0
14	0. 0.0	0. 0.0	0. 0.0	0. 0.0
15	0. 0.0	0. 0.0	0. 0.0	0. 0.0
16	0. 0.0	0. 0.0	0. 0.0	0. 0.0
SUM	0. 0.0	0. 0.0	0. 0.0	0. 0.0

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	7.84753E-06	2.38352E-02	2.38356E-02	0.0	3.03204E-05	4.65
2	1.55693E-05	4.72877E-02	4.72892E-02	0.0	5.70232E-05	3.51
3	9.92993E-06	3.01591E-02	3.01605E-02	0.0	3.64432E-05	4.10
4	1.48472E-05	4.50906E-02	4.50960E-02	0.0	5.88762E-05	2.86
5	9.23045E-06	2.80316E-02	2.80360E-02	0.0	3.89962E-05	3.33
6	8.07143E-07	2.45151E-03	2.45156E-03	0.0	7.25022E-06	7.44
7	-2.49988E-07	-7.59297E-04	-7.59298E-04	0.0	1.62115E-06	19.60
8	-1.97791E-07	-6.00757E-04	-6.00757E-04	0.0	7.52609E-07	24.03
9	-1.35463E-07	-4.11447E-04	-4.11447E-04	0.0	5.66812E-07	32.34
10	-1.02449E-07	-3.11171E-04	-3.11171E-04	0.0	4.38208E-07	28.03
11	-2.45314E-08	-7.45099E-05	-7.45099E-05	0.0	1.05934E-07	48.27
12	-6.93731E-08	-2.10709E-04	-2.10709E-04	0.0	2.12968E-07	59.55
13	-3.52022E-08	-1.06921E-04	-1.06921E-04	0.0	2.69595E-07	66.79
14	-2.39425E-08	-7.27214E-05	-7.27214E-05	0.0	5.59994E-08	81.33
15	-2.88464E-08	-8.76160E-05	-8.76161E-05	0.0	1.43971E-07	63.95
16	-8.18313E-08	-2.48549E-04	-2.48549E-04	0.0	3.56572E-07	37.59
SUM	5.72821E-05	1.73972E-01	1.73985E-01	0.0	2.33433E-04	1.71

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	2.96895E-03	4.58048E-03	3.72602E-03	4.07712E-03	3.59526E-03	4.88773E-03	2.38356E-02
2	4.73912E-03	9.80700E-03	8.24662E-03	8.55041E-03	8.08173E-03	7.86436E-03	4.72892E-02
3	3.03022E-03	6.96408E-03	4.60580E-03	5.19007E-03	5.55852E-03	4.81183E-03	3.01605E-02
4	3.34353E-03	1.01443E-02	7.06050E-03	7.57776E-03	8.57566E-03	8.39433E-03	4.50960E-02
5	3.47265E-03	5.74256E-03	4.88977E-03	4.40401E-03	4.43972E-03	5.08725E-03	2.80360E-02
6	6.35334E-04	-1.53952E-05	4.00157E-04	5.81768E-04	4.05270E-04	4.44430E-04	2.45156E-03
7	-6.17271E-05	-3.29408E-04	-2.12006E-04	8.33678E-05	-1.30655E-04	-1.08870E-04	-7.59298E-04
8	-6.27634E-06	-2.64966E-04	-9.65300E-05	-9.67425E-05	-7.17507E-05	-6.44913E-05	-6.00757E-04
9	2.22694E-05	-1.92782E-04	-1.03353E-04	-1.51840E-05	-4.50967E-05	-7.73016E-05	-4.11447E-04
10	5.73362E-05	-4.48346E-05	-9.83127E-05	-1.44274E-04	-6.09663E-05	-2.01205E-05	-3.11171E-04
11	-1.24641E-05	-2.44493E-05	-8.95944E-06	2.51719E-05	-2.63127E-05	-2.74965E-05	-7.45099E-05
12	-3.32760E-05	-8.57576E-05	-3.85799E-05	-5.84471E-06	-6.92143E-06	-4.03297E-05	-2.10709E-04
13	1.82232E-05	1.80251E-05	-8.97671E-05	-2.28370E-06	-2.51222E-05	-2.59963E-05	-1.06921E-04
14	-1.25277E-05	-5.45647E-05	-5.62904E-06	0.0	0.0	0.0	-7.27214E-05
15	-2.54871E-05	-7.85618E-06	-2.17358E-05	-1.94072E-05	-1.31299E-05	0.0	-8.76161E-05
16	-8.41645E-06	-5.24000E-05	-1.13403E-05	-1.09185E-04	-4.31429E-05	-2.40644E-05	-2.48549E-04
SUM	1.81274E-02	3.61840E-02	2.82426E-02	3.00968E-02	3.02330E-02	3.11013E-02	1.73985E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	5.99754E-06	9.25306E-06	7.52691E-06	8.23620E-06	6.80102E-06	9.24594E-06	7.84753E-06
2	9.57328E-06	1.98114E-05	1.66590E-05	1.72727E-05	1.52879E-05	1.48767E-05	1.55693E-05
3	6.12119E-06	1.40682E-05	9.30417E-06	1.04845E-05	1.05148E-05	9.10232E-06	9.92993E-06
4	6.75398E-06	2.04931E-05	1.42628E-05	1.53076E-05	1.62222E-05	1.58790E-05	1.48472E-05
5	7.01494E-06	1.16005E-05	9.87775E-06	8.89644E-06	8.39831E-06	9.62322E-06	9.23045E-06
6	1.28346E-06	-3.11004E-08	8.08365E-07	1.17526E-06	7.66636E-07	8.40714E-07	8.07143E-07
7	-1.24697E-07	-6.65446E-07	-4.28279E-07	1.68414E-07	-2.47158E-07	-2.05947E-07	-2.49988E-07
8	-1.26790E-08	-5.35266E-07	-1.95003E-07	-1.95432E-07	-1.35729E-07	-1.21997E-07	-1.97791E-07
9	4.49872E-08	-3.89445E-07	-2.08786E-07	-3.06736E-08	-8.53083E-08	-1.46229E-07	-1.35463E-07
10	1.15827E-07	-9.05719E-08	-1.98604E-07	-2.91452E-07	-1.15328E-07	-3.80615E-08	-1.02449E-07
11	-2.51790E-08	-4.93907E-08	-1.80992E-08	5.08506E-08	-4.97750E-08	-5.20144E-08	-2.45314E-08
12	-6.72218E-08	-1.73242E-07	-7.79364E-08	-1.18071E-08	-1.30931E-08	-7.62907E-08	-6.93731E-08
13	3.68132E-08	3.64131E-08	-1.81341E-07	-4.61337E-09	-4.75230E-08	-4.91766E-08	-3.52022E-08
14	-2.53076E-08	-1.10228E-07	-1.13714E-08	0.0	0.0	0.0	-2.39425E-08
15	-5.14872E-08	-1.58705E-08	-4.39091E-08	-3.92051E-08	-2.48374E-08	0.0	-2.88464E-08
16	-1.70023E-08	-1.05855E-07	-2.29088E-08	-2.20568E-07	-8.16124E-08	-4.55220E-08	-8.18313E-08
SUM	3.66183E-05	7.30961E-05	5.70526E-05	6.07981E-05	5.71904E-05	5.88325E-05	5.72821E-05

SUPER 1

SUPER BOX TYPE 2 BOX TYPE 1 CUBO 3 MIXTURE = 0 VOLUME = 7.60152E+03

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	0.0	0.0	0.0	-3.35276E-08	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	-2.83122E-07	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	-1.60187E-07	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	-7.78586E-07	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	-3.91155E-07	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	-1.53668E-08	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	3.95812E-09	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	-4.65661E-10	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	4.65661E-10	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	4.36557E-11	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	5.82077E-11	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	-1.45519E-11	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	-1.45519E-11	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	4.65661E-10	0.0
SUM	0.0	0.0	0.0	0.0	0.0	0.0	-1.65745E-06	0.0

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
2	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
3	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
4	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
5	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
6	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
7	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
8	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
9	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
10	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
11	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
12	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
13	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
14	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
15	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
16	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
SUM	0.	0.0		0.	0.0		0.	0.0		0.	0.0	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	4.45866E-06	2.38356E-02	2.38355E-02	0.0	2.70312E-05	3.45
2	8.84584E-06	4.72892E-02	4.72890E-02	0.0	5.05828E-05	2.39
3	5.64178E-06	3.01605E-02	3.01604E-02	0.0	3.17809E-05	3.13
4	8.43549E-06	4.50960E-02	4.50953E-02	0.0	5.12057E-05	2.28
5	5.24431E-06	2.80360E-02	2.80356E-02	0.0	3.67584E-05	2.81
6	4.58585E-07	2.45156E-03	2.45155E-03	0.0	7.06000E-06	6.19
7	-1.42033E-07	-7.59298E-04	-7.59294E-04	0.0	1.88372E-06	11.34
8	-1.12377E-07	-6.00757E-04	-6.00757E-04	0.0	9.41598E-07	18.12
9	-7.69650E-08	-4.11447E-04	-4.11447E-04	0.0	9.32310E-07	18.61
10	-5.82074E-08	-3.11171E-04	-3.11171E-04	0.0	3.79161E-07	25.50
11	-1.39378E-08	-7.45099E-05	-7.45099E-05	0.0	1.20680E-07	31.74
12	-3.94151E-08	-2.10709E-04	-2.10709E-04	0.0	2.57296E-07	33.39
13	-2.00006E-08	-1.06921E-04	-1.06921E-04	0.0	2.10102E-07	51.52
14	-1.36032E-08	-7.27214E-05	-7.27215E-05	0.0	8.14587E-08	59.37
15	-1.63894E-08	-8.76161E-05	-8.76161E-05	0.0	8.67888E-08	47.14
16	-4.64933E-08	-2.48549E-04	-2.48549E-04	0.0	5.78536E-07	29.95
SUM	3.25452E-05	1.73985E-01	1.73983E-01	0.0	2.09890E-04	1.33

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	1.04522E-03	5.65413E-03	3.75545E-03	4.59569E-03	3.52627E-03	5.25877E-03	2.38355E-02
2	2.08316E-03	1.30160E-02	8.39229E-03	8.42741E-03	7.70447E-03	7.66558E-03	4.72890E-02
3	5.78784E-04	8.30331E-03	4.48858E-03	6.01161E-03	6.05570E-03	4.72238E-03	3.01604E-02
4	1.98008E-03	1.27091E-02	7.35959E-03	7.26135E-03	7.86295E-03	7.92216E-03	4.50953E-02
5	1.52139E-03	7.51358E-03	5.12582E-03	5.06660E-03	4.25396E-03	4.55422E-03	2.80356E-02
6	5.40092E-04	-1.30764E-04	5.07293E-04	6.69261E-04	2.93243E-04	5.72425E-04	2.45155E-03
7	1.04940E-04	-6.98256E-04	-7.74017E-05	-1.93814E-05	-6.64345E-05	-2.76194E-06	-7.59294E-04
8	-9.03689E-06	-2.79158E-04	-1.25042E-04	-1.26654E-04	-9.71073E-05	3.62415E-05	-6.00757E-04
9	1.20157E-04	-3.54322E-04	-2.08613E-04	3.76813E-05	-5.87200E-05	5.23692E-05	-4.11447E-04
10	8.91772E-05	-1.93352E-04	-1.43227E-04	-1.10155E-04	-6.84143E-05	1.14799E-04	-3.11171E-04
11	-1.24641E-05	-8.60742E-05	-2.50084E-05	3.97423E-05	3.45644E-06	5.83795E-06	-7.45099E-05
12	0.0	-4.82177E-05	-6.57587E-05	-3.24131E-05	5.10721E-05	-1.15392E-04	-2.10709E-04
13	0.0	3.10503E-05	-1.04791E-04	1.79378E-05	-2.19225E-05	-2.91959E-05	-1.06921E-04
14	2.30336E-05	-7.37695E-05	-2.48338E-05	2.84822E-06	-1.92048E-05	1.92048E-05	-7.27215E-05
15	7.49315E-06	-2.09860E-05	-1.50048E-05	-7.71403E-05	1.80219E-05	0.0	-8.76161E-05
16	1.39259E-05	-9.79891E-05	-7.86923E-05	-9.97812E-05	-5.07394E-06	1.90619E-05	-2.48549E-04
SUM	8.08594E-03	4.52443E-02	2.87606E-02	3.16646E-02	2.94323E-02	3.07957E-02	1.73983E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	1.19286E-06	6.45269E-06	4.28577E-06	5.24474E-06	3.83055E-06	5.71252E-06	4.45866E-06
2	2.37736E-06	1.48546E-05	9.57725E-06	9.61741E-06	8.36905E-06	8.32691E-06	8.84584E-06
3	6.60604E-07	9.47602E-06	5.12240E-06	6.86054E-06	6.57821E-06	5.12977E-06	5.64178E-06
4	2.25958E-06	1.45050E-05	8.39864E-06	8.28666E-06	8.54107E-06	8.60543E-06	8.43549E-06
5	1.73651E-06	8.57459E-06	5.84944E-06	5.78199E-06	4.62090E-06	4.94691E-06	5.24431E-06
6	6.16380E-07	-1.49236E-07	5.78950E-07	7.63813E-07	3.18556E-07	6.21854E-07	4.58585E-07
7	1.19765E-07	-7.96898E-07	-8.83360E-08	-2.21194E-08	-7.21712E-08	-3.00079E-09	-1.42033E-07
8	-1.03135E-08	-3.18593E-07	-1.42707E-07	-1.44546E-07	-1.05492E-07	3.93709E-08	-1.12377E-07
9	1.37132E-07	-4.04375E-07	-2.38082E-07	4.30046E-08	-6.37904E-08	5.68914E-08	-7.69650E-08
10	1.01775E-07	-2.20666E-07	-1.63460E-07	-1.25716E-07	-7.43219E-08	1.24712E-07	-5.82074E-08
11	-1.42248E-08	-9.82337E-08	-2.85413E-08	4.53566E-08	3.75489E-09	6.34206E-09	-1.39378E-08
12	0.0	-5.50294E-08	-7.50483E-08	-3.69921E-08	5.54821E-08	-1.25355E-07	-3.94151E-08
13	0.0	3.54367E-08	-1.19594E-07	2.04719E-08	-2.38155E-08	-3.17170E-08	-2.00006E-08
14	2.62876E-08	-8.41907E-08	-2.83420E-08	3.25057E-09	-2.08631E-08	2.08631E-08	-1.36032E-08
15	8.55169E-09	-2.39507E-08	-1.71245E-08	-8.80377E-08	1.95781E-08	0.0	-1.63894E-08
16	1.58932E-08	-1.11832E-07	-8.98090E-08	-1.13877E-07	-5.51206E-09	2.07078E-08	-4.64933E-08
SUM	9.22815E-06	5.16353E-05	3.28213E-05	3.61359E-05	3.19711E-05	3.34521E-05	3.25452E-05

SUPER 1

SUMMARY FOR SUPER BOX TYPE 2 BOX TYPE 1 VOLUME = 1.32922E+04

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	6.05000E-02	0.0	1.39083E-02	2.20954E-02	1.45794E-02	2.38355E-02	1.00003E+00
2	0.0	1.04100E-01	3.05065E-03	3.99022E-02	3.20011E-02	2.78842E-02	4.72890E-02	1.00003E+00
3	0.0	5.09667E-02	1.06945E-02	3.30159E-02	1.41056E-02	1.75143E-02	3.01604E-02	1.00002E+00
4	0.0	5.31667E-02	3.03873E-02	7.79814E-02	1.00646E-02	2.85338E-02	4.50953E-02	1.00000E+00
5	0.0	2.52333E-02	2.92361E-02	1.04114E-01	9.46902E-04	2.57144E-02	2.80356E-02	9.99963E-01
6	0.0	4.10000E-03	5.84397E-03	2.29430E-02	1.88954E-04	7.30358E-03	2.45155E-03	9.99599E-01
7	0.0	0.0	1.88954E-04	1.61176E-03	0.0	8.81967E-04	-7.59294E-04	9.99987E-01
8	0.0	0.0	0.0	7.80271E-04	8.83181E-06	7.00023E-04	-6.00757E-04	9.99996E-01
9	0.0	0.0	8.83181E-06	2.05235E-04	0.0	4.51440E-04	-4.11447E-04	1.00000E+00
10	0.0	0.0	0.0	6.66667E-05	0.0	3.22152E-04	-3.11171E-04	9.99987E-01
11	0.0	0.0	0.0	0.0	0.0	6.60406E-05	-7.45099E-05	0.0
12	0.0	0.0	0.0	5.00000E-05	0.0	2.30723E-04	-2.10709E-04	9.99997E-01
13	0.0	0.0	0.0	7.37605E-05	0.0	1.41947E-04	-1.06921E-04	9.99997E-01
14	0.0	0.0	0.0	0.0	0.0	6.41815E-05	-7.27215E-05	0.0
15	0.0	0.0	0.0	0.0	0.0	8.36407E-05	-8.76161E-05	0.0
16	0.0	0.0	0.0	1.66667E-05	0.0	2.60673E-04	-2.48549E-04	9.99963E-01
SUM	0.0	2.98066E-01	7.94103E-02	2.94669E-01	7.94113E-02	1.24732E-01	1.73983E-01	1.00000E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	0.	0.0	0.	0.0	1.	1.23343E-05	1668.	3.59860E-02
2	15.	6.92746E-05	0.	0.0	8.	9.61394E-05	3530.	7.17693E-02
3	38.	1.86419E-04	0.	0.0	26.	3.06645E-04	2577.	4.66871E-02
4	208.	1.01332E-03	0.	0.0	98.	1.15309E-03	5504.	8.64103E-02
5	504.	2.46318E-03	0.	0.0	229.	2.68849E-03	7426.	1.01244E-01
6	245.	1.15824E-03	0.	0.0	96.	1.15389E-03	1833.	2.15321E-02
7	45.	2.01671E-04	0.	0.0	11.	1.35385E-04	129.	1.42843E-03
8	28.	1.09636E-04	0.	0.0	17.	2.17733E-04	54.	5.05774E-04
9	25.	8.08825E-05	0.	0.0	9.	1.12044E-04	7.	5.52347E-05
10	19.	4.72058E-05	0.	0.0	4.	5.81858E-05	0.	0.0
11	6.	8.46936E-06	0.	0.0	0.	0.0	0.	0.0
12	10.	2.06712E-05	0.	0.0	3.	4.06852E-05	0.	0.0
13	6.	1.66575E-05	0.	0.0	4.	5.16837E-05	1.	7.09382E-06
14	4.	8.54001E-06	0.	0.0	0.	0.0	0.	0.0
15	7.	3.97542E-06	0.	0.0	0.	0.0	0.	0.0
16	15.	4.28085E-06	0.	0.0	1.	1.64051E-05	0.	0.0
SUM	1175.	5.39241E-03	0.	0.0	507.	6.04270E-03	22729.	3.65625E-01

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	4.45866E-06	0.0	2.38355E-02	4.12862E-02	3.61560E-05	2.86
2	8.84584E-06	0.0	4.72890E-02	6.84515E-02	6.85200E-05	1.97
3	5.64178E-06	0.0	3.01604E-02	4.04784E-02	4.39072E-05	2.69
4	8.43549E-06	0.0	4.50953E-02	6.27407E-02	6.99233E-05	1.97
5	5.24431E-06	0.0	2.80356E-02	5.41249E-02	5.05430E-05	2.21
6	4.58585E-07	0.0	2.45155E-03	1.40564E-02	8.50946E-06	4.84
7	-1.42033E-07	0.0	-7.59294E-04	1.63505E-03	1.50690E-06	10.93
8	-1.12377E-07	0.0	-6.00757E-04	1.20525E-03	7.34094E-07	16.96
9	-7.69650E-08	0.0	-4.11447E-04	7.38813E-04	6.09067E-07	18.35
10	-5.82074E-08	0.0	-3.11171E-04	4.86795E-04	2.66466E-07	23.82
11	-1.39378E-08	0.0	-7.45099E-05	8.50108E-05	8.00427E-08	32.07
12	-3.94151E-08	0.0	-2.10709E-04	2.32565E-04	1.73771E-07	34.31
13	-2.00006E-08	0.0	-1.06921E-04	2.67318E-04	1.48835E-07	52.30
14	-1.36032E-08	0.0	-7.27215E-05	1.37521E-04	5.26779E-08	54.78
15	-1.63894E-08	0.0	-8.76161E-05	1.69187E-04	6.37584E-08	42.77
16	-4.64933E-08	0.0	-2.48549E-04	5.39196E-04	3.64370E-07	29.60
SUM	3.25452E-05	0.0	1.73983E-01	2.86634E-01	2.81559E-04	1.23

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	1.04522E-03	5.65413E-03	3.75545E-03	4.59569E-03	3.52627E-03	5.25877E-03	2.38355E-02
2	2.08316E-03	1.30160E-02	8.39229E-03	8.42741E-03	7.70447E-03	7.66558E-03	4.72890E-02
3	5.78784E-04	8.30331E-03	4.48858E-03	6.01161E-03	6.05570E-03	4.72238E-03	3.01604E-02
4	1.98008E-03	1.27091E-02	7.35959E-03	7.26135E-03	7.86295E-03	7.92216E-03	4.50953E-02
5	1.52139E-03	7.51358E-03	5.12582E-03	5.06660E-03	4.25396E-03	4.55422E-03	2.80356E-02
6	5.40092E-04	-1.30764E-04	5.07293E-04	6.69261E-04	2.93243E-04	5.72425E-04	2.45155E-03
7	1.04940E-04	-6.98256E-04	-7.74017E-05	-1.93814E-05	-6.64345E-05	-2.76194E-06	-7.59294E-04
8	-9.03689E-06	-2.79158E-04	-1.25042E-04	-1.26654E-04	-9.71073E-05	3.62415E-05	-6.00757E-04
9	1.20157E-04	-3.54322E-04	-2.08613E-04	3.76813E-05	-5.87200E-05	5.23692E-05	-4.11447E-04
10	8.91772E-05	-1.93352E-04	-1.43227E-04	-1.10155E-04	-6.84143E-05	1.14799E-04	-3.11171E-04
11	-1.24641E-05	-8.60742E-05	-2.50084E-05	3.97423E-05	3.45644E-06	5.83795E-06	-7.45099E-05
12	0.0	-4.82177E-05	-6.57587E-05	-3.24131E-05	5.10721E-05	-1.15392E-04	-2.10709E-04
13	0.0	3.10503E-05	-1.04791E-04	1.79378E-05	-2.19225E-05	-2.91959E-05	-1.06921E-04
14	2.30336E-05	-7.37695E-05	-2.48338E-05	2.84822E-06	-1.92048E-05	1.92048E-05	-7.27215E-05
15	7.49315E-06	-2.09860E-05	-1.50048E-05	-7.71403E-05	1.80219E-05	0.0	-8.76161E-05
16	1.39259E-05	-9.79891E-05	-7.86923E-05	-9.97812E-05	-5.07394E-06	1.90619E-05	-2.48549E-04
SUM	8.08594E-03	4.52443E-02	2.87606E-02	3.16646E-02	2.94323E-02	3.07957E-02	1.73983E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	1.19286E-06	6.45269E-06	4.28577E-06	5.24474E-06	3.83055E-06	5.71252E-06	4.45866E-06
2	2.37736E-06	1.48546E-05	9.57725E-06	9.61741E-06	8.36905E-06	8.32691E-06	8.84584E-06
3	6.60604E-07	9.47602E-06	5.12240E-06	6.86054E-06	6.57821E-06	5.12977E-06	5.64178E-06
4	2.25958E-06	1.45050E-05	8.39864E-06	8.28666E-06	8.54107E-06	8.60543E-06	8.43549E-06
5	1.73651E-06	8.57459E-06	5.84944E-06	5.78199E-06	4.62090E-06	4.94691E-06	5.24431E-06
6	6.16380E-07	-1.49236E-07	5.78950E-07	7.63813E-07	3.18556E-07	6.21854E-07	4.58585E-07
7	1.19765E-07	-7.96898E-07	-8.83360E-08	-2.21194E-08	-7.21712E-08	-3.00079E-09	-1.42033E-07
8	-1.03135E-08	-3.18593E-07	-1.42707E-07	-1.44546E-07	-1.05492E-07	3.93709E-08	-1.12377E-07
9	1.37132E-07	-4.04375E-07	-2.38082E-07	4.30046E-08	-6.37904E-08	5.68914E-08	-7.69650E-08
10	1.01775E-07	-2.20666E-07	-1.63460E-07	-1.25716E-07	-7.43219E-08	1.24712E-07	-5.82074E-08
11	-1.42248E-08	-9.82337E-08	-2.85413E-08	4.53566E-08	3.75489E-09	6.34206E-09	-1.39378E-08
12	0.0	-5.50294E-08	-7.50483E-08	-3.69921E-08	5.54821E-08	-1.25355E-07	-3.94151E-08
13	0.0	3.54367E-08	-1.19594E-07	2.04719E-08	-2.38155E-08	-3.17170E-08	-2.00006E-08
14	2.62876E-08	-8.41907E-08	-2.83420E-08	3.25057E-09	-2.08631E-08	2.08631E-08	-1.36032E-08
15	8.55169E-09	-2.39507E-08	-1.71245E-08	-8.80377E-08	1.95781E-08	0.0	-1.63894E-08
16	1.58932E-08	-1.11832E-07	-8.98090E-08	-1.13877E-07	-5.51206E-09	2.07078E-08	-4.64933E-08
SUM	9.22815E-06	5.16353E-05	3.28213E-05	3.61359E-05	3.19711E-05	3.34521E-05	3.25452E-05

SUPER 1

SUPER BOX TYPE 2 BOX TYPE 2 CYLI 1 MIXTURE = 1 VOLUME = 4.46948E+03

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		5.33000E-02	0.0	1.17065E-02	1.84002E-02	1.21905E-02	2.27198E-02	1.00003E+00
2	0.0		8.80666E-02	2.72338E-03	3.38570E-02	2.71934E-02	2.36671E-02	3.99701E-02	1.00004E+00
3	0.0		4.53333E-02	8.46088E-03	2.91171E-02	1.28449E-02	1.56174E-02	2.53811E-02	1.00003E+00
4	0.0		4.91333E-02	2.71769E-02	7.16509E-02	9.24883E-03	2.62106E-02	4.09975E-02	1.00005E+00
5	0.0		2.33667E-02	2.54490E-02	9.46652E-02	1.00246E-03	2.33940E-02	2.47100E-02	1.00002E+00
6	0.0		4.06666E-03	4.87872E-03	1.96732E-02	8.76025E-05	6.22623E-03	2.67217E-03	9.99621E-01
7	0.0		0.0	8.76025E-05	1.64633E-03	1.15020E-05	8.31103E-04	-6.78436E-04	9.99999E-01
8	0.0		0.0	1.15020E-05	5.12366E-04	5.67182E-06	5.48777E-04	-5.58780E-04	9.99994E-01
9	0.0		0.0	5.67182E-06	1.52657E-04	0.0	4.24762E-04	-4.30221E-04	9.99999E-01
10	0.0		0.0	0.0	3.33333E-05	0.0	2.48277E-04	-2.57860E-04	9.99995E-01
11	0.0		0.0	0.0	3.33333E-05	0.0	1.68025E-04	-1.56240E-04	9.99998E-01
12	0.0		0.0	0.0	0.0	0.0	1.10057E-04	-1.24361E-04	0.0
13	0.0		0.0	0.0	2.38046E-05	0.0	1.04697E-04	-1.09462E-04	9.99993E-01
14	0.0		0.0	0.0	1.66667E-05	0.0	1.02743E-04	-9.97469E-05	9.99994E-01
15	0.0		0.0	0.0	5.00000E-05	0.0	2.72128E-04	-2.35062E-04	1.00000E+00
16	0.0		0.0	0.0	1.66667E-05	0.0	3.78540E-04	-3.68469E-04	9.99957E-01
SUM	0.0		2.63267E-01	6.87935E-02	2.63155E-01	6.87945E-02	1.10494E-01	1.53432E-01	1.00003E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	0.	0.0	0.	0.0	1.	1.23343E-05	1402.	3.00890E-02
2	19.	8.80369E-05	0.	0.0	11.	1.32208E-04	3019.	6.08664E-02
3	33.	1.60745E-04	0.	0.0	18.	2.11771E-04	2269.	4.16610E-02
4	206.	1.00276E-03	0.	0.0	98.	1.15365E-03	5071.	7.92642E-02
5	462.	2.25697E-03	0.	0.0	217.	2.54907E-03	6815.	9.20509E-02
6	208.	9.77501E-04	0.	0.0	85.	1.01434E-03	1525.	1.83443E-02
7	41.	1.88201E-04	0.	0.0	22.	2.64767E-04	122.	1.29117E-03
8	26.	1.02808E-04	0.	0.0	7.	8.69749E-05	40.	4.01372E-04
9	25.	7.57841E-05	0.	0.0	5.	6.46542E-05	9.	6.93234E-05
10	14.	3.53981E-05	0.	0.0	2.	2.58146E-05	0.	0.0
11	9.	1.66247E-05	0.	0.0	2.	2.84097E-05	0.	0.0
12	5.	1.43036E-05	0.	0.0	0.	0.0	0.	0.0
13	6.	1.86369E-05	0.	0.0	1.	1.38721E-05	1.	7.13797E-06
14	6.	1.17502E-05	0.	0.0	1.	1.47458E-05	0.	0.0
15	12.	9.66223E-06	0.	0.0	3.	4.67280E-05	0.	0.0
16	21.	6.12668E-06	0.	0.0	1.	1.61971E-05	0.	0.0
SUM	1093.	4.96529E-03	0.	0.0	474.	5.63551E-03	20273.	3.24045E-01

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	9.52404E-06	2.38356E-02	2.27198E-02	3.45213E-02	4.86832E-05	3.45
2	1.67554E-05	4.72892E-02	3.99701E-02	5.80992E-02	8.70382E-05	2.98
3	1.06397E-05	3.01605E-02	2.53811E-02	3.60942E-02	5.74778E-05	3.29
4	1.71860E-05	4.50960E-02	4.09975E-02	5.76324E-02	9.55224E-05	2.88
5	1.03583E-05	2.80360E-02	2.47100E-02	4.92409E-02	6.97935E-05	3.21
6	1.12016E-06	2.45156E-03	2.67217E-03	1.19829E-02	1.03057E-05	5.40
7	-2.84398E-07	-7.59298E-04	-6.78436E-04	1.54075E-03	7.19814E-07	17.55
8	-2.34239E-07	-6.00757E-04	-5.58780E-04	9.44849E-04	2.01903E-07	25.87
9	-1.80347E-07	-4.11447E-04	-4.30221E-04	6.95153E-04	7.07076E-08	28.97
10	-1.08094E-07	-3.11171E-04	-2.57860E-04	3.75165E-04	3.10252E-08	44.46
11	-6.54953E-08	-7.45099E-05	-1.56240E-04	2.16290E-04	1.14546E-08	47.12
12	-5.21316E-08	-2.10709E-04	-1.24361E-04	1.10936E-04	5.84413E-09	66.09
13	-4.58859E-08	-1.06921E-04	-1.09462E-04	1.97167E-04	1.33715E-08	54.14
14	-4.18136E-08	-7.27214E-05	-9.97469E-05	2.20145E-04	4.05567E-09	48.06
15	-9.85371E-08	-8.76161E-05	-2.35062E-04	5.50456E-04	6.80355E-09	41.73
16	-1.54461E-07	-2.48549E-04	-3.68469E-04	7.82999E-04	2.38074E-09	27.62
SUM	6.43181E-05	1.73985E-01	1.53432E-01	2.53204E-01	3.69890E-04	2.08

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	1.54804E-02	2.72936E-03	4.51002E-03	0.0	0.0	0.0	2.27198E-02
2	2.81889E-02	6.24525E-03	5.53597E-03	0.0	0.0	0.0	3.99701E-02
3	1.76812E-02	3.86902E-03	3.83085E-03	0.0	0.0	0.0	2.53811E-02
4	2.95097E-02	6.42486E-03	5.06296E-03	0.0	0.0	0.0	4.09975E-02
5	1.71185E-02	3.52779E-03	4.06374E-03	0.0	0.0	0.0	2.47100E-02
6	1.64627E-03	6.06802E-04	4.19092E-04	0.0	0.0	0.0	2.67217E-03
7	-4.08386E-04	-1.82464E-04	-8.75864E-05	0.0	0.0	0.0	-6.78436E-04
8	-3.63347E-04	-1.07887E-04	-8.75466E-05	0.0	0.0	0.0	-5.58780E-04
9	-3.62593E-04	8.76158E-06	-7.63891E-05	0.0	0.0	0.0	-4.30221E-04
10	-1.79634E-04	-4.32775E-05	-3.49495E-05	0.0	0.0	0.0	-2.57860E-04
11	-1.23702E-04	-2.37239E-05	-8.81449E-06	0.0	0.0	0.0	-1.56240E-04
12	-9.92225E-05	-2.51382E-05	0.0	0.0	0.0	0.0	-1.24361E-04
13	-6.37748E-05	-4.56867E-05	0.0	0.0	0.0	0.0	-1.09462E-04
14	-8.86498E-05	-1.10971E-05	0.0	0.0	0.0	0.0	-9.97469E-05
15	-2.22572E-04	-1.24897E-05	0.0	0.0	0.0	0.0	-2.35062E-04
16	-3.16841E-04	-2.34468E-05	-2.81815E-05	0.0	0.0	0.0	-3.68469E-04
SUM	1.07396E-01	2.29366E-02	2.30992E-02	0.0	0.0	0.0	1.53432E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	9.95403E-06	6.57365E-06	1.08624E-05	0.0	0.0	0.0	9.52404E-06
2	1.81258E-05	1.50416E-05	1.33334E-05	0.0	0.0	0.0	1.67554E-05
3	1.13693E-05	9.31855E-06	9.22661E-06	0.0	0.0	0.0	1.06397E-05
4	1.89769E-05	1.54743E-05	1.21941E-05	0.0	0.0	0.0	1.71860E-05
5	1.10083E-05	8.49673E-06	9.78759E-06	0.0	0.0	0.0	1.03583E-05
6	1.05861E-06	1.46152E-06	1.00941E-06	0.0	0.0	0.0	1.12016E-06
7	-2.62602E-07	-4.39475E-07	-2.10957E-07	0.0	0.0	0.0	-2.84398E-07
8	-2.33641E-07	-2.59852E-07	-2.10861E-07	0.0	0.0	0.0	-2.34239E-07
9	-2.33157E-07	2.11028E-08	-1.83987E-07	0.0	0.0	0.0	-1.80347E-07
10	-1.15509E-07	-1.04236E-07	-8.41779E-08	0.0	0.0	0.0	-1.08094E-07
11	-7.95436E-08	-5.71403E-08	-2.12302E-08	0.0	0.0	0.0	-6.54953E-08
12	-6.38028E-08	-6.05468E-08	0.0	0.0	0.0	0.0	-5.21316E-08
13	-4.10090E-08	-1.10039E-07	0.0	0.0	0.0	0.0	-4.58859E-08
14	-5.70044E-08	-2.67280E-08	0.0	0.0	0.0	0.0	-4.18136E-08
15	-1.43120E-07	-3.00822E-08	0.0	0.0	0.0	0.0	-9.85371E-08
16	-2.03737E-07	-5.64730E-08	-6.78768E-08	0.0	0.0	0.0	-1.54461E-07
SUM	6.90596E-05	5.52428E-05	5.56343E-05	0.0	0.0	0.0	6.43181E-05

SUPER 1

SUPER BOX TYPE 2 BOX TYPE 2 CUBO 2 MIXTURE = 0 VOLUME = 1.22124E+03

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	0.0	0.0	0.0	3.61353E-07	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	1.15857E-06	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	8.38190E-07	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	4.81680E-06	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	3.31923E-06	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	4.09782E-08	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	-1.45519E-11	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	-1.45519E-11	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	-2.91038E-11	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	-1.45519E-11	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	4.36557E-11	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
SUM	0.0	0.0	0.0	0.0	0.0	0.0	1.05358E-05	0.0

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
2	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
3	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
4	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
5	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
6	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
7	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
8	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
9	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
10	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
11	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
12	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
13	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
14	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
15	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
16	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
SUM	0.	0.0		0.	0.0		0.	0.0		0.	0.0	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	7.48028E-06	2.27198E-02	2.27201E-02	0.0	2.85760E-05	5.06
2	1.31600E-05	3.99701E-02	3.99713E-02	0.0	5.06150E-05	3.97
3	8.35666E-06	2.53811E-02	2.53820E-02	0.0	3.32551E-05	4.83
4	1.34994E-05	4.09975E-02	4.10023E-02	0.0	5.05681E-05	3.67
5	8.13651E-06	2.47100E-02	2.47133E-02	0.0	3.84585E-05	4.23
6	8.79787E-07	2.67217E-03	2.67221E-03	0.0	7.46132E-06	8.20
7	-2.23366E-07	-6.78436E-04	-6.78436E-04	0.0	1.43990E-06	20.74
8	-1.83971E-07	-5.58780E-04	-5.58780E-04	0.0	7.76166E-07	21.48
9	-1.41644E-07	-4.30221E-04	-4.30220E-04	0.0	7.98323E-07	31.74
10	-8.48970E-08	-2.57860E-04	-2.57860E-04	0.0	3.58319E-07	35.47
11	-5.14399E-08	-1.56240E-04	-1.56240E-04	0.0	1.87611E-07	52.45
12	-4.09440E-08	-1.24361E-04	-1.24361E-04	0.0	8.85337E-08	79.11
13	-3.60387E-08	-1.09462E-04	-1.09462E-04	0.0	6.97291E-08	56.39
14	-3.28403E-08	-9.97469E-05	-9.97469E-05	0.0	1.30469E-07	47.57
15	-7.73908E-08	-2.35062E-04	-2.35062E-04	0.0	2.86021E-07	56.61
16	-1.21313E-07	-3.68469E-04	-3.68468E-04	0.0	3.42971E-07	34.09
SUM	5.05188E-05	1.53432E-01	1.53442E-01	0.0	2.13412E-04	2.19

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	5.95160E-03	1.30809E-03	4.58640E-03	2.38836E-03	3.13861E-03	5.34706E-03	2.27201E-02
2	9.99586E-03	2.95796E-03	7.70593E-03	5.65518E-03	7.29258E-03	6.36380E-03	3.99713E-02
3	6.00383E-03	2.20361E-03	4.80461E-03	4.06748E-03	4.22098E-03	4.08145E-03	2.53820E-02
4	1.08615E-02	2.99507E-03	6.95301E-03	6.62176E-03	7.38512E-03	6.18589E-03	4.10023E-02
5	6.36616E-03	1.47858E-03	4.76117E-03	3.51185E-03	3.77760E-03	4.81797E-03	2.47133E-02
6	7.70860E-04	2.76144E-04	3.50498E-04	4.68935E-04	5.29604E-04	2.76167E-04	2.67221E-03
7	2.71429E-05	-5.93613E-05	-2.32142E-04	-6.56879E-05	-2.58226E-04	-9.01619E-05	-6.78436E-04
8	8.20478E-06	-4.84249E-05	-1.69191E-04	-1.26390E-04	-1.06738E-04	-1.16241E-04	-5.58780E-04
9	-2.05021E-04	-1.34780E-04	-2.24942E-05	8.62460E-06	1.79613E-05	-9.45118E-05	-4.30220E-04
10	-8.59382E-05	-4.12418E-05	-6.33829E-05	-1.33505E-05	-1.89977E-05	-3.49495E-05	-2.57860E-04
11	-8.03858E-05	0.0	-2.14757E-05	-2.18402E-05	-2.37239E-05	-8.81449E-06	-1.56240E-04
12	-3.26523E-05	0.0	-5.85829E-05	-3.33108E-05	1.85267E-07	0.0	-1.24361E-04
13	-3.15061E-05	0.0	0.0	-1.30359E-05	-4.56867E-05	-1.92329E-05	-1.09462E-04
14	0.0	-4.19612E-05	-1.02316E-05	-2.39294E-05	-2.36248E-05	0.0	-9.97469E-05
15	-1.35270E-04	0.0	0.0	-5.43220E-05	-4.54699E-05	0.0	-2.35062E-04
16	-1.32629E-04	-4.55914E-05	-9.13210E-05	-7.66508E-05	-4.22537E-06	-1.80512E-05	-3.68468E-04
SUM	3.92817E-02	1.08481E-02	2.84928E-02	2.22937E-02	2.58359E-02	2.66904E-02	1.53442E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	1.20229E-05	2.64237E-06	9.26500E-06	4.82470E-06	5.93719E-06	1.01148E-05	7.48028E-06
2	2.01929E-05	5.97520E-06	1.55668E-05	1.14240E-05	1.37951E-05	1.20381E-05	1.31600E-05
3	1.21284E-05	4.45152E-06	9.70576E-06	8.21672E-06	7.98467E-06	7.72068E-06	8.35666E-06
4	2.19422E-05	6.05016E-06	1.40456E-05	1.33765E-05	1.39700E-05	1.17014E-05	1.34994E-05
5	1.28603E-05	2.98694E-06	9.61793E-06	7.09417E-06	7.14585E-06	9.11385E-06	8.13651E-06
6	1.55725E-06	5.57844E-07	7.08049E-07	9.47307E-07	1.00184E-06	5.22416E-07	8.79787E-07
7	5.48322E-08	-1.19917E-07	-4.68957E-07	-1.32698E-07	-4.88480E-07	-1.70557E-07	-2.23366E-07
8	1.65746E-08	-9.78247E-08	-3.41788E-07	-2.55324E-07	-2.01914E-07	-2.19890E-07	-1.83971E-07
9	-4.14168E-07	-2.72273E-07	-4.54413E-08	1.74228E-08	3.39770E-08	-1.78786E-07	-1.41644E-07
10	-1.73606E-07	-8.33138E-08	-1.28042E-07	-2.69697E-08	-3.59375E-08	-6.61132E-08	-8.48970E-08
11	-1.62390E-07	0.0	-4.33838E-08	-4.41200E-08	-4.48779E-08	-1.66742E-08	-5.14399E-08
12	-6.59618E-08	0.0	-1.18345E-07	-6.72922E-08	3.50464E-10	0.0	-4.09440E-08
13	-6.36464E-08	0.0	0.0	-2.63342E-08	-8.64244E-08	-3.63824E-08	-3.60387E-08
14	0.0	-8.47672E-08	-2.06691E-08	-4.83404E-08	-4.46905E-08	0.0	-3.28403E-08
15	-2.73263E-07	0.0	0.0	-1.09738E-07	-8.60143E-08	0.0	-7.73908E-08
16	-2.67928E-07	-9.21004E-08	-1.84480E-07	-1.54845E-07	-7.99302E-09	-3.41470E-08	-1.21313E-07
SUM	7.93544E-05	2.19138E-05	5.75579E-05	4.50350E-05	4.88725E-05	5.04887E-05	5.05188E-05

SUPER 1

SUPER BOX TYPE 2 BOX TYPE 2 CUBO 3 MIXTURE = 0 VOLUME = 7.60152E+03

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	-7.07805E-08	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	1.49012E-08	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	-5.06639E-07	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	4.84288E-08	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	-2.88710E-08	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	4.65661E-10	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	6.98492E-10	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	4.36557E-11	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	1.45519E-11	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	7.27596E-11	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	-2.32831E-10	0.0
SUM	0.0	0.0	0.0	0.0	0.0	0.0	-5.41666E-07	0.0

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
2	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
3	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
4	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
5	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
6	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
7	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
8	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
9	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
10	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
11	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
12	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
13	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
14	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
15	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
16	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
SUM	0.	0.0		0.	0.0		0.	0.0		0.	0.0	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	4.25001E-06	2.27201E-02	2.27201E-02	0.0	2.40171E-05	3.94
2	7.47699E-06	3.99713E-02	3.99712E-02	0.0	4.38208E-05	3.15
3	4.74793E-06	2.53820E-02	2.53820E-02	0.0	2.91414E-05	3.52
4	7.66977E-06	4.10023E-02	4.10018E-02	0.0	4.52617E-05	2.95
5	4.62286E-06	2.47133E-02	2.47134E-02	0.0	3.26570E-05	2.82
6	4.99856E-07	2.67221E-03	2.67218E-03	0.0	6.84674E-06	6.40
7	-1.26908E-07	-6.78436E-04	-6.78436E-04	0.0	1.75425E-06	14.49
8	-1.04525E-07	-5.58780E-04	-5.58779E-04	0.0	1.07553E-06	15.73
9	-8.04767E-08	-4.30220E-04	-4.30220E-04	0.0	8.44682E-07	20.63
10	-4.82351E-08	-2.57860E-04	-2.57860E-04	0.0	3.20378E-07	27.21
11	-2.92261E-08	-1.56240E-04	-1.56240E-04	0.0	1.85272E-07	38.07
12	-2.32628E-08	-1.24361E-04	-1.24361E-04	0.0	1.10887E-07	59.28
13	-2.04758E-08	-1.09462E-04	-1.09462E-04	0.0	6.66898E-08	37.47
14	-1.86586E-08	-9.97469E-05	-9.97469E-05	0.0	9.99565E-08	43.72
15	-4.39705E-08	-2.35062E-04	-2.35062E-04	0.0	2.57539E-07	40.71
16	-6.89255E-08	-3.68468E-04	-3.68469E-04	0.0	2.75266E-07	20.40
SUM	2.87026E-05	1.53442E-01	1.53442E-01	0.0	1.86735E-04	1.94

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	7.85511E-03	-1.04522E-03	5.08823E-03	2.21988E-03	2.80141E-03	5.80071E-03	2.27201E-02
2	1.40969E-02	-2.08316E-03	7.85561E-03	6.70692E-03	7.02838E-03	6.36663E-03	3.99712E-02
3	8.58939E-03	-5.78784E-04	4.52443E-03	4.47802E-03	4.17324E-03	4.19569E-03	2.53820E-02
4	1.48392E-02	-1.98008E-03	7.71706E-03	6.63097E-03	7.50118E-03	6.29352E-03	4.10018E-02
5	8.69346E-03	-1.52139E-03	4.93375E-03	4.11223E-03	3.28081E-03	5.21450E-03	2.47134E-02
6	1.02399E-03	-5.40092E-04	6.18427E-04	7.69625E-04	5.90802E-04	2.09430E-04	2.67218E-03
7	-8.58230E-05	-1.04940E-04	-8.97549E-05	4.72122E-05	-1.60534E-04	-2.84596E-04	-6.78436E-04
8	-1.25484E-04	9.03689E-06	-5.86790E-05	-1.26478E-04	-1.14651E-04	-1.42524E-04	-5.58779E-04
9	-2.36304E-04	-1.20157E-04	-8.08485E-06	5.07597E-05	5.71555E-05	-1.73589E-04	-4.30220E-04
10	-3.47182E-06	-8.91772E-05	-1.07523E-04	-5.33987E-05	-6.20541E-05	5.77639E-05	-2.57860E-04
11	-2.23681E-04	1.24641E-05	1.51944E-05	-2.43770E-05	5.99136E-05	4.24579E-06	-1.56240E-04
12	-8.87712E-05	0.0	-7.24306E-05	2.28081E-05	1.40330E-05	0.0	-1.24361E-04
13	-9.00691E-05	0.0	4.55272E-05	-3.16236E-05	-1.54019E-05	-1.78942E-05	-1.09462E-04
14	3.30723E-05	-2.30336E-05	-4.33039E-05	-3.63687E-05	-4.26406E-05	1.25277E-05	-9.97469E-05
15	-1.58358E-04	-7.49315E-06	-9.00387E-08	-6.33617E-05	-1.25410E-05	6.78233E-06	-2.35062E-04
16	-2.07896E-04	-1.39259E-05	-6.97227E-05	-1.25287E-04	4.65002E-05	1.86302E-06	-3.68469E-04
SUM	5.39112E-02	-8.08594E-03	3.03486E-02	2.45775E-02	2.51456E-02	2.75450E-02	1.53442E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	8.96464E-06	-1.19286E-06	5.80684E-06	2.53336E-06	3.04322E-06	6.30127E-06	4.25001E-06
2	1.60881E-05	-2.37736E-06	8.96494E-06	7.65390E-06	7.63466E-06	6.91588E-06	7.47699E-06
3	9.80260E-06	-6.60604E-07	5.16330E-06	5.11038E-06	4.53332E-06	4.55775E-06	4.74793E-06
4	1.69363E-05	-2.25958E-06	8.80672E-06	7.56728E-06	8.14816E-06	6.83630E-06	7.66977E-06
5	9.92131E-06	-1.73651E-06	5.63038E-06	4.69282E-06	3.56379E-06	5.66432E-06	4.62286E-06
6	1.16866E-06	-6.16380E-07	7.05784E-07	8.78360E-07	6.41813E-07	2.27509E-07	4.99856E-07
7	-9.79471E-08	-1.19765E-07	-1.02434E-07	5.38813E-08	-1.74395E-07	-3.09169E-07	-1.26908E-07
8	-1.43211E-07	1.03135E-08	-6.69688E-08	-1.44346E-07	-1.24551E-07	-1.54830E-07	-1.04525E-07
9	-2.69686E-07	-1.37132E-07	-9.22712E-09	5.79305E-08	6.20909E-08	-1.88578E-07	-8.04767E-08
10	-3.96228E-09	-1.01775E-07	-1.22712E-07	-6.09423E-08	-6.74124E-08	6.27517E-08	-4.82351E-08
11	-2.55280E-07	1.42248E-08	1.73409E-08	-2.78206E-08	6.50871E-08	4.61240E-09	-2.92261E-08
12	-1.01312E-07	0.0	-8.26627E-08	2.60302E-08	1.52448E-08	0.0	-2.32628E-08
13	-1.02793E-07	0.0	5.19587E-08	-3.60910E-08	-1.67318E-08	-1.94393E-08	-2.04758E-08
14	3.77444E-08	-2.62876E-08	-4.94213E-08	-4.15065E-08	-4.63226E-08	1.36094E-08	-1.86586E-08
15	-1.80729E-07	-8.55169E-09	-1.02756E-10	-7.23127E-08	-1.36240E-08	7.36797E-09	-4.39705E-08
16	-2.37265E-07	-1.58932E-08	-7.95723E-08	-1.42986E-07	5.05155E-08	2.02394E-09	-6.89255E-08
SUM	6.15271E-05	-9.22815E-06	3.46341E-05	2.80478E-05	2.73148E-05	2.99213E-05	2.87026E-05

SUPER 1

SUMMARY FOR SUPER BOX TYPE 2 BOX TYPE 2 VOLUME = 1.32922E+04

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		5.33000E-02	0.0	1.17065E-02	1.84002E-02	1.21905E-02	2.27201E-02	1.00003E+00
2	0.0		8.80666E-02	2.72338E-03	3.38570E-02	2.71934E-02	2.36671E-02	3.99712E-02	1.00003E+00
3	0.0		4.53333E-02	8.46088E-03	2.91171E-02	1.28449E-02	1.56174E-02	2.53820E-02	1.00002E+00
4	0.0		4.91333E-02	2.71769E-02	7.16509E-02	9.24883E-03	2.62106E-02	4.10018E-02	9.99998E-01
5	0.0		2.33667E-02	2.54490E-02	9.46652E-02	1.00246E-03	2.33940E-02	2.47134E-02	9.99960E-01
6	0.0		4.06666E-03	4.87872E-03	1.96732E-02	8.76025E-05	6.22623E-03	2.67218E-03	9.99620E-01
7	0.0		0.0	8.76025E-05	1.64633E-03	1.15020E-05	8.31103E-04	-6.78436E-04	9.99997E-01
8	0.0		0.0	1.15020E-05	5.12366E-04	5.67182E-06	5.48777E-04	-5.58779E-04	9.99987E-01
9	0.0		0.0	5.67182E-06	1.52657E-04	0.0	4.24762E-04	-4.30220E-04	9.99996E-01
10	0.0		0.0	0.0	3.33333E-05	0.0	2.48277E-04	-2.57860E-04	9.99986E-01
11	0.0		0.0	0.0	3.33333E-05	0.0	1.68025E-04	-1.56240E-04	9.99999E-01
12	0.0		0.0	0.0	0.0	0.0	1.10057E-04	-1.24361E-04	0.0
13	0.0		0.0	0.0	2.38046E-05	0.0	1.04697E-04	-1.09462E-04	9.99994E-01
14	0.0		0.0	0.0	1.66667E-05	0.0	1.02743E-04	-9.97469E-05	9.99990E-01
15	0.0		0.0	0.0	5.00000E-05	0.0	2.72128E-04	-2.35062E-04	1.00000E+00
16	0.0		0.0	0.0	1.66667E-05	0.0	3.78540E-04	-3.68469E-04	9.99957E-01
SUM	0.0		2.63267E-01	6.87935E-02	2.63155E-01	6.87945E-02	1.10494E-01	1.53442E-01	9.99999E-01

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		1.	1.23343E-05		1402.	3.00890E-02	
2	19.	8.80369E-05		0.	0.0		11.	1.32208E-04		3019.	6.08664E-02	
3	33.	1.60745E-04		0.	0.0		18.	2.11771E-04		2269.	4.16610E-02	
4	206.	1.00276E-03		0.	0.0		98.	1.15365E-03		5071.	7.92642E-02	
5	462.	2.25697E-03		0.	0.0		217.	2.54907E-03		6815.	9.20509E-02	
6	208.	9.77501E-04		0.	0.0		85.	1.01434E-03		1525.	1.83443E-02	
7	41.	1.88201E-04		0.	0.0		22.	2.64767E-04		122.	1.29117E-03	
8	26.	1.02808E-04		0.	0.0		7.	8.69749E-05		40.	4.01372E-04	
9	25.	7.57841E-05		0.	0.0		5.	6.46542E-05		9.	6.93234E-05	
10	14.	3.53981E-05		0.	0.0		2.	2.58146E-05		0.	0.0	
11	9.	1.66247E-05		0.	0.0		2.	2.84097E-05		0.	0.0	
12	5.	1.43036E-05		0.	0.0		0.	0.0		0.	0.0	
13	6.	1.86369E-05		0.	0.0		1.	1.38721E-05		1.	7.13797E-06	
14	6.	1.17502E-05		0.	0.0		1.	1.47458E-05		0.	0.0	
15	12.	9.66223E-06		0.	0.0		3.	4.67280E-05		0.	0.0	
16	21.	6.12668E-06		0.	0.0		1.	1.61971E-05		0.	0.0	
SUM	1093.	4.96529E-03		0.	0.0		474.	5.63551E-03		20273.	3.24045E-01	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	4.25001E-06	0.0	2.27201E-02	3.45213E-02	3.27300E-05	3.27
2	7.47699E-06	0.0	3.99712E-02	5.80992E-02	5.89766E-05	2.82
3	4.74793E-06	0.0	2.53820E-02	3.60942E-02	3.90476E-05	2.98
4	7.66977E-06	0.0	4.10018E-02	5.76324E-02	6.26491E-05	2.70
5	4.62286E-06	0.0	2.47134E-02	4.92409E-02	4.56771E-05	2.75
6	4.99856E-07	0.0	2.67218E-03	1.19829E-02	8.06628E-06	5.20
7	-1.26908E-07	0.0	-6.78436E-04	1.54075E-03	1.37754E-06	13.52
8	-1.04525E-07	0.0	-5.58779E-04	9.44849E-04	7.54271E-07	15.44
9	-8.04767E-08	0.0	-4.30220E-04	6.95153E-04	5.80176E-07	19.96
10	-4.82351E-08	0.0	-2.57860E-04	3.75165E-04	2.26570E-07	25.49
11	-2.92261E-08	0.0	-1.56240E-04	2.16290E-04	1.27041E-07	34.29
12	-2.32628E-08	0.0	-1.24361E-04	1.10936E-04	7.35128E-08	59.42
13	-2.04758E-08	0.0	-1.09462E-04	1.97167E-04	4.90409E-08	36.10
14	-1.86586E-08	0.0	-9.97469E-05	2.20145E-04	7.05134E-08	39.13
15	-4.39705E-08	0.0	-2.35062E-04	5.50456E-04	1.75847E-07	38.44
16	-6.89255E-08	0.0	-3.68469E-04	7.82999E-04	1.89729E-07	20.25
SUM	2.87026E-05	0.0	1.53442E-01	2.53204E-01	2.50771E-04	1.91

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	7.85511E-03	-1.04522E-03	5.08823E-03	2.21988E-03	2.80141E-03	5.80071E-03	2.27201E-02
2	1.40969E-02	-2.08316E-03	7.85561E-03	6.70692E-03	7.02838E-03	6.36663E-03	3.99712E-02
3	8.58939E-03	-5.78784E-04	4.52443E-03	4.47802E-03	4.17324E-03	4.19569E-03	2.53820E-02
4	1.48392E-02	-1.98008E-03	7.71706E-03	6.63097E-03	7.50118E-03	6.29352E-03	4.10018E-02
5	8.69346E-03	-1.52139E-03	4.93375E-03	4.11223E-03	3.28081E-03	5.21450E-03	2.47134E-02
6	1.02399E-03	-5.40092E-04	6.18427E-04	7.69625E-04	5.90802E-04	2.09430E-04	2.67218E-03
7	-8.58230E-05	-1.04940E-04	-8.97549E-05	4.72122E-05	-1.60534E-04	-2.84596E-04	-6.78436E-04
8	-1.25484E-04	9.03689E-06	-5.86790E-05	-1.26478E-04	-1.14651E-04	-1.42524E-04	-5.58779E-04
9	-2.36304E-04	-1.20157E-04	-8.08485E-06	5.07597E-05	5.71555E-05	-1.73589E-04	-4.30220E-04
10	-3.47182E-06	-8.91772E-05	-1.07523E-04	-5.33987E-05	-6.20541E-05	5.77639E-05	-2.57860E-04
11	-2.23681E-04	1.24641E-05	1.51944E-05	-2.43770E-05	5.99136E-05	4.24579E-06	-1.56240E-04
12	-8.87712E-05	0.0	-7.24306E-05	2.28081E-05	1.40330E-05	0.0	-1.24361E-04
13	-9.00691E-05	0.0	4.55272E-05	-3.16236E-05	-1.54019E-05	-1.78942E-05	-1.09462E-04
14	3.30723E-05	-2.30336E-05	-4.33039E-05	-3.63687E-05	-4.26406E-05	1.25277E-05	-9.97469E-05
15	-1.58358E-04	-7.49315E-06	-9.00387E-08	-6.33617E-05	-1.25410E-05	6.78233E-06	-2.35062E-04
16	-2.07896E-04	-1.39259E-05	-6.97227E-05	-1.25287E-04	4.65002E-05	1.86302E-06	-3.68469E-04
SUM	5.39112E-02	-8.08594E-03	3.03486E-02	2.45775E-02	2.51456E-02	2.75450E-02	1.53442E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	8.96464E-06	-1.19286E-06	5.80684E-06	2.53336E-06	3.04322E-06	6.30127E-06	4.25001E-06
2	1.60881E-05	-2.37736E-06	8.96494E-06	7.65390E-06	7.63466E-06	6.91588E-06	7.47699E-06
3	9.80260E-06	-6.60604E-07	5.16330E-06	5.11038E-06	4.53332E-06	4.55775E-06	4.74793E-06
4	1.69363E-05	-2.25958E-06	8.80672E-06	7.56728E-06	8.14816E-06	6.83630E-06	7.66977E-06
5	9.92131E-06	-1.73651E-06	5.63038E-06	4.69282E-06	3.56379E-06	5.66432E-06	4.62286E-06
6	1.16866E-06	-6.16380E-07	7.05784E-07	8.78360E-07	6.41813E-07	2.27509E-07	4.99856E-07
7	-9.79471E-08	-1.19765E-07	-1.02434E-07	5.38813E-08	-1.74395E-07	-3.09169E-07	-1.26908E-07
8	-1.43211E-07	1.03135E-08	-6.69688E-08	-1.44346E-07	-1.24551E-07	-1.54830E-07	-1.04525E-07
9	-2.69686E-07	-1.37132E-07	-9.22712E-09	5.79305E-08	6.20909E-08	-1.88578E-07	-8.04767E-08
10	-3.96228E-09	-1.01775E-07	-1.22712E-07	-6.09423E-08	-6.74124E-08	6.27517E-08	-4.82351E-08
11	-2.55280E-07	1.42248E-08	1.73409E-08	-2.78206E-08	6.50871E-08	4.61240E-09	-2.92261E-08
12	-1.01312E-07	0.0	-8.26627E-08	2.60302E-08	1.52448E-08	0.0	-2.32628E-08
13	-1.02793E-07	0.0	5.19587E-08	-3.60910E-08	-1.67318E-08	-1.94393E-08	-2.04758E-08
14	3.77444E-08	-2.62876E-08	-4.94213E-08	-4.15065E-08	-4.63226E-08	1.36094E-08	-1.86586E-08
15	-1.80729E-07	-8.55169E-09	-1.02756E-10	-7.23127E-08	-1.36240E-08	7.36797E-09	-4.39705E-08
16	-2.37265E-07	-1.58932E-08	-7.95723E-08	-1.42986E-07	5.05155E-08	2.02394E-09	-6.89255E-08
SUM	6.15271E-05	-9.22815E-06	3.46341E-05	2.80478E-05	2.73148E-05	2.99213E-05	2.87026E-05

SUPER 1

SUMMARY FOR SUPER BOX TYPE 2 CELL BDY VOLUME = 2.65845E+04

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		1.13800E-01	0.0	2.56148E-02	4.04956E-02	2.67699E-02	4.65555E-02	1.00003E+00
2	0.0		1.92167E-01	5.77403E-03	7.37592E-02	5.91945E-02	5.15512E-02	8.72587E-02	1.00004E+00
3	0.0		9.62999E-02	1.91554E-02	6.21330E-02	2.69505E-02	3.31317E-02	5.55420E-02	1.00002E+00
4	0.0		1.02300E-01	5.75642E-02	1.49632E-01	1.93134E-02	5.47445E-02	8.60900E-02	1.00004E+00
5	0.0		4.86000E-02	5.46852E-02	1.98779E-01	1.94936E-03	4.91084E-02	5.27482E-02	9.99969E-01
6	0.0		8.16666E-03	1.07227E-02	4.26162E-02	2.76556E-04	1.35298E-02	5.12366E-03	9.99612E-01
7	0.0		0.0	2.76556E-04	3.25810E-03	1.15020E-05	1.71307E-03	-1.43773E-03	9.99993E-01
8	0.0		0.0	1.15020E-05	1.29264E-03	1.45036E-05	1.24880E-03	-1.15954E-03	9.99992E-01
9	0.0		0.0	1.45036E-05	3.57891E-04	0.0	8.76203E-04	-8.41667E-04	9.99995E-01
10	0.0		0.0	0.0	1.00000E-04	0.0	5.70429E-04	-5.69032E-04	9.99995E-01
11	0.0		0.0	0.0	3.33333E-05	0.0	2.34066E-04	-2.30750E-04	9.99992E-01
12	0.0		0.0	0.0	5.00000E-05	0.0	3.40780E-04	-3.35070E-04	9.99989E-01
13	0.0		0.0	0.0	9.75651E-05	0.0	2.46644E-04	-2.16382E-04	9.99996E-01
14	0.0		0.0	0.0	1.66667E-05	0.0	1.66924E-04	-1.72468E-04	9.99987E-01
15	0.0		0.0	0.0	5.00000E-05	0.0	3.55768E-04	-3.22678E-04	9.99996E-01
16	0.0		0.0	0.0	3.33333E-05	0.0	6.39213E-04	-6.17017E-04	9.99959E-01
SUM	0.0		5.61333E-01	1.48204E-01	5.57824E-01	1.48206E-01	2.35227E-01	3.27415E-01	1.00001E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	0.	0.0	0.	0.0	2.	2.46686E-05	3070.	6.60750E-02
2	34.	1.57311E-04	0.	0.0	19.	2.28348E-04	6549.	1.32636E-01
3	71.	3.47164E-04	0.	0.0	44.	5.18416E-04	4846.	8.83481E-02
4	414.	2.01609E-03	0.	0.0	196.	2.30674E-03	10575.	1.65674E-01
5	966.	4.72015E-03	0.	0.0	446.	5.23755E-03	14241.	1.93295E-01
6	453.	2.13574E-03	0.	0.0	181.	2.16823E-03	3358.	3.98764E-02
7	86.	3.89872E-04	0.	0.0	33.	4.00152E-04	251.	2.71960E-03
8	54.	2.12444E-04	0.	0.0	24.	3.04708E-04	94.	9.07146E-04
9	50.	1.56667E-04	0.	0.0	14.	1.76698E-04	16.	1.24558E-04
10	33.	8.26038E-05	0.	0.0	6.	8.40004E-05	0.	0.0
11	15.	2.50941E-05	0.	0.0	2.	2.84097E-05	0.	0.0
12	15.	3.49748E-05	0.	0.0	3.	4.06852E-05	0.	0.0
13	12.	3.52944E-05	0.	0.0	5.	6.55558E-05	2.	1.42318E-05
14	10.	2.02902E-05	0.	0.0	1.	1.47458E-05	0.	0.0
15	19.	1.36377E-05	0.	0.0	3.	4.67280E-05	0.	0.0
16	36.	1.04075E-05	0.	0.0	2.	3.26022E-05	0.	0.0
SUM	2268.	1.03577E-02	0.	0.0	981.	1.16782E-02	43002.	6.89670E-01

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	6.47781E-06	0.0	4.65555E-02	7.58075E-02	0.0	0.0
2	1.21413E-05	0.0	8.72587E-02	1.26551E-01	0.0	0.0
3	7.72819E-06	0.0	5.55420E-02	7.65725E-02	0.0	0.0
4	1.19787E-05	0.0	8.60900E-02	1.20373E-01	0.0	0.0
5	7.33946E-06	0.0	5.27482E-02	1.03366E-01	0.0	0.0
6	7.12914E-07	0.0	5.12366E-03	2.60393E-02	0.0	0.0
7	-2.00048E-07	0.0	-1.43773E-03	3.17580E-03	0.0	0.0
8	-1.61339E-07	0.0	-1.15954E-03	2.15010E-03	0.0	0.0
9	-1.17111E-07	0.0	-8.41667E-04	1.43397E-03	0.0	0.0
10	-7.91759E-08	0.0	-5.69032E-04	8.61961E-04	0.0	0.0
11	-3.21069E-08	0.0	-2.30750E-04	3.01301E-04	0.0	0.0
12	-4.66221E-08	0.0	-3.35070E-04	3.43500E-04	0.0	0.0
13	-3.01078E-08	0.0	-2.16382E-04	4.64485E-04	0.0	0.0
14	-2.39975E-08	0.0	-1.72468E-04	3.57666E-04	0.0	0.0
15	-4.48978E-08	0.0	-3.22678E-04	7.19642E-04	0.0	0.0
16	-8.58527E-08	0.0	-6.17017E-04	1.32219E-03	0.0	0.0
SUM	4.55570E-05	0.0	3.27415E-01	5.39839E-01	0.0	0.0

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	7.85511E-03	5.65413E-03	7.87859E-03	7.78072E-03	6.32768E-03	1.10593E-02	4.65555E-02
2	1.40969E-02	1.30160E-02	1.56528E-02	1.57293E-02	1.47321E-02	1.40316E-02	8.72587E-02
3	8.58939E-03	8.30331E-03	9.99560E-03	9.50710E-03	1.02285E-02	8.91801E-03	5.55420E-02
4	1.48392E-02	1.27091E-02	1.53449E-02	1.36227E-02	1.53615E-02	1.42126E-02	8.60900E-02
5	8.69346E-03	7.51358E-03	9.52239E-03	9.71605E-03	7.53474E-03	9.76798E-03	5.27482E-02
6	1.02399E-03	-1.30764E-04	1.34311E-03	1.22149E-03	8.84027E-04	7.81811E-04	5.12366E-03
7	-8.58230E-05	-6.98256E-04	-9.18771E-05	-4.74488E-05	-2.26968E-04	-2.87357E-04	-1.43773E-03
8	-1.25484E-04	-2.79158E-04	-2.02471E-04	-2.34383E-04	-2.11758E-04	-1.06282E-04	-1.15954E-03
9	-2.36304E-04	-3.54322E-04	-2.19290E-04	9.10325E-05	-1.56445E-06	-1.21220E-04	-8.41667E-04
10	-3.47182E-06	-1.93352E-04	-2.01862E-04	-2.12442E-04	-1.30468E-04	1.72563E-04	-5.69032E-04
11	-2.23681E-04	-8.60742E-05	-7.28034E-06	1.28317E-05	6.33700E-05	1.00837E-05	-2.30750E-04
12	-8.87712E-05	-4.82177E-05	-8.67851E-05	-6.10092E-05	6.51051E-05	-1.15392E-04	-3.35070E-04
13	-9.00691E-05	3.10503E-05	-3.84074E-05	-3.45418E-05	-3.73244E-05	-4.70900E-05	-2.16382E-04
14	3.30723E-05	-7.37695E-05	-4.89329E-05	-5.27253E-05	-6.18454E-05	3.17325E-05	-1.72468E-04
15	-1.58358E-04	-2.09860E-05	-5.48060E-05	-1.00791E-04	5.48090E-06	6.78233E-06	-3.22678E-04
16	-2.07896E-04	-9.79891E-05	-1.13622E-04	-2.59862E-04	4.14264E-05	2.09249E-05	-6.17017E-04
SUM	5.39112E-02	4.52443E-02	5.86720E-02	5.66780E-02	5.45741E-02	5.83361E-02	3.27415E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	8.96464E-06	6.45269E-06	8.99145E-06	8.87974E-06	3.43669E-06	6.00650E-06	6.47781E-06
2	1.60881E-05	1.48546E-05	1.78639E-05	1.79512E-05	8.00103E-06	7.62067E-06	1.21413E-05
3	9.80260E-06	9.47602E-06	1.14075E-05	1.08500E-05	5.55535E-06	4.84331E-06	7.72819E-06
4	1.69363E-05	1.45050E-05	1.75134E-05	1.55477E-05	8.34364E-06	7.71994E-06	1.19787E-05
5	9.92131E-06	8.57459E-06	1.08674E-05	1.10885E-05	4.09184E-06	5.30492E-06	7.33946E-06
6	1.16866E-06	-1.49236E-07	1.53286E-06	1.39407E-06	4.80175E-07	4.24672E-07	7.12914E-07
7	-9.79471E-08	-7.96898E-07	-1.04856E-07	-5.41517E-08	-1.23283E-07	-1.56083E-07	-2.00048E-07
8	-1.43211E-07	-3.18593E-07	-2.31073E-07	-2.67493E-07	-1.15022E-07	-5.77299E-08	-1.61339E-07
9	-2.69686E-07	-4.04375E-07	-2.50267E-07	1.03892E-07	-8.49762E-10	-6.58436E-08	-1.17111E-07
10	-3.96228E-09	-2.20666E-07	-2.30378E-07	-2.42453E-07	-7.08671E-08	9.37320E-08	-7.91759E-08
11	-2.55280E-07	-9.82337E-08	-8.30881E-09	1.46444E-08	3.44210E-08	5.47722E-09	-3.21069E-08
12	-1.01312E-07	-5.50294E-08	-9.90450E-08	-6.96279E-08	3.53634E-08	-6.26778E-08	-4.66221E-08
13	-1.02793E-07	3.54367E-08	-4.38332E-08	-3.94214E-08	-2.02736E-08	-2.55781E-08	-3.01078E-08
14	3.77444E-08	-8.41907E-08	-5.58456E-08	-6.01737E-08	-3.35928E-08	1.72363E-08	-2.39975E-08
15	-1.80729E-07	-2.39507E-08	-6.25483E-08	-1.15029E-07	2.97707E-09	3.68399E-09	-4.48978E-08
16	-2.37265E-07	-1.11832E-07	-1.29673E-07	-2.96571E-07	2.25017E-08	1.13659E-08	-8.58527E-08
SUM	6.15271E-05	5.16353E-05	6.69607E-05	6.46847E-05	2.96400E-05	3.16835E-05	4.55570E-05

SUPER 1

SUPER BOX TYPE 2 CELL BDY CYLI 2 MIXTURE = 0 VOLUME = 2.35207E+04

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	0.0	0.0	0.0	-8.15839E-07	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	-2.32458E-06	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	-2.80514E-06	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	-8.34465E-06	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	-1.06059E-05	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	-1.78814E-07	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	2.81725E-08	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	3.23635E-08	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	2.18861E-08	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	1.62981E-09	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	-4.36557E-11	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	2.32831E-10	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	2.91038E-10	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	1.45519E-10	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	4.65661E-10	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	5.82077E-09	0.0
SUM	0.0	0.0	0.0	0.0	0.0	0.0	-2.49840E-05	0.0

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
2	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
3	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
4	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
5	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
6	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
7	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
8	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
9	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
10	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
11	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
12	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
13	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
14	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
15	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
16	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
SUM	0.	0.0		0.	0.0		0.	0.0		0.	0.0	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	4.15517E-06	4.65555E-02	4.65547E-02	0.0	1.13878E-05	3.01
2	7.78794E-06	8.72587E-02	8.72564E-02	0.0	2.30688E-05	2.61
3	4.95706E-06	5.55420E-02	5.55391E-02	0.0	1.41470E-05	3.00
4	7.68309E-06	8.60900E-02	8.60817E-02	0.0	2.24412E-05	1.95
5	4.70701E-06	5.27482E-02	5.27376E-02	0.0	1.72464E-05	2.66
6	4.57289E-07	5.12366E-03	5.12348E-03	0.0	5.02230E-06	5.63
7	-1.28320E-07	-1.43773E-03	-1.43770E-03	0.0	2.29082E-06	8.27
8	-1.03490E-07	-1.15954E-03	-1.15950E-03	0.0	1.71739E-06	9.81
9	-7.51197E-08	-8.41667E-04	-8.41645E-04	0.0	1.45234E-06	12.09
10	-5.07879E-08	-5.69032E-04	-5.69030E-04	0.0	5.86761E-07	16.44
11	-2.05952E-08	-2.30750E-04	-2.30750E-04	0.0	4.23082E-07	23.01
12	-2.99061E-08	-3.35070E-04	-3.35069E-04	0.0	3.97613E-07	22.71
13	-1.93129E-08	-2.16382E-04	-2.16382E-04	0.0	2.61028E-07	27.92
14	-1.53934E-08	-1.72468E-04	-1.72468E-04	0.0	1.65066E-07	34.74
15	-2.88001E-08	-3.22678E-04	-3.22677E-04	0.0	2.76869E-07	32.83
16	-5.50704E-08	-6.17017E-04	-6.17011E-04	0.0	6.18609E-07	19.87
SUM	2.92206E-05	3.27415E-01	3.27390E-01	0.0	1.01502E-04	1.25

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	2.25900E-02	9.35997E-03	1.46047E-02	0.0	0.0	0.0	4.65547E-02
2	4.70432E-02	1.94717E-02	2.07415E-02	0.0	0.0	0.0	8.72564E-02
3	2.88592E-02	1.40052E-02	1.26747E-02	0.0	0.0	0.0	5.55391E-02
4	4.34428E-02	2.09384E-02	2.17006E-02	0.0	0.0	0.0	8.60817E-02
5	2.80223E-02	1.21036E-02	1.26117E-02	0.0	0.0	0.0	5.27376E-02
6	2.23926E-03	1.39005E-03	1.49418E-03	0.0	0.0	0.0	5.12348E-03
7	-1.02968E-03	-2.20734E-05	-3.85948E-04	0.0	0.0	0.0	-1.43770E-03
8	-1.23777E-03	1.25902E-04	-4.76318E-05	0.0	0.0	0.0	-1.15950E-03
9	-9.22458E-04	-3.71974E-05	1.18010E-04	0.0	0.0	0.0	-8.41645E-04
10	-5.67239E-04	-1.18898E-04	1.17107E-04	0.0	0.0	0.0	-5.69030E-04
11	-3.70410E-04	3.36367E-05	1.06024E-04	0.0	0.0	0.0	-2.30750E-04
12	-4.28319E-04	2.06682E-04	-1.13433E-04	0.0	0.0	0.0	-3.35069E-04
13	-1.36306E-04	-5.12193E-05	-2.88572E-05	0.0	0.0	0.0	-2.16382E-04
14	-1.51898E-04	-1.43823E-04	1.23253E-04	0.0	0.0	0.0	-1.72468E-04
15	-2.55230E-04	-3.09465E-05	-3.65012E-05	0.0	0.0	0.0	-3.22677E-04
16	-7.51975E-04	-2.66434E-05	1.61607E-04	0.0	0.0	0.0	-6.17011E-04
SUM	1.66345E-01	7.72040E-02	8.38406E-02	0.0	0.0	0.0	3.27390E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	5.29715E-06	2.69732E-06	4.20870E-06	0.0	0.0	0.0	4.15517E-06
2	1.10308E-05	5.61106E-06	5.97700E-06	0.0	0.0	0.0	7.78794E-06
3	6.76724E-06	4.03599E-06	3.65244E-06	0.0	0.0	0.0	4.95706E-06
4	1.01875E-05	6.03420E-06	6.25396E-06	0.0	0.0	0.0	7.68309E-06
5	6.57121E-06	3.48787E-06	3.63447E-06	0.0	0.0	0.0	4.70701E-06
6	5.25120E-07	4.00604E-07	4.30615E-07	0.0	0.0	0.0	4.57289E-07
7	-2.41467E-07	-6.36145E-09	-1.11225E-07	0.0	0.0	0.0	-1.28320E-07
8	-2.90266E-07	3.62841E-08	-1.37272E-08	0.0	0.0	0.0	-1.03490E-07
9	-2.16323E-07	-1.07201E-08	3.40099E-08	0.0	0.0	0.0	-7.51197E-08
10	-1.33021E-07	-3.42658E-08	3.37495E-08	0.0	0.0	0.0	-5.07879E-08
11	-8.68637E-08	9.69390E-09	3.05554E-08	0.0	0.0	0.0	-2.05952E-08
12	-1.00444E-07	5.95646E-08	-3.26907E-08	0.0	0.0	0.0	-2.99061E-08
13	-3.19646E-08	-1.47611E-08	-8.31649E-09	0.0	0.0	0.0	-1.93129E-08
14	-3.56212E-08	-4.14489E-08	3.55208E-08	0.0	0.0	0.0	-1.53934E-08
15	-5.98531E-08	-8.91858E-09	-1.05194E-08	0.0	0.0	0.0	-2.88001E-08
16	-1.76343E-07	-7.67850E-09	4.65742E-08	0.0	0.0	0.0	-5.50704E-08
SUM	3.90067E-05	2.22484E-05	2.41610E-05	0.0	0.0	0.0	2.92206E-05

SUPER 1

SUPER BOX TYPE 2 CELL BDY CYLI 3 MIXTURE = 2 VOLUME = 2.15481E+03

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	4.66666E-04	2.31273E-03	0.0	-2.31273E-03	0.0
2	0.0	0.0	1.23940E-03	1.45486E-03	6.44005E-03	0.0	-5.20086E-03	1.00017E+00
3	0.0	0.0	3.55418E-03	1.61584E-03	6.47072E-03	0.0	-2.91684E-03	1.00008E+00
4	0.0	0.0	6.45458E-03	5.07694E-03	1.22321E-02	0.0	-5.77778E-03	1.00005E+00
5	0.0	0.0	1.21302E-02	1.20082E-02	1.14573E-02	0.0	6.72448E-04	1.00003E+00
6	0.0	0.0	1.29981E-02	7.94815E-03	8.16428E-03	0.0	4.83547E-03	9.99874E-01
7	0.0	0.0	9.05020E-03	4.26020E-03	5.90874E-03	0.0	3.14149E-03	9.99997E-01
8	0.0	0.0	6.20764E-03	2.83651E-03	3.78889E-03	3.87784E-07	2.41832E-03	1.00001E+00
9	0.0	0.0	4.20181E-03	1.84895E-03	2.64880E-03	1.05319E-06	1.55194E-03	1.00000E+00
10	0.0	0.0	2.33711E-03	5.97588E-04	1.37164E-03	9.22441E-07	9.64558E-04	9.99997E-01
11	0.0	0.0	1.42150E-03	3.74377E-04	9.10165E-04	1.05337E-06	5.10290E-04	9.99996E-01
12	0.0	0.0	1.50681E-03	3.46811E-04	1.00464E-03	1.97471E-06	5.00199E-04	9.99998E-01
13	0.0	0.0	9.82553E-04	3.83638E-04	8.20364E-04	3.17037E-06	1.59019E-04	9.99999E-01
14	0.0	0.0	7.86448E-04	3.48001E-04	4.58247E-04	2.81279E-06	3.25391E-04	9.99998E-01
15	0.0	0.0	9.42383E-04	2.00310E-03	4.14395E-04	1.16684E-05	5.16324E-04	9.99995E-01
16	0.0	0.0	5.89658E-04	5.79897E-03	0.0	3.60802E-05	5.53573E-04	1.00001E+00
SUM	0.0	0.0	6.44025E-02	4.73688E-02	6.44029E-02	5.91233E-05	-5.91900E-05	9.99994E-01

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		0.	0.0		91.	2.77939E-03	
2	0.	0.0		0.	0.0		0.	0.0		275.	7.89490E-03	
3	0.	0.0		0.	0.0		0.	0.0		313.	8.08656E-03	
4	0.	0.0		0.	0.0		0.	0.0		812.	1.73079E-02	
5	0.	0.0		0.	0.0		0.	0.0		1316.	2.34635E-02	
6	0.	0.0		0.	0.0		0.	0.0		910.	1.61109E-02	
7	0.	0.0		0.	0.0		0.	0.0		600.	1.01686E-02	
8	0.	0.0		0.	0.0		0.	0.0		377.	6.62539E-03	
9	0.	0.0		0.	0.0		0.	0.0		243.	4.49774E-03	
10	0.	0.0		0.	0.0		0.	0.0		108.	1.96922E-03	
11	0.	0.0		0.	0.0		0.	0.0		64.	1.28454E-03	
12	0.	0.0		0.	0.0		0.	0.0		77.	1.35145E-03	
13	0.	0.0		0.	0.0		0.	0.0		64.	1.20400E-03	
14	0.	0.0		0.	0.0		0.	0.0		44.	8.06245E-04	
15	0.	0.0		0.	0.0		0.	0.0		138.	2.41748E-03	
16	0.	0.0		0.	0.0		0.	0.0		373.	5.79897E-03	
SUM	0.	0.0		0.	0.0		0.	0.0		5805.	1.11766E-01	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	3.81619E-06	4.65547E-02	4.42420E-02	0.0	8.33323E-06	3.77
2	7.07788E-06	8.72564E-02	8.20555E-02	0.0	1.66781E-05	2.60
3	4.53906E-06	5.55391E-02	5.26223E-02	0.0	1.05879E-05	3.36
4	6.92679E-06	8.60817E-02	8.03039E-02	0.0	1.73928E-05	2.53
5	4.60700E-06	5.27376E-02	5.34100E-02	0.0	1.65763E-05	3.00
6	8.59032E-07	5.12348E-03	9.95896E-03	0.0	6.60114E-06	5.25
7	1.46964E-07	-1.43770E-03	1.70379E-03	0.0	3.41149E-06	4.66
8	1.08582E-07	-1.15950E-03	1.25881E-03	0.0	2.18053E-06	6.35
9	6.12683E-08	-8.41645E-04	7.10298E-04	0.0	1.39491E-06	8.48
10	3.41171E-08	-5.69030E-04	3.95528E-04	0.0	7.45329E-07	10.78
11	2.41124E-08	-2.30750E-04	2.79540E-04	0.0	4.47205E-07	17.37
12	1.42436E-08	-3.35069E-04	1.65130E-04	0.0	4.42923E-07	12.22
13	-4.94796E-09	-2.16382E-04	-5.73628E-05	0.0	3.62687E-07	18.43
14	1.31907E-08	-1.72468E-04	1.52923E-04	0.0	1.57589E-07	23.44
15	1.67035E-08	-3.22677E-04	1.93647E-04	0.0	4.58498E-07	19.41
16	-5.47206E-09	-6.17011E-04	-6.34389E-05	0.0	6.89695E-07	16.48
SUM	2.82346E-05	3.27390E-01	3.27331E-01	0.0	8.64599E-05	1.39

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	1.97728E-02	9.80056E-03	1.46686E-02	0.0	0.0	0.0	4.42420E-02
2	4.10502E-02	2.00567E-02	2.09487E-02	0.0	0.0	0.0	8.20555E-02
3	2.54697E-02	1.41128E-02	1.30398E-02	0.0	0.0	0.0	5.26223E-02
4	3.67402E-02	2.14402E-02	2.21236E-02	0.0	0.0	0.0	8.03039E-02
5	2.79675E-02	1.23251E-02	1.31175E-02	0.0	0.0	0.0	5.34100E-02
6	6.91439E-03	1.33420E-03	1.71037E-03	0.0	0.0	0.0	9.95896E-03
7	2.05738E-03	-9.64651E-05	-2.57128E-04	0.0	0.0	0.0	1.70379E-03
8	1.13455E-03	3.30846E-04	-2.06587E-04	0.0	0.0	0.0	1.25881E-03
9	5.94457E-04	-8.48686E-05	2.00710E-04	0.0	0.0	0.0	7.10298E-04
10	3.35092E-04	-9.55311E-05	1.55967E-04	0.0	0.0	0.0	3.95528E-04
11	1.15888E-04	9.88521E-05	6.48008E-05	0.0	0.0	0.0	2.79540E-04
12	3.60780E-05	2.36388E-04	-1.07336E-04	0.0	0.0	0.0	1.65130E-04
13	4.97936E-05	-5.12388E-05	-5.59176E-05	0.0	0.0	0.0	-5.73628E-05
14	1.65168E-04	-1.43823E-04	1.31578E-04	0.0	0.0	0.0	1.52923E-04
15	2.61845E-04	-5.03872E-05	-1.78106E-05	0.0	0.0	0.0	1.93647E-04
16	-1.72572E-04	-2.66434E-05	1.35776E-04	0.0	0.0	0.0	-6.34389E-05
SUM	1.62492E-01	7.91863E-02	8.56522E-02	0.0	0.0	0.0	3.27331E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	4.53989E-06	2.70776E-06	4.05257E-06	0.0	0.0	0.0	3.81619E-06
2	9.42488E-06	5.54111E-06	5.78761E-06	0.0	0.0	0.0	7.07788E-06
3	5.84791E-06	3.89912E-06	3.60256E-06	0.0	0.0	0.0	4.53906E-06
4	8.43578E-06	5.92354E-06	6.11252E-06	0.0	0.0	0.0	6.92679E-06
5	6.42172E-06	3.40533E-06	3.62428E-06	0.0	0.0	0.0	4.60700E-06
6	1.58769E-06	3.68653E-07	4.72593E-07	0.0	0.0	0.0	8.59032E-07
7	4.72417E-07	-2.66544E-08	-7.10473E-08	0.0	0.0	0.0	1.46964E-07
8	2.60518E-07	9.14162E-08	-5.70822E-08	0.0	0.0	0.0	1.08582E-07
9	1.36500E-07	-2.34501E-08	5.54584E-08	0.0	0.0	0.0	6.12683E-08
10	7.69442E-08	-2.63963E-08	4.30954E-08	0.0	0.0	0.0	3.41171E-08
11	2.66102E-08	2.73139E-08	1.79052E-08	0.0	0.0	0.0	2.41124E-08
12	8.28431E-09	6.53165E-08	-2.96581E-08	0.0	0.0	0.0	1.42436E-08
13	1.14337E-08	-1.41578E-08	-1.54506E-08	0.0	0.0	0.0	-4.94796E-09
14	3.79260E-08	-3.97398E-08	3.63564E-08	0.0	0.0	0.0	1.31907E-08
15	6.01251E-08	-1.39225E-08	-4.92125E-09	0.0	0.0	0.0	1.67035E-08
16	-3.96261E-08	-7.36189E-09	3.75164E-08	0.0	0.0	0.0	-5.47206E-09
SUM	3.73089E-05	2.18778E-05	2.36642E-05	0.0	0.0	0.0	2.82346E-05

SUPER 1

SUPER BOX TYPE 2 CELL BDY CUBO 4 MIXTURE = 0 VOLUME = 1.70809E+04

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	0.0	0.0	0.0	2.68221E-07	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	4.76837E-07	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	9.08971E-07	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	2.92063E-06	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	2.55182E-06	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	3.72529E-09	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	6.00703E-08	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	3.02680E-08	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	3.02680E-09	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	-2.32831E-10	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	2.18279E-10	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	1.89175E-10	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	7.27596E-11	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	7.27596E-11	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	-9.31323E-10	0.0
SUM	0.0	0.0	0.0	0.0	0.0	0.0	7.22296E-06	0.0

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
2	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
3	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
4	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
5	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
6	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
7	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
8	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
9	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
10	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
11	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
12	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
13	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
14	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
15	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
16	0.	0.0		0.	0.0		0.	0.0		0.	0.0	
SUM	0.	0.0		0.	0.0		0.	0.0		0.	0.0	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	2.89838E-06	4.42420E-02	4.42422E-02	0.0	6.67358E-06	4.03
2	5.37562E-06	8.20555E-02	8.20560E-02	0.0	1.26826E-05	3.39
3	3.44743E-06	5.26223E-02	5.26232E-02	0.0	8.29778E-06	3.94
4	5.26103E-06	8.03039E-02	8.03068E-02	0.0	1.33827E-05	3.25
5	3.49914E-06	5.34100E-02	5.34126E-02	0.0	1.29978E-05	3.54
6	6.52427E-07	9.95896E-03	9.95896E-03	0.0	5.21590E-06	6.75
7	1.11622E-07	1.70379E-03	1.70385E-03	0.0	2.59168E-06	6.15
8	8.24688E-08	1.25881E-03	1.25884E-03	0.0	1.66703E-06	9.30
9	4.65330E-08	7.10298E-04	7.10301E-04	0.0	1.19270E-06	10.99
10	2.59116E-08	3.95528E-04	3.95528E-04	0.0	7.22354E-07	16.09
11	1.83131E-08	2.79540E-04	2.79540E-04	0.0	3.51458E-07	22.43
12	1.08179E-08	1.65130E-04	1.65130E-04	0.0	3.36692E-07	20.69
13	-3.75792E-09	-5.73628E-05	-5.73627E-05	0.0	2.72179E-07	22.02
14	1.00182E-08	1.52923E-04	1.52923E-04	0.0	1.53399E-07	26.12
15	1.26861E-08	1.93647E-04	1.93647E-04	0.0	5.04763E-07	21.49
16	-4.15604E-09	-6.34389E-05	-6.34398E-05	0.0	7.73879E-07	21.82
SUM	2.14444E-05	3.27331E-01	3.27338E-01	0.0	6.78162E-05	1.58

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	5.26923E-03	-3.22912E-05	6.32028E-03	5.66843E-03	1.06202E-02	1.63964E-02	4.42422E-02
2	1.00020E-02	3.25037E-03	1.18017E-02	1.17261E-02	2.21063E-02	2.31695E-02	8.20560E-02
3	5.92232E-03	2.15144E-03	6.88406E-03	7.19254E-03	1.54987E-02	1.49741E-02	5.26232E-02
4	9.13899E-03	1.27745E-03	1.13905E-02	1.00388E-02	2.35870E-02	2.48741E-02	8.03068E-02
5	6.78879E-03	1.34976E-03	8.40689E-03	7.79164E-03	1.40225E-02	1.50530E-02	5.34126E-02
6	1.69715E-03	3.14734E-04	1.82477E-03	2.04833E-03	1.97447E-03	2.09951E-03	9.95896E-03
7	2.84055E-04	-3.17431E-05	7.13648E-04	6.23447E-04	-3.16562E-05	1.46098E-04	1.70385E-03
8	-1.36486E-06	1.30866E-04	2.20486E-04	3.28669E-04	3.72309E-04	2.07880E-04	1.25884E-03
9	-4.29631E-05	3.03737E-05	2.33728E-04	1.32352E-04	-6.72148E-05	4.24026E-04	7.10301E-04
10	3.51561E-05	-6.53068E-05	4.38390E-05	1.58842E-04	-6.80551E-05	2.91053E-04	3.95528E-04
11	-9.56919E-06	6.37378E-05	-3.66674E-05	6.73974E-05	1.25488E-04	6.91539E-05	2.79540E-04
12	-1.07448E-04	1.08289E-05	5.07377E-05	-7.08772E-06	2.06899E-04	1.12008E-05	1.65130E-04
13	-1.34399E-04	4.60309E-05	7.87529E-05	-2.74985E-05	-1.63249E-05	-3.92452E-06	-5.73627E-05
14	1.61217E-04	7.91053E-07	-2.55036E-05	-6.23921E-06	-1.42784E-04	1.65442E-04	1.52923E-04
15	9.52551E-05	2.79968E-05	6.57379E-05	8.60319E-05	-1.05713E-04	2.43391E-05	1.93647E-04
16	-2.66277E-04	1.15952E-05	5.69137E-05	1.54179E-06	-2.70073E-05	1.59794E-04	-6.34398E-05
SUM	3.88322E-02	8.53662E-03	4.80299E-02	4.58232E-02	8.80549E-02	9.80613E-02	3.27338E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	3.72341E-06	-2.28112E-08	4.46609E-06	4.00549E-06	2.21150E-06	3.41396E-06	2.89838E-06
2	7.06776E-06	2.29668E-06	8.33957E-06	8.28603E-06	4.60246E-06	4.82391E-06	5.37562E-06
3	4.18491E-06	1.52033E-06	4.86449E-06	5.08246E-06	3.22720E-06	3.11793E-06	3.44743E-06
4	6.45791E-06	9.02725E-07	8.04911E-06	7.09379E-06	4.91132E-06	5.17925E-06	5.26103E-06
5	4.79710E-06	9.53867E-07	5.94044E-06	5.50569E-06	2.92014E-06	3.13463E-06	3.49914E-06
6	1.19931E-06	2.22405E-07	1.28949E-06	1.44748E-06	4.11171E-07	4.37209E-07	6.52427E-07
7	2.00725E-07	-2.24312E-08	5.04299E-07	4.40558E-07	-6.59226E-09	3.04245E-08	1.11622E-07
8	-9.64439E-10	9.24755E-08	1.55807E-07	2.32254E-07	7.75319E-08	4.32901E-08	8.24688E-08
9	-3.03603E-08	2.14638E-08	1.65165E-07	9.35269E-08	-1.39972E-08	8.83019E-08	4.65330E-08
10	2.48433E-08	-4.61495E-08	3.09791E-08	1.12246E-07	-1.41722E-08	6.06108E-08	2.59116E-08
11	-6.76205E-09	4.50407E-08	-2.59112E-08	4.76267E-08	2.61324E-08	1.44010E-08	1.83131E-08
12	-7.59288E-08	7.65230E-09	3.58540E-08	-5.00854E-09	4.30859E-08	2.33253E-09	1.08179E-08
13	-9.49733E-08	3.25279E-08	5.56511E-08	-1.94319E-08	-3.39961E-09	-8.17266E-10	-3.75792E-09
14	1.13924E-07	5.59003E-10	-1.80222E-08	-4.40898E-09	-2.97342E-08	3.44526E-08	1.00182E-08
15	6.73126E-08	1.97841E-08	4.64540E-08	6.07949E-08	-2.20144E-08	5.06850E-09	1.26861E-08
16	-1.88165E-07	8.19388E-09	4.02183E-08	1.08953E-09	-5.62411E-09	3.32765E-08	-4.15604E-09
SUM	2.74400E-05	6.03231E-06	3.39396E-05	3.23800E-05	1.83349E-05	2.04181E-05	2.14444E-05

SUPER 1

SUMMARY FOR SUPER BOX TYPE 2 VOLUME = 6.93408E+04

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		1.13800E-01	0.0	2.60815E-02	4.28084E-02	2.67699E-02	4.42422E-02	1.00004E+00
2	0.0		1.92167E-01	7.01343E-03	7.52140E-02	6.56345E-02	5.15512E-02	8.20560E-02	1.00005E+00
3	0.0		9.62999E-02	2.27096E-02	6.37488E-02	3.34212E-02	3.31317E-02	5.26232E-02	1.00004E+00
4	0.0		1.02300E-01	6.40187E-02	1.54709E-01	3.15455E-02	5.47445E-02	8.03068E-02	1.00007E+00
5	0.0		4.86000E-02	6.68153E-02	2.10787E-01	1.34067E-02	4.91084E-02	5.34126E-02	1.00004E+00
6	0.0		8.16666E-03	2.37208E-02	5.05644E-02	8.44083E-03	1.35298E-02	9.95896E-03	9.99717E-01
7	0.0		0.0	9.32676E-03	7.51830E-03	5.92024E-03	1.71307E-03	1.70385E-03	9.99987E-01
8	0.0		0.0	6.21914E-03	4.12915E-03	3.80340E-03	1.24919E-03	1.25884E-03	9.99996E-01
9	0.0		0.0	4.21632E-03	2.20684E-03	2.64880E-03	8.77256E-04	7.10301E-04	9.99998E-01
10	0.0		0.0	2.33711E-03	6.97588E-04	1.37164E-03	5.71351E-04	3.95528E-04	9.99996E-01
11	0.0		0.0	1.42150E-03	4.07710E-04	9.10165E-04	2.35119E-04	2.79540E-04	9.99996E-01
12	0.0		0.0	1.50681E-03	3.96811E-04	1.00464E-03	3.42755E-04	1.65130E-04	9.99997E-01
13	0.0		0.0	9.82553E-04	4.81203E-04	8.20364E-04	2.49814E-04	-5.73627E-05	9.99998E-01
14	0.0		0.0	7.86448E-04	3.64667E-04	4.58247E-04	1.69737E-04	1.52923E-04	9.99997E-01
15	0.0		0.0	9.42383E-04	2.05310E-03	4.14395E-04	3.67437E-04	1.93647E-04	9.99995E-01
16	0.0		0.0	5.89658E-04	5.83230E-03	0.0	6.75293E-04	-6.34398E-05	9.99998E-01
SUM	0.0		5.61333E-01	2.12606E-01	6.05193E-01	2.12609E-01	2.35286E-01	3.27338E-01	1.00003E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	0.	0.0	0.	0.0	2.	2.46686E-05	3161.	6.88544E-02
2	34.	1.57311E-04	0.	0.0	19.	2.28348E-04	6824.	1.40531E-01
3	71.	3.47164E-04	0.	0.0	44.	5.18416E-04	5159.	9.64346E-02
4	414.	2.01609E-03	0.	0.0	196.	2.30674E-03	11387.	1.82982E-01
5	966.	4.72015E-03	0.	0.0	446.	5.23755E-03	15557.	2.16758E-01
6	453.	2.13574E-03	0.	0.0	181.	2.16823E-03	4268.	5.59873E-02
7	86.	3.89872E-04	0.	0.0	33.	4.00152E-04	851.	1.28882E-02
8	54.	2.12444E-04	0.	0.0	24.	3.04708E-04	471.	7.53254E-03
9	50.	1.56667E-04	0.	0.0	14.	1.76698E-04	259.	4.62230E-03
10	33.	8.26038E-05	0.	0.0	6.	8.40004E-05	108.	1.96922E-03
11	15.	2.50941E-05	0.	0.0	2.	2.84097E-05	64.	1.28454E-03
12	15.	3.49748E-05	0.	0.0	3.	4.06852E-05	77.	1.35145E-03
13	12.	3.52944E-05	0.	0.0	5.	6.55558E-05	66.	1.21823E-03
14	10.	2.02902E-05	0.	0.0	1.	1.47458E-05	44.	8.06245E-04
15	19.	1.36377E-05	0.	0.0	3.	4.67280E-05	138.	2.41748E-03
16	36.	1.04075E-05	0.	0.0	2.	3.26022E-05	373.	5.79897E-03
SUM	2268.	1.03577E-02	0.	0.0	981.	1.16782E-02	48807.	8.01436E-01

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	2.89838E-06	0.0	4.42422E-02	7.58075E-02	1.89707E-05	2.28
2	5.37562E-06	0.0	8.20560E-02	1.26551E-01	3.59080E-05	1.78
3	3.44743E-06	0.0	5.26232E-02	7.65725E-02	2.30737E-05	2.12
4	5.26103E-06	0.0	8.03068E-02	1.20373E-01	3.68629E-05	1.68
5	3.49914E-06	0.0	5.34126E-02	1.03366E-01	2.80119E-05	1.72
6	6.52427E-07	0.0	9.95896E-03	2.60393E-02	6.37104E-06	3.82
7	1.11622E-07	0.0	1.70385E-03	3.17580E-03	2.07442E-06	5.46
8	8.24688E-08	0.0	1.25884E-03	2.15010E-03	1.34626E-06	7.11
9	4.65330E-08	0.0	7.10301E-04	1.43397E-03	1.05776E-06	9.20
10	2.59116E-08	0.0	3.95528E-04	8.61961E-04	4.94643E-07	11.89
11	1.83131E-08	0.0	2.79540E-04	3.01301E-04	2.83679E-07	18.14
12	1.08179E-08	0.0	1.65130E-04	3.43500E-04	2.78975E-07	15.99
13	-3.75792E-09	0.0	-5.73627E-05	4.64485E-04	2.04790E-07	19.77
14	1.00182E-08	0.0	1.52923E-04	3.57666E-04	1.22290E-07	21.95
15	1.26861E-08	0.0	1.93647E-04	7.19642E-04	2.78433E-07	17.59
16	-4.15604E-09	0.0	-6.34398E-05	1.32219E-03	5.28115E-07	15.85
SUM	2.14444E-05	0.0	3.27338E-01	5.39839E-01	1.55867E-04	1.05

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	5.26923E-03	-3.22912E-05	6.32028E-03	5.66843E-03	1.06202E-02	1.63964E-02	4.42422E-02
2	1.00020E-02	3.25037E-03	1.18017E-02	1.17261E-02	2.21063E-02	2.31695E-02	8.20560E-02
3	5.92232E-03	2.15144E-03	6.88406E-03	7.19254E-03	1.54987E-02	1.49741E-02	5.26232E-02
4	9.13899E-03	1.27745E-03	1.13905E-02	1.00388E-02	2.35870E-02	2.48741E-02	8.03068E-02
5	6.78879E-03	1.34976E-03	8.40689E-03	7.79164E-03	1.40225E-02	1.50530E-02	5.34126E-02
6	1.69715E-03	3.14734E-04	1.82477E-03	2.04833E-03	1.97447E-03	2.09951E-03	9.95896E-03
7	2.84055E-04	-3.17431E-05	7.13648E-04	6.23447E-04	-3.16562E-05	1.46098E-04	1.70385E-03
8	-1.36486E-06	1.30866E-04	2.20486E-04	3.28669E-04	3.72309E-04	2.07880E-04	1.25884E-03
9	-4.29631E-05	3.03737E-05	2.33728E-04	1.32352E-04	-6.72148E-05	4.24026E-04	7.10301E-04
10	3.51561E-05	-6.53068E-05	4.38390E-05	1.58842E-04	-6.80551E-05	2.91053E-04	3.95528E-04
11	-9.56919E-06	6.37378E-05	-3.66674E-05	6.73974E-05	1.25488E-04	6.91539E-05	2.79540E-04
12	-1.07448E-04	1.08289E-05	5.07377E-05	-7.08772E-06	2.06899E-04	1.12008E-05	1.65130E-04
13	-1.34399E-04	4.60309E-05	7.87529E-05	-2.74985E-05	-1.63249E-05	-3.92452E-06	-5.73627E-05
14	1.61217E-04	7.91053E-07	-2.55036E-05	-6.23921E-06	-1.42784E-04	1.65442E-04	1.52923E-04
15	9.52551E-05	2.79968E-05	6.57379E-05	8.60319E-05	-1.05713E-04	2.43391E-05	1.93647E-04
16	-2.66277E-04	1.15952E-05	5.69137E-05	1.54179E-06	-2.70073E-05	1.59794E-04	-6.34398E-05
SUM	3.88322E-02	8.53662E-03	4.80299E-02	4.58232E-02	8.80549E-02	9.80613E-02	3.27338E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	3.72341E-06	-2.28112E-08	4.46609E-06	4.00549E-06	2.21150E-06	3.41396E-06	2.89838E-06
2	7.06776E-06	2.29668E-06	8.33957E-06	8.28603E-06	4.60246E-06	4.82391E-06	5.37562E-06
3	4.18491E-06	1.52033E-06	4.86449E-06	5.08246E-06	3.22720E-06	3.11793E-06	3.44743E-06
4	6.45791E-06	9.02725E-07	8.04911E-06	7.09379E-06	4.91132E-06	5.17925E-06	5.26103E-06
5	4.79710E-06	9.53867E-07	5.94044E-06	5.50569E-06	2.92014E-06	3.13463E-06	3.49914E-06
6	1.19931E-06	2.22405E-07	1.28949E-06	1.44748E-06	4.11171E-07	4.37209E-07	6.52427E-07
7	2.00725E-07	-2.24312E-08	5.04299E-07	4.40558E-07	-6.59226E-09	3.04245E-08	1.11622E-07
8	-9.64439E-10	9.24755E-08	1.55807E-07	2.32254E-07	7.75319E-08	4.32901E-08	8.24688E-08
9	-3.03603E-08	2.14638E-08	1.65165E-07	9.35269E-08	-1.39972E-08	8.83019E-08	4.65330E-08
10	2.48433E-08	-4.61495E-08	3.09791E-08	1.12246E-07	-1.41722E-08	6.06108E-08	2.59116E-08
11	-6.76205E-09	4.50407E-08	-2.59112E-08	4.76267E-08	2.61324E-08	1.44010E-08	1.83131E-08
12	-7.59288E-08	7.65230E-09	3.58540E-08	-5.00854E-09	4.30859E-08	2.33253E-09	1.08179E-08
13	-9.49733E-08	3.25279E-08	5.56511E-08	-1.94319E-08	-3.39961E-09	-8.17266E-10	-3.75792E-09
14	1.13924E-07	5.59003E-10	-1.80222E-08	-4.40898E-09	-2.97342E-08	3.44526E-08	1.00182E-08
15	6.73126E-08	1.97841E-08	4.64540E-08	6.07949E-08	-2.20144E-08	5.06850E-09	1.26861E-08
16	-1.88165E-07	8.19388E-09	4.02183E-08	1.08953E-09	-5.62411E-09	3.32765E-08	-4.15604E-09
SUM	2.74400E-05	6.03231E-06	3.39396E-05	3.23800E-05	1.83349E-05	2.04181E-05	2.14444E-05

SUPER 1

SUMMARY FOR CORE BDY VOLUME = 1.38682E+05

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		2.02533E-01	0.0	4.67745E-02	7.59369E-02	4.76829E-02	7.89189E-02	1.00003E+00
2	0.0		3.42167E-01	1.21728E-02	1.34076E-01	1.19101E-01	9.21513E-02	1.43131E-01	1.00003E+00
3	0.0		1.68133E-01	4.02424E-02	1.11857E-01	5.95811E-02	5.81951E-02	9.06252E-02	1.00003E+00
4	0.0		1.82600E-01	1.14123E-01	2.76662E-01	5.70452E-02	9.79026E-02	1.42124E-01	1.00004E+00
5	0.0		9.06333E-02	1.21732E-01	3.84724E-01	2.63480E-02	8.99159E-02	9.66145E-02	1.00002E+00
6	0.0		1.39333E-02	4.50191E-02	9.18838E-02	1.65199E-02	2.46081E-02	1.78111E-02	9.99716E-01
7	0.0		0.0	1.78883E-02	1.42264E-02	1.06640E-02	3.34788E-03	3.85114E-03	9.99995E-01
8	0.0		0.0	1.17206E-02	7.87557E-03	7.22934E-03	2.26647E-03	2.28801E-03	9.99999E-01
9	0.0		0.0	8.00380E-03	4.21878E-03	5.16048E-03	1.77082E-03	9.66535E-04	9.99998E-01
10	0.0		0.0	4.25412E-03	1.41301E-03	2.69478E-03	1.08719E-03	4.34566E-04	9.99996E-01
11	0.0		0.0	3.17962E-03	1.02679E-03	2.21389E-03	5.44582E-04	4.18323E-04	9.99997E-01
12	0.0		0.0	2.89424E-03	8.06403E-04	1.62928E-03	6.80915E-04	6.23780E-04	9.99996E-01
13	0.0		0.0	1.86205E-03	7.97219E-04	1.39123E-03	5.36034E-04	-7.75642E-06	9.99998E-01
14	0.0		0.0	1.34886E-03	5.16558E-04	8.67044E-04	2.67195E-04	2.46346E-04	9.99998E-01
15	0.0		0.0	1.49345E-03	3.14897E-03	8.33888E-04	5.60602E-04	1.23220E-04	9.99996E-01
16	0.0		0.0	1.27704E-03	1.15016E-02	0.0	1.12171E-03	1.70366E-04	9.99999E-01
SUM	0.0		1.00000E+00	3.87211E-01	1.09150E+00	3.87216E-01	4.22639E-01	5.78338E-01	1.00002E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	3.	1.29971E-05	0.	0.0	2.	2.46686E-05	5618.	1.22674E-01
2	53.	2.45069E-04	0.	0.0	25.	3.00645E-04	12208.	2.52758E-01
3	141.	6.87398E-04	0.	0.0	61.	7.18616E-04	9126.	1.70418E-01
4	743.	3.60317E-03	0.	0.0	335.	3.96296E-03	20467.	3.28114E-01
5	1743.	8.50606E-03	0.	0.0	769.	9.02363E-03	28413.	3.98251E-01
6	856.	4.02554E-03	0.	0.0	334.	3.99430E-03	7843.	1.02835E-01
7	161.	7.23937E-04	0.	0.0	58.	6.98554E-04	1563.	2.39234E-02
8	102.	4.02193E-04	0.	0.0	37.	4.65408E-04	879.	1.44882E-02
9	104.	3.08322E-04	0.	0.0	16.	2.02342E-04	520.	9.11257E-03
10	64.	1.63228E-04	0.	0.0	9.	1.25619E-04	216.	3.95777E-03
11	30.	5.86800E-05	0.	0.0	4.	5.58407E-05	166.	3.17400E-03
12	35.	7.03937E-05	0.	0.0	8.	1.10118E-04	132.	2.30234E-03
13	24.	7.79729E-05	0.	0.0	10.	1.35427E-04	112.	2.02177E-03
14	13.	2.50727E-05	0.	0.0	4.	5.67976E-05	72.	1.31693E-03
15	30.	2.24711E-05	0.	0.0	3.	4.67280E-05	225.	3.93285E-03
16	59.	1.75719E-05	0.	0.0	2.	3.26022E-05	732.	1.14683E-02
SUM	4161.	1.89501E-02	0.	0.0	1677.	1.99542E-02	88292.	1.45074E+00

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	4.36143E-06	0.0	7.89189E-02	1.35029E-01	0.0	0.0
2	7.91008E-06	0.0	1.43131E-01	2.26218E-01	0.0	0.0
3	5.00838E-06	0.0	9.06252E-02	1.34498E-01	0.0	0.0
4	7.85442E-06	0.0	1.42124E-01	2.15270E-01	0.0	0.0
5	5.33938E-06	0.0	9.66145E-02	1.89260E-01	0.0	0.0
6	9.84323E-07	0.0	1.78111E-02	4.73605E-02	0.0	0.0
7	2.12832E-07	0.0	3.85114E-03	6.20652E-03	0.0	0.0
8	1.26446E-07	0.0	2.28801E-03	3.90097E-03	0.0	0.0
9	5.34153E-08	0.0	9.66535E-04	2.89470E-03	0.0	0.0
10	2.40162E-08	0.0	4.34566E-04	1.64002E-03	0.0	0.0
11	2.31185E-08	0.0	4.18323E-04	6.97663E-04	0.0	0.0
12	3.44730E-08	0.0	6.23780E-04	6.82951E-04	0.0	0.0
13	-4.28656E-10	0.0	-7.75642E-06	9.99623E-04	0.0	0.0
14	1.36142E-08	0.0	2.46346E-04	5.62671E-04	0.0	0.0
15	6.80973E-09	0.0	1.23220E-04	1.09558E-03	0.0	0.0
16	9.41522E-09	0.0	1.70366E-04	2.17263E-03	0.0	0.0
SUM	3.19616E-05	0.0	5.78338E-01	9.68488E-01	0.0	0.0

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	5.26923E-03	3.63149E-03	1.08710E-02	1.07800E-02	2.25852E-02	2.57821E-02	7.89189E-02
2	1.00020E-02	7.20378E-03	2.14807E-02	2.08324E-02	4.25334E-02	4.10784E-02	1.43131E-01
3	5.92232E-03	4.43482E-03	1.29505E-02	1.27701E-02	2.72830E-02	2.72646E-02	9.06252E-02
4	9.13899E-03	7.83787E-03	2.05415E-02	1.90310E-02	4.36588E-02	4.19155E-02	1.42124E-01
5	6.78879E-03	5.35724E-03	1.48408E-02	1.47673E-02	2.76782E-02	2.71821E-02	9.66145E-02
6	1.69715E-03	8.61256E-04	3.38306E-03	3.91703E-03	4.28543E-03	3.66713E-03	1.78111E-02
7	2.84055E-04	4.83498E-04	1.07175E-03	1.07853E-03	1.45701E-04	7.87609E-04	3.85114E-03
8	-1.36486E-06	1.59007E-04	3.63893E-04	5.91113E-04	4.68668E-04	7.06696E-04	2.28801E-03
9	-4.29631E-05	-8.67636E-05	3.45554E-04	4.25933E-04	3.44419E-05	2.90333E-04	9.66535E-04
10	3.51561E-05	-2.05170E-05	4.00431E-05	1.56404E-04	6.34350E-05	1.60045E-04	4.34566E-04
11	-9.56919E-06	-8.73743E-05	5.20602E-05	1.48150E-04	1.21270E-04	1.93786E-04	4.18323E-04
12	-1.07448E-04	1.18525E-04	2.15521E-05	1.21298E-05	2.35711E-04	3.43310E-04	6.23780E-04
13	-1.34399E-04	-3.66010E-05	6.60059E-05	-3.36405E-05	9.75970E-05	3.32808E-05	-7.75642E-06
14	1.61217E-04	-5.07086E-05	5.84064E-05	4.03427E-05	-6.50621E-05	1.02151E-04	2.46346E-04
15	9.52551E-05	-1.09690E-04	8.67562E-05	3.84960E-05	-1.13764E-05	2.37788E-05	1.23220E-04
16	-2.66277E-04	-3.78074E-05	6.71376E-05	8.80084E-05	2.39368E-04	7.99365E-05	1.70366E-04
SUM	3.88322E-02	2.96580E-02	8.62402E-02	8.46428E-02	1.69353E-01	1.69610E-01	5.78338E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	3.72342E-06	2.56618E-06	3.84074E-06	3.80860E-06	4.70271E-06	5.36830E-06	4.36143E-06
2	7.06777E-06	5.09044E-06	7.58927E-06	7.36016E-06	8.85605E-06	8.55315E-06	7.91008E-06
3	4.18491E-06	3.13383E-06	4.57551E-06	4.51175E-06	5.68100E-06	5.67716E-06	5.00838E-06
4	6.45791E-06	5.53844E-06	7.25782E-06	6.72413E-06	9.09090E-06	8.72799E-06	7.85442E-06
5	4.79710E-06	3.78558E-06	5.24361E-06	5.21767E-06	5.76352E-06	5.66023E-06	5.33938E-06
6	1.19931E-06	6.08616E-07	1.19533E-06	1.38400E-06	8.92420E-07	7.63663E-07	9.84323E-07
7	2.00725E-07	3.41663E-07	3.78676E-07	3.81076E-07	3.03418E-08	1.64018E-07	2.12832E-07
8	-9.64555E-10	1.12364E-07	1.28573E-07	2.08855E-07	9.75983E-08	1.47168E-07	1.26446E-07
9	-3.03603E-08	-6.13113E-08	1.22094E-07	1.50491E-07	7.17235E-09	6.04608E-08	5.34153E-08
10	2.48433E-08	-1.44983E-08	1.41483E-08	5.52619E-08	1.32101E-08	3.33288E-08	2.40162E-08
11	-6.76205E-09	-6.17435E-08	1.83943E-08	5.23453E-08	2.52541E-08	4.03553E-08	2.31185E-08
12	-7.59288E-08	8.37563E-08	7.61494E-09	4.28577E-09	4.90860E-08	7.14932E-08	3.44730E-08
13	-9.49734E-08	-2.58643E-08	2.33217E-08	-1.18861E-08	2.03242E-08	6.93062E-09	-4.28656E-10
14	1.13924E-07	-3.58335E-08	2.06365E-08	1.42542E-08	-1.35490E-08	2.12726E-08	1.36142E-08
15	6.73126E-08	-7.75126E-08	3.06534E-08	1.36017E-08	-2.36911E-09	4.95186E-09	6.80973E-09
16	-1.88165E-07	-2.67168E-08	2.37216E-08	3.10958E-08	4.98476E-08	1.66465E-08	9.41522E-09
SUM	2.74400E-05	2.09573E-05	3.04700E-05	2.99056E-05	3.52634E-05	3.53170E-05	3.19616E-05

SUPER 1

CORE BDY CUBO 2 MIXTURE = 2 VOLUME = 1.07182E+04

GRP.	FIX SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0	0.0	0.0	1.90155E-03	9.57058E-03	0.0	-9.57072E-03	0.0
2	0.0	0.0	5.79942E-03	7.37378E-03	2.32024E-02	0.0	-1.74060E-02	1.00053E+00
3	0.0	0.0	1.05993E-02	5.72836E-03	2.32078E-02	0.0	-1.26104E-02	1.00017E+00
4	0.0	0.0	2.27084E-02	1.77017E-02	4.36519E-02	0.0	-2.09453E-02	1.00007E+00
5	0.0	0.0	4.54582E-02	3.78594E-02	4.29730E-02	0.0	2.48718E-03	9.99958E-01
6	0.0	0.0	4.79438E-02	2.59614E-02	2.90332E-02	0.0	1.89172E-02	9.99861E-01
7	0.0	0.0	3.17384E-02	1.56632E-02	1.84648E-02	0.0	1.32759E-02	9.99924E-01
8	0.0	0.0	2.14564E-02	9.47478E-03	1.35030E-02	1.34497E-06	7.95342E-03	9.99937E-01
9	0.0	0.0	1.46393E-02	6.30664E-03	8.77295E-03	3.53107E-06	5.86409E-03	9.99912E-01
10	0.0	0.0	8.63832E-03	2.73070E-03	5.92139E-03	4.05291E-06	2.71292E-03	9.99996E-01
11	0.0	0.0	5.82894E-03	1.38122E-03	3.82591E-03	4.27006E-06	1.99879E-03	9.99996E-01
12	0.0	0.0	5.00328E-03	1.50161E-03	3.43784E-03	7.18497E-06	1.58050E-03	9.99996E-01
13	0.0	0.0	3.72163E-03	8.62675E-04	2.67372E-03	9.31207E-06	1.03861E-03	9.99997E-01
14	0.0	0.0	2.82469E-03	8.38735E-04	2.19781E-03	1.05938E-05	6.16290E-04	9.99997E-01
15	0.0	0.0	3.02640E-03	5.74800E-03	1.68284E-03	3.58664E-05	1.30771E-03	9.99994E-01
16	0.0	0.0	2.73301E-03	2.44154E-02	0.0	1.51932E-04	2.58116E-03	9.99992E-01
SUM	0.0	0.0	2.32119E-01	1.65449E-01	2.32119E-01	2.28088E-04	-1.98558E-04	9.99970E-01

GRP.	NUMBER KILLED	WT	NUMBER SPLIT	WT	NUMBER BORN	WT	NUMBER SURV	WT
1	0.	0.0	0.	0.0	0.	0.0	376.	1.14717E-02
2	0.	0.0	0.	0.0	0.	0.0	1067.	3.05747E-02
3	0.	0.0	0.	0.0	0.	0.0	1158.	2.89352E-02
4	0.	0.0	0.	0.0	0.	0.0	2886.	6.13518E-02
5	0.	0.0	0.	0.0	0.	0.0	4453.	8.08306E-02
6	0.	0.0	0.	0.0	0.	0.0	2999.	5.49931E-02
7	0.	0.0	0.	0.0	0.	0.0	1893.	3.41264E-02
8	0.	0.0	0.	0.0	0.	0.0	1263.	2.29758E-02
9	0.	0.0	0.	0.0	0.	0.0	842.	1.50782E-02
10	0.	0.0	0.	0.0	0.	0.0	460.	8.65206E-03
11	0.	0.0	0.	0.0	0.	0.0	293.	5.20712E-03
12	0.	0.0	0.	0.0	2.	2.22297E-05	273.	4.90611E-03
13	0.	0.0	0.	0.0	0.	0.0	198.	3.53639E-03
14	0.	0.0	0.	0.0	0.	0.0	160.	3.03654E-03
15	0.	0.0	0.	0.0	0.	0.0	426.	7.43083E-03
16	2.	1.10608E-05	0.	0.0	1.	1.11178E-05	1544.	2.43988E-02
SUM	2.	1.10608E-05	0.	0.0	3.	3.33475E-05	20291.	3.97505E-01

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	3.65683E-06	7.89189E-02	6.93482E-02	0.0	6.10918E-06	2.15
2	6.62965E-06	1.43131E-01	1.25725E-01	0.0	1.18176E-05	1.88
3	4.11384E-06	9.06252E-02	7.80149E-02	0.0	7.48633E-06	1.73
4	6.38992E-06	1.42124E-01	1.21178E-01	0.0	1.22448E-05	1.31
5	5.22578E-06	9.66145E-02	9.91017E-02	0.0	1.11244E-05	1.36
6	1.93674E-06	1.78111E-02	3.67283E-02	0.0	4.52721E-06	2.54
7	9.03137E-07	3.85114E-03	1.71271E-02	0.0	2.35321E-06	3.06
8	5.40046E-07	2.28801E-03	1.02414E-02	0.0	1.51165E-06	4.19
9	3.60190E-07	9.66535E-04	6.83063E-03	0.0	1.00463E-06	4.76
10	1.65972E-07	4.34566E-04	3.14748E-03	0.0	5.38434E-07	7.16
11	1.27458E-07	4.18323E-04	2.41711E-03	0.0	3.17902E-07	8.34
12	1.16235E-07	6.23780E-04	2.20428E-03	0.0	3.50692E-07	9.16
13	5.43584E-08	-7.75642E-06	1.03085E-03	0.0	2.10236E-07	9.12
14	4.54881E-08	2.46346E-04	8.62636E-04	0.0	1.49383E-07	10.94
15	7.54551E-08	1.23220E-04	1.43093E-03	0.0	3.11795E-07	10.26
16	1.45092E-07	1.70366E-04	2.75153E-03	0.0	6.20398E-07	11.16
SUM	3.04861E-05	5.78338E-01	5.78139E-01	0.0	6.06776E-05	0.71

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	4.36256E-03	2.98594E-03	9.79248E-03	9.85818E-03	1.96062E-02	2.27429E-02	6.93482E-02
2	8.09656E-03	5.94455E-03	1.97825E-02	1.87627E-02	3.72347E-02	3.59036E-02	1.25725E-01
3	4.47448E-03	3.01078E-03	1.12631E-02	1.15333E-02	2.37491E-02	2.39842E-02	7.80149E-02
4	7.04249E-03	6.00939E-03	1.83442E-02	1.72295E-02	3.71001E-02	3.54526E-02	1.21178E-01
5	6.12075E-03	5.31853E-03	1.41569E-02	1.43895E-02	2.96747E-02	2.94413E-02	9.91017E-02
6	3.08213E-03	1.94818E-03	5.74615E-03	5.44037E-03	1.01016E-02	1.04098E-02	3.67283E-02
7	1.28370E-03	1.02398E-03	2.91077E-03	3.20590E-03	4.50637E-03	4.19636E-03	1.71271E-02
8	9.86761E-04	6.62686E-04	1.81192E-03	1.57855E-03	2.48483E-03	2.71669E-03	1.02414E-02
9	7.74536E-04	6.78799E-04	1.00415E-03	1.38017E-03	1.59341E-03	1.39957E-03	6.83063E-03
10	2.00572E-04	2.63827E-04	6.79969E-04	6.22133E-04	7.27076E-04	6.53909E-04	3.14748E-03
11	2.00296E-04	3.08111E-04	2.93673E-04	3.31145E-04	5.96742E-04	6.87141E-04	2.41711E-03
12	2.39566E-04	1.53080E-04	3.43744E-04	4.35739E-04	4.78586E-04	5.53571E-04	2.20428E-03
13	2.03389E-04	7.29892E-05	1.24787E-04	1.89938E-04	1.63906E-04	2.75844E-04	1.03085E-03
14	1.21316E-04	9.00913E-05	6.93398E-05	5.68573E-05	2.07975E-04	3.17057E-04	8.62636E-04
15	1.89683E-04	1.02870E-04	1.99482E-04	1.69577E-04	4.45002E-04	3.24316E-04	1.43093E-03
16	4.31739E-04	3.21936E-04	4.34132E-04	3.92227E-04	5.41107E-04	6.30385E-04	2.75153E-03
SUM	3.78105E-02	2.88957E-02	8.69569E-02	8.55755E-02	1.69211E-01	1.69689E-01	5.78139E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	2.92000E-06	1.99862E-06	3.27711E-06	3.29908E-06	3.92104E-06	4.54833E-06	3.65683E-06
2	5.41922E-06	3.97886E-06	6.62018E-06	6.27889E-06	7.44622E-06	7.18008E-06	6.62965E-06
3	2.99493E-06	2.01526E-06	3.76926E-06	3.85969E-06	4.74951E-06	4.79652E-06	4.11384E-06
4	4.71369E-06	4.02224E-06	6.13926E-06	5.76621E-06	7.41984E-06	7.09042E-06	6.38992E-06
5	4.09679E-06	3.55986E-06	4.73799E-06	4.81581E-06	5.93471E-06	5.88800E-06	5.22578E-06
6	2.06302E-06	1.30401E-06	1.92308E-06	1.82075E-06	2.02039E-06	2.08206E-06	1.93674E-06
7	8.59239E-07	6.85394E-07	9.74155E-07	1.07293E-06	9.01273E-07	8.39270E-07	9.03137E-07
8	6.60484E-07	4.43565E-07	6.06401E-07	5.28298E-07	4.96964E-07	5.43337E-07	5.40046E-07
9	5.18432E-07	4.54350E-07	3.36063E-07	4.61904E-07	3.18682E-07	2.79913E-07	3.60190E-07
10	1.34252E-07	1.76591E-07	2.27567E-07	2.08210E-07	1.45415E-07	1.30782E-07	1.65972E-07
11	1.34067E-07	2.06232E-07	9.82843E-08	1.10825E-07	1.19348E-07	1.37428E-07	1.27458E-07
12	1.60352E-07	1.02463E-07	1.15041E-07	1.45830E-07	9.57171E-08	1.10714E-07	1.16235E-07
13	1.36138E-07	4.88549E-08	4.17628E-08	6.35668E-08	3.27811E-08	5.51689E-08	5.43584E-08
14	8.12022E-08	6.03021E-08	2.32061E-08	1.90285E-08	4.15949E-08	6.34114E-08	4.54881E-08
15	1.26963E-07	6.88556E-08	6.67611E-08	5.67529E-08	8.90004E-08	6.48631E-08	7.54551E-08
16	2.88981E-07	2.15486E-07	1.45292E-07	1.31267E-07	1.08222E-07	1.26077E-07	1.45092E-07
SUM	2.53077E-05	1.93408E-05	2.91013E-05	2.86390E-05	3.38406E-05	3.39363E-05	3.04861E-05

SUPER 1

SUMMARY FOR SYSTEM

VOLUME = 1.49400E+05

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		2.02533E-01	0.0	4.86760E-02	8.55074E-02	4.76829E-02	6.93482E-02	1.00003E+00
2	0.0		3.42167E-01	1.79722E-02	1.41450E-01	1.42303E-01	9.21513E-02	1.25725E-01	1.00004E+00
3	0.0		1.68133E-01	5.08417E-02	1.17585E-01	8.27889E-02	5.81951E-02	7.80149E-02	1.00003E+00
4	0.0		1.82600E-01	1.36831E-01	2.94364E-01	1.00697E-01	9.79026E-02	1.21178E-01	1.00004E+00
5	0.0		9.06333E-02	1.67190E-01	4.22584E-01	6.93210E-02	8.99159E-02	9.91017E-02	1.00001E+00
6	0.0		1.39333E-02	9.29629E-02	1.17845E-01	4.55531E-02	2.46081E-02	3.67283E-02	9.99779E-01
7	0.0		0.0	4.96267E-02	2.98896E-02	2.91288E-02	3.34788E-03	1.71271E-02	9.99950E-01
8	0.0		0.0	3.31770E-02	1.73503E-02	2.07323E-02	2.26782E-03	1.02414E-02	9.99960E-01
9	0.0		0.0	2.26431E-02	1.05254E-02	1.39334E-02	1.77435E-03	6.83063E-03	9.99943E-01
10	0.0		0.0	1.28924E-02	4.14371E-03	8.61616E-03	1.09124E-03	3.14748E-03	9.99996E-01
11	0.0		0.0	9.00856E-03	2.40800E-03	6.03979E-03	5.48851E-04	2.41711E-03	9.99997E-01
12	0.0		0.0	7.89752E-03	2.30801E-03	5.06712E-03	6.88100E-04	2.20428E-03	9.99996E-01
13	0.0		0.0	5.58368E-03	1.65989E-03	4.06495E-03	5.45346E-04	1.03085E-03	9.99998E-01
14	0.0		0.0	4.17354E-03	1.35529E-03	3.06485E-03	2.77789E-04	8.62636E-04	9.99997E-01
15	0.0		0.0	4.51985E-03	8.89697E-03	2.51673E-03	5.96468E-04	1.43093E-03	9.99994E-01
16	0.0		0.0	4.01006E-03	3.59171E-02	0.0	1.27364E-03	2.75153E-03	9.99994E-01
SUM	0.0		1.00000E+00	6.19330E-01	1.25695E+00	6.19335E-01	4.22867E-01	5.78139E-01	1.00001E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	3.	1.29971E-05	0.	0.0	2.	2.46686E-05	5994.	1.34145E-01
2	53.	2.45069E-04	0.	0.0	25.	3.00645E-04	13275.	2.83332E-01
3	141.	6.87398E-04	0.	0.0	61.	7.18616E-04	10284.	1.99353E-01
4	743.	3.60317E-03	0.	0.0	335.	3.96296E-03	23353.	3.89465E-01
5	1743.	8.50606E-03	0.	0.0	769.	9.02363E-03	32866.	4.79082E-01
6	856.	4.02554E-03	0.	0.0	334.	3.99430E-03	10842.	1.57828E-01
7	161.	7.23937E-04	0.	0.0	58.	6.98554E-04	3456.	5.80498E-02
8	102.	4.02193E-04	0.	0.0	37.	4.65408E-04	2142.	3.74640E-02
9	104.	3.08322E-04	0.	0.0	16.	2.02342E-04	1362.	2.41908E-02
10	64.	1.63228E-04	0.	0.0	9.	1.25619E-04	676.	1.26098E-02
11	30.	5.86800E-05	0.	0.0	4.	5.58407E-05	459.	8.38111E-03
12	35.	7.03937E-05	0.	0.0	10.	1.32348E-04	405.	7.20845E-03
13	24.	7.79729E-05	0.	0.0	10.	1.35427E-04	310.	5.55816E-03
14	13.	2.50727E-05	0.	0.0	4.	5.67976E-05	232.	4.35347E-03
15	30.	2.24711E-05	0.	0.0	3.	4.67280E-05	651.	1.13637E-02
16	61.	2.86327E-05	0.	0.0	3.	4.37200E-05	2276.	3.58671E-02
SUM	4163.	1.89611E-02	0.	0.0	1680.	1.99876E-02	108583.	1.84824E+00

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	3.65683E-06	0.0	6.93482E-02	1.35029E-01	1.61788E-05	1.44
2	6.62965E-06	0.0	1.25725E-01	2.26218E-01	3.08814E-05	1.20
3	4.11384E-06	0.0	7.80149E-02	1.34498E-01	1.97451E-05	1.39
4	6.38992E-06	0.0	1.21178E-01	2.15270E-01	3.20744E-05	0.96
5	5.22578E-06	0.0	9.91017E-02	1.89260E-01	2.47259E-05	1.10
6	1.93674E-06	0.0	3.67283E-02	4.73605E-02	5.76454E-06	2.73
7	9.03137E-07	0.0	1.71271E-02	6.20652E-03	2.00949E-06	4.10
8	5.40046E-07	0.0	1.02414E-02	3.90097E-03	1.35266E-06	5.15
9	3.60190E-07	0.0	6.83063E-03	2.89470E-03	9.73136E-07	5.84
10	1.65972E-07	0.0	3.14748E-03	1.64002E-03	4.77746E-07	8.36
11	1.27458E-07	0.0	2.41711E-03	6.97663E-04	2.72890E-07	10.98
12	1.16235E-07	0.0	2.20428E-03	6.82951E-04	2.75626E-07	9.31
13	5.43584E-08	0.0	1.03085E-03	9.99623E-04	2.03231E-07	12.58
14	4.54881E-08	0.0	8.62636E-04	5.62671E-04	1.26812E-07	15.89
15	7.54551E-08	0.0	1.43093E-03	1.09558E-03	2.47222E-07	12.43
16	1.45092E-07	0.0	2.75153E-03	2.17263E-03	4.72224E-07	12.31
SUM	3.04861E-05	0.0	5.78139E-01	9.68488E-01	1.35780E-04	0.34

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	4.36256E-03	2.98594E-03	9.79248E-03	9.85818E-03	1.96062E-02	2.27429E-02	6.93482E-02
2	8.09656E-03	5.94455E-03	1.97825E-02	1.87627E-02	3.72347E-02	3.59036E-02	1.25725E-01
3	4.47448E-03	3.01078E-03	1.12631E-02	1.15333E-02	2.37491E-02	2.39842E-02	7.80149E-02
4	7.04249E-03	6.00939E-03	1.83442E-02	1.72295E-02	3.71001E-02	3.54526E-02	1.21178E-01
5	6.12075E-03	5.31853E-03	1.41569E-02	1.43895E-02	2.96747E-02	2.94413E-02	9.91017E-02
6	3.08213E-03	1.94818E-03	5.74615E-03	5.44037E-03	1.01016E-02	1.04098E-02	3.67283E-02
7	1.28370E-03	1.02398E-03	2.91077E-03	3.20590E-03	4.50637E-03	4.19636E-03	1.71271E-02
8	9.86761E-04	6.62686E-04	1.81192E-03	1.57855E-03	2.48483E-03	2.71669E-03	1.02414E-02
9	7.74536E-04	6.78799E-04	1.00415E-03	1.38017E-03	1.59341E-03	1.39957E-03	6.83063E-03
10	2.00572E-04	2.63827E-04	6.79969E-04	6.22133E-04	7.27076E-04	6.53909E-04	3.14748E-03
11	2.00296E-04	3.08111E-04	2.93673E-04	3.31145E-04	5.96742E-04	6.87141E-04	2.41711E-03
12	2.39566E-04	1.53080E-04	3.43744E-04	4.35739E-04	4.78586E-04	5.53571E-04	2.20428E-03
13	2.03389E-04	7.29892E-05	1.24787E-04	1.89938E-04	1.63906E-04	2.75844E-04	1.03085E-03
14	1.21316E-04	9.00913E-05	6.93398E-05	5.68573E-05	2.07975E-04	3.17057E-04	8.62636E-04
15	1.89683E-04	1.02870E-04	1.99482E-04	1.69577E-04	4.45002E-04	3.24316E-04	1.43093E-03
16	4.31739E-04	3.21936E-04	4.34132E-04	3.92227E-04	5.41107E-04	6.30385E-04	2.75153E-03
SUM	3.78105E-02	2.88957E-02	8.69569E-02	8.55755E-02	1.69211E-01	1.69689E-01	5.78139E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	2.92000E-06	1.99862E-06	3.27711E-06	3.29908E-06	3.92104E-06	4.54833E-06	3.65683E-06
2	5.41922E-06	3.97886E-06	6.62018E-06	6.27889E-06	7.44622E-06	7.18008E-06	6.62965E-06
3	2.99493E-06	2.01526E-06	3.76926E-06	3.85969E-06	4.74951E-06	4.79652E-06	4.11384E-06
4	4.71369E-06	4.02224E-06	6.13926E-06	5.76621E-06	7.41984E-06	7.09042E-06	6.38992E-06
5	4.09679E-06	3.55986E-06	4.73799E-06	4.81581E-06	5.93471E-06	5.88800E-06	5.22578E-06
6	2.06302E-06	1.30401E-06	1.92308E-06	1.82075E-06	2.02039E-06	2.08206E-06	1.93674E-06
7	8.59239E-07	6.85394E-07	9.74155E-07	1.07293E-06	9.01273E-07	8.39270E-07	9.03137E-07
8	6.60484E-07	4.43565E-07	6.06401E-07	5.28298E-07	4.96964E-07	5.43337E-07	5.40046E-07
9	5.18432E-07	4.54350E-07	3.36063E-07	4.61904E-07	3.18682E-07	2.79913E-07	3.60190E-07
10	1.34252E-07	1.76591E-07	2.27567E-07	2.08210E-07	1.45415E-07	1.30782E-07	1.65972E-07
11	1.34067E-07	2.06232E-07	9.82843E-08	1.10825E-07	1.19348E-07	1.37428E-07	1.27458E-07
12	1.60352E-07	1.02463E-07	1.15041E-07	1.45830E-07	9.57171E-08	1.10714E-07	1.16235E-07
13	1.36138E-07	4.88549E-08	4.17628E-08	6.35668E-08	3.27811E-08	5.51689E-08	5.43584E-08
14	8.12022E-08	6.03021E-08	2.32061E-08	1.90285E-08	4.15949E-08	6.34114E-08	4.54881E-08
15	1.26963E-07	6.88556E-08	6.67611E-08	5.67529E-08	8.90004E-08	6.48631E-08	7.54551E-08
16	2.88981E-07	2.15486E-07	1.45292E-07	1.31267E-07	1.08222E-07	1.26077E-07	1.45092E-07
SUM	2.53077E-05	1.93408E-05	2.91013E-05	2.86390E-05	3.38406E-05	3.39363E-05	3.04861E-05

SUPER 1

FREQUENCY FOR GENERATIONS 4 TO 103

```
0.8646 TO 0.8877      *****
0.8877 TO 0.9107      ****
0.9107 TO 0.9338      ***************
0.9338 TO 0.9569      *************
0.9569 TO 0.9800      ****************************
0.9800 TO 1.0031      ********************
1.0031 TO 1.0262      ***************
1.0262 TO 1.0493      ***
1.0493 TO 1.0724      **
1.0724 TO 1.0955      *
```

FREQUENCY FOR GENERATIONS 29 TO 103

```
0.8646 TO 0.8877      *****
0.8877 TO 0.9107      ***
0.9107 TO 0.9338      **********
0.9338 TO 0.9569      **********
0.9569 TO 0.9800      ********************
0.9800 TO 1.0031      ************
1.0031 TO 1.0262      **********
1.0262 TO 1.0493      ***
1.0493 TO 1.0724      *
1.0724 TO 1.0955      *
```

FREQUENCY FOR GENERATIONS 54 TO 103

```
0.8646 TO 0.8877      ****
0.8877 TO 0.9107      ***
0.9107 TO 0.9338      ********
0.9338 TO 0.9569      ******
0.9569 TO 0.9800      ************
0.9800 TO 1.0031      *******
1.0031 TO 1.0262      ******
1.0262 TO 1.0493      **
1.0493 TO 1.0724      *
1.0724 TO 1.0955      *
```

FREQUENCY FOR GENERATIONS 79 TO 103

```
0.8646 TO 0.8877      **
0.8877 TO 0.9107      **
0.9107 TO 0.9338      *****
0.9338 TO 0.9569      **
0.9569 TO 0.9800      *****
0.9800 TO 1.0031      *****
1.0031 TO 1.0262
1.0262 TO 1.0493      **
1.0493 TO 1.0724      *
1.0724 TO 1.0955      *
```

SAMPLE OUTPUT LIST 2 : GENRL 1

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
   1  GENRL 1
   2   5.0  103  300    3   16    6    6    2    6    6    1    1    1    1
   3     6    0    0   10    0    0    0    0    0    0    0    0    0    0
   4          1    -92500 4.48006-2
   5          1     92800 2.65780-3
   6          1     92400 4.82700-4
   7          1     92600 9.57000-5
   8          2      1101 8.25810-2
   9          2      6100 3.97020-2
  10 SUPER BOX       1    1    1    1    1
  11 BOX TYPE        1
  12 GENERAL         1  0.0      0.0      0.0      0.0      0.0      0.0      16*0.5
  13 GENERAL         2  0.0      0.0      0.0      0.0      0.0      0.0      16*0.5
  14 GENERAL         0 49.0    -49.0     24.5    -24.5     14.44   -14.44    16*0.5
  15 CUBOID          0 49.0    -49.0     24.5    -24.5     14.44   -14.44    16*0.5
  16 CORE BDY        0 49.0    -49.0     24.5    -24.5     14.44   -14.44    16*0.5
  17 CUBOID          2 50.0   -50.0     25.0    -25.0     14.94   -14.94     16*0.5
  18      2      FEMALE SINGLE
  19 X-ZONE       -49.0      , 0.0      , 49.0
  20 Y-ZONE       -24.5      , 24.5
  21 Z-ZONE       -14.44     ,-12.6025  , -1.8375  ,  1.8375  , 12.6025  , 14.44
  22   14.44
  23 ZONE       1    1    1
  24 X-BLOCK      -49.0      , 0.0
  25 Y-BLOCK      -24.5      , 24.5
  26 Z-BLOCK      -14.44     ,-12.6025
  27 BLOCK      1    1    1
  28 MEDIA            3,    2,    3
  29 SURFACES         5,    6
  30 SECTOR -1
  31 SECTOR +1 -1
  32 SECTOR    +1
  33 ZONE       1    1    2
  34 X-BLOCK      -49.0      , 0.0
  35 Y-BLOCK      -24.5      , 24.5
  36 Z-BLOCK      -12.6025   , -1.8375
  37 BLOCK      1    1    1
  38 MEDIA            1,    1,    1,    1,    3,    2,    3
  39 SURFACES         1,    2,    3,    4,    5,    6
  40 SECTOR -1
  41 SECTOR    -1
  42 SECTOR       -1
  43 SECTOR          -1
  44 SECTOR +1 +1 +1 +1 -1
  45 SECTOR             +1 -1
  46 SECTOR                +1
  47 ZONE       1    1    3
  48 X-BLOCK      -49.0      , 0.0
  49 Y-BLOCK      -24.5      , 24.5
  50 Z-BLOCK       -1.8375   ,  1.8375
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
  51 BLOCK      1     1     1
  52 MEDIA             3,    2,    3
  53 SURFACES          5,    6
  54 SECTOR -1
  55 SECTOR +1 -1
  56 SECTOR    +1
  57 ZONE       1     1     4
  58 X-BLOCK     -49.0       , 0.0
  59 Y-BLOCK     -24.5       , 24.5
  60 Z-BLOCK       1.8375    , 12.6025
  61 BLOCK      1     1     1
  62 MEDIA             1,    1,    1,    1,    3,    2,    3
  63 SURFACES          1,    2,    3,    4,    5,    6
  64 SECTOR -1
  65 SECTOR    -1
  66 SECTOR       -1
  67 SECTOR          -1
  68 SECTOR +1 +1 +1 +1 -1
  69 SECTOR               +1 -1
  70 SECTOR                  +1
  71 ZONE       1     1     5
  72 X-BLOCK     -49.0       , 0.0
  73 Y-BLOCK     -24.5       , 24.5
  74 Z-BLOCK      12.6025    , 14.44
  75 BLOCK      1     1     1
  76 MEDIA             3,    2,    3
  77 SURFACES          5,    6
  78 SECTOR -1
  79 SECTOR +1 -1
  80 SECTOR    +1
  81 ZONE       2     1     1
  82 X-BLOCK       0.0       , 49.0
  83 Y-BLOCK     -24.5       , 24.5
  84 Z-BLOCK     -14.44      ,-12.6025
  85 BLOCK      1     1     1
  86 MEDIA             3,    2,    3
  87 SURFACES         11,   12
  88 SECTOR -1
  89 SECTOR +1 -1
  90 SECTOR    +1
  91 ZONE       2     1     2
  92 X-BLOCK       0.0       , 49.0
  93 Y-BLOCK     -24.5       , 24.5
  94 Z-BLOCK     -12.6025    , -1.8375
  95 BLOCK      1     1     1
  96 MEDIA             1,    1,    1,    1,    3,    2,    3
  97 SURFACES          7,    8,    9,   10,   11,   12
  98 SECTOR -1
  99 SECTOR    -1
 100 SECTOR       -1
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
 101 SECTOR          -1
 102 SECTOR +1 +1 +1 +1 -1
 103 SECTOR             +1 -1
 104 SECTOR                +1
 105 ZONE       2    1    3
 106 X-BLOCK      0.0       , 49.0
 107 Y-BLOCK    -24.5       , 24.5
 108 Z-BLOCK      -1.8375   ,  1.8375
 109 BLOCK      1    1    1
 110 MEDIA           3,    2,    3
 111 SURFACES       11,   12
 112 SECTOR -1
 113 SECTOR +1 -1
 114 SECTOR    +1
 115 ZONE       2    1    4
 116 X-BLOCK      0.0       , 49.0
 117 Y-BLOCK    -24.5       , 24.5
 118 Z-BLOCK      1.8375    , 12.6025
 119 BLOCK      1    1    1
 120 MEDIA           1,    1,    1,    1,    3,    2,    3
 121 SURFACES        7,    8,    9,   10,   11,   12
 122 SECTOR -1
 123 SECTOR    -1
 124 SECTOR       -1
 125 SECTOR          -1
 126 SECTOR +1 +1 +1 +1 -1
 127 SECTOR             +1 -1
 128 SECTOR                +1
 129 ZONE       2    1    5
 130 X-BLOCK      0.0       , 49.0
 131 Y-BLOCK    -24.5       , 24.5
 132 Z-BLOCK      12.6025   , 14.44
 133 BLOCK      1    1    1
 134 MEDIA           3,    2,    3
 135 SURFACES       11,   12
 136 SECTOR -1
 137 SECTOR +1 -1
 138 SECTOR    +1
 139    12
 140  1.0       XSQ    1.0       YSQ    64.17     X      15.17     Y
 141 1053.93995     ¥
 142  1.0       XSQ    1.0       YSQ    33.83     X      15.17     Y
 143 310.609946     ¥
 144  1.0       XSQ    1.0       YSQ    64.17     X     -15.17     Y
 145 1053.93995     ¥
 146  1.0       XSQ    1.0       YSQ    33.83     X     -15.17     Y
 147 310.609946     ¥
 148  1.0       XSQ    1.0       YSQ    49.0      X      48.0           ¥
 149  1.0       XSQ    1.0       YSQ    49.0      X      24.25          ¥
 150  1.0       XSQ    1.0       YSQ   -64.17     X      15.17     Y
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

INPUT DATA IMAGE LIST

```
CARD          1         2         3         4         5         6         7         8
 SEQ.----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
 151 1053.93995      ¥
 152  1.0       XSQ     1.0       YSQ    -33.83     X       15.17     Y
 153 310.609946      ¥
 154  1.0       XSQ     1.0       YSQ    -64.17     X      -15.17     Y
 155 1053.93995      ¥
 156  1.0       XSQ     1.0       YSQ    -33.83     X      -15.17     Y
 157 310.609946      ¥
 158  1.0       XSQ     1.0       YSQ    -49.0      X       48.0           ¥
 159  1.0       XSQ     1.0       YSQ    -49.0      X       24.25          ¥
 160   0
 161   1  0
 162 -50.0 25.0 5.0 50.0 -25.0 5.0
 163 1.0 0.0 0.0 0.0 1.0 0.0
 164 118 98 0.0 0.0 2
 165 0 0
 166 END KEND
     ----5----0----5----0----5----0----5----0----5----0----5----0----5----0----5----0
```

GENRL 1

NUMBER OF GENERATIONS	103
NUMBER PER GENERATION	300
NUMBER OF GENERATIONS TO BE SKIPPED	3
NUMBER OF ENERGY GROUPS	16
MAX. NUMBER OF ENERGY TRANSFERS	6
NUMBER OF INPUT NUCLIDES	6
NUMBER OF MIXTURES	2
NUMBER OF MIXING TABLE ENTRIES	6
NUMBER OF GEOMETRY CARDS	6
NUMBER OF BOX TYPES	1
NUMBER OF UNITS IN X DIRECTION	1
NUMBER OF UNITS IN Y DIRECTION	1
NUMBER OF UNITS IN Z DIRECTION	1
NUMBER OF NUCLIDES READ FROM TAPE	6
ALBEDO TYPE	0
SEARCH TYPE	0

MAXIMUM TIME = 5.0000 MINUTES

STORAGE LOCATIONS REQUIRED FOR THIS JOB = 15669
REMAINING AVAILABLE LOCATIONS= 115403

START TYPE	0
GENERATIONS BETWEEN CHECKPOINTS	0
LIST INPUT X-SECTIONS READ FROM TAPE	NO
LIST 1-D MIXTURE X SECTIONS	YES
LIST 2-D MIXTURE X-SECTIONS	YES
BALANCE TABLE TYPE	1
USE X-SECTIONS FROM PREVIOUS CASE	NO
USE GEOMETRY FROM PREVIOUS CASE	NO
USE VELOCITIES FROM PREVIOUS CASE	NO
COMPUTE MATRIX K-EFFECTIVE BY UNIT	NO
COMPUTE MATRIX K-EFFECTIVE BY BOX TYPE	NO
LIST FISS PROB MATRIX BY UNIT	NO
ADJOINT CALCULATION	NO
USE EXPONENTIAL TRANSFORM	NO
O/N = K-EFFCTIVE/FIXED SOURCE PROB.	0
CALCULATE FISSION DENSITIES	YES

GENRL 1

MIXTURE	NUCLIDE	DENSITY
1	-92500	4.48006E-02
1	92800	2.65780E-03
1	92400	4.82700E-04
1	92600	9.57000E-05
2	1101	8.25810E-02
2	6100	3.97020E-02

CROSS SECTIONS READ FROM TAPE

NUCLIDE =	1101	HYDROGEN X(E)	HANSEN ROACH
NUCLIDE =	6100	CARBON	HANSEN ROACH
NUCLIDE =	92400	U-234	MIHALCZO MOD OF H-R U-238
NUCLIDE =	92500	U-235 YR	HANSEN ROACH
NUCLIDE =	92600	U-236	MIHALCZO MOD OF H-R U-238
NUCLIDE =	92800	U-238 Y	HANSEN ROACH

GENRL 1

MIXTURE = 1

GP.	ABSORPTION PROBABILITY	NU*FISSION PROBABILITY	NON-ABSORPTION PROBABILITY	TOTAL CROSS-SECTION	FISSION SPECTRUM
1	2.88282E-01	8.16362E-01	7.11718E-01	2.03826E-01	2.04000E-01
2	2.79495E-01	6.86119E-01	7.20504E-01	2.16334E-01	5.48000E-01
3	2.71457E-01	6.27380E-01	7.28542E-01	2.23507E-01	7.16000E-01
4	2.45009E-01	5.38731E-01	7.54990E-01	2.50360E-01	8.96000E-01
5	1.96930E-01	4.14508E-01	8.03070E-01	3.80508E-01	9.86000E-01
6	2.39931E-01	4.61768E-01	7.60215E-01	5.94246E-01	1.00000E+00
7	3.44514E-01	6.38682E-01	6.55486E-01	7.21796E-01	1.00000E+00
8	5.06884E-01	8.72719E-01	4.93116E-01	9.93835E-01	1.00000E+00
9	7.21710E-01	1.18113E+00	2.78289E-01	1.73778E+00	1.00000E+00
10	8.52618E-01	1.28837E+00	1.47382E-01	3.23737E+00	1.00000E+00
11	8.86332E-01	1.14093E+00	1.13668E-01	4.19760E+00	1.00000E+00
12	8.84983E-01	8.92047E-01	1.15017E-01	4.14836E+00	1.00000E+00
13	7.85621E-01	1.47950E+00	2.14379E-01	2.22565E+00	1.00000E+00
14	8.82566E-01	1.89106E+00	1.17435E-01	4.06296E+00	1.00000E+00
15	9.54627E-01	1.93100E+00	4.53733E-02	1.05157E+01	1.00000E+00
16	9.82873E-01	2.03304E+00	1.71272E-02	2.78582E+01	1.00000E+00

CUMULATIVE TRANSFER PROBABILITIES

FROM I	TO I+ 0	I+ 1	I+ 2	I+ 3	I+ 4	I+ 5
1	3.9857E-01	4.8931E-01	6.1384E-01	8.3220E-01	9.7991E-01	1.0000E+00
2	5.4663E-01	6.2288E-01	8.3538E-01	9.7801E-01	1.0000E+00	1.0000E+00
3	6.9055E-01	8.5777E-01	9.7875E-01	1.0000E+00	1.0000E+00	1.0000E+00
4	8.8815E-01	9.7967E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
5	9.8742E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
6	9.9433E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
7	9.9486E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
8	9.9503E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
9	9.9503E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
10	9.9490E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
I =	11 THRU I=	14 SAME AS ABOVE				
15	9.9591E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
16	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00

MUBAR

FROM I	TO I+ 0	I+ 1	I+ 2	I+ 3	I+ 4	I+ 5
1	0.0	0.0	0.0	0.0	0.0	0.0
I =	2 THRU I=	16 SAME AS ABOVE				

GENRL 1

MIXTURE = 2

GP.	ABSORPTION PROBABILITY	NU*FISSION PROBABILITY	NON-ABSORPTION PROBABILITY	TOTAL CROSS-SECTION	FISSION SPECTRUM
1	0.0	0.0	1.00000E+00	1.67254E-01	0.0
2	0.0	0.0	9.99999E-01	2.33100E-01	0.0
3	0.0	0.0	9.99999E-01	3.68355E-01	0.0
4	0.0	0.0	1.00000E+00	4.55157E-01	0.0
5	0.0	0.0	1.00000E+00	6.85995E-01	0.0
6	0.0	0.0	1.00003E+00	1.13493E+00	0.0
7	0.0	0.0	9.99999E-01	1.35306E+00	0.0
8	5.85257E-05	0.0	9.99941E-01	1.41102E+00	0.0
9	2.34103E-04	0.0	9.99764E-01	1.41102E+00	0.0
10	4.68205E-04	0.0	9.99531E-01	1.41102E+00	0.0
11	8.19360E-04	0.0	9.99179E-01	1.41102E+00	0.0
12	1.45904E-03	0.0	9.98541E-01	1.41499E+00	0.0
13	2.62627E-03	0.0	9.97373E-01	1.41499E+00	0.0
14	3.47661E-03	0.0	9.96523E-01	1.66273E+00	0.0
15	4.80345E-03	0.0	9.95197E-01	2.24075E+00	0.0
16	6.18326E-03	0.0	9.93817E-01	3.89238E+00	0.0

CUMULATIVE TRANSFER PROBABILITIES

FROM I	TO I+ 0	I+ 1	I+ 2	I+ 3	I+ 4	I+ 5
1	1.9342E-01	6.8055E-01	7.9460E-01	9.0866E-01	9.7729E-01	1.0000E+00
2	2.2132E-01	5.3378E-01	7.9275E-01	9.4828E-01	9.9114E-01	1.0000E+00
3	1.9459E-01	6.8300E-01	9.2064E-01	9.8655E-01	9.9753E-01	1.0000E+00
4	2.8980E-01	8.3562E-01	9.7206E-01	9.9510E-01	9.9909E-01	1.0000E+00
5	4.8378E-01	9.1658E-01	9.8531E-01	9.9735E-01	9.9952E-01	1.0000E+00
6	4.5508E-01	9.0727E-01	9.8330E-01	9.9691E-01	9.9909E-01	1.0000E+00
7	4.3686E-01	8.9936E-01	9.8169E-01	9.9445E-01	9.9817E-01	1.0000E+00
8	4.2409E-01	8.9734E-01	9.6875E-01	9.8982E-01	9.9696E-01	1.0000E+00
9	4.2557E-01	8.3094E-01	9.4334E-01	9.8314E-01	9.9438E-01	1.0000E+00
10	3.0123E-01	7.7240E-01	9.3161E-01	9.7728E-01	9.9087E-01	1.0000E+00
11	2.7197E-01	7.8814E-01	9.2977E-01	9.7188E-01	9.9297E-01	1.0000E+00
12	2.9074E-01	7.7013E-01	9.0830E-01	9.7738E-01	1.0000E+00	1.0000E+00
13	2.5917E-01	7.1175E-01	9.2732E-01	1.0000E+00	1.0000E+00	1.0000E+00
14	3.2264E-01	8.3553E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
15	8.0530E-01	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
16	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00

MUBAR

FROM I	TO I+ 0	I+ 1	I+ 2	I+ 3	I+ 4	I+ 5
1	1.0211E-02	5.6558E-01	5.4978E-01	4.1126E-01	2.5180E-01	1.0870E-01
2	2.4011E-02	6.4515E-01	5.8276E-01	3.5763E-01	1.7355E-01	8.0000E-02
3	1.6129E-01	6.1831E-01	4.6792E-01	2.2449E-01	1.0204E-01	0.0
4	1.7467E-01	5.8304E-01	3.0984E-01	1.2598E-01	4.5455E-02	0.0
5	4.2127E-01	5.0651E-01	2.2242E-01	9.0000E-02	5.5556E-02	0.0
6	4.5727E-01	5.4258E-01	2.3732E-01	1.0160E-01	3.3333E-02	0.0
7	4.7738E-01	5.4765E-01	2.4092E-01	1.1005E-01	6.5574E-02	3.3333E-02
8	4.8539E-01	5.4961E-01	2.5410E-01	1.4167E-01	8.1967E-02	3.8462E-02
9	4.8722E-01	5.7735E-01	3.3177E-01	1.8824E-01	1.0417E-01	6.2500E-02
10	4.2374E-01	6.1688E-01	3.6300E-01	2.0256E-01	1.2069E-01	7.0513E-02
11	3.9067E-01	6.1789E-01	3.5691E-01	2.1140E-01	1.2500E-01	4.1667E-02
12	3.8497E-01	6.1886E-01	3.7902E-01	2.2673E-01	7.2351E-02	0.0
13	3.5989E-01	6.3896E-01	4.0011E-01	1.2882E-01	0.0	0.0

14	6.1788E-01	6.2191E-01	1.8182E-01	0.0	0.0	0.0
15	4.5986E-01	3.8040E-01	0.0	0.0	0.0	0.0
16	2.5618E-01	0.0	0.0	0.0	0.0	0.0

GENRL 1

GEOMETRY DESCRIPTION

REGION

0 SUPER BOX 1 NBOX = 1 NBXMAX = 1 NBYMAX = 1 NBZMAX = 1

REGION

1 BOX TYPE 1

REGION

1	GENERAL	1	+X = 0.0	-X = 0.0	+Y = 0.0	-Y = 0.0	+Z = 0.0	-Z = 0.0
2	GENERAL	2	+X = 0.0	-X = 0.0	+Y = 0.0	-Y = 0.0	+Z = 0.0	-Z = 0.0
3	GENERAL	0	+X = 4.9000E+01	-X =-4.9000E+01	+Y = 2.4500E+01	-Y =-2.4500E+01	+Z = 1.4440E+01	-Z =-1.4440E+01
4	CUBOID	0	+X = 4.9000E+01	-X =-4.9000E+01	+Y = 2.4500E+01	-Y =-2.4500E+01	+Z = 1.4440E+01	-Z =-1.4440E+01

REFLECTOR

1	CORE BDY	0	+X = 4.9000E+01	-X =-4.9000E+01	+Y = 2.4500E+01	-Y =-2.4500E+01	+Z = 1.4440E+01	-Z =-1.4440E+01
2	CUBOID	2	+X = 5.0000E+01	-X =-5.0000E+01	+Y = 2.5000E+01	-Y =-2.5000E+01	+Z = 1.4940E+01	-Z =-1.4940E+01

GENRL 1

WEIGHTING FUNCTION

BOX TYPE 1

		GROUP	WTLOW	WTAVG	WT HI
REGION 1 DEFINED GEOMETRY CARD 1		1	0.166667	0.500000	1.500000
		GROUPS I TO		16 SAME AS ABOVE	
REGION 2 DEFINED GEOMETRY CARD 2		1	0.166667	0.500000	1.500000
		GROUPS I TO		16 SAME AS ABOVE	
REGION 3 DEFINED GEOMETRY CARD 3		1	0.166667	0.500000	1.500000
		GROUPS I TO		16 SAME AS ABOVE	
REGION 4 DEFINED GEOMETRY CARD 4		1	0.166667	0.500000	1.500000
		GROUPS I TO		16 SAME AS ABOVE	

REFLECTOR

REGION 1 DEFINED GEOMETRY CARD 5	1	0.166667	0.500000	1.500000
	GROUPS I TO		16 SAME AS ABOVE	
REGION 2 DEFINED GEOMETRY CARD 6	1	0.166667	0.500000	1.500000
	GROUPS I TO		16 SAME AS ABOVE	

```
   2      FEMALE SINGLE
X-ZONE        -0.49000E+02,  0.0         ,  0.49000E+02
Y-ZONE        -0.24500E+02,  0.24500E+02
Z-ZONE        -0.14440E+02, -0.12602E+02, -0.18375E+01,  0.18375E+01,  0.12602E+02,
  0.14440E+02

ZONE       1     1     1
X-BLOCK       -0.49000E+02,  0.0
Y-BLOCK       -0.24500E+02,  0.24500E+02
Z-BLOCK       -0.14440E+02, -0.12602E+02

BLOCK      1     1     1
MEDIA              3,     2,     3
SURFACES           5,     6
SECTOR -1  0
SECTOR  1 -1
SECTOR  0  1

ZONE       1     1     2
X-BLOCK       -0.49000E+02,  0.0
Y-BLOCK       -0.24500E+02,  0.24500E+02
Z-BLOCK       -0.12602E+02, -0.18375E+01

BLOCK      1     1     1
MEDIA              1,     1,     1,     1,     3,     2,     3
SURFACES           1,     2,     3,     4,     5,     6
SECTOR -1  0  0  0  0  0
SECTOR  0 -1  0  0  0  0
SECTOR  0  0 -1  0  0  0
SECTOR  0  0  0 -1  0  0
SECTOR  1  1  1  1 -1  0
SECTOR  0  0  0  0  1 -1
SECTOR  0  0  0  0  0  1

ZONE       1     1     3
X-BLOCK       -0.49000E+02,  0.0
Y-BLOCK       -0.24500E+02,  0.24500E+02
Z-BLOCK       -0.18375E+01,  0.18375E+01

BLOCK      1     1     1
MEDIA              3,     2,     3
SURFACES           5,     6
SECTOR -1  0
SECTOR  1 -1
SECTOR  0  1

ZONE       1     1     4
X-BLOCK       -0.49000E+02,  0.0
Y-BLOCK       -0.24500E+02,  0.24500E+02
Z-BLOCK        0.18375E+01,  0.12602E+02

BLOCK      1     1     1
MEDIA              1,     1,     1,     1,     3,     2,     3
SURFACES           1,     2,     3,     4,     5,     6
SECTOR -1  0  0  0  0  0
SECTOR  0 -1  0  0  0  0
SECTOR  0  0 -1  0  0  0
SECTOR  0  0  0 -1  0  0
SECTOR  1  1  1  1 -1  0
SECTOR  0  0  0  0  1 -1
SECTOR  0  0  0  0  0  1
```

```
ZONE       1     1     5
X-BLOCK       -0.49000E+02,  0.0
Y-BLOCK       -0.24500E+02,  0.24500E+02
Z-BLOCK        0.12602E+02,  0.14440E+02

BLOCK      1     1     1
MEDIA              3,    2,    3
SURFACES           5,    6
SECTOR -1  0
SECTOR  1 -1
SECTOR  0  1

ZONE       2     1     1
X-BLOCK        0.0          ,  0.49000E+02
Y-BLOCK       -0.24500E+02,  0.24500E+02
Z-BLOCK       -0.14440E+02, -0.12602E+02

BLOCK      1     1     1
MEDIA              3,    2,    3
SURFACES          11,   12
SECTOR -1  0
SECTOR  1 -1
SECTOR  0  1

ZONE       2     1     2
X-BLOCK        0.0          ,  0.49000E+02
Y-BLOCK       -0.24500E+02,  0.24500E+02
Z-BLOCK       -0.12602E+02, -0.18375E+01

BLOCK      1     1     1
MEDIA              1,    1,    1,    1,    3,    2,    3
SURFACES           7,    8,    9,   10,   11,   12
SECTOR -1  0  0  0  0  0
SECTOR  0 -1  0  0  0  0
SECTOR  0  0 -1  0  0  0
SECTOR  0  0  0 -1  0  0
SECTOR  1  1  1  1 -1  0
SECTOR  0  0  0  0  1 -1
SECTOR  0  0  0  0  0  1

ZONE       2     1     3
X-BLOCK        0.0          ,  0.49000E+02
Y-BLOCK       -0.24500E+02,  0.24500E+02
Z-BLOCK       -0.18375E+01,  0.18375E+01

BLOCK      1     1     1
MEDIA              3,    2,    3
SURFACES          11,   12
SECTOR -1  0
SECTOR  1 -1
SECTOR  0  1

ZONE       2     1     4
X-BLOCK        0.0          ,  0.49000E+02
Y-BLOCK       -0.24500E+02,  0.24500E+02
Z-BLOCK        0.18375E+01,  0.12602E+02

BLOCK      1     1     1
MEDIA              1,    1,    1,    1,    3,    2,    3
SURFACES           7,    8,    9,   10,   11,   12
SECTOR -1  0  0  0  0  0
SECTOR  0 -1  0  0  0  0
```

```
SECTOR  0  0 -1  0  0  0
SECTOR  0  0  0 -1  0  0
SECTOR  1  1  1  1 -1  0
SECTOR  0  0  0  0  1 -1
SECTOR  0  0  0  0  0  1

ZONE      2     1     5
X-BLOCK       0.0          ,  0.49000E+02
Y-BLOCK     -0.24500E+02,     0.24500E+02
Z-BLOCK       0.12602E+02,     0.14440E+02

BLOCK     1     1     1
MEDIA             3,    2,    3
SURFACES         11,   12
SECTOR -1  0
SECTOR  1 -1
SECTOR  0  1

   12
  0.10000E+01XSQ      0.10000E+01YSQ      0.64170E+02X        0.15170E+02Y
  0.10539E+04      ¥
  0.10000E+01XSQ      0.10000E+01YSQ      0.33830E+02X        0.15170E+02Y
  0.31061E+03      ¥
  0.10000E+01XSQ      0.10000E+01YSQ      0.64170E+02X       -0.15170E+02Y
  0.10539E+04      ¥
  0.10000E+01XSQ      0.10000E+01YSQ      0.33830E+02X       -0.15170E+02Y
  0.31061E+03      ¥
  0.10000E+01XSQ      0.10000E+01YSQ      0.49000E+02X        0.48000E+02      ¥
  0.10000E+01XSQ      0.10000E+01YSQ      0.49000E+02X        0.24250E+02      ¥
  0.10000E+01XSQ      0.10000E+01YSQ     -0.64170E+02X        0.15170E+02Y
  0.10539E+04      ¥
  0.10000E+01XSQ      0.10000E+01YSQ     -0.33830E+02X        0.15170E+02Y
  0.31061E+03      ¥
  0.10000E+01XSQ      0.10000E+01YSQ     -0.64170E+02X       -0.15170E+02Y
  0.10539E+04      ¥
  0.10000E+01XSQ      0.10000E+01YSQ     -0.33830E+02X       -0.15170E+02Y
  0.31061E+03      ¥
  0.10000E+01XSQ      0.10000E+01YSQ     -0.49000E+02X        0.48000E+02      ¥
  0.10000E+01XSQ      0.10000E+01YSQ     -0.49000E+02X        0.24250E+02      ¥

STORAGE LOCATIONS REQUIRED FOR THIS JOB =      15669
REMAINING AVAILABLE LOCATIONS=     114845
```

```
GENRL 1

VOLUMES

SUPER BOX TYPE      1

BOX TYPE      1
          REGION DEFINED BY GEOMETRY CARD       1    VOLUME =     0.0           CM**3        CUMULATIVE VOLUME =     0.0           CM**3
          REGION DEFINED BY GEOMETRY CARD       2    VOLUME =     0.0           CM**3        CUMULATIVE VOLUME =     0.0           CM**3
          REGION DEFINED BY GEOMETRY CARD       3    VOLUME =     1.38682E+05   CM**3        CUMULATIVE VOLUME =     1.38682E+05   CM**3
          REGION DEFINED BY GEOMETRY CARD       4    VOLUME =     0.0           CM**3        CUMULATIVE VOLUME =     1.38682E+05   CM**3

 TOTAL VOLUMES
    1       0.0
    2       0.0
    3       1.38682E+05
    4       0.0

REFLECTOR VOLUMES -  GEOMETRY CARD       5 IS THE CORE BOUNDARY CARD
          REGION DEFINED BY GEOMETRY CARD       6    VOLUME =     1.07182E+04   CM**3        CUMULATIVE VOLUME =     1.49400E+05   CM**3

 TOTAL VOLUMES
    1       1.00000E+00
    2       1.00000E+00
    3       1.38682E+05
    4       0.0
    5       0.0
    6       1.07182E+04

VOLUME FRACTION OF THE CORE CONTAINING FISSILE MATERIAL= 0.72107E-05

START TYPE =     0

 THE NEUTRONS WERE STARTED IN THE ARRAY WITH A FLAT DISTRIBUTION.
THE CHOSEN START TYPE MAY NOT BE ADEQUATE.  TOO MANY ATTEMPTS MAY BE NEEDED TO START THE NEUTRONS

  300 NEUTRONS WERE INITIALLY STARTED
0.01150 MINUTES WERE REQUIRED FOR STARTING.
```

GENRL 1

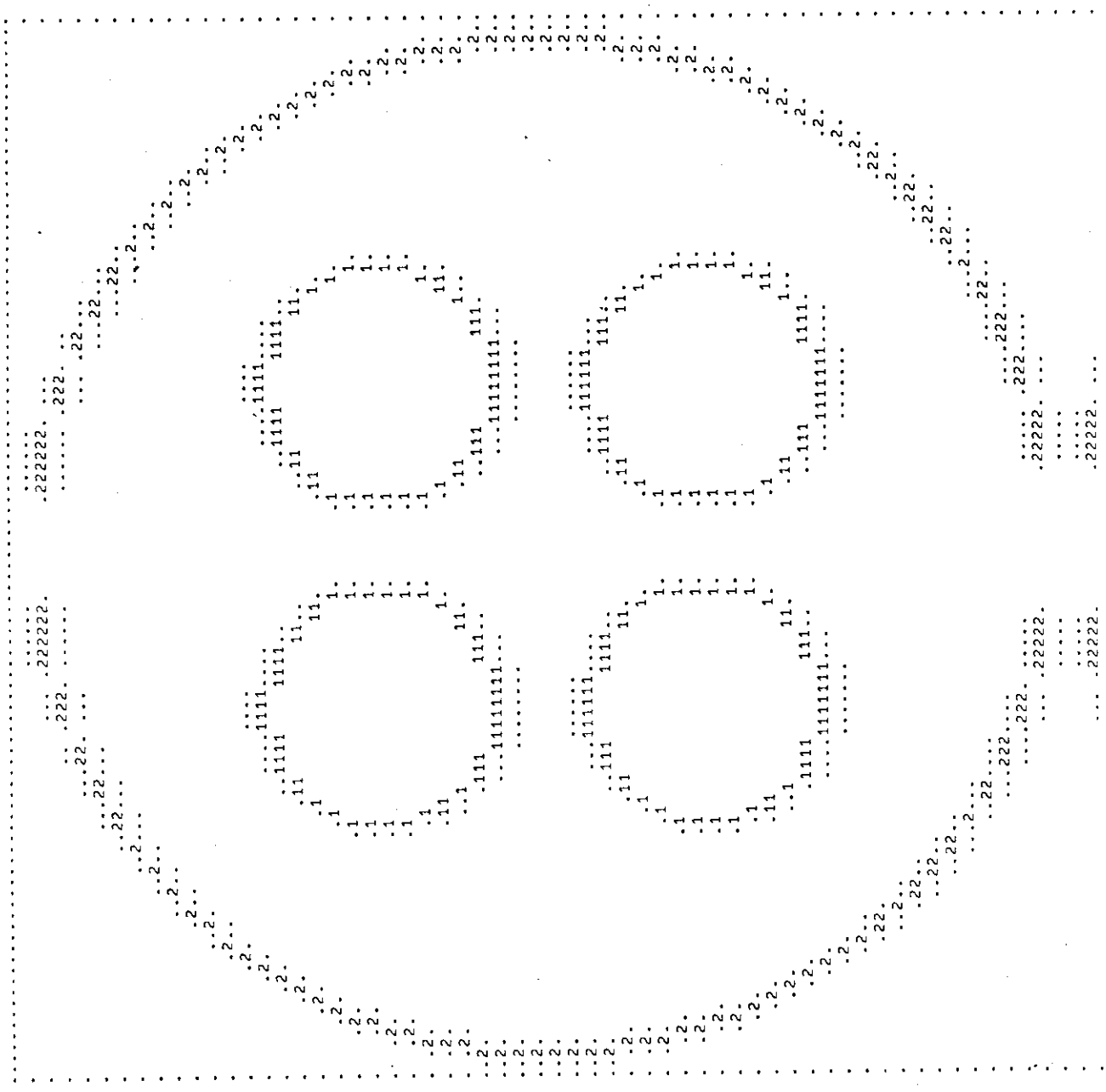
MATERIAL GEOMETRY

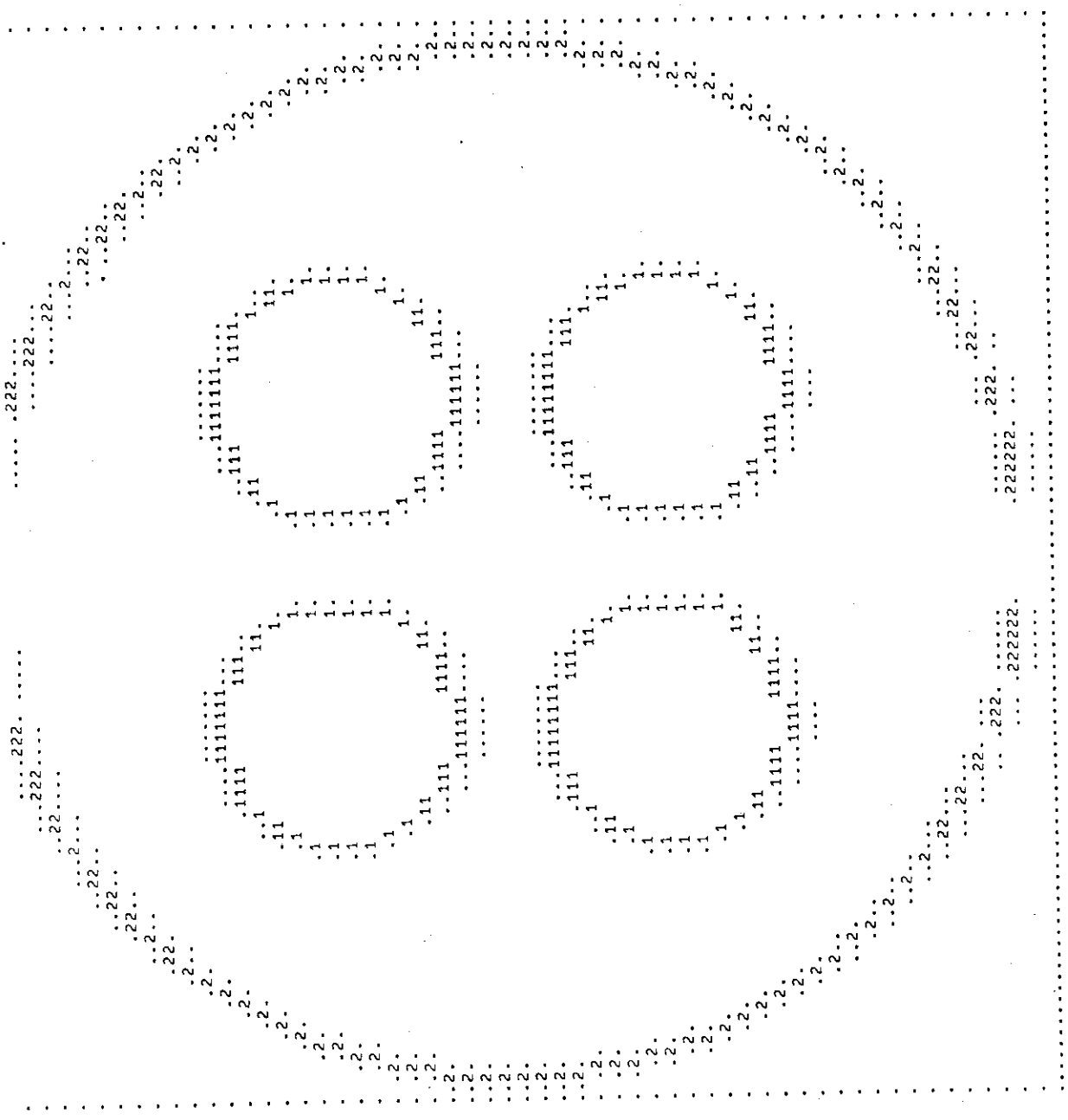
	UPPER LEFT COORDINATES	LOWER RIGHT COORDINATES
X	-0.5000E+02	0.5000E+02
Y	0.2500E+02	-0.2500E+02
Z	0.5000E+01	0.5000E+01

	U AXIS (DOWN)	V AXIS (ACROSS)
X	1.00000	0.0
Y	0.0	1.00000
Z	0.0	0.0

NU= 118 NV= 98 DELU= 0.8475E+00 DELV=-0.5102E+00

***** PLOTTER INFORMATION *****





GENRL 1

GENERATION	K-EFFECTIVE	ELAPSED TIME(MIN)	AVG. K-EFF	DEVIATION	MATRIX K-EFF
1	9.19426E-01	3.13167E-01	1.00000E+00	0.0	0.0
2	9.21995E-01	3.44167E-01	1.00000E+00	0.0	0.0
3	9.61572E-01	3.76167E-01	9.61572E-01	0.0	0.0
4	9.59759E-01	4.09667E-01	9.60666E-01	1.06418E-03	0.0
5	1.06224E+00	4.44500E-01	9.94523E-01	3.38617E-02	0.0
6	1.02077E+00	4.79667E-01	1.00108E+00	2.48272E-02	0.0
7	1.08675E+00	5.14667E-01	1.01822E+00	2.57589E-02	0.0
8	1.04999E+00	5.49500E-01	1.02351E+00	2.16920E-02	0.0
9	9.89179E-01	5.83167E-01	1.01861E+00	1.89740E-02	0.0
10	9.89112E-01	6.16333E-01	1.01492E+00	1.68419E-02	0.0
11	9.87567E-01	6.50333E-01	1.01188E+00	1.51603E-02	0.0
12	9.24864E-01	6.85000E-01	1.00318E+00	1.61157E-02	0.0
13	8.88787E-01	7.18000E-01	9.92780E-01	1.79038E-02	0.0
14	1.02969E+00	7.52167E-01	9.95855E-01	1.66306E-02	0.0
15	9.47895E-01	7.87167E-01	9.92166E-01	1.57367E-02	0.0
16	9.07579E-01	8.21500E-01	9.86124E-01	1.57723E-02	0.0
17	9.10715E-01	8.57667E-01	9.81097E-01	1.55200E-02	0.0
18	9.48291E-01	8.92500E-01	9.79046E-01	1.46619E-02	0.0
19	9.37217E-01	9.26833E-01	9.76586E-01	1.39889E-02	0.0
20	1.00082E+00	9.61167E-01	9.77931E-01	1.32592E-02	0.0
21	1.01056E+00	9.97833E-01	9.79649E-01	1.26584E-02	0.0
22	9.44066E-01	1.03167E+00	9.77869E-01	1.21398E-02	0.0
23	9.70452E-01	1.06833E+00	9.77516E-01	1.15539E-02	0.0
24	9.94199E-01	1.10333E+00	9.78274E-01	1.10434E-02	0.0
25	9.62060E-01	1.13883E+00	9.77568E-01	1.05767E-02	0.0
26	9.36285E-01	1.17367E+00	9.75848E-01	1.02715E-02	0.0
27	9.78023E-01	1.20967E+00	9.75934E-01	9.85398E-03	0.0
28	9.17069E-01	1.24383E+00	9.73670E-01	9.73347E-03	0.0
29	9.47930E-01	1.27950E+00	9.72717E-01	9.41483E-03	0.0
30	9.86069E-01	1.31567E+00	9.73194E-01	9.08426E-03	0.0
31	9.47768E-01	1.35083E+00	9.72316E-01	8.81023E-03	0.0
32	8.73749E-01	1.38417E+00	9.69030E-01	9.12500E-03	0.0
33	9.02188E-01	1.41817E+00	9.66874E-01	9.08605E-03	0.0
34	9.15132E-01	1.45233E+00	9.65257E-01	8.94486E-03	0.0
			WARNING - ONLY 295 INDEPENDENT FISSION POINTS WERE GENERATED.		
35	8.46397E-01	1.48817E+00	9.61655E-01	9.38851E-03	0.0
36	1.02979E+00	1.52333E+00	9.63658E-01	9.32676E-03	0.0
37	1.06913E+00	1.55983E+00	9.66672E-01	9.54511E-03	0.0
38	1.01625E+00	1.59450E+00	9.68049E-01	9.37749E-03	0.0
39	9.42890E-01	1.62917E+00	9.67369E-01	9.14605E-03	0.0
40	9.22736E-01	1.66383E+00	9.66194E-01	8.97963E-03	0.0
41	9.62345E-01	1.70133E+00	9.66095E-01	8.74711E-03	0.0
42	9.18176E-01	1.73717E+00	9.64897E-01	8.60934E-03	0.0
43	9.51970E-01	1.77233E+00	9.64582E-01	8.40257E-03	0.0
44	9.55918E-01	1.80733E+00	9.64375E-01	8.20247E-03	0.0
45	9.16943E-01	1.84433E+00	9.63272E-01	8.08548E-03	0.0
46	1.00842E+00	1.88133E+00	9.64298E-01	7.96667E-03	0.0
47	1.02563E+00	1.91700E+00	9.65661E-01	7.90644E-03	0.0
48	9.18983E-01	1.95300E+00	9.64646E-01	7.79935E-03	0.0
49	9.03311E-01	1.98700E+00	9.63341E-01	7.74244E-03	0.0
50	9.97919E-01	2.02267E+00	9.64061E-01	7.61388E-03	0.0
51	9.87673E-01	2.05850E+00	9.64543E-01	7.47259E-03	0.0
52	1.01029E+00	2.09067E+00	9.65457E-01	7.37882E-03	0.0
53	1.01164E+00	2.12583E+00	9.66363E-01	7.28931E-03	0.0
54	9.46626E-01	2.16067E+00	9.65983E-01	7.15749E-03	0.0
55	1.08454E+00	2.19683E+00	9.68220E-01	7.36877E-03	0.0
56	9.88642E-01	2.23250E+00	9.68598E-01	7.24106E-03	0.0
57	9.23811E-01	2.26700E+00	9.67783E-01	7.15521E-03	0.0
58	1.02416E+00	2.30167E+00	9.68790E-01	7.09781E-03	0.0

59	9.87878E-01	2.33567E+00	9.69125E-01	6.98046E-03	0.0
60	9.81028E-01	2.37133E+00	9.69330E-01	6.86220E-03	0.0
61	1.00693E+00	2.40800E+00	9.69967E-01	6.77531E-03	0.0
62	9.48001E-01	2.44183E+00	9.69601E-01	6.67124E-03	0.0
63	1.04305E+00	2.47883E+00	9.70805E-01	6.67052E-03	0.0
64	9.92996E-01	2.51433E+00	9.71163E-01	6.57175E-03	0.0
65	9.90531E-01	2.55033E+00	9.71470E-01	6.47377E-03	0.0
66	8.93845E-01	2.58433E+00	9.70257E-01	6.48617E-03	0.0
67	1.02547E+00	2.62133E+00	9.71106E-01	6.44196E-03	0.0
68	9.56105E-01	2.65750E+00	9.70879E-01	6.34766E-03	0.0
69	9.84800E-01	2.69250E+00	9.71087E-01	6.25587E-03	0.0
70	1.01355E+00	2.72650E+00	9.71711E-01	6.19466E-03	0.0
71	1.00388E+00	2.76167E+00	9.72177E-01	6.12208E-03	0.0
72	1.03656E+00	2.79783E+00	9.73097E-01	6.10394E-03	0.0
73	9.07837E-01	2.83100E+00	9.72177E-01	6.08752E-03	0.0
74	1.02061E+00	2.86617E+00	9.72850E-01	6.04033E-03	0.0
75	9.62759E-01	2.90150E+00	9.72712E-01	5.95849E-03	0.0
76	9.33356E-01	2.93583E+00	9.72180E-01	5.90138E-03	0.0
77	9.74735E-01	2.97033E+00	9.72214E-01	5.82235E-03	0.0
78	9.64720E-01	3.00633E+00	9.72115E-01	5.74646E-03	0.0
79	9.67638E-01	3.04000E+00	9.72057E-01	5.67152E-03	0.0
80	9.42618E-01	3.07483E+00	9.71679E-01	5.61103E-03	0.0
81	9.90753E-01	3.10833E+00	9.71920E-01	5.54512E-03	0.0
82	1.01469E+00	3.14400E+00	9.72455E-01	5.50148E-03	0.0
83	8.37241E-01	3.17733E+00	9.70786E-01	5.68381E-03	0.0
84	9.74906E-01	3.21350E+00	9.70836E-01	5.61458E-03	0.0
85	9.85183E-01	3.24867E+00	9.71008E-01	5.54941E-03	0.0
86	9.65577E-01	3.28383E+00	9.70944E-01	5.48317E-03	0.0
87	1.02101E+00	3.31983E+00	9.71533E-01	5.45011E-03	0.0
88	9.48902E-01	3.35333E+00	9.71270E-01	5.39279E-03	0.0
89	9.87507E-01	3.38867E+00	9.71456E-01	5.33354E-03	0.0
90	1.00898E+00	3.42317E+00	9.71883E-01	5.28986E-03	0.0
91	9.22453E-01	3.45800E+00	9.71327E-01	5.25953E-03	0.0
92	1.00147E+00	3.49533E+00	9.71662E-01	5.21174E-03	0.0
93	9.76682E-01	3.53017E+00	9.71717E-01	5.15471E-03	0.0
94	9.43770E-01	3.56633E+00	9.71413E-01	5.10775E-03	0.0
95	9.42547E-01	3.60283E+00	9.71102E-01	5.06203E-03	0.0
96	1.02371E+00	3.64133E+00	9.71662E-01	5.03907E-03	0.0
97	9.98181E-01	3.67700E+00	9.71941E-01	4.99356E-03	0.0
98	9.87981E-01	3.71400E+00	9.72108E-01	4.94429E-03	0.0
99	8.82780E-01	3.74950E+00	9.71187E-01	4.97920E-03	0.0
100	1.01233E+00	3.78600E+00	9.71607E-01	4.94608E-03	0.0
101	9.82338E-01	3.82233E+00	9.71715E-01	4.89718E-03	0.0
102	1.03393E+00	3.85983E+00	9.72337E-01	4.88774E-03	0.0
103	9.77626E-01	3.89550E+00	9.72389E-01	4.83965E-03	0.0

THE MATRIX K-EFF IS THE LARGEST EIGENVALUE OF THE MATRIX OF FISSION PROBABILITIES BY UNIT.
THERE ARE NBXMAX * NBYMAX * NBZMAX UNITS IN AN ARRAY.

GENRL 1

LIFETIME = 4.07005E-07 + OR - 3.67336E-08 GENERATION TIME = 3.53726E-07 + OR - 4.55347E-08

NO. OF INITIAL GENERATIONS SKIPPED	AVERAGE K-EFFECTIVE	DEVIATION	67 PER CENT CONFIDENCE INTERVAL	95 PER CENT CONFIDENCE INTERVAL	99 PER CENT CONFIDENCE INTERVAL	NUMBER OF HISTORIES
3	0.97250	+ OR - 0.00488	0.96762 TO 0.97738	0.96273 TO 0.98226	0.95785 TO 0.98714	30000
4	0.97263	+ OR - 0.00493	0.96770 TO 0.97756	0.96277 TO 0.98249	0.95784 TO 0.98741	29700
5	0.97171	+ OR - 0.00489	0.96682 TO 0.97661	0.96192 TO 0.98150	0.95703 TO 0.98639	29400
6	0.97121	+ OR - 0.00492	0.96629 TO 0.97612	0.96137 TO 0.98104	0.95645 TO 0.98596	29100
7	0.97000	+ OR - 0.00482	0.96518 TO 0.97482	0.96037 TO 0.97964	0.95555 TO 0.98446	28800
8	0.96916	+ OR - 0.00479	0.96437 TO 0.97396	0.95957 TO 0.97875	0.95478 TO 0.98354	28500
9	0.96895	+ OR - 0.00484	0.96411 TO 0.97379	0.95927 TO 0.97863	0.95443 TO 0.98347	28200
10	0.96873	+ OR - 0.00489	0.96384 TO 0.97362	0.95895 TO 0.97851	0.95407 TO 0.98340	27900
11	0.96853	+ OR - 0.00494	0.96359 TO 0.97346	0.95865 TO 0.97840	0.95371 TO 0.98334	27600
12	0.96901	+ OR - 0.00497	0.96404 TO 0.97397	0.95907 TO 0.97894	0.95410 TO 0.98391	27300
17	0.97087	+ OR - 0.00502	0.96585 TO 0.97589	0.96083 TO 0.98091	0.95582 TO 0.98593	25800
22	0.97104	+ OR - 0.00526	0.96578 TO 0.97630	0.96052 TO 0.98156	0.95526 TO 0.98682	24300
27	0.97122	+ OR - 0.00558	0.96565 TO 0.97680	0.96007 TO 0.98238	0.95449 TO 0.98796	22800
32	0.97381	+ OR - 0.00573	0.96808 TO 0.97954	0.96235 TO 0.98527	0.95662 TO 0.99100	21300
37	0.97542	+ OR - 0.00542	0.97000 TO 0.98084	0.96458 TO 0.98626	0.95917 TO 0.99168	19800
42	0.97730	+ OR - 0.00565	0.97165 TO 0.98295	0.96600 TO 0.98860	0.96035 TO 0.99425	18300
47	0.97780	+ OR - 0.00594	0.97186 TO 0.98374	0.96591 TO 0.98968	0.95997 TO 0.99563	16800
52	0.97919	+ OR - 0.00620	0.97298 TO 0.98539	0.96678 TO 0.99159	0.96058 TO 0.99779	15300
57	0.97790	+ OR - 0.00628	0.97162 TO 0.98418	0.96534 TO 0.99046	0.95906 TO 0.99674	13800
62	0.97647	+ OR - 0.00688	0.96959 TO 0.98335	0.96272 TO 0.99023	0.95584 TO 0.99711	12300
67	0.97471	+ OR - 0.00709	0.96762 TO 0.98180	0.96053 TO 0.98889	0.95344 TO 0.99598	10800
72	0.97080	+ OR - 0.00778	0.96302 TO 0.97857	0.95524 TO 0.98635	0.94747 TO 0.99413	9300
77	0.97290	+ OR - 0.00861	0.96429 TO 0.98151	0.95568 TO 0.99012	0.94707 TO 0.99873	7800
82	0.97215	+ OR - 0.01036	0.96178 TO 0.98251	0.95142 TO 0.99287	0.94105 TO 1.00324	6300
87	0.97695	+ OR - 0.00999	0.96696 TO 0.98693	0.95698 TO 0.99692	0.94699 TO 1.00691	4800
92	0.97835	+ OR - 0.01294	0.96541 TO 0.99129	0.95247 TO 1.00423	0.93953 TO 1.01717	3300

GENRL 1

NO. OF INITIAL GENERATIONS SKIPPED	AVERAGE K-EFFECTIVE	DEVIATION	67 PER CENT CONFIDENCE INTERVAL	95 PER CENT CONFIDENCE INTERVAL	99 PER CENT CONFIDENCE INTERVAL	NUMBER OF HISTORIES
97	0.97950	+ OR - 0.02120	0.95830 TO 1.00069	0.93710 TO 1.02189	0.91591 TO 1.04308	1800

ELAPSED TIME 3.89550MINUTES

GENRL 1

**** FISSION DENSITIES ****

	REGION	FISSION DENSITY	PERCENT DEVIATION	TOTAL FISSIONS
SUPER BOX TYPE	1			
BOX TYPE 1				
	1	9.724E-01	0.50	9.724E-01
	2	0.0	0.0	0.0
	3	0.0	0.0	0.0
	4	0.0	0.0	0.0
REFLECTOR				
	1	0.0	0.0	0.0
	2	0.0	0.0	0.0

******** WARNING ************ WARNING **********
THE FISSION DENSITY AND FLUX WERE COMPUTED USING ARBITRARY VOLUMES (LISTED UNDER - TOTAL VOLUMES -) IN THE REGIONS DESCRIBED BY GENERALIZED GEOM. THEY MUST BE MULTIPLIED BY THE TRUE VOLUME OVER THE ARBITRARY VOLUME TO OBTAIN THE CORRECT VALUES.

GENRL 1

SUMMARY FOR CORE BDY VOLUME = 1.38684E+05

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		2.02900E-01	0.0	4.91707E-02	7.62331E-02	4.84680E-02	7.81928E-02	1.00005E+00
2	0.0		3.46100E-01	1.28564E-02	1.35795E-01	1.22354E-01	9.36484E-02	1.43081E-01	1.00004E+00
3	0.0		1.67233E-01	3.87901E-02	1.11456E-01	6.15527E-02	5.83262E-02	8.61688E-02	1.00003E+00
4	0.0		1.82533E-01	1.17828E-01	2.79849E-01	5.91514E-02	9.89054E-02	1.42767E-01	1.00005E+00
5	0.0		8.72666E-02	1.24596E-01	3.68181E-01	2.83556E-02	8.63011E-02	9.73811E-02	1.00000E+00
6	0.0		1.39667E-02	4.85134E-02	9.70431E-02	1.71415E-02	2.63731E-02	1.89876E-02	9.99673E-01
7	0.0		0.0	1.84127E-02	1.35709E-02	1.10718E-02	3.25535E-03	4.23607E-03	9.99934E-01
8	0.0		0.0	1.22775E-02	7.59348E-03	7.73704E-03	2.47758E-03	2.02102E-03	9.99943E-01
9	0.0		0.0	8.49875E-03	5.13696E-03	5.12395E-03	1.92894E-03	1.41716E-03	9.99999E-01
10	0.0		0.0	4.78642E-03	1.16393E-03	3.19852E-03	9.89298E-04	6.61278E-04	9.99996E-01
11	0.0		0.0	3.44840E-03	1.10714E-03	2.10605E-03	7.41789E-04	5.72442E-04	9.99996E-01
12	0.0		0.0	2.74187E-03	7.82307E-04	1.79236E-03	6.58799E-04	3.22238E-04	9.99994E-01
13	0.0		0.0	2.08110E-03	5.30031E-04	1.52434E-03	1.83248E-04	3.52759E-04	9.99996E-01
14	0.0		0.0	1.50009E-03	4.89029E-04	1.22315E-03	2.95405E-04	-2.36538E-05	9.99998E-01
15	0.0		0.0	1.63721E-03	2.45918E-03	7.05008E-04	6.08435E-04	3.12254E-04	9.99992E-01
16	0.0		0.0	1.30230E-03	1.37814E-02	0.0	1.03423E-03	2.46016E-04	9.99994E-01
SUM	0.0		1.00000E+00	3.99269E-01	1.08810E+00	3.99270E-01	4.24195E-01	5.76696E-01	1.00002E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	2.	8.66475E-06	0.	0.0	1.	1.23343E-05	5763.	1.25386E-01
2	42.	1.94330E-04	0.	0.0	28.	3.36604E-04	12462.	2.57291E-01
3	148.	7.22460E-04	0.	0.0	64.	7.53558E-04	9168.	1.71856E-01
4	780.	3.78093E-03	0.	0.0	362.	4.26063E-03	20791.	3.32849E-01
5	1680.	8.20589E-03	0.	0.0	713.	8.38153E-03	27521.	3.84654E-01
6	899.	4.20778E-03	0.	0.0	352.	4.20798E-03	8318.	1.08316E-01
7	143.	6.54768E-04	0.	0.0	67.	8.04036E-04	1502.	2.35246E-02
8	128.	4.97206E-04	0.	0.0	36.	4.54608E-04	942.	1.47295E-02
9	105.	3.16992E-04	0.	0.0	22.	2.88287E-04	588.	9.89402E-03
10	54.	1.29552E-04	0.	0.0	14.	1.92211E-04	253.	4.12911E-03
11	44.	8.46509E-05	0.	0.0	4.	5.65183E-05	177.	3.14651E-03
12	36.	6.58928E-05	0.	0.0	7.	9.74055E-05	141.	2.45800E-03
13	15.	4.75289E-05	0.	0.0	2.	2.67663E-05	116.	2.02103E-03
14	15.	3.49273E-05	0.	0.0	2.	2.97332E-05	83.	1.67884E-03
15	32.	2.74018E-05	0.	0.0	1.	1.58717E-05	183.	3.14752E-03
16	56.	2.20612E-05	0.	0.0	0.	0.0	834.	1.37814E-02
SUM	4179.	1.90010E-02	0.	0.0	1675.	1.99181E-02	88842.	1.45886E+00

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	4.32131E-06	0.0	7.81928E-02	1.37252E-01	0.0	0.0
2	7.90734E-06	0.0	1.43081E-01	2.29893E-01	0.0	0.0
3	4.76210E-06	0.0	8.61688E-02	1.34801E-01	0.0	0.0
4	7.89000E-06	0.0	1.42767E-01	2.17475E-01	0.0	0.0
5	5.38174E-06	0.0	9.73811E-02	1.81651E-01	0.0	0.0
6	1.04934E-06	0.0	1.89876E-02	5.07572E-02	0.0	0.0
7	2.34105E-07	0.0	4.23607E-03	6.03498E-03	0.0	0.0
8	1.11691E-07	0.0	2.02102E-03	4.26442E-03	0.0	0.0
9	7.83191E-08	0.0	1.41716E-03	3.15319E-03	0.0	0.0
10	3.65454E-08	0.0	6.61278E-04	1.49198E-03	0.0	0.0
11	3.16358E-08	0.0	5.72442E-04	9.51547E-04	0.0	0.0
12	1.78084E-08	0.0	3.22238E-04	6.60437E-04	0.0	0.0
13	1.94951E-08	0.0	3.52759E-04	3.35046E-04	0.0	0.0
14	-1.30722E-09	0.0	-2.36538E-05	6.20411E-04	0.0	0.0
15	1.72566E-08	0.0	3.12254E-04	1.20000E-03	0.0	0.0
16	1.35960E-08	0.0	2.46016E-04	1.96183E-03	0.0	0.0
SUM	3.18709E-05	0.0	5.76696E-01	9.72504E-01	0.0	0.0

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	4.03231E-03	5.20773E-03	1.04743E-02	1.14515E-02	2.26829E-02	2.43441E-02	7.81928E-02
2	7.25826E-03	9.96766E-03	1.96462E-02	2.08491E-02	4.39806E-02	4.13794E-02	1.43081E-01
3	4.28491E-03	6.30836E-03	1.24966E-02	1.28604E-02	2.70750E-02	2.31436E-02	8.61688E-02
4	6.84630E-03	9.07164E-03	1.95626E-02	2.03065E-02	4.43537E-02	4.26265E-02	1.42767E-01
5	4.60223E-03	6.83470E-03	1.44976E-02	1.61753E-02	2.85264E-02	2.67450E-02	9.73811E-02
6	8.77705E-04	1.73213E-03	3.71726E-03	3.71848E-03	4.23099E-03	4.71102E-03	1.89876E-02
7	7.27864E-05	1.66626E-04	1.29895E-03	1.16715E-03	3.52585E-04	1.17797E-03	4.23607E-03
8	8.81549E-05	-5.76430E-05	6.21331E-04	1.10986E-03	3.01905E-04	-4.25821E-05	2.02102E-03
9	1.31029E-04	-1.07734E-04	3.73465E-04	5.26571E-04	5.31990E-05	4.40633E-04	1.41716E-03
10	-9.32211E-05	1.58374E-04	1.51102E-04	9.90281E-05	-8.89969E-07	3.46886E-04	6.61278E-04
11	7.27839E-06	3.36246E-06	1.42802E-04	1.13392E-04	6.71802E-05	2.38427E-04	5.72442E-04
12	-1.58315E-05	-2.70972E-04	2.35710E-04	2.50215E-05	2.38553E-04	1.09758E-04	3.22238E-04
13	1.88488E-05	-9.35602E-05	-2.03174E-05	2.74045E-05	2.89522E-04	1.30861E-04	3.52759E-04
14	2.30077E-05	-5.64914E-05	8.06931E-05	7.60252E-05	-1.72714E-05	-1.29617E-04	-2.36538E-05
15	-9.62392E-05	3.83392E-05	5.94435E-07	1.41608E-04	1.19851E-04	1.08100E-04	3.12254E-04
16	-3.94315E-05	-1.92833E-04	3.63482E-04	-8.00548E-06	-4.58434E-05	1.68646E-04	2.46016E-04
SUM	2.79981E-02	3.87097E-02	8.36420E-02	8.86388E-02	1.72208E-01	1.65498E-01	5.76696E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	2.84940E-06	3.67996E-06	3.70061E-06	4.04585E-06	4.72306E-06	5.06892E-06	4.32131E-06
2	5.12894E-06	7.04351E-06	6.94112E-06	7.36610E-06	9.15737E-06	8.61583E-06	7.90734E-06
3	3.02791E-06	4.45770E-06	4.41515E-06	4.54367E-06	5.63766E-06	4.81915E-06	4.76210E-06
4	4.83779E-06	6.41029E-06	6.91196E-06	7.17484E-06	9.23560E-06	8.87602E-06	7.89000E-06
5	3.25209E-06	4.82954E-06	5.12229E-06	5.71516E-06	5.94014E-06	5.56918E-06	5.38174E-06
6	6.20234E-07	1.22403E-06	1.31342E-06	1.31385E-06	8.81085E-07	9.81046E-07	1.04934E-06
7	5.14353E-08	1.17747E-07	4.58956E-07	4.12384E-07	7.34250E-08	2.45309E-07	2.34105E-07
8	6.22953E-08	-4.07342E-08	2.19533E-07	3.92143E-07	6.28705E-08	-8.86765E-09	1.11691E-07
9	9.25921E-08	-7.61308E-08	1.31954E-07	1.86052E-07	1.10785E-08	9.17603E-08	7.83191E-08
10	-6.58752E-08	1.11916E-07	5.33886E-08	3.49894E-08	-1.85361E-10	7.22377E-08	3.65454E-08
11	5.14330E-09	2.37604E-09	5.04557E-08	4.00645E-08	1.39900E-08	4.96516E-08	3.16358E-08
12	-1.11874E-08	-1.91484E-07	8.32827E-08	8.84080E-09	4.96778E-08	2.28566E-08	1.78084E-08
13	1.33196E-08	-6.61147E-08	-7.17871E-09	9.68278E-09	6.02920E-08	2.72513E-08	1.94951E-08
14	1.62585E-08	-3.99199E-08	2.85111E-08	2.68617E-08	-3.59672E-09	-2.69923E-08	-1.30722E-09
15	-6.80080E-08	2.70927E-08	2.10043E-10	5.00340E-08	2.49586E-08	2.25114E-08	1.72566E-08
16	-2.78645E-08	-1.36265E-07	1.28428E-07	-2.82854E-09	-9.54671E-09	3.51200E-08	1.35960E-08
SUM	1.97844E-05	2.73534E-05	2.95520E-05	3.13176E-05	3.58578E-05	3.44609E-05	3.18709E-05

GENRL 1

CORE BDY CUBO 2 MIXTURE = 2 VOLUME = 1.07182E+04

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		0.0	0.0	2.47789E-03	9.90504E-03	0.0	-9.90534E-03	0.0
2	0.0		0.0	6.00631E-03	6.29015E-03	2.43460E-02	0.0	-1.83429E-02	1.00053E+00
3	0.0		0.0	1.15167E-02	4.95983E-03	2.27579E-02	0.0	-1.12429E-02	1.00015E+00
4	0.0		0.0	2.32920E-02	1.74271E-02	4.17058E-02	0.0	-1.84153E-02	1.00006E+00
5	0.0		0.0	4.34461E-02	3.89907E-02	4.05241E-02	0.0	2.92397E-03	9.99955E-01
6	0.0		0.0	4.58661E-02	2.50951E-02	3.05169E-02	0.0	1.53548E-02	9.99878E-01
7	0.0		0.0	3.29078E-02	1.44815E-02	2.01248E-02	0.0	1.27856E-02	9.99921E-01
8	0.0		0.0	2.19052E-02	9.13729E-03	1.37390E-02	1.33902E-06	8.16647E-03	9.99928E-01
9	0.0		0.0	1.52777E-02	7.22025E-03	9.38633E-03	3.88866E-06	5.88864E-03	9.99926E-01
10	0.0		0.0	8.49243E-03	2.98377E-03	5.26817E-03	3.86547E-06	3.22042E-03	9.99998E-01
11	0.0		0.0	6.39789E-03	1.25392E-03	4.23241E-03	4.49902E-06	2.16100E-03	9.99998E-01
12	0.0		0.0	5.07366E-03	1.21791E-03	2.87780E-03	6.00082E-06	2.17879E-03	9.99994E-01
13	0.0		0.0	3.65370E-03	1.01126E-03	2.54351E-03	9.36048E-06	1.10084E-03	9.99996E-01
14	0.0		0.0	2.69187E-03	8.06780E-04	1.59414E-03	8.37624E-06	1.08937E-03	9.99996E-01
15	0.0		0.0	2.17863E-03	4.57006E-03	1.09864E-03	2.73611E-05	1.05265E-03	9.99993E-01
16	0.0		0.0	1.91468E-03	2.10319E-02	0.0	1.30841E-04	1.78945E-03	9.99991E-01
SUM	0.0		0.0	2.30620E-01	1.58955E-01	2.30620E-01	1.95532E-04	-1.94295E-04	9.99972E-01

GRP.	NUMBER	KILLED	WT	NUMBER	SPLIT	WT	NUMBER	BORN	WT	NUMBER	SURV	WT
1	0.	0.0		0.	0.0		0.	0.0		407.	1.23824E-02	
2	0.	0.0		0.	0.0		0.	0.0		1078.	3.06350E-02	
3	0.	0.0		0.	0.0		0.	0.0		1092.	2.77169E-02	
4	0.	0.0		0.	0.0		0.	0.0		2831.	5.91310E-02	
5	0.	0.0		0.	0.0		0.	0.0		4409.	7.95129E-02	
6	0.	0.0		0.	0.0		0.	0.0		3112.	5.56104E-02	
7	0.	0.0		0.	0.0		0.	0.0		1900.	3.46046E-02	
8	0.	0.0		0.	0.0		0.	0.0		1288.	2.28743E-02	
9	0.	0.0		0.	0.0		0.	0.0		912.	1.66051E-02	
10	0.	0.0		0.	0.0		0.	0.0		462.	8.25193E-03	
11	0.	0.0		0.	0.0		0.	0.0		311.	5.48632E-03	
12	2.	1.11064E-05		0.	0.0		0.	0.0		246.	4.09570E-03	
13	0.	0.0		0.	0.0		0.	0.0		206.	3.55477E-03	
14	0.	0.0		0.	0.0		0.	0.0		147.	2.40091E-03	
15	0.	0.0		0.	0.0		0.	0.0		349.	5.66869E-03	
16	1.	5.53455E-06		0.	0.0		1.	1.11291E-05		1339.	2.10152E-02	
SUM	3.	1.66410E-05		0.	0.0		1.	1.11291E-05		20089.	3.89546E-01	

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	3.60090E-06	7.81928E-02	6.82875E-02	0.0	6.10240E-06	2.28
2	6.57764E-06	1.43081E-01	1.24738E-01	0.0	1.15998E-05	1.59
3	3.95096E-06	8.61688E-02	7.49259E-02	0.0	7.28728E-06	1.95
4	6.55727E-06	1.42767E-01	1.24352E-01	0.0	1.24161E-05	1.54
5	5.28924E-06	9.73811E-02	1.00305E-01	0.0	1.10331E-05	1.64
6	1.81093E-06	1.89876E-02	3.43424E-02	0.0	4.40222E-06	2.31
7	8.97580E-07	4.23607E-03	1.70217E-02	0.0	2.36734E-06	3.54
8	5.37202E-07	2.02102E-03	1.01875E-02	0.0	1.39054E-06	3.81
9	3.85246E-07	1.41716E-03	7.30580E-03	0.0	1.12991E-06	4.54
10	2.04688E-07	6.61278E-04	3.88170E-03	0.0	5.21390E-07	6.70
11	1.44138E-07	5.72442E-04	2.73344E-03	0.0	3.82094E-07	7.48
12	1.31883E-07	3.22238E-04	2.50103E-03	0.0	3.50951E-07	8.03
13	7.66503E-08	3.52759E-04	1.45360E-03	0.0	2.45209E-07	8.94
14	5.61968E-08	-2.36538E-05	1.06572E-03	0.0	1.40090E-07	10.98
15	7.19731E-08	3.12254E-04	1.36490E-03	0.0	2.42587E-07	12.50
16	1.07333E-07	2.46016E-04	2.03547E-03	0.0	5.19073E-07	12.03
SUM	3.03997E-05	5.76696E-01	5.76502E-01	0.0	6.01297E-05	0.70

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	3.31369E-03	3.97733E-03	9.27087E-03	1.03658E-02	1.98781E-02	2.14818E-02	6.82875E-02
2	5.59568E-03	7.99292E-03	1.78933E-02	1.96759E-02	3.79666E-02	3.56139E-02	1.24738E-01
3	3.03120E-03	4.77223E-03	1.16393E-02	1.15092E-02	2.35680E-02	2.04060E-02	7.49259E-02
4	5.51458E-03	6.89520E-03	1.71513E-02	1.81396E-02	3.94716E-02	3.71798E-02	1.24352E-01
5	4.45633E-03	6.62164E-03	1.45137E-02	1.61045E-02	3.01698E-02	2.84391E-02	1.00305E-01
6	1.58785E-03	2.52789E-03	5.39574E-03	5.05072E-03	9.75585E-03	1.00243E-02	3.43424E-02
7	1.19458E-03	1.35291E-03	2.88530E-03	3.04189E-03	4.09093E-03	4.45610E-03	1.70217E-02
8	7.31660E-04	6.95590E-04	1.60785E-03	2.25112E-03	2.49965E-03	2.40163E-03	1.01875E-02
9	5.68664E-04	5.34543E-04	1.02718E-03	1.23620E-03	1.71971E-03	2.21950E-03	7.30580E-03
10	4.48088E-04	6.19154E-04	5.09535E-04	5.82196E-04	5.72214E-04	1.15051E-03	3.88170E-03
11	3.05732E-04	2.53083E-04	5.23186E-04	4.46856E-04	6.71232E-04	5.33352E-04	2.73344E-03
12	1.67559E-04	4.70328E-04	4.69148E-04	3.94906E-04	5.09828E-04	4.89261E-04	2.50103E-03
13	3.15409E-05	2.14242E-04	2.80906E-04	1.82817E-04	5.30852E-04	2.13239E-04	1.45360E-03
14	1.74415E-04	1.35976E-04	2.07440E-04	1.13251E-04	1.67172E-04	2.67462E-04	1.06572E-03
15	1.07853E-04	1.59020E-04	3.36091E-04	2.70630E-04	3.03291E-04	1.88014E-04	1.36490E-03
16	1.38115E-04	2.82585E-04	4.53941E-04	3.71401E-04	3.36666E-04	4.52758E-04	2.03547E-03
SUM	2.73675E-02	3.75046E-02	8.41644E-02	8.97366E-02	1.72211E-01	1.65516E-01	5.76502E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	2.21799E-06	2.66216E-06	3.10256E-06	3.46895E-06	3.97544E-06	4.29614E-06	3.60090E-06
2	3.74535E-06	5.34985E-06	5.98797E-06	6.58446E-06	7.59260E-06	7.12214E-06	6.57764E-06
3	2.02893E-06	3.19422E-06	3.89518E-06	3.85165E-06	4.71326E-06	4.08098E-06	3.95096E-06
4	3.69108E-06	4.61512E-06	5.74006E-06	6.07079E-06	7.89410E-06	7.43582E-06	6.55727E-06
5	2.98279E-06	4.43204E-06	4.85733E-06	5.38984E-06	6.03375E-06	5.68763E-06	5.28924E-06
6	1.06282E-06	1.69204E-06	1.80581E-06	1.69034E-06	1.95123E-06	2.00494E-06	1.81093E-06
7	7.99586E-07	9.05567E-07	9.65631E-07	1.01804E-06	8.18185E-07	8.91218E-07	8.97580E-07
8	4.89733E-07	4.65590E-07	5.38102E-07	7.53389E-07	4.99929E-07	4.80324E-07	5.37202E-07
9	3.80632E-07	3.57793E-07	3.43770E-07	4.13723E-07	3.43940E-07	4.43900E-07	3.85246E-07
10	2.99924E-07	4.14427E-07	1.70527E-07	1.94844E-07	1.14443E-07	2.30102E-07	2.04688E-07
11	2.04640E-07	1.69400E-07	1.75095E-07	1.49550E-07	1.34246E-07	1.06670E-07	1.44138E-07
12	1.12154E-07	3.14810E-07	1.57011E-07	1.32164E-07	1.01966E-07	9.78521E-08	1.31883E-07
13	2.11117E-08	1.43402E-07	9.40112E-08	6.11836E-08	1.06170E-07	4.26477E-08	7.66503E-08
14	1.16744E-07	9.10145E-08	6.94244E-08	3.79019E-08	3.34344E-08	5.34923E-08	5.61968E-08
15	7.21906E-08	1.06439E-07	1.12480E-07	9.05724E-08	6.06582E-08	3.76029E-08	7.19731E-08
16	9.24464E-08	1.89146E-07	1.51921E-07	1.24298E-07	6.73332E-08	9.05516E-08	1.07333E-07
SUM	1.83180E-05	2.51030E-05	2.81668E-05	3.00316E-05	3.44406E-05	3.31019E-05	3.03997E-05

GENRL 1

SUMMARY FOR SYSTEM VOLUME = 1.49402E+05

GRP.	FIX	SOURCE	FISS SOURCE	IN SCATTER	SLF SCATTER	OUT SCATTER	ABSORPTION	LEAKAGE	BALANCE
1	0.0		2.02900E-01	0.0	5.16486E-02	8.61381E-02	4.84680E-02	6.82875E-02	1.00005E+00
2	0.0		3.46100E-01	1.88627E-02	1.42085E-01	1.46700E-01	9.36484E-02	1.24738E-01	1.00005E+00
3	0.0		1.67233E-01	5.03069E-02	1.16416E-01	8.43106E-02	5.83262E-02	7.49259E-02	1.00004E+00
4	0.0		1.82533E-01	1.41120E-01	2.97276E-01	1.00857E-01	9.89054E-02	1.24352E-01	1.00005E+00
5	0.0		8.72666E-02	1.68042E-01	4.07171E-01	6.88796E-02	8.63011E-02	1.00305E-01	9.99994E-01
6	0.0		1.39667E-02	9.43794E-02	1.22138E-01	4.76583E-02	2.63731E-02	3.43424E-02	9.99756E-01
7	0.0		0.0	5.13205E-02	2.80525E-02	3.11966E-02	3.25535E-03	1.70217E-02	9.99926E-01
8	0.0		0.0	3.41827E-02	1.67308E-02	2.14760E-02	2.47892E-03	1.01875E-02	9.99933E-01
9	0.0		0.0	2.37765E-02	1.23572E-02	1.45103E-02	1.93283E-03	7.30580E-03	9.99952E-01
10	0.0		0.0	1.32788E-02	4.14770E-03	8.46669E-03	9.93164E-04	3.88170E-03	9.99997E-01
11	0.0		0.0	9.84628E-03	2.36105E-03	6.33845E-03	7.46288E-04	2.73344E-03	9.99997E-01
12	0.0		0.0	7.81553E-03	2.00022E-03	4.67016E-03	6.64800E-04	2.50103E-03	9.99995E-01
13	0.0		0.0	5.73479E-03	1.54130E-03	4.06785E-03	1.92608E-04	1.45360E-03	9.99997E-01
14	0.0		0.0	4.19196E-03	1.29581E-03	2.81729E-03	3.03781E-04	1.06572E-03	9.99997E-01
15	0.0		0.0	3.81584E-03	7.02924E-03	1.80364E-03	6.35796E-04	1.36490E-03	9.99992E-01
16	0.0		0.0	3.21698E-03	3.48133E-02	0.0	1.16507E-03	2.03547E-03	9.99992E-01
SUM	0.0		1.00000E+00	6.29890E-01	1.24706E+00	6.29891E-01	4.24390E-01	5.76502E-01	1.00001E+00

GRP.	NUMBER	KILLED WT	NUMBER	SPLIT WT	NUMBER	BORN WT	NUMBER	SURV WT
1	2.	8.66475E-06	0.	0.0	1.	1.23343E-05	6170.	1.37768E-01
2	42.	1.94330E-04	0.	0.0	28.	3.36604E-04	13540.	2.87926E-01
3	148.	7.22460E-04	0.	0.0	64.	7.53558E-04	10260.	1.99572E-01
4	780.	3.78093E-03	0.	0.0	362.	4.26063E-03	23622.	3.91980E-01
5	1680.	8.20589E-03	0.	0.0	713.	8.38153E-03	31930.	4.64167E-01
6	899.	4.20778E-03	0.	0.0	352.	4.20798E-03	11430.	1.63927E-01
7	143.	6.54768E-04	0.	0.0	67.	8.04036E-04	3402.	5.81292E-02
8	128.	4.97206E-04	0.	0.0	36.	4.54608E-04	2230.	3.76038E-02
9	105.	3.16992E-04	0.	0.0	22.	2.88287E-04	1500.	2.64991E-02
10	54.	1.29552E-04	0.	0.0	14.	1.92211E-04	715.	1.23810E-02
11	44.	8.46509E-05	0.	0.0	4.	5.65183E-05	488.	8.63283E-03
12	38.	7.69992E-05	0.	0.0	7.	9.74055E-05	387.	6.55369E-03
13	15.	4.75289E-05	0.	0.0	2.	2.67663E-05	322.	5.57580E-03
14	15.	3.49273E-05	0.	0.0	2.	2.97332E-05	230.	4.07975E-03
15	32.	2.74018E-05	0.	0.0	1.	1.58717E-05	532.	8.81620E-03
16	57.	2.75958E-05	0.	0.0	1.	1.11291E-05	2173.	3.47967E-02
SUM	4182.	1.90177E-02	0.	0.0	1676.	1.99292E-02	108931.	1.84840E+00

GRP	TOTAL CURR	LEAKAGE-	LEAKAGE+	FISSION	FLUX	DEVIATION
1	3.60090E-06	0.0	6.82875E-02	1.37252E-01	1.64760E-05	1.72
2	6.57764E-06	0.0	1.24738E-01	2.29893E-01	3.07564E-05	1.18
3	3.95096E-06	0.0	7.49259E-02	1.34801E-01	1.92091E-05	1.68
4	6.55727E-06	0.0	1.24352E-01	2.17475E-01	3.21550E-05	0.91
5	5.28924E-06	0.0	1.00305E-01	1.81651E-01	2.41389E-05	1.32
6	1.81093E-06	0.0	3.43424E-02	5.07572E-02	5.96228E-06	2.54
7	8.97580E-07	0.0	1.70217E-02	6.03498E-03	2.04433E-06	4.12
8	5.37202E-07	0.0	1.01875E-02	4.26442E-03	1.34121E-06	5.21
9	3.85246E-07	0.0	7.30580E-03	3.15319E-03	9.63334E-07	6.10
10	2.04688E-07	0.0	3.88170E-03	1.49198E-03	4.61113E-07	8.29
11	1.44138E-07	0.0	2.73344E-03	9.51547E-04	3.06556E-07	9.73
12	1.31883E-07	0.0	2.50103E-03	6.60437E-04	3.05822E-07	10.17
13	7.66503E-08	0.0	1.45360E-03	3.35046E-04	1.87799E-07	12.38
14	5.61968E-08	0.0	1.06572E-03	6.20411E-04	1.17608E-07	17.74
15	7.19731E-08	0.0	1.36490E-03	1.20000E-03	2.22004E-07	13.83
16	1.07333E-07	0.0	2.03547E-03	1.96183E-03	5.31095E-07	12.71
SUM	3.03997E-05	0.0	5.76502E-01	9.72504E-01	1.35178E-04	0.39

	LEAKAGE+X	LEAKAGE-X	LEAKAGE+Y	LEAKAG-Y	LEAKAGE+Z	LEAKAGE-Z	TOTAL
1	3.31369E-03	3.97733E-03	9.27087E-03	1.03658E-02	1.98781E-02	2.14818E-02	6.82875E-02
2	5.59568E-03	7.99292E-03	1.78933E-02	1.96759E-02	3.79666E-02	3.56139E-02	1.24738E-01
3	3.03120E-03	4.77223E-03	1.16393E-02	1.15092E-02	2.35680E-02	2.04060E-02	7.49259E-02
4	5.51458E-03	6.89520E-03	1.71513E-02	1.81396E-02	3.94716E-02	3.71798E-02	1.24352E-01
5	4.45633E-03	6.62164E-03	1.45137E-02	1.61045E-02	3.01698E-02	2.84391E-02	1.00305E-01
6	1.58785E-03	2.52789E-03	5.39574E-03	5.05072E-03	9.75585E-03	1.00243E-02	3.43424E-02
7	1.19458E-03	1.35291E-03	2.88530E-03	3.04189E-03	4.09093E-03	4.45610E-03	1.70217E-02
8	7.31660E-04	6.95590E-04	1.60785E-03	2.25112E-03	2.49965E-03	2.40163E-03	1.01875E-02
9	5.68664E-04	5.34543E-04	1.02718E-03	1.23620E-03	1.71971E-03	2.21950E-03	7.30580E-03
10	4.48088E-04	6.19154E-04	5.09535E-04	5.82196E-04	5.72214E-04	1.15051E-03	3.88170E-03
11	3.05732E-04	2.53083E-04	5.23186E-04	4.46856E-04	6.71232E-04	5.33352E-04	2.73344E-03
12	1.67559E-04	4.70328E-04	4.69148E-04	3.94906E-04	5.09828E-04	4.89261E-04	2.50103E-03
13	3.15409E-05	2.14242E-04	2.80906E-04	1.82817E-04	5.30852E-04	2.13239E-04	1.45360E-03
14	1.74415E-04	1.35976E-04	2.07440E-04	1.13251E-04	1.67172E-04	2.67462E-04	1.06572E-03
15	1.07853E-04	1.59020E-04	3.36091E-04	2.70630E-04	3.03291E-04	1.88014E-04	1.36490E-03
16	1.38115E-04	2.82585E-04	4.53941E-04	3.71401E-04	3.36666E-04	4.52758E-04	2.03547E-03
SUM	2.73675E-02	3.75046E-02	8.41644E-02	8.97366E-02	1.72211E-01	1.65516E-01	5.76502E-01

	CURRENT+X	CURRENT-X	CURRENT+Y	CURRENT-Y	CURRENT+Z	CURRENT-Z	TOTAL
1	2.21799E-06	2.66216E-06	3.10256E-06	3.46895E-06	3.97544E-06	4.29614E-06	3.60090E-06
2	3.74535E-06	5.34985E-06	5.98797E-06	6.58446E-06	7.59260E-06	7.12214E-06	6.57764E-06
3	2.02893E-06	3.19422E-06	3.89518E-06	3.85165E-06	4.71326E-06	4.08098E-06	3.95096E-06
4	3.69108E-06	4.61512E-06	5.74006E-06	6.07079E-06	7.89410E-06	7.43582E-06	6.55727E-06
5	2.98279E-06	4.43204E-06	4.85733E-06	5.38984E-06	6.03375E-06	5.68763E-06	5.28924E-06
6	1.06282E-06	1.69204E-06	1.80581E-06	1.69034E-06	1.95123E-06	2.00494E-06	1.81093E-06
7	7.99586E-07	9.05567E-07	9.65631E-07	1.01804E-06	8.18185E-07	8.91218E-07	8.97580E-07
8	4.89733E-07	4.65590E-07	5.38102E-07	7.53389E-07	4.99929E-07	4.80324E-07	5.37202E-07
9	3.80632E-07	3.57793E-07	3.43770E-07	4.13723E-07	3.43940E-07	4.43900E-07	3.85246E-07
10	2.99924E-07	4.14427E-07	1.70527E-07	1.94844E-07	1.14443E-07	2.30102E-07	2.04688E-07
11	2.04640E-07	1.69400E-07	1.75095E-07	1.49550E-07	1.34246E-07	1.06670E-07	1.44138E-07
12	1.12154E-07	3.14810E-07	1.57011E-07	1.32164E-07	1.01966E-07	9.78521E-08	1.31883E-07
13	2.11117E-08	1.43402E-07	9.40112E-08	6.11836E-08	1.06170E-07	4.26477E-08	7.66503E-08
14	1.16744E-07	9.10145E-08	6.94244E-08	3.79019E-08	3.34344E-08	5.34923E-08	5.61968E-08
15	7.21906E-08	1.06439E-07	1.12480E-07	9.05724E-08	6.06582E-08	3.76029E-08	7.19731E-08
16	9.24464E-08	1.89146E-07	1.51921E-07	1.24298E-07	6.73332E-08	9.05516E-08	1.07333E-07
SUM	1.83180E-05	2.51030E-05	2.81668E-05	3.00316E-05	3.44406E-05	3.31019E-05	3.03997E-05

GENRL 1

FREQUENCY FOR GENERATIONS 4 TO 103

0.8224 TO 0.8455	*
0.8455 TO 0.8686	*
0.8686 TO 0.8917	***
0.8917 TO 0.9148	******
0.9148 TO 0.9379	**********
0.9379 TO 0.9610	**********
0.9610 TO 0.9840	**********
0.9840 TO 1.0071	**********
1.0071 TO 1.0302	**********
1.0302 TO 1.0533	****
1.0533 TO 1.0764	**
1.0764 TO 1.0995	**

FREQUENCY FOR GENERATIONS 29 TO 103

0.8224 TO 0.8455	*
0.8455 TO 0.8686	*
0.8686 TO 0.8917	**
0.8917 TO 0.9148	****
0.9148 TO 0.9379	********
0.9379 TO 0.9610	**********
0.9610 TO 0.9840	**********
0.9840 TO 1.0071	**********
1.0071 TO 1.0302	**********
1.0302 TO 1.0533	***
1.0533 TO 1.0764	*
1.0764 TO 1.0995	*

FREQUENCY FOR GENERATIONS 54 TO 103

0.8224 TO 0.8455	*
0.8455 TO 0.8686	
0.8686 TO 0.8917	*
0.8917 TO 0.9148	**
0.9148 TO 0.9379	***
0.9379 TO 0.9610	*******
0.9610 TO 0.9840	**********
0.9840 TO 1.0071	**********
1.0071 TO 1.0302	**********
1.0302 TO 1.0533	***
1.0533 TO 1.0764	
1.0764 TO 1.0995	*

FREQUENCY FOR GENERATIONS 79 TO 103

0.8224 TO 0.8455	*
0.8455 TO 0.8686	
0.8686 TO 0.8917	*
0.8917 TO 0.9148	
0.9148 TO 0.9379	*
0.9379 TO 0.9610	****
0.9610 TO 0.9840	******
0.9840 TO 1.0071	******
1.0071 TO 1.0302	*****
1.0302 TO 1.0533	*
1.0533 TO 1.0764	
1.0764 TO 1.0995	