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Design Analysis Cover Sheet

Complete only applicable items.

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Page: 1 Of: 12

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Table of Contents:

1. Purpose

This analysis is prepared by the Mined Geologic Disposal System (MGDS) Waste Package Development Department (WPDD) to determine the viability of the Defense High-Level Waste (DHLW) Glass waste package concept with respect to criticality regulatory requirements in compliance with the goals of the Waste Package Implementation Plan (Ref. 5.1) for conceptual design. These design calculations are performed in sufficient detail to provide a comprehensive comparison base with other design alternatives. The objective of this evaluation is to show to what extent the concept meets the regulatory requirements or indicate additional measures that are required for the intact waste package.

2. Quality Assurance

The work performed for this analysis is covered by a Waste Package Development (WPD) QAP-2-0 work control Activity Evaluation entitled "Perform Criticality, Thermal, Structural, and Shielding Analyses" (Ref. 5.2). The QAP-2-0 evaluation determined that such activities are subject to Quality Assurance Requirements and Description (QARD) (Ref. 5.3) controls. Applicable procedural controls are listed in the activity evaluation. The waste package is on the Q-List (Ref. 5.4) by direct inclusion by the Department of Energy (DOE), as an item important to safety and waste isolation; because of the direct inclusion of the waste package on the Q-List, a QAP-2-3 evaluation is not required to be conducted.

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

3. Method

The multiplication factor (k_{eff}) of the disposal packages is determined using the Monte Carlo neutron transport technique implemented in the MCNP (Ref. 5.5) computer program. The resulting k_{eff} values for a variety of configurations are then used to evaluate the criticality potential of the disposal package and the acceptablility of the design in meeting design requirements and criteria.

4. Design Inputs

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

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

4.1 Design Parameters

The dimensions of the Savannah River Pour Canister are shown in Table 4.1-1 (Ref. 5.9).

Table 4.1-1 Dimensions of the Savannah River Pour Canister

DESCRIPTION	DIMENSION (cm)
OD	60.96
Wall Thickness (minimum)	0.952
Overall Height	299.64
Neck Height	25.38

The DHLW glass is poured into SS304L canisters at a fill temperature of 850 ºC and a fill volume of 85%. The glass volume per canister upon cooling to 25ºC is about 80% of the 0.736 m^3 canister inside volume and has a density of 2.85 g/cm^3 (Ref. 5.12).

The dimensions of the disposal container used for guidance in spacing the canisters are taken from reference 5.8.

The material compositions for materials other than DHLW are taken from reference 5.11.

4.2 Criteria

This design analysis provides the repository criticality control design criteria for DHLW Waste Packages, based upon criteria from requirements documents. This document will not directly support any construction, fabrication, or procurement activity and therefore is not required to carry TBV or TBD items to design outputs. The criteria cited in requirements documents that have bearing on this analysis include:

From the MGDS-Requirements Document (Ref. 5.6);
"**3.2.2.6 Criticality Protection**

A. All systems for processing, transporting, handling, storing, retrieving, emplacing, and isolating radioactive waste shall be designed to ensure that a nuclear criticality accident is not possible unless at least two unlikely, independent, and concurrent or sequential changes have occurred in the conditions essential to nuclear criticality safety. Each system shall be designed for criticality safety under normal and accident conditions. The calculated effective multiplication factor (k_{eff}) must be sufficiently below unity to show at least a 5% margin, after allowance for the bias in the method of calculation and the uncertainty in the experiments used to validate the methods of calculation. [10CFR60.131(b)(7)]"

From the Engineered Barrier Design Requirements Document (Ref. 5.7);
"**3.2.2.6 CRITICALITY PROTECTION**

A. The Engineered Barrier Segment shall be designed to ensure that a nuclear criticality accident is not possible unless at least two unlikely, independent, and concurrent or sequential changes have occurred in the conditions essential to nuclear criticality safety. Each system shall be designed for criticality safety under normal and accident conditions. The calculated effective multiplication factor must be sufficiently below unity to show at least a five percent margin, after allowance for the bias in the method of calculation and the uncertainty in the experiments used to validate the methods of calculation. [MGDS-RD 3.2.2.6.A] [10CFR60.131(b)(7)]"

From the Engineered Barrier Design Requirements Document (Ref. 5.7);
"**3.7.1.3 INTERNAL STRUCTURE REQUIREMENTS**

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

4.3 Assumptions

4.3.1 The design of the DHLW glass canisters and the disposal container is based on references 5.8 and 5.9. This assumption is used throughout Section 7.

4.3.2 For spent nuclear fuel (SNF) and DHLW, the previously established (Ref. 5.10) preliminary list of "Principal Isotopes" for long-term criticality control was used. The 30 principal isotopes are shown in Table 4.3-1. This assumption is used throughout Section 7.

Table 4.3-1. Principal Long-Term Burnup Credit Isotopes

O-16	Tc-99	Rh-103	Ag-109	Cs-133
Nd-143	Nd-145	Sm-147	Sm-149	Sm-150
Sm-151	Sm-152	Eu-151	Eu-153	Gd-155
U-233	U-234	U-235	U-236	U-238
Np-237	Pu-238	Pu-239	Pu-240	Pu-241
Pu-242	Am-241	Am-242m	Am-243	Cm-245

4.3.3 The number of isotopes in the model was limited by their availability in the MCNP computer program cross-section libraries. Eight of the identified principal isotopes are not available in the standard MCNP cross-section sets. The unavailable isotopes include: Tc-99, Cs-133, Nd-143, Nd-145, Sm-147, Sm-150, Sm-151, and Sm-152. The 22 available isotopes are used in the MCNP models. The eight unavailable isotopes are absorbers, and, therefore, not accounting for them is conservative. This assumption is used throughout Section 7.

4.3.4 The fresh fuel bias and uncertainty for MCNP is approximately 0.015. The preliminary SNF bias and uncertainty is approximately 0.06. These uncertainties were used in a prior unqualified analysis (Ref. 5.10) and are appropriate for application to DHLW glass. This assumption is used throughout Section 7.

4.3.5 The material compositions for materials other than DHLW are taken from reference 5.11. This analysis was performed to provide a single reference of qualified design inputs for material compositions. This assumption is used throughout Section 7.

4.3.6 The material composition and characteristics of the DHLW glass are taken from the Characteristics Data Base (CDB) (Ref. 5.12) for DWPF/SRS HLW glass at the time of production. The composition of SRS glass is assumed to be typical for all DHLW glass and is assumed uniform (homogeneous) throughout the container. For this analysis, the Zn, Zeolite, and Others components were assumed to be SiO_2. Natural uranium was taken to be 0.7% U-235 and 99.3% U-238 (neglect U-234). These DHLW composition assumptions are used throughout Section 7.

4.4 Codes and Standards

Not Applicable.

5. References

5.1 *Waste Package Implementation Plan*, YMP/92-11Q, REV 1, Yucca Mountain Site Characterization Project.

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

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

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

5.5 "MCNP - A General Monte Carlo Code for Neutron and Photon Transport," Judith F. Briesmeister, , Ed., Los Alamos National Laboratory (LANL), LA-7396-M, Rev. 2, April 1991.

5.6 *Mined Geological Disposal System Requirements Document*, DOE/RW-0404P, DI#: B00000000-00811-1708-00002 REV 01 DCN 01, USDOE OCRWM.

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

5.8 "Defense High-Level Waste Package (Glassified Waste)," DI#: BBA000000-01717-2100-15038 REV 0A, CRWMS M&O.

5.9 "Savannah Pour Canister," DI#: BBA000000-01717-2100-15039 REV 0A, CRWMS M&O.

5.10 *Initial Summary Report for Repository/Waste Package Advanced Conceptual Design*, DI#: B00000000-01717-5705-00015 REV 00, CRWMS M&O, pp. 6-241, 6-203.

5.11 "Material Compositions and Number Densities for Neutronic Calculations," DI#: BBA000000-01717-0200-00002 REV 00, CRWMS M&O.

5.12 "Characteristics Data Base (CDB_H)", DI#: A00000000-02268-1200-20005 V1.1 Rev 01, CRWMS M&O.

5.13 American National Standard on "Criticality Safety Criteria for the Handling, Storage, and Transportation of LWR Fuel Outside Reactors", ANSI/ANS-8.17, 1984.

5.14 "Nuclear Safety Guide," TID-7016, Rev 2, J. T. Thomas, Ed., NUREG/CR-0095, Oak Ridge National Laboratory, June 1978, p. 24.

6. Use of Computer Software

6.1 Scientific and Engineering Software

MCNP 4.2 CSCI B00000000-01717-1200-30006 on Hewlett Packard Apollo 9000, Series 735 Workstations

MCNP 4.2 is utilized to determine the criticality potential of DHLW glass. The present application is appropriate for the use of this software and falls within the range of validation of this software. An associated continuous energy cross section set based on ENDF/B-V is utilized by MCNP.

There are biases and uncertainties associated with a criticality calculation. How these biases and uncertainties are treated in criticality calculations is covered in the American National Standard on "Criticality Safety Criteria for the Handling, Storage, and Transportation of LWR Fuel Outside Reactors" (Ref. 5.13). The fresh fuel bias and uncertainty for MCNP is approximately 0.015; the preliminary SNF bias and uncertainty is approximately 0.06. The SNF bias and uncertainty is higher due to additional factors such as isotopics and axial effects. The SNF bias and uncertainty is appropriate for application to the DHLW glass.

CDB_H V1.1, CSCI A00000000-02268-1200-20005 V1.1 on Personal Computer

CDB_H is an appropriate tool to be utilized to determine the composition and characteristics of DHLW glass. This validated code searches an associtated data base and provides information as requested.

7. Design Analysis

To better define the pre- and postclosure issues and the methodology for addressing them, a three phased approach for disposal criticality control was developed. The three time phases associated with the approach are: the Preclosure/Operations Phase, the Postclosure/Containment Phase, and the Postclosure/Isolation Phase. This analysis is performed for the Preclosure/Operations Phase. No criticality events external to the waste package nor major internal geometry changes are evaluated.

7.1 Background

The DHLW glass is poured into 304L stainless steel (SS304L) canisters at a fill temperature of 850 °C and a fill volume of 85%. The glass volume per canister upon cooling to 25 °C is about 80% of the 0.736 m^3 canister inside volume and has a density of 2.85 g/cm^3 (Ref. 5.12). This information is included in Attachment I. Four of the canisters are placed into the disposal container. No disposal container basket or internal support structure design has been developed.

The DHLW glass isotopic compositions are taken from the CDB (Ref. 5.12). The nominal compostion of the glass was provided in the CDB and is included in Attachment I.

7.2 Design Details and Evaluation

Based on optimum moderation and reflection, the minimum critical concentration of Pu-239 in an aqueous solution is 7 gm/liter (Ref. 5.14). The concentration of Pu-239 in the DHLW glass is nominally 0.35 g/liter and is not under optimum conditions. Calculations are provided below to demonstrate the degree of subcriticality of the DHLW glass disposal container.

The DHLW disposal package conceptual design consists of 4 Savannah River Site high level waste glass canisters placed inside of the waste disposal container consisting of an inner and outer barrier. The minimum critical mass for Pu-239 is 0.51 kg in a homogeneous optimally moderated aqueous solution in a spherical configuration (Ref. 5.14). From page 3 of Attachment I, each canister contains 0.21 kg of Pu-239, providing 1.65 potential critical masses per waste package. A detailed probabalistic analysis is required to determine if there are credible sequences of events which will lead to concentrations of Pu-239 from DHLW as it degrades over very long time spans.

7.3 Modeling

The canister was modeled as a cylinder representing a canister filled up to the neck with a height of 274.26 cm. The flanged and dished head of the canister was neglected. This translates into approximately 28% more material in the canisters than indicated in reference 5.12, since the canister is actually only filled 80% by volume when cooled. A 2x2 array at a center-to-center spacing of 64 cm (3.04 cm edge-to-edge) of these canisters is then reflected on the X and Y surfaces creating an infinite array in 2 dimensions. An infinite array of canisters was modeled in order to allow this analysis to be applied to larger waste packages which may be used in the future because of the low criticality potential of DHLW. The spacing of the canisters is a reasonable representation of that in a waste package (Ref. 5.8). The array is modeled from the centerline up (reflected on the centerline) axially. A water reflector (air for "normal" case) 15 cm thick was placed above the canisters. The cross-sectional view in the X-Y plane of the physical MCNP model is shown in Figure 7.3-1 and was generated with the MCNP plotting capability. The axial orientation of the canisters is not a factor in this model. The inputs for each model are echoed in the output included in the attachements.

7.4 Calculations

The masses of materials indicated in the CDB output (Attachment I) were converted to weight fractions for input into MCNP. These calculations are shown in Attachment II.

Six infinite array cases have been run for DHLW glass. The k_{eff} ($\pm 2\sigma$) values calculated are as follow:

DHLW glass, infinite array, Flooded (DHLWG1)	-	0.0070 ± .0003
DHLW glass, infinite array, Dry (DHLWG2)	-	0.0089 ± .0002
DHLW glass, infinite array, Flooded, fissile x 100 (DHLWG6)	-	0.1291 ± .0026
DHLW glass, infinite array, Dry, fissile x 100 (DHLWG3)	-	0.2066 ± .0029
DHLW glass, infinite array, Flooded, No Absorbers (DHLWG4)	-	0.0759 ± .0022
DHLW glass, infinite array, Dry, No Absorbers (DHLWG5)	-	0.1171 ± .0028

The k_{eff} results reported are the "Combined Average" of the combined track length, absorption, and collision estimates as listed in the last generation print of the MCNP output. The first two cases have the glass description provided in the CDB. The third and fourth cases have the concentrations of the fissile isotopes U-235 and Pu-239 multiplied by 100 to demonstrate that even extreme variation of the composition will not be a criticality concern. The fifth and sixth cases are composed of the actinides in SiO_2 alone, to demonstrate the effect of eliminating absorbers, and, effectively, increasing moderation.

8. Conclusions

The DHLW glass is not of criticality concern in the intact form, even in an infinite array of canisters, as indicated in the results. The concentration of Pu-239 is 1/20th that required for criticality in an optimum aqueous solution. The waste package does contain 1.65 critical masses of Pu-239 (optimum conditions) if it could be separated and concentrated. A probablistic analysis is required to determine the credibility of separation/concentration scenarios. A deterministic criticality analysis could then be performed on credible geometries and concentrations.

9. Attachments

The following attachments are case output files as listed. The name of the file is listed in parenthesis.

I. DHLW Glass information from CDB, 2/21/95, 19 pages
II. Calculation of elemental/isotopic weight fractions for use in MCNP, 2 pages
III. DHLW glass, infinite array, Flooded (DHLWG1.O), 12/1/95, 15 pages
IV. DHLW glass, infinite array, Dry (DHLWG2.O), 12/1/95, 15 pages
V. DHLW glass, infinite array, Dry, fissile x 100 (DHLWG3.O), 12/1/95, 15 pages
VI. DHLW glass, infinite array, Flooded, No Absorbers (DHLWG4.O), 12/1/95, 13 pages
VII. DHLW glass, infinite array, Dry, No Absorbers (DHLWG5.O), 12/1/95, 13 pages
VIII. DHLW glass, infinite array, Flooded, fissile x 100 (DHLWG6), 12/1/95, 15 pages

Figure 7.3-1. MCNP Cross-Sectional View of the DHLW Glass Model with 4 Pour Canisters.

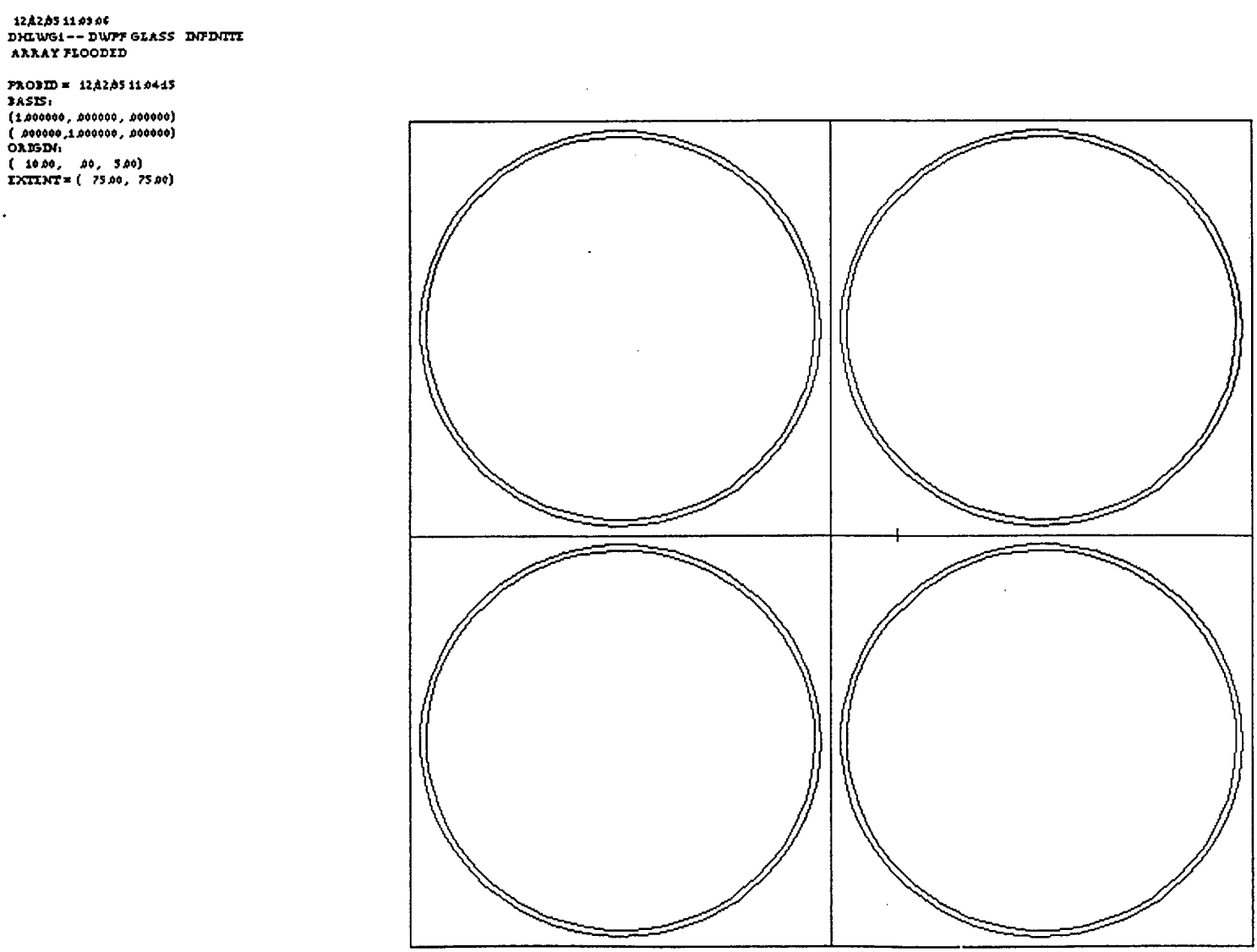

Table 3.3.1. Savannah River Site. High-level waste form and canister characteristics*a

	Canister 85% fill
Canister inside volume, m3	0.736
Glass volume at average fill temperature (see note b), m3	0.626
Glass density at average fill temperature (see note b), g/cm3	2.69
Glass weight, kg	1,682
Canister weight, kg	500
Gross weight, kg	2,182
Total activity, curies	234,000*c
Decay heat, watts	690*c

*aSources: DWPF Basic Data Report, DPSP 80-1033, Rev. 91, April 1985; Baxter 1988.

*bThe average fill temperature (i.e. the average temperature of the glass upon completion of filling to 85% of canister volume) is 825 deg. C. The glass volume per canister when cooled to 25 deg. C is about 0.59 m3. The density of the glass is about 2.69 g/cm3 at 825 deg. C and 2.85 g/cm3 at 25 deg. C (SRP 1987).

*cThese figures are the ones given in DPSP 80-1033, Rev. 91. The corresponding figures calculated by ORIGEN2 are 234,400 Ci and 709W, as shown in Table 3.3.4. Activity and decay heat (thermal power) are at the time of filling the canister and are based on the maximum case, i.e. 5-yr old sludge and 15-yr old supernate.

Table 3.3.2. DWPF, Savannah River Site.
Estimated production schedule of canisters of HLW glassa

End of calendar year	Number of canisters produced during year	Cumulative number of canisters produced	Cumulative volume of glass produced m**3
1991	0	0	0
1992	136	136	85
1993	308	444	278
1994	376	820	513
1995	410	1,230	769
1996	410	1,640	1,025
1997	383	2,023	1,264
1998	369	2,392	1,495
1999	369	2,761	1,726
2000	342	3,103	1,939
2001	342	3,445	2,153
2002	342	3,787	2,367
2003	342	4,129	2,581
2004	302	4,431	2,769
2005	273	4,704	2,940
2006	273	4,977	3,111
2007	273	5,250	3,281
2008	32	5,282	3,301
2009	0	5,282	3,301
2010	0	5,282	3,301
2011	0	5,282	3,301
2012	0	5,282	3,301
2013	0	5,282	3,301
2014	0	5,282	3,301
2015	0	5,282	3,301
2016	0	5,282	3,301
2017	0	5,282	3,301
2018	0	5,282	3,301
2019	0	5,282	3,301
2020	0	5,282	3,301

*aProduction shown is based on a glass melt rate of 228 lb/hr and 75% attainment. Canisters (2-ft diameter x 10-ft long) are assumed to contain 1682 kg of glass, which represents filling to 85% capacity.
Source: Baxter 1988, Garvin 1990.

Table 3.3.3. Savannah River Site. Radioisotope content per HLW canister*a

	Isotope	Curies/canister	Grams/canister
1	Cr-51	0.9312E-16	0.1008E-20
2	Co-60	0.1699E+03	0.1502E+00
3	Ni-59	0.2397E-01	0.3163E+00
4	Ni-63	0.2975E+01	0.4824E-01
5	Tl-208	0.1128E-02	0.3829E-11
6	U-232	0.1339E-01	0.6256E-03
7	U-233	0.1584E-05	0.1636E-03
8	U-234	0.3428E-01	0.5485E+01
9	U-235	0.1573E-03	0.7278E+02
10	U-236	0.1128E-02	0.1742E+02
11	U-238	0.1050E-01	0.3122E+05
12	Np-236	0.1744E-07	0.1323E-05
13	Np-237	0.8904E-02	0.1263E+02
14	Pu-236	0.1221E+00	0.2297E-03
15	Pu-237	0.8941E-11	0.7401E-15
16	Pu-238	0.1484E+04	0.8667E+02
17	Pu-239	0.1291E+02	0.2076E+03
18	Pu-240	0.8681E+01	0.3809E+02
19	Pu-241	0.1670E+04	0.1620E+02
20	Pu-242	0.1224E-01	0.3206E+01
21	Am-241	0.1102E+02	0.3210E+01
22	Am-242	0.1436E-01	0.1776E-07
23	Am-242m	0.1447E-01	0.1488E-02
24	Am-243	0.5788E-02	0.2902E-01
25	Cm-242	0.3495E-01	0.1057E-04
26	Cm-243	0.5565E-02	0.1078E-03
27	Cm-244	0.1076E+03	0.1329E+01
28	Cm-245	0.6715E-05	0.3910E-04
29	Cm-246	0.5342E-06	0.1739E-05
30	Cm-247	0.6604E-12	0.7116E-08
31	Cm-248	0.6864E-12	0.1614E-09
32	Se-79	0.1699E+00	0.2439E+01
33	Rb-87	0.8719E-06	0.9961E+01
34	Sr-89	0.4267E-04	0.1470E-08
35	Sr-90	0.4675E+05	0.3426E+03
36	Y-90	0.4786E+05	0.8795E-01
37	Y-91	0.7568E-03	0.3085E-07
38	Zr-93	0.1117E+01	0.4443E+03
39	Zr-95	0.1005E-01	0.4680E-06
40	Nb-94	0.9646E-04	0.5147E-03
41	Nb-95	0.2115E-01	0.5407E-06
42	Nb-95m	0.1247E-03	0.3272E-09
43	Tc-99	0.3079E+01	0.1816E+03
44	Ru-103	0.1684E-07	0.5217E-12
45	Ru-106	0.2252E+04	0.6729E+00
46	Rh-103m	0.1636E-07	0.5028E-15
47	Rh-106	0.2259E+04	0.6346E-06
48	Pd-107	0.1473E-01	0.2863E+02
49	Ag-110m	0.1258E+00	0.2647E-04
50	Cd-113	0.5009E-13	0.1472E+00
51	Cd-115m	0.1213E-08	0.4763E-13
52	Sn-121m	0.7902E-01	0.1336E-02
53	Sn-123	0.2549E+00	0.3101E-04
54	Sn-126	0.4415E+00	0.1556E+02
55	Sb-124	0.7123E-07	0.4071E-11
56	Sb-125	0.8496E+03	0.8226E+00
57	Sb-126	0.6159E-01	0.7365E-06
58	Sb-126m	0.4415E+00	0.5619E-08

59	Te-125m	0.2760E+03	0.1532E-01
60	Te-127	0.1202E+00	0.4555E-07
61	Te-127m	0.1228E+00	0.1302E-04
62	Te-129	0.3053E-11	0.1457E-18
63	Te-129m	0.4749E-11	0.1576E-15
64	Cs-134	0.3372E+03	0.2606E+00
65	Cs-135	0.9943E-01	0.8633E+02
66	Cs-136	0.7828E-39	0.1068E-43
67	Cs-137	0.4341E+05	0.4989E+03
68	Ba-136m	0.8607E-38	0.3195E-49
69	Ba-137m	0.4155E+05	0.7724E-04
70	Ba-140	0.1024E-35	0.1404E-40
71	La-140	0.4304E-36	0.7734E-42
72	Ce-141	0.3591E-10	0.1260E-14
73	Ce-142	0.9609E-05	0.4005E+03
74	Ce-144	0.9869E+04	0.3093E+01
75	Pr-143	0.1198E-33	0.1780E-38
76	Pr-144	0.9869E+04	0.1306E-03
77	Pr-144m	0.1187E+03	0.6545E-06
78	Nd-144	0.4860E-09	0.4110E+03
79	Nd-147	0.1261E-43	0.1570E-48
80	Pm-147	0.2419E+05	0.2609E+02
81	Pm-148	0.6975E-10	0.4243E-15
82	Pm-148m	0.1009E-08	0.4722E-13
83	Sm-147	0.2000E-05	0.8796E+02
84	Sm-148	0.5788E-11	0.1916E+02
85	Sm-149	0.1781E-11	0.7420E+01
86	Sm-151	0.2478E+03	0.9418E+01
87	Eu-152	0.3688E+01	0.2132E-01
88	Eu-154	0.6196E+03	0.2295E+01
89	Eu-155	0.4749E+03	0.1021E+01
90	Eu-156	0.5231E-31	0.9489E-36
91	Tb-160	0.1120E-05	0.9923E-10
	Total	0.2344E+06	0.3427E+05

*aQuantities shown are for sludge + supernate glass and are based on the DWPF Basic Data Report, DPSP 80-1033, Rev. 91, April 1985, assuming sludge aged an average of 5 years and supernate aged an average of 15 years, with a canister load of 3710 lb of glass (1682 kg). Radionuclide contents are at time of filling canister.

Table 3.3.4. Savannah River Site. Calculated radioactivity and thermal power per HLW canister.*a

Decay time, years*b	Radioactivity per canister (Ci)*c	Thermal power per canister (W)*c
0	234,400	709
1	208,500	627
2	193,800	586
5	169,300	527
10	145,800	467
15	128,400	418
20	113,900	374
30	90,000	301
50	56,500	198
100	17,900	75
200	2,100	17
300	390	7.2
350	227	5.2
500	95	2.7
1,000	42	1.1
1,050	41	1.1
2,000	29	0.72
5,000	24	0.54
10,000	20	0.43
20,000	16	0.30
50,000	11	0.16
100,000	9.2	0.11
500,000	4.8	0.05
1,000,000	2.4	0.02

*aBased on 5-yr cooled sludge and 15-yr cooled supernate. Calculations made by ORIGEN2 code based on data supplied by SRS (Basic Data Report, DPSP-80-1033, Rev. 91, April 1985). Canister is filled to 85% of capacity and contains 1682 kg of glass.

*bYears after vitrification.

*cRadioactivity and thermal power include contributions of actinides and activation products as well as fission products.

Table 3.3.5. Savannah River Site. Estimated cumulative average radioactivity and thermal power per canister of HLW glass*a

End of calendar year	Cumulative number of canisters produced	Cumulative radioactivity		Cumulative thermal power	
		Total (10**6 Ci)	per canister (Ci)	Total (10**3 W)	per canister (W)
1989	0	0.0	--	--	--
1990	0	0.0	--	--	--
1991	0	0.0	--	--	--
1992	136	22.6	116,200	56.9	418.4
1993	444	52.0	117,100	132.6	298.6
1994	820	87.7	107,000	223.1	272.1
1995	1,230	150.0	122,000	412.5	335.4
1996	1,640	211.0	128,700	603.0	367.7
1997	2,023	263.6	130,300	763.0	377.2
1998	2,392	310.8	129,900	908.0	379.6
1999	2,761	345.6	125,200	1,018.8	369.0
2000	3,103	372.2	120,000	1,103.5	355.6
2001	3,445	393.3	114,200	1,170.7	339.8
2002	3,787	410.8	108,500	1,227.4	324.1
2003	4,129	425.7	103,100	1,276.2	309.1
2004	4,431	438.3	98,900	1,318.1	297.5
2005	4,704	449.3	95,500	1,355.0	288.1
2006	4,977	458.7	92,200	1,387.2	278.7
2007	5,250	467.4	89,000	1,415.8	269.7
2008	5,282	459.4	87,000	1,397.3	264.5
2009	5,282	449.8	85,200	1,368.1	259.0
2010	5,282	439.5	83,200	1,339.9	253.7
2011	5,282	429.3	81,300	1,310.3	248.1
2012	5,282	419.4	79,400	1,281.5	242.6
2013	5,282	409.7	77,600	1,253.2	237.3
2014	5,282	399.2	75,600	1,225.6	232.0
2015	5,282	390.9	74,000	1,198.8	227.0
2016	5,282	381.9	72,300	1,172.5	222.0
2017	5,282	373.1	70,600	1,146.5	217.1
2018	5,282	364.5	69,000	1,121.9	212.4
2019	5,282	356.0	67,400	1,097.5	207.8
2020	5,282	347.8	65,900	1,073.7	203.3

*aSource: Garvin 1990. Year-by-year radioactivity and thermal power per canister do not necessarily represent actual processing schedules and tankage allocations and should not be used for design purposes.

Table 3.3.7. Projected radioactivity of canisters of HLW produced each year at SRS*a

End of calendar year	Canisters produced per year	Radioactivity per canister produced in that year, Curies*b
1992	136	164,600
1993	308	96,500
1994	376	97,400
1995	410	156,400
1996	410	156,500
1997	383	149,600
1998	369	143,900
1999	369	113,600
2000	342	101,100
2001	342	86,700
2002	342	77,900
2003	342	71,500
2004	302	74,700
2005	273	77,600
2006	273	72,900
2007	273	71,000
2008	32	121,000

*a Source: Garvin 1990.

*b Radioactivity shown is for fission products only. When actinides are included, the radioactivities shown will increase by about 1%.

Table 3.3.6. Savannah River Site.
Rates of neutron production per canister of vitrified high-level waste from (alpha, n) reactions and from spontaneous fission*a

	Neutron production rates per canister, neutrons/sec		
Actinide	Alpha, n	Spontaneous fission	Total
U-238	*b	3.960E+02	3.960E+02
Pu-238	5.791E+07	2.302E+05	5.814E+07
Pu-239	3.969E+05	5.685E+00	3.969E+05
Pu-240	2.680E+05	3.467E+04	3.027E+05
Pu-242	*b	5.402E+03	5.402E+02
Am-241	4.248E+05	3.981E+00	4.248E+05
Cm-242	1.975E+03	2.278E+02	2.203E+03
Cm-244	5.105E+06	1.478E+07	1.989E+07
Totals	6.411E+07	1.505E+07	7.916E+07

*aCalculated from canister composition of sludge-precipitate glass at time of pouring. Neutron production rates shown are uniform source terms in the glass rather than dose rates at the exterior, i.e., the shielding effects of the glass and the canister wall have not been calculated. Actinides that make a negligible contribution to totals have been omitted. Canister contains 1682 kg of HLW glass.

*bQuantity is negligible compared to total (alpha, n) neutron production.

Table 3.3.8. Savannah River Site.
Chemical composition of HLW glass*a

Component	Water free wt %
Ag	0.05
Al2O3	3.96
B2O3	10.28
BaSO4	0.14
Ca3(PO4)2	0.07
CaO	0.85
CaSO4	0.08
Cr2O3	0.12
Cs2O	0.08
CuO	0.19
Fe2O3	7.04
FeO	3.12
K2O	3.58
Li2O	3.16
MgO	1.36
MnO	2.00
Na2O	11.00
Na2SO4	0.36
NaCl	0.19
NaF	0.07
NiO	0.93
PbS	0.07
SiO2	45.57
ThO2	0.21
TiO2	0.99
U3O8	2.20
Zeolite	1.67
ZnO	0.08
Others	0.58
Total	100.00

*aSource: Baxter 1988.

RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPE(S): All activation products UNITS: Grams

ISOTOPE	15YR	20YR	30YR	50YR	100YR
Co 59	4.111E-05	5.481E-05	8.220E-05	1.370E-04	2.739E-04
Co 60	2.088E-02	1.082E-02	2.904E-03	2.091E-04	2.903E-07
Ni 59	3.163E-01	3.162E-01	3.162E-01	3.162E-01	3.160E-01
Ni 60	1.293E-01	1.394E-01	1.473E-01	1.500E-01	1.502E-01
Ni 63	4.308E-02	4.149E-02	3.848E-02	3.310E-02	2.271E-02
Cu 63	5.155E-03	6.748E-03	9.759E-03	1.514E-02	2.553E-02

RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPE(S): All activation products UNITS: Total curies

ISOTOPE	15YR	20YR	30YR	50YR	100YR
Co 60	2.362E+01	1.224E+01	3.284E+00	2.366E-01	3.283E-04
Ni 59	2.396E-02	2.396E-02	2.396E-02	2.396E-02	2.395E-02
Ni 63	2.659E+00	2.560E+00	2.374E+00	2.042E+00	1.401E+00

RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPE(S): All activation products UNITS: Alpha curies

ISOTOPE	15YR	20YR	30YR	50YR	100YR

No isotopes were found in this group with significant values.

RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPE(S): All activation products UNITS: Total watts

ISOTOPE	15YR	20YR	30YR	50YR	100YR
Co 60	3.642E-01	1.887E-01	5.064E-02	3.647E-03	5.062E-06
Ni 59	9.517E-07	9.517E-07	9.516E-07	9.514E-07	9.510E-07
Ni 63	2.679E-04	2.580E-04	2.393E-04	2.058E-04	1.412E-04

RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPE(S): All actinides and daughters UNITS: Grams

ISOTOPE	15YR	20YR	30YR	50YR	100YR
Pb206	4.090E-12	1.390E-11	7.874E-11	7.054E-10	1.358E-08
U234	1.501E+01	1.794E+01	2.346E+01	3.329E+01	5.201E+01
U235	7.287E+01	7.290E+01	7.296E+01	7.307E+01	7.337E+01
U236	1.748E+01	1.750E+01	1.754E+01	1.762E+01	1.782E+01
U238	3.122E+04	3.122E+04	3.122E+04	3.122E+04	3.122E+04
Pu238	7.699E+01	7.400E+01	6.838E+01	5.839E+01	3.934E+01
Pu239	2.075E+02	2.075E+02	2.074E+02	2.073E+02	2.070E+02
Pu240	3.860E+01	3.871E+01	3.886E+01	3.900E+01	3.896E+01

RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPE(S): All actinides and daughters UNITS: Total curies

ISOTOPE	15YR	20YR	30YR	50YR	100YR
Tl207	1.023E-08	1.734E-08	3.553E-08	8.315E-08	2.327E-07
Tl209	5.768E-11	8.092E-11	1.335E-10	2.633E-10	7.398E-10
Pb209	2.671E-09	3.746E-09	6.179E-09	1.219E-08	3.425E-08
Pb210	3.038E-09	7.671E-09	2.869E-08	1.528E-07	1.436E-06
Pb211	1.026E-08	1.738E-08	3.563E-08	8.338E-08	2.334E-07

Pb214	2.395E-08	4.765E-08	1.293E-07	4.747E-07	2.902E-06
Bi210	3.038E-09	7.673E-09	2.869E-08	1.528E-07	1.436E-06
Bi211	1.026E-08	1.738E-08	3.563E-08	8.338E-08	2.334E-07
Bi213	2.671E-09	3.746E-09	6.179E-09	1.219E-08	3.425E-08
Bi214	2.395E-08	4.765E-08	1.293E-07	4.747E-07	2.902E-06
Po210	3.038E-09	7.673E-09	2.869E-08	1.528E-07	1.436E-06
Po213	2.613E-09	3.665E-09	6.046E-09	1.193E-08	3.351E-08
Po214	2.395E-08	4.764E-08	1.293E-07	4.746E-07	2.902E-06
Po215	1.026E-08	1.738E-08	3.563E-08	8.338E-08	2.334E-07
Po218	2.396E-08	4.766E-08	1.293E-07	4.748E-07	2.903E-06
At217	2.671E-09	3.746E-09	6.179E-09	1.219E-08	3.425E-08
Rn219	1.026E-08	1.738E-08	3.563E-08	8.338E-08	2.334E-07
Rn222	2.396E-08	4.766E-08	1.293E-07	4.748E-07	2.903E-06
Fr221	2.671E-09	3.746E-09	6.179E-09	1.219E-08	3.425E-08
Ra223	1.026E-08	1.738E-08	3.563E-08	8.338E-08	2.334E-07
Ra225	2.671E-09	3.746E-09	6.179E-09	1.219E-08	3.425E-08
Ra226	2.396E-08	4.766E-08	1.293E-07	4.748E-07	2.903E-06
Ac225	2.671E-09	3.746E-09	6.179E-09	1.219E-08	3.425E-08
Ac227	1.025E-08	1.736E-08	3.560E-08	8.334E-08	2.333E-07
Th227	1.012E-08	1.714E-08	3.514E-08	8.223E-08	2.302E-07
Th229	2.671E-09	3.746E-09	6.179E-09	1.219E-08	3.425E-08
Th230	8.727E-06	1.336E-05	2.503E-05	5.710E-05	1.788E-04
Th231	1.576E-04	1.576E-04	1.578E-04	1.580E-04	1.587E-04
Th234	1.050E-02	1.050E-02	1.050E-02	1.050E-02	1.050E-02
Np237	9.037E-03	9.105E-03	9.261E-03	9.622E-03	1.057E-02
Np239	5.779E-03	5.777E-03	5.771E-03	5.760E-03	5.733E-03
Pa231	5.002E-08	6.670E-08	1.001E-07	1.668E-07	3.340E-07
Pa233	9.037E-03	9.105E-03	9.261E-03	9.622E-03	1.057E-02
Pa234	1.365E-05	1.365E-05	1.365E-05	1.365E-05	1.365E-05
Pa234m	1.050E-02	1.050E-02	1.050E-02	1.050E-02	1.050E-02
U233	2.180E-06	2.378E-06	2.780E-06	3.605E-06	5.812E-06
U234	9.381E-02	1.121E-01	1.467E-01	2.081E-01	3.251E-01
U235	1.576E-04	1.576E-04	1.578E-04	1.580E-04	1.587E-04
U236	1.131E-03	1.133E-03	1.135E-03	1.141E-03	1.154E-03
U237	1.990E-02	1.564E-02	9.664E-03	3.690E-03	3.324E-04
U238	1.050E-02	1.050E-02	1.050E-02	1.050E-02	1.050E-02
Pu236	3.183E-03	9.439E-04	8.300E-05	6.431E-07	1.572E-09
Pu238	1.318E+03	1.267E+03	1.171E+03	1.000E+03	6.737E+02
Pu239	1.290E+01	1.290E+01	1.290E+01	1.289E+01	1.287E+01
Pu240	8.799E+00	8.824E+00	8.858E+00	8.890E+00	8.880E+00
Pu241	8.110E+02	6.375E+02	3.939E+02	1.504E+02	1.355E+01
Pu242	1.225E-02	1.225E-02	1.225E-02	1.225E-02	1.224E-02
Am241	3.898E+01	4.442E+01	5.176E+01	5.809E+01	5.793E+01
Am242	1.344E-02	1.314E-02	1.255E-02	1.146E-02	9.124E-03
Am242m	1.351E-02	1.321E-02	1.262E-02	1.152E-02	9.169E-03
Am243	5.779E-03	5.777E-03	5.771E-03	5.760E-03	5.733E-03
Cm242	1.112E-02	1.087E-02	1.038E-02	9.477E-03	7.545E-03
Cm244	6.058E+01	5.003E+01	3.412E+01	1.587E+01	2.341E+00

RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME

SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)

ISOTOPE(S): All actinides and daughters UNITS: Alpha curies

ISOTOPE	15YR	20YR	30YR	50YR	100YR
Bi211	1.023E-08	1.734E-08	3.553E-08	8.315E-08	2.327E-07
Po210	3.038E-09	7.673E-09	2.869E-08	1.528E-07	1.436E-06
Po213	2.613E-09	3.665E-09	6.046E-09	1.193E-08	3.351E-08
Po214	2.395E-08	4.764E-08	1.293E-07	4.746E-07	2.902E-06
Po215	1.026E-08	1.738E-08	3.563E-08	8.338E-08	2.334E-07
Po218	2.395E-08	4.765E-08	1.293E-07	4.747E-07	2.902E-06
At217	2.671E-09	3.746E-09	6.179E-09	1.219E-08	3.425E-08
Rn219	1.026E-08	1.738E-08	3.563E-08	8.338E-08	2.334E-07

Rn222	2.396E-08	4.766E-08	1.293E-07	4.748E-07	2.903E-06
Fr221	2.671E-09	3.746E-09	6.179E-09	1.219E-08	3.425E-08
Ra223	1.026E-08	1.738E-08	3.563E-08	8.338E-08	2.334E-07
Ra226	2.396E-08	4.766E-08	1.293E-07	4.748E-07	2.903E-06
Ac225	2.671E-09	3.746E-09	6.179E-09	1.219E-08	3.425E-08
Th227	1.012E-08	1.714E-08	3.514E-08	8.223E-08	2.302E-07
Th229	2.671E-09	3.746E-09	6.179E-09	1.219E-08	3.425E-08
Th230	8.727E-06	1.336E-05	2.503E-05	5.710E-05	1.788E-04
Np237	9.037E-03	9.105E-03	9.261E-03	9.622E-03	1.057E-02
Pa231	5.002E-08	6.670E-08	1.001E-07	1.668E-07	3.340E-07
U233	2.180E-06	2.378E-06	2.780E-06	3.605E-06	5.812E-06
U234	9.381E-02	1.121E-01	1.467E-01	2.081E-01	3.251E-01
U235	1.576E-04	1.576E-04	1.578E-04	1.580E-04	1.587E-04
U236	1.131E-03	1.133E-03	1.135E-03	1.141E-03	1.154E-03
U238	1.050E-02	1.050E-02	1.050E-02	1.050E-02	1.050E-02
Pu238	1.318E+03	1.267E+03	1.171E+03	1.000E+03	6.737E+02
Pu239	1.290E+01	1.290E+01	1.290E+01	1.289E+01	1.287E+01
Pu240	8.799E+00	8.824E+00	8.858E+00	8.890E+00	8.880E+00
Pu242	1.225E-02	1.225E-02	1.225E-02	1.225E-02	1.224E-02
Am241	3.898E+01	4.442E+01	5.176E+01	5.809E+01	5.793E+01
Cm244	6.058E+01	5.003E+01	3.412E+01	1.587E+01	2.341E+00

RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPE(S): All actinides and daughters UNITS: Total watts

ISOTOPE	15YR	20YR	30YR	50YR	100YR
Tl207	3.005E-11	5.091E-11	1.043E-10	2.442E-10	6.834E-10
Tl209	9.584E-13	1.345E-12	2.218E-12	4.375E-12	1.229E-11
Pb209	3.071E-12	4.308E-12	7.106E-12	1.402E-11	3.938E-11
Pb210	7.037E-13	1.777E-12	6.645E-12	3.539E-11	3.327E-10
Pb211	3.075E-11	5.209E-11	1.068E-10	2.498E-10	6.993E-10
Pb214	7.639E-11	1.520E-10	4.124E-10	1.514E-09	9.256E-09
Bi210	7.006E-12	1.769E-11	6.615E-11	3.523E-10	3.312E-09
Bi211	4.093E-10	6.934E-10	1.421E-09	3.326E-09	9.309E-09
Bi213	1.123E-11	1.575E-11	2.598E-11	5.125E-11	1.440E-10
Bi214	3.070E-10	6.107E-10	1.657E-09	6.083E-09	3.720E-08
Po210	9.740E-11	2.460E-10	9.197E-10	4.897E-09	4.604E-08
Po212	5.428E-04	5.266E-04	4.813E-04	3.976E-04	2.455E-04
Po213	1.322E-10	1.855E-10	3.059E-10	6.036E-10	1.696E-09
Po214	1.112E-09	2.212E-09	6.003E-09	2.204E-08	1.347E-07
Po215	4.581E-10	7.761E-10	1.591E-09	3.722E-09	1.042E-08
Po216	6.544E-04	6.349E-04	5.803E-04	4.793E-04	2.959E-04
Po218	8.681E-10	1.727E-09	4.687E-09	1.720E-08	1.052E-07
At217	1.140E-10	1.599E-10	2.637E-10	5.202E-10	1.462E-09
Rn219	4.258E-10	7.213E-10	1.479E-09	3.460E-09	9.684E-09
Rn220	6.069E-04	5.889E-04	5.382E-04	4.446E-04	2.745E-04
Rn222	7.939E-10	1.579E-09	4.286E-09	1.573E-08	9.619E-08
Fr221	1.031E-10	1.446E-10	2.385E-10	4.705E-10	1.322E-09
Ra223	3.654E-10	6.190E-10	1.269E-09	2.969E-09	8.310E-09
Ra224	5.486E-04	5.323E-04	4.865E-04	4.019E-04	2.481E-04
Ra225	1.873E-12	2.627E-12	4.333E-12	8.549E-12	2.402E-11
Ra226	6.918E-10	1.376E-09	3.735E-09	1.371E-08	8.382E-08
Ac225	9.329E-11	1.309E-10	2.158E-10	4.259E-10	1.196E-09
Ac227	4.964E-12	8.408E-12	1.724E-11	4.035E-11	1.130E-10
Th227	3.693E-10	6.257E-10	1.283E-09	3.001E-09	8.400E-09
Th228	5.223E-04	5.068E-04	4.635E-04	3.829E-04	2.364E-04
Th229	8.170E-11	1.146E-10	1.890E-10	3.730E-10	1.048E-09
Th230	2.470E-07	3.782E-07	7.083E-07	1.616E-06	5.059E-06
Th231	8.842E-08	8.845E-08	8.852E-08	8.867E-08	8.902E-08
Th234	4.257E-06	4.257E-06	4.257E-06	4.257E-06	4.257E-06
Np237	2.762E-04	2.783E-04	2.831E-04	2.941E-04	3.232E-04

Np239	1.397E-05	1.396E-05	1.395E-05	1.392E-05	1.386E-05
Pa231	1.507E-09	2.010E-09	3.015E-09	5.026E-09	1.006E-08
Pa233	2.051E-05	2.066E-05	2.102E-05	2.184E-05	2.400E-05
Pa234	1.961E-07	1.961E-07	1.961E-07	1.961E-07	1.961E-07
Pa234m	5.189E-05	5.189E-05	5.189E-05	5.189E-05	5.189E-05
U232	5.079E-04	4.868E-04	4.431E-04	3.656E-04	2.259E-04
U233	6.338E-08	6.914E-08	8.081E-08	1.048E-07	1.689E-07
U234	2.702E-03	3.230E-03	4.225E-03	5.993E-03	9.365E-03
U235	4.127E-06	4.128E-06	4.132E-06	4.138E-06	4.155E-06
U236	3.065E-05	3.068E-05	3.075E-05	3.090E-05	3.125E-05
U238	2.663E-04	2.663E-04	2.663E-04	2.663E-04	2.663E-04
Pu236	1.108E-04	3.285E-05	2.888E-06	2.238E-08	5.469E-11
Pu238	4.370E+01	4.200E+01	3.881E+01	3.314E+01	2.233E+01
Pu239	3.977E-01	3.976E-01	3.975E-01	3.973E-01	3.967E-01
Pu240	2.740E-01	2.747E-01	2.758E-01	2.768E-01	2.765E-01
Pu241	2.514E-02	1.976E-02	1.221E-02	4.663E-03	4.201E-04
Pu242	3.616E-04	3.616E-04	3.616E-04	3.616E-04	3.616E-04
Am241	1.295E+00	1.476E+00	1.719E+00	1.930E+00	1.924E+00
Am243	1.858E-04	1.857E-04	1.855E-04	1.852E-04	1.843E-04
Cm242	4.098E-04	4.006E-04	3.826E-04	3.492E-04	2.780E-04
Cm244	2.119E+00	1.750E+00	1.193E+00	5.551E-01	8.189E-02

RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPE(S): All fission products UNITS: Grams

ISOTOPE	15YR	20YR	30YR	50YR	100YR
Rb 87	9.961E+00	9.961E+00	9.961E+00	9.961E+00	9.961E+00
Sr 90	2.397E+02	2.128E+02	1.678E+02	1.042E+02	3.170E+01
Zr 90	1.029E+02	1.298E+02	1.749E+02	2.384E+02	3.110E+02
Zr 93	4.443E+02	4.443E+02	4.443E+02	4.443E+02	4.443E+02
Nb 93	1.014E-03	1.628E-03	3.100E-03	6.606E-03	1.640E-02
Tc 99	1.816E+02	1.816E+02	1.816E+02	1.816E+02	1.815E+02
Ru 99	8.864E-03	1.182E-02	1.773E-02	2.954E-02	5.908E-02
Pd107	2.863E+01	2.863E+01	2.863E+01	2.863E+01	2.863E+01
Ag107	4.582E-05	6.110E-05	9.165E-05	1.527E-04	3.055E-04
Sn126	1.556E+01	1.556E+01	1.556E+01	1.555E+01	1.555E+01
Te126	1.618E-03	2.157E-03	3.235E-03	5.391E-03	1.078E-02
Cs135	8.633E+01	8.633E+01	8.633E+01	8.633E+01	8.633E+01
Cs137	3.528E+02	3.143E+02	2.494E+02	1.571E+02	4.949E+01
Ba135	3.903E-04	5.204E-04	7.805E-04	1.301E-03	2.602E-03
Ba137	1.461E+02	1.846E+02	2.495E+02	3.418E+02	4.494E+02
Ce142	4.005E+02	4.005E+02	4.005E+02	4.005E+02	4.005E+02
Ce144	4.880E-06	5.685E-08	7.705E-12	1.415E-19	6.469E-39
Nd144	4.141E+02	4.141E+02	4.141E+02	4.141E+02	4.141E+02
Pm147	4.958E-01	1.323E-01	9.421E-03	4.783E-05	8.758E-11
Sm147	1.136E+02	1.139E+02	1.140E+02	1.140E+02	1.140E+02
Sm148	1.916E+01	1.916E+01	1.916E+01	1.916E+01	1.916E+01
Sm149	7.420E+00	7.420E+00	7.420E+00	7.420E+00	7.420E+00
Sm151	8.390E+00	8.073E+00	7.475E+00	6.408E+00	4.360E+00
Eu151	1.028E+00	1.345E+00	1.943E+00	3.010E+00	5.058E+00

RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPE(S): All fission products UNITS: Total curies

ISOTOPE	15YR	20YR	30YR	50YR	100YR
Se 79	1.699E-01	1.699E-01	1.699E-01	1.699E-01	1.698E-01
Sr 90	3.271E+04	2.904E+04	2.289E+04	1.422E+04	4.326E+03
Y 90	3.272E+04	2.905E+04	2.290E+04	1.422E+04	4.327E+03
Zr 93	1.117E+00	1.117E+00	1.117E+00	1.117E+00	1.117E+00
Nb 93m	5.670E-01	6.781E-01	8.310E-01	9.780E-01	1.054E+00

Nb 94	9.642E-05	9.641E-05	9.637E-05	9.631E-05	9.614E-05
Tc 99	3.080E+00	3.080E+00	3.080E+00	3.079E+00	3.079E+00
Ru106	7.464E-02	2.398E-03	2.597E-06	2.764E-12	3.232E-27
Rh106	7.464E-02	2.398E-03	2.597E-06	2.764E-12	3.232E-27
Pd107	1.473E-02	1.473E-02	1.473E-02	1.473E-02	1.473E-02
Sn126	4.416E-01	4.416E-01	4.415E-01	4.415E-01	4.413E-01
Sb125	1.991E+01	5.697E+00	4.665E-01	3.128E-03	1.151E-08
Sb126	6.182E-02	6.182E-02	6.182E-02	6.181E-02	6.179E-02
Sb126m	4.416E-01	4.416E-01	4.415E-01	4.415E-01	4.413E-01
Te125m	4.858E+00	1.390E+00	1.138E-01	7.632E-04	2.809E-09
Cs134	2.178E+00	4.057E-01	1.407E-02	1.685E-05	8.453E-13
Cs135	9.944E-02	9.944E-02	9.944E-02	9.944E-02	9.944E-02
Cs137	3.070E+04	2.735E+04	2.171E+04	1.367E+04	4.307E+03
Ba137m	2.904E+04	2.587E+04	2.053E+04	1.294E+04	4.074E+03
Ce144	1.558E-02	1.814E-04	2.459E-08	4.516E-16	2.064E-35
Pr144	1.558E-02	1.814E-04	2.459E-08	4.516E-16	2.065E-35
Pr144m	1.870E-04	2.177E-06	2.951E-10	5.419E-18	2.477E-37
Pm147	4.598E+02	1.227E+02	8.737E+00	4.436E-02	8.122E-08
Sm151	2.208E+02	2.125E+02	1.967E+02	1.686E+02	1.147E+02
Eu152	1.717E+00	1.331E+00	7.995E-01	2.885E-01	2.257E-02
Eu154	1.850E+02	1.236E+02	5.522E+01	1.102E+01	1.959E-01
Eu155	5.837E+01	2.902E+01	7.173E+00	4.382E-01	4.042E-04

RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPE(S): All fission products UNITS: Alpha curies

ISOTOPE	15YR	20YR	30YR	50YR	100YR

No isotopes were found in this group with significant values.

RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPE(S): All fission products UNITS: Total watts

ISOTOPE	15YR	20YR	30YR	50YR	100YR
Se 79	4.231E-05	4.231E-05	4.230E-05	4.230E-05	4.227E-05
Sr 90	3.797E+01	3.371E+01	2.657E+01	1.651E+01	5.021E+00
Y 90	1.814E+02	1.610E+02	1.269E+02	7.884E+01	2.398E+01
Zr 93	1.298E-04	1.298E-04	1.298E-04	1.298E-04	1.297E-04
Nb 93m	1.005E-04	1.201E-04	1.472E-04	1.733E-04	1.868E-04
Nb 94	9.825E-07	9.823E-07	9.820E-07	9.813E-07	9.797E-07
Tc 99	1.544E-03	1.544E-03	1.544E-03	1.544E-03	1.544E-03
Ru106	4.437E-06	1.425E-07	1.544E-10	1.644E-16	1.922E-31
Rh106	7.159E-04	2.300E-05	2.491E-08	2.651E-14	3.100E-29
Pd107	8.732E-07	8.732E-07	8.732E-07	8.732E-07	8.732E-07
Sn121m	1.286E-04	1.200E-04	1.044E-04	7.913E-05	3.955E-05
Sn126	5.507E-04	5.507E-04	5.507E-04	5.506E-04	5.504E-04
Sb125	6.224E-02	1.781E-02	1.458E-03	9.778E-06	3.599E-11
Sb126	1.142E-03	1.142E-03	1.142E-03	1.142E-03	1.142E-03
Sb126m	5.623E-03	5.622E-03	5.622E-03	5.621E-03	5.619E-03
Te125m	4.083E-03	1.168E-03	9.567E-05	6.415E-07	2.361E-12
Cs134	2.217E-02	4.129E-03	1.432E-04	1.715E-07	8.604E-15
Cs135	3.319E-05	3.319E-05	3.319E-05	3.319E-05	3.319E-05
Cs137	3.396E+01	3.025E+01	2.401E+01	1.513E+01	4.764E+00
Ba137m	1.140E+02	1.016E+02	8.063E+01	5.079E+01	1.600E+01
Ce144	1.033E-05	1.203E-07	1.631E-11	2.996E-19	1.369E-38
Pr144	1.145E-04	1.334E-06	1.807E-10	3.320E-18	1.518E-37
Pr144m	6.398E-08	7.449E-10	1.010E-13	1.854E-21	8.476E-41
Pm147	1.649E-01	4.401E-02	3.134E-03	1.591E-05	2.913E-11
Sm147	3.535E-08	3.546E-08	3.550E-08	3.551E-08	3.551E-08
Sm151	2.589E-02	2.491E-02	2.307E-02	1.977E-02	1.345E-02
Eu152	1.299E-02	1.007E-02	6.047E-03	2.182E-03	1.707E-04

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Eu154      1.655E+00   1.106E+00   4.940E-01   9.855E-02   1.752E-03
Eu155      4.246E-02   2.111E-02   5.217E-03   3.187E-04   2.940E-07
 RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE:  Savannah River Plant                        MAXIMUM RADIOACTIVITY (ONE
CASE)
                        WASTE TYPE:  Immobilized (in canisters)
ISOTOPE(S):  Summary of all isotopes               UNITS:  Grams
 ISOTOPE      15YR         20YR         30YR         50YR         100YR
Activation Products
          5.147E-01   5.147E-01   5.147E-01   5.147E-01   5.147E-01

Actinides and daughters
          3.168E+04   3.168E+04   3.168E+04   3.168E+04   3.168E+04

Fission Products
          2.580E+03   2.580E+03   2.580E+03   2.580E+03   2.580E+03

Total of all Groups
          3.426E+04   3.426E+04   3.426E+04   3.426E+04   3.426E+04
RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE:  Savannah River Plant                        MAXIMUM RADIOACTIVITY (ONE
CASE)
                        WASTE TYPE:  Immobilized (in canisters)
ISOTOPE(S):  Summary of all isotopes               UNITS:  Total curies
 ISOTOPE      15YR         20YR         30YR         50YR         100YR
Activation Products
          2.630E+01   1.482E+01   5.683E+00   2.303E+00   1.426E+00

Actinides and daughters
          2.251E+03   2.021E+03   1.673E+03   1.247E+03   7.697E+02

Fission Products
          1.261E+05   1.118E+05   8.831E+04   5.524E+04   1.716E+04

Total of all Groups
          1.284E+05   1.138E+05   8.999E+04   5.649E+04   1.793E+04
RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE:  Savannah River Plant                        MAXIMUM RADIOACTIVITY (ONE
CASE)
                        WASTE TYPE:  Immobilized (in canisters)
ISOTOPE(S):  Summary of all isotopes               UNITS:  Alpha curies
 ISOTOPE      15YR         20YR         30YR         50YR         100YR
Activation Products

Actinides and daughters
          1.440E+03   1.384E+03   1.279E+03   1.096E+03   7.561E+02

Fission Products

Total of all Groups
          1.440E+03   1.384E+03   1.279E+03   1.096E+03   7.561E+02
RADIONUCLIDE CONTENT PER CANISTER VS. DECAY TIME
SITE:  Savannah River Plant                        MAXIMUM RADIOACTIVITY (ONE
CASE)
                        WASTE TYPE:  Immobilized (in canisters)
ISOTOPE(S):  Summary of all isotopes               UNITS:  Total watts
 ISOTOPE      15YR         20YR         30YR         50YR         100YR
Activation Products
          3.645E-01   1.889E-01   5.088E-02   3.854E-03   1.472E-04

Actinides and daughters
          4.781E+01   4.593E+01   4.242E+01   3.631E+01   2.502E+01
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Fission Products					
	3.693E+02	3.278E+02	2.587E+02	1.614E+02	4.979E+01
Total of all Groups					
	4.175E+02	3.739E+02	3.012E+02	1.977E+02	7.481E+01

PHOTON SPECTRUM PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPES: Activation products UNITS: Photons/sec

EMEAN	15YR	20YR	30YR	50YR	100YR
1.000E-02	4.685E+10	2.451E+10	6.925E+09	8.816E+08	2.873E+08
2.500E-02	8.037E+09	4.178E+09	1.142E+09	1.056E+08	1.758E+07
3.750E-02	4.577E+09	2.374E+09	6.414E+08	5.093E+07	3.604E+06
5.750E-02	5.156E+09	2.671E+09	7.174E+08	5.215E+07	4.298E+05
8.500E-02	2.027E+09	1.050E+09	2.819E+08	2.030E+07	2.817E+04
1.250E-01	7.785E+08	4.033E+08	1.082E+08	7.797E+06	1.082E+04
2.250E-01	2.560E+08	1.326E+08	3.560E+07	2.564E+06	3.558E+03
3.750E-01	7.182E+07	3.721E+07	9.986E+06	7.193E+05	9.983E+02
5.750E-01	4.124E+06	2.137E+06	5.734E+05	4.130E+04	5.732E+01
8.500E-01	6.527E+07	3.381E+07	9.075E+06	6.537E+05	9.072E+02
1.250E+00	1.748E+12	9.053E+11	2.430E+11	1.750E+10	2.429E+07
1.750E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.250E+00	9.262E+06	4.798E+06	1.288E+06	9.276E+04	1.287E+02
2.750E+00	2.866E+04	1.485E+04	3.985E+03	2.870E+02	3.983E-01
3.500E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
9.500E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

PHOTON SPECTRUM PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPES: Actinides and daughters UNITS: Photons/sec

EMEAN	15YR	20YR	30YR	50YR	100YR
1.000E-02	8.402E+12	8.090E+12	7.499E+12	6.452E+12	4.479E+12
2.500E-02	3.664E+10	4.173E+10	4.858E+10	5.449E+10	5.433E+10
3.750E-02	2.581E+10	2.526E+10	2.403E+10	2.145E+10	1.582E+10
5.750E-02	5.370E+11	6.118E+11	7.127E+11	7.997E+11	7.975E+11
8.500E-02	5.415E+09	5.262E+09	4.955E+09	4.381E+09	3.245E+09
1.250E-01	8.827E+08	8.739E+08	8.567E+08	8.258E+08	7.647E+08
2.250E-01	1.058E+09	9.913E+08	8.744E+08	7.089E+08	4.800E+08
3.750E-01	2.341E+08	2.347E+08	2.352E+08	2.364E+08	2.416E+08
5.750E-01	2.487E+08	2.432E+08	2.257E+08	1.915E+08	1.264E+08
8.500E-01	1.515E+08	1.456E+08	1.321E+08	1.090E+08	6.999E+07
1.250E+00	1.595E+07	1.471E+07	1.258E+07	9.725E+06	6.404E+06
1.750E+00	2.334E+07	2.225E+07	1.983E+07	1.589E+07	9.645E+06
2.250E+00	1.719E+06	1.432E+06	9.975E+05	4.966E+05	1.210E+05
2.750E+00	2.026E+08	1.964E+08	1.794E+08	1.480E+08	9.124E+07
3.500E+00	8.935E+05	7.435E+05	5.169E+05	2.553E+05	5.630E+04
5.000E+00	3.812E+05	3.170E+05	2.201E+05	1.084E+05	2.347E+04
7.000E+00	4.382E+04	3.643E+04	2.526E+04	1.239E+04	2.631E+03
9.500E+00	5.026E+03	4.177E+03	2.895E+03	1.417E+03	2.975E+02

PHOTON SPECTRUM PER CANISTER VS. DECAY TIME
SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)
ISOTOPES: Fission products UNITS: Photons/sec

EMEAN	15YR	20YR	30YR	50YR	100YR
1.000E-02	9.389E+14	8.332E+14	6.569E+14	4.086E+14	1.249E+14
2.500E-02	1.949E+14	1.727E+14	1.360E+14	8.462E+13	2.585E+13
3.750E-02	1.985E+14	1.759E+14	1.385E+14	8.628E+13	2.661E+13
5.750E-02	1.809E+14	1.604E+14	1.264E+14	7.855E+13	2.397E+13
8.500E-02	1.084E+14	9.593E+13	7.545E+13	4.687E+13	1.430E+13
1.250E-01	7.258E+13	6.369E+13	4.948E+13	3.039E+13	9.215E+12
2.250E-01	9.216E+13	8.168E+13	6.425E+13	3.986E+13	1.213E+13
3.750E-01	3.984E+13	3.519E+13	2.767E+13	1.718E+13	5.238E+12

5.750E-01	1.128E+15	1.005E+15	7.970E+14	5.019E+14	1.580E+14
8.500E-01	9.737E+12	7.878E+12	5.453E+12	2.975E+12	8.501E+11
1.250E+00	5.737E+12	4.295E+12	2.557E+12	1.131E+12	2.816E+11
1.750E+00	2.717E+11	2.174E+11	1.467E+11	7.750E+10	2.172E+10
2.250E+00	2.648E+07	1.619E+07	1.262E+07	7.840E+06	2.385E+06
2.750E+00	5.975E+05	1.911E+04	2.066E+01	1.299E-04	1.079E-04
3.500E+00	7.758E+04	2.492E+03	2.699E+00	8.235E-05	7.947E-05
5.000E+00	2.364E-05	2.366E-05	2.366E-05	2.366E-05	2.366E-05
7.000E+00	1.534E-06	1.535E-06	1.535E-06	1.535E-06	1.535E-06
9.500E+00	9.700E-08	9.706E-08	9.708E-08	9.708E-08	9.708E-08

PHOTON SPECTRUM PER CANISTER VS. DECAY TIME

SITE: Savannah River Plant MAXIMUM RADIOACTIVITY (ONE CASE)

WASTE TYPE: Immobilized (in canisters)

ISOTOPES: Total isotopes UNITS: Photons/sec

EMEAN	15YR	20YR	30YR	50YR	100YR
1.000E-02	9.473E+14	8.413E+14	6.644E+14	4.151E+14	1.294E+14
2.500E-02	1.949E+14	1.727E+14	1.360E+14	8.467E+13	2.590E+13
3.750E-02	1.985E+14	1.759E+14	1.385E+14	8.630E+13	2.663E+13
5.750E-02	1.814E+14	1.610E+14	1.271E+14	7.935E+13	2.477E+13
8.500E-02	1.084E+14	9.594E+13	7.546E+13	4.687E+13	1.430E+13
1.250E-01	7.258E+13	6.369E+13	4.948E+13	3.039E+13	9.216E+12
2.250E-01	9.216E+13	8.168E+13	6.425E+13	3.986E+13	1.213E+13
3.750E-01	3.984E+13	3.519E+13	2.767E+13	1.718E+13	5.238E+12
5.750E-01	1.128E+15	1.005E+15	7.970E+14	5.019E+14	1.580E+14
8.500E-01	9.737E+12	7.878E+12	5.453E+12	2.975E+12	8.502E+11
1.250E+00	7.485E+12	5.200E+12	2.800E+12	1.149E+12	2.816E+11
1.750E+00	2.717E+11	2.174E+11	1.467E+11	7.752E+10	2.173E+10
2.250E+00	3.746E+07	2.242E+07	1.491E+07	8.429E+06	2.506E+06
2.750E+00	2.032E+08	1.964E+08	1.794E+08	1.480E+08	9.124E+07
3.500E+00	9.711E+05	7.460E+05	5.169E+05	2.553E+05	5.630E+04
5.000E+00	3.812E+05	3.170E+05	2.201E+05	1.084E+05	2.347E+04
7.000E+00	4.382E+04	3.643E+04	2.526E+04	1.239E+04	2.631E+03
9.500E+00	5.026E+03	4.177E+03	2.895E+03	1.417E+03	2.975E+02

Calculated Integrated Heat Release per HLW canister
SITE: Savannah River Site

Decay Time after Immobilization years	Integrated Heat Release per Canister watt-years
0	0
1	667
2	1,273
5	2,941
10	5,423
15	7,634
20	9,612
30	12,973
50	17,892
100	24,227
200	28,134
300	29,275
350	29,582
500	30,155
1,000	31,045
1,050	31,135
2,000	31,986
5,000	33,863
10,000	36,278
20,000	39,889
50,000	46,570
100,000	53,243
500,000	83,682
1,000,000	100,052

DWPF / SRS

from Table 3.3.8 Attachment I

Component	wt%	fraction not O	wt% not O = wt% × fraction
Ag	0.05		.05
Al_2O_3	3.96	.5293	2.096
B_2O_3	10.28	.3106	3.193
$BaSO_4$	0.14	.5884 / .1374	8.238E-2 / 1.924E-2
$Ca_3(PO_4)_2$	0.07	.3876 / .1997	2.713E-2 / 1.398E-2
CaO	0.85	.7147	0.6075
$CaSO_4$	0.08	.2944 / .2355	2.355E-2 / 1.884E-2
Cr_2O_3	0.12	.6872	8.210E-2
Cs_2O	0.08	.9432	7.546E-2
CuO	0.19	.7989	1.518E-1
Fe_2O_3	7.04	.7083 DWS 11/28/95 .6994	~~4.986~~ DWS 11/28/95 4.924
FeO	3.12	.7773	2.425
K_2O	3.58	.8302	2.972
Li_2O	3.16	.4646	1.468
MgO	1.36	.6030	0.820
MnO	2.00	.7745	1.549
Na_2O	11.00	.7419	8.161
Na_2SO_4	0.36	.5237 / .2257	1.165E-1 / 8.125E-2
NaCl	0.19	.3934 / .6066	7.475E-2 / 1.153E-1
NaF	0.07	.5475 / .4525	3.833E-2 / 3.168E-2
NiO	0.93	.7858	7.308E-1
PbS	0.07	.8660 / .1340	6.062E-2 / 9.38E-3
SiO_2	45.57	.4674	2.1294E1
ThO_2	0.21	~~.9355~~ DWS 11/28/95 0.8788	~~1.965E-1~~ DWS 11/28/95 1.845E-1
TiO_2	0.99	.5995	5.935E-1
U_3O_8	2.20	.8480	1.866
zeolite → SO_2	1.67		
ZnO → SO_2	0.08	2.33 .4674	1.089
others → SO_2	0.58		

DWS 11/28/95

SUM ~~55.125~~ 55.051

wt% O = 100 − ~~55.125~~ DWS 11/28/95 55.051 = ~~44.875~~ DWS 11/28/95 44.949

wt% multiplied by 0.98165

DWPF/SRS GLASS 3/31/95

from Information About DWPF/SRS HLW Glass
glass weight 1682 Kg

Isotope	grams/container	wt fraction in glass
Rh103	.5028E-15	—
Ag109	—	—
Sm149	0.742E1 ÷ 1682 →	4.411E-6
Eu151	—	—
Eu153	—	—
Gd155	—	—
U-233	0.1636E-3	9.727E-11
U-234	0.5485E1	3.261E-6
U-235	0.7278E2	4.327E-5
U-236	0.1742E2	1.036E-5
U-238	0.3122E5	1.856E-2
Np-237	0.1263E2	7.509E-6
Pu238	0.8667E2	5.153E-5
Pu239	0.2076E3	1.2342E-4
Pu240	0.3809E2	2.265-5
Pu241	0.1620E2	9.631-6
Pu242	0.3206E1	1.906-6
Am241	0.3210E1	1.908-6
Am242m	0.1488E-2	8.847-10
Am243	0.2902E-1	1.725-8
Cm245	0.3910E-4	2.325-11
	3.16907E4	1.8835E-2

1 − 1.8835E-2 = 0.981165 (JWT 11/8/95)

∴ 1.682E6 gm ∴ .981165 glass wt fraction

Consistency/roundoff check 1.884E-2

Calculation of Pu-239 gm/l

$\rho_{Pu239} = \frac{207.6\ gm}{.59 (10^3)^3} = 3.52E-4\ g/cm^3 = 0.352\ g/l$

min in aqueous solution is > gm/l

min mass 0.5 kg in aqueous solution from TIA-2016

```
1MCNP     VERSION 4A-B  LD=10/04/91                          12/01/95 15:29:13
 ******************************************************************************                PROBID =   12/01/95 15:29:13
 INP=DHLWG1 OUTP=DHLWG1.O

    1-       DHLWG1-- DWPF GLASS   INFINITE ARRAY FLOODED
    2-       C      1     2  -1.00   -13 2 -20   IMP:N=1  FILL=3
    3-       C     LATTICE OF CANISTERS
    4-       2     2  -1.00   -10 9 -12 11 2 -20 FILL=2 (32.0 32.0 0.) IMP:N=1
    5-       3     0         10:-9:12:-11:-2:20  IMP:N=0
    6-       C      CANISTER
    7-       4     2  -1.00  -6 5 -8 7 LAT=1 U=2 FILL=1 IMP:N=1
    8-       5     1  -2.85   -1 -3 IMP:N=1 U=1 $ 5 WT% PU GLASS
    9-       6     3  -7.9     1 -14 -3 IMP:N=1 U=1 $ SS304L CANISTER WALL
   10-       7     3  -7.9    -14  3 -4 IMP:N=1 U=1 $ SS304L CANISTER WALL
   11-       8     2  -1.00  14 -4 IMP:N=1 U=1  $ WATER AROUND CANISTER
   12-       9     2  -1.00   4    IMP:N=1 U=1  $ WATER ABOVE CANISTER / REFLECTED ON CENTERL
   13-       C
   14-       C     10    4  -8.140 13 -19 2 -20 IMP:N=1 $ A 516 CARBON STEEL INNER BARRIER
   15-       C     11    4  -8.140    -19 20 -21 IMP:N=1 $ A 516 CARBON STEEL INNER BARRIER L
   16-       C     12    2  -1.00     -19 21 -23 IMP:N=1 $ GAP BETWEEN INNER AND OUTER BARRIE
   17-       C     13    5  -8.9375  19 -22 2 -23 IMP:N=1 $ C71500 ALLOY INNER BARRIER
   18-       C     14    5  -8.9375     -22    23 -24 IMP:N=1 $ C71500 ALLOY INNER BARRIER LI
   19-       C     15    2  -1.00  22 2 -24  -16 15 -18 17 IMP:N=1 $ 6" OF WATER REFLECTED AR
   20-       C     16    2  -1.00    24 -25  -16 15 -18 17 IMP:N=1 $ 12" OF WATER ABOVE CONTA
   21-       C     17     0         -2:25:-15:16:-17:18     IMP:N=0   $ ZERO-IMPORTANCE OUTSI
   22-
   23-       1     CZ 29.528
   24-       2*    PZ  0.0
   25-       3     PZ 137.13
   26-       4     PZ  138.7175
   27-       5     PX  -32.0
   28-       6     PX   32.0
   29-       7     PY  -32.0
   30-       8     PY   32.0
   31-       9*    PX -63.9999
   32-       10*   PX  63.9999
   33-       11*   PY -63.9999
   34-       12*   PY  63.9999
   35-       13    CZ  78.45
   36-       14    CZ  30.48
   37-       C     15*  PX  -100.74
   38-       C     16*   PX   100.74
   39-       C     17*   PY  -100.74
   40-       C     18*   PY   100.74
   41-       19    CZ   80.45
   42-       20    PZ  153.75
   43-       21    PZ  156.25
   44-       22    CZ   85.45
   45-       23    PZ  162.50
   46-       24    PZ  171.0
   47-       25    PZ  201.48
   48-
   49-       KCODE 500 0.03 5 25
   50-       C     KSRC  22.78 25.28 16 30.28 22.78 30 22.78 40.28 40 35.28 22.78 100
   51-       C      22.78 22.28 150 28.28 22.78 200 22.78 30.28 150 38.28 22.78 250.
   52-       C      22.78 -25.28 16 30.28 -22.78 30 22.78 -40.28 40 35.28 -22.78 100
   53-       C      22.78 -22.28 150 28.28 -22.78 200 22.78 -30.28 150 38.28 -22.78 250.
   54-       C      -22.78 25.28 16 -30.28 22.78 30 -22.78 40.28 40 -35.28 22.78 100
   55-       C      -22.78 22.28 150 -28.28 22.78 200 -22.78 30.28 150 -38.28 22.78 250.
   56-       C      -22.78 -25.28 16 -30.28 -22.78 30 -22.78 -40.28 40 -35.28 -22.78 100
```

```
   57-       C      -22.78 -22.28 150 -28.28 -22.78 200 -22.78 -30.28 150 -38.28 -22.78 250.
   58-       C        C71500  D=8.9375 G/CC
   59-       M5   25055.50C  -0.10  26000.55C -0.70    28000.50C -31.000
 WARNING.  MATERIAL   5 IS NOT USED IN THE PROBLEM.
   60-            29000.50C -67.150 82000.50C -0.050
   61-       C        ALLOY 825  D=8.140 G/CC
   62-       M4    6000.50C  -0.05  13027.50C  -0.20  14000.50C  -0.50
 WARNING.  MATERIAL   4 IS NOT USED IN THE PROBLEM.
   63-            16032.50C  -0.03  22000.50C  -0.90  24000.50C -21.50
   64-            25055.50C  -1.00  26000.55C -28.57  28000.50C -42.00
   65-            29000.50C  -2.25  42000.50C  -3.00
   66-       C        SS304L D=7.9 G/CC
   67-       M3    6000.50C  -0.030 7014.50C  -0.100 14000.50C -0.75
   68-           15031.50C  -0.045 16032.50C  -0.030 24000.50C -19.000
   69-           25055.50C  -2.000 26000.55C -68.045 28000.50C -10.000
   70-       M2    1001.50C 2.0  8016.50C 1.0
   71-       MT2   LWTR.01T
   72-       M1     3006.50C -1.080-1   3007.55C -1.332     5010.50C -6.234-1 $ DHLW GLASS
   73-            5011.56C -2.509     8016.50C  -4.4102+1  9019.50C -3.108-2
   74-           11023.50C -8.233    12000.50C -8.046-1  13027.50C -2.057
   75-           14000.50C -2.1967+1 16032.50C -1.263-1  19000.50C -2.916
   76-           20000.50C -6.458-1  22000.50C -5.823-1  25055.50C -1.520
   77-           26000.55C -7.211    28000.50C -7.170-1  15031.50C -1.372-2
   78-           24000.50C -8.055-2 29000.50C  -1.489-1  47109.50C -4.906-2
   79-           56138.50C -8.083-2 82000.50C -5.948-2   17000.50C -1.131-1
   80-           90232.50C -1.811-1  62149.50C -4.411-4  92233.50C -9.727-9
   81-           92234.50C -3.261-4  92236.50C -1.036-3  93237.55C -7.509-4
   82-           92235.50C -1.734-2  92238.50C -3.674    94238.50C -5.153-3
   83-           94239.55C -1.234-2  94240.50C -2.265-3  94241.50C -9.631-4
   84-           94242.50C -1.906-4  95241.50C -1.908-4  95242.50C -8.847-8
   85-           95243.50C -1.725-6  96245.35C -2.325-9
   86-       PRINT
   87-       PRDMP
1     INITIAL SOURCE FROM FILE   SRCTP

 ORIGINAL NUMBER OF POINTS                          529
    POINTS NOT IN ANY CELL                 0
    POINTS IN CELLS OF ZERO IMPORTANCE     0
    POINTS IN VOID CELLS                   0
    POINTS IN AMBIGUOUS CELLS              0
 TOTAL POINTS REJECTED                               0
 POINTS REMAINING                                  529
 POINTS AFTER EXPANSION OR CONTRACTION             496
 NOMINAL SOURCE SIZE                               500

 INITIAL GUESS FOR K(EFF.)                     .030000

 CYCLES TO SKIP BEFORE TALLYING                      5

 TOTAL FISSION NUBAR DATA ARE BEING USED.
1MATERIAL COMPOSITION                                                    PRINT TABLE 40

 THE SUM OF THE FRACTIONS OF MATERIAL    3 WAS 1.000000E+02

 THE SUM OF THE FRACTIONS OF MATERIAL    2 WAS 3.000000E+00

 THE SUM OF THE FRACTIONS OF MATERIAL    1 WAS 9.992722E+01

 MATERIAL
  NUMBER     COMPONENT NUCLIDE, ATOM FRACTION
```

3	6000,	.00137	7014,	.00390	14000,	.01460	15031,	.00079
	16032,	.00051	24000,	.19975	25055,	.01990	26000,	.66604
	28000,	.09314						
2	1001,	.66667	8016,	.33333				

ASSOCIATED THERMAL S(A,B) DATA SETS: LWTR.01T

1	3006,	.00373	3007,	.03949	5010,	.01295	5011,	.04740
	8016,	.57353	9019,	.00034	11023,	.07449	12000,	.00689
	13027,	.01586	14000,	.16269	16032,	.00082	19000,	.01551
	20000,	.00335	22000,	.00253	25055,	.00576	26000,	.02686
	28000,	.00254	15031,	.00009	24000,	.00032	29000,	.00049
	47109,	.00009	56138,	.00012	82000,	.00006	17000,	.00066
	90232,	.00016	62149,	.00000	92233,	.00000	92234,	.00000
	92236,	.00000	93237,	.00000	92235,	.00002	92238,	.00321
	94238,	.00000	94239,	.00001	94240,	.00000	94241,	.00000
	94242,	.00000	95241,	.00000	95242,	.00000	95243,	.00000
	96245,	.00000						

MATERIAL NUMBER — COMPONENT NUCLIDE, MASS FRACTION

3	6000,	.00030	7014,	.00100	14000,	.00750	15031,	.00045
	16032,	.00030	24000,	.19000	25055,	.02000	26000,	.68045
	28000,	.10000						
2	1001,	.11191	8016,	.88809				
1	3006,	.00108	3007,	.01333	5010,	.00624	5011,	.02511
	8016,	.44134	9019,	.00031	11023,	.08239	12000,	.00805
	13027,	.02058	14000,	.21983	16032,	.00126	19000,	.02918
	20000,	.00646	22000,	.00583	25055,	.01521	26000,	.07216
	28000,	.00718	15031,	.00014	24000,	.00081	29000,	.00149
	47109,	.00049	56138,	.00081	82000,	.00060	17000,	.00113
	90232,	.00181	62149,	.00000	92233,	.00000	92234,	.00000
	92236,	.00001	93237,	.00001	92235,	.00017	92238,	.03677
	94238,	.00005	94239,	.00012	94240,	.00002	94241,	.00001
	94242,	.00000	95241,	.00000	95242,	.00000	95243,	.00000
	96245,	.00000						

WARNING. 3 OF THE MATERIALS HAD UNNORMALIZED FRACTIONS.

1CELL VOLUMES AND MASSES PRINT TABLE 50

CELL		ATOM DENSITY	GRAM DENSITY	INPUT VOLUME	CALCULATED VOLUME	MASS	PIECES	REASON VOLUME NOT CALCULATED
1	2	1.00309E-01	1.00000E+00	.00000E+00	2.51903E+06	2.51903E+06	0	
2	3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
3	4	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
4	5	8.25705E-02	2.85000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
5	6	8.70320E-02	7.90000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
6	7	8.70320E-02	7.90000E+00	.00000E+00	4.63333E+03	3.66033E+04	1	
7	8	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
8	9	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE

1SURFACE AREAS PRINT TABLE 50

SURFACE	INPUT AREA	CALCULATED AREA	REASON AREA NOT CALCULATED

1	1	.00000E+00	.00000E+00	INFINITE
2	2	.00000E+00	1.63839E+04	
3	3	.00000E+00	2.91864E+03	
4	4	.00000E+00	.00000E+00	INFINITE
5	5	.00000E+00	.00000E+00	INFINITE
6	6	.00000E+00	.00000E+00	INFINITE
7	7	.00000E+00	.00000E+00	INFINITE
8	8	.00000E+00	.00000E+00	INFINITE
9	9	.00000E+00	1.96800E+04	
10	10	.00000E+00	1.96800E+04	
11	11	.00000E+00	1.96800E+04	
12	12	.00000E+00	1.96800E+04	
13	13	.00000E+00	.00000E+00	NOT A BOUNDARY
14	14	.00000E+00	.00000E+00	INFINITE
15	19	.00000E+00	.00000E+00	NOT A BOUNDARY
16	20	.00000E+00	1.63839E+04	
17	21	.00000E+00	.00000E+00	NOT A BOUNDARY
18	22	.00000E+00	.00000E+00	NOT A BOUNDARY
19	23	.00000E+00	.00000E+00	NOT A BOUNDARY
20	24	.00000E+00	.00000E+00	NOT A BOUNDARY
21	25	.00000E+00	.00000E+00	NOT A BOUNDARY

1CELLS PRINT TABLE 60

CELL	MAT	ATOM DENSITY	GRAM DENSITY	VOLUME	MASS	PIECES	NEUTRON IMPORTANCE
1	2S	1.00309E-01	1.00000E+00	2.51903E+06	2.51903E+06	0	1.0000E+00
2	0	.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	.0000E+00
3	2S	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	0	1.0000E+00
4	1	8.25705E-02	2.85000E+00	.00000E+00	.00000E+00	0	1.0000E+00
5	3	8.70320E-02	7.90000E+00	.00000E+00	.00000E+00	0	1.0000E+00
6	3	8.70320E-02	7.90000E+00	4.63333E+03	3.66033E+04	1	1.0000E+00
7	2S	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	0	1.0000E+00
8	2S	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	0	1.0000E+00
TOTAL				2.52367E+06	2.55564E+06		

1SURFACES PRINT TABLE 70

SURFACE	TRANS	TYPE	SURFACE COEFFICIENTS
1		CZ	2.9528000E+01
2	REFL.	PZ	.0000000E+00
3		PZ	1.3713000E+02
4		PZ	1.3871750E+02
5		PX	-3.2000000E+01
6		PX	3.2000000E+01
7		PY	-3.2000000E+01
8		PY	3.2000000E+01
9	REFL.	PX	-6.3999900E+01
10	REFL.	PX	6.3999900E+01
11	REFL.	PY	-6.3999900E+01
12	REFL.	PY	6.3999900E+01
13		CZ	7.8450000E+01
14		CZ	3.0480000E+01
15		CZ	8.0450000E+01
16		PZ	1.5375000E+02
17		PZ	1.5625000E+02
18		CZ	8.5450000E+01
19		PZ	1.6250000E+02
20		PZ	1.7100000E+02

```
    21      25              PZ     2.0148000E+02

 WARNING.  SURFACE     13 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     19 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     21 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     22 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     23 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     24 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     25 IS NOT USED FOR ANYTHING.
1  TEMPERATURES OF THE CELLS.                                          PRINT TABLE 72

     TIME:       .0000E+00

     CELL          TMP 1
       2        2.5300E-08
       4        2.5300E-08
       5        2.5300E-08
       6        2.5300E-08
       7        2.5300E-08
       8        2.5300E-08
       9        2.5300E-08

       10 WARNING MESSAGES SO FAR.
1CROSS-SECTION TABLES                                                  PRINT TABLE 100

     TABLE    LENGTH

                        TABLES FROM FILE RMCCS2

   1001.50C     1153  NJOY                                          (  1301)     79/07/31.
   3006.50C     6551  NJOY                                          (  1303)     79/08/01.
   3007.55C    11053  NJOY                                          (  3007)    07/29/82
   5010.50C     9587  NJOY                                          (  1305)     79/09/10.
   6000.50C    16126  NJOY                                          (  1306)     79/07/31.
   7014.50C    22772  NJOY                                          (  1275)     79/09/08.
   8016.50C    23669  NJOY                                           ( 1276)    05/14/81
  13027.50C    22891  NJOY                                          (  1313)     79/09/08.
  24000.50C    89104  NJOY                                          (  1324)     79/06/21.
  26000.55C    84136  NJOY                                          ( 260)      10/21/82
  28000.50C    82267  NJOY                                          (  1328)     79/06/21.
  29000.50C    22473  NJOY                                          (  1329)    02/05/80
  56138.50C     2479  NJOY                                          (  1353)     79/06/21.
  82000.50C    28695  NJOY                                           ( 1382)    03/10/82
  92233.50C    14205  NJOY                TOTAL NU                  (  1393)     79/09/12.
  92235.50C    44188  NJOY                TOTAL NU                  (  1395)     79/09/12.
  92238.50C    66440  NJOY                TOTAL NU                  (  1398)     79/09/13.
  94239.55C    67551  NJOY                TOTAL NU                   ( 1399)    02/21/85
  94240.50C    42744  NJOY                TOTAL NU                  (  1380)     79/09/13.

                        TABLES FROM FILE NEWXS2

   5011.56C    28379                                                                06/28/88

                        TABLES FROM FILE ENDF5P2
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  9019.50C   20657  NJOY                                                    (  1309)      79/06/22.
 11023.50C   36270  NJOY                                                    (  1311)      79/06/21.
 14000.50C   48275  NJOY                                                    (  1314)      79/06/21.
 17000.50C   12269  NJOY                                                    (  1149)      79/10/29.

 WARNING.  NUBAR OF  92234.50C MAY BE EITHER PROMPT OR TOTAL.
 92234.50C   76999  NJOY                                                    (  1394)      79/10/17.

 WARNING.  NUBAR OF  92236.50C MAY BE EITHER PROMPT OR TOTAL.
 92236.50C  119238  NJOY                                                    (  1396)      79/08/30.

 WARNING.  NUBAR OF  94238.50C MAY BE EITHER PROMPT OR TOTAL.
 94238.50C   16458  NJOY                                                    (  1338)      79/09/12.
 94241.50C   22523  NJOY                                  TOTAL NU          (  1381)      79/08/30.
 94242.50C   43433  NJOY                                  TOTAL NU          (  1342)      79/09/06.

                    TABLES FROM FILE ENDF5U2

 12000.50C   39283  NJOY                                                    (  1312)      79/08/30.
 15031.50C    2779  NJOY                                                    (  1315)      79/10/29.
 16032.50C    2684  NJOY                                                    (  1316)      79/10/29.
 19000.50C    9766  NJOY                                                    (  1150)      79/10/29.
 20000.50C   26104  NJOY                                                    (  1320)      79/06/22.
 22000.50C   25231  NJOY                                                    (  1322)      79/06/21.
 25055.50C   60097  NJOY                                                    (  1325)      79/06/21.
 62149.50C   11116  NJOY                                                    (  1319)      02/12/85
 90232.50C   95614  NJOY                                  TOTAL NU          (  1390)      07/10/80

 WARNING.  NUBAR OF  95241.50C MAY BE EITHER PROMPT OR TOTAL.
 95241.50C   29300  NJOY                                                    (  1361)      79/08/29.

 WARNING.  NUBAR OF  95242.50C MAY BE EITHER PROMPT OR TOTAL.
 95242.50C    5248  NJOY                                                    (  1369)      79/09/24.

 WARNING.  NUBAR OF  95243.50C MAY BE EITHER PROMPT OR TOTAL.
 95243.50C   51474  NJOY                                                    (  1363)      79/08/30.

                    TABLES FROM FILE RMCCSA2

 47109.50C   10147  NJOY                                                    (  1373)      11/01/85
 93237.55C   29142  NJOY                                  TOTAL NU          (  1337)      04/04/85

                    TABLES FROM FILE ENDL852


 WARNING.  NUBAR OF  96245.35C MAY BE EITHER PROMPT OR TOTAL.
 96245.35C   15310  ZA=96245 ENDL-85        85/04/24  T=0K                  (    93)       86/04/23

                    TABLES FROM FILE TMCCS2

  LWTR.01T   10193  HYDROGEN IN LIGHT WATER AT 300 DEGREES KELVIN          1001      0     010/22/85

 TOTAL      1506073

 WARNING.  NEUTRON ENERGY CUTOFF IS BELOW SOME CROSS-SECTION TABLES.
1DECIMAL WORDS OF DYNAMICALLY ALLOCATED STORAGE

     GENERAL             66802
     TALLIES                 0
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     BANK                 12403
     CROSS SECTIONS      1506073

     TOTAL                1585278

 ************************************************************************
 DUMP NO.  1 ON FILE   RUNTPE          NPS =       0          CTM =     .00

 SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP           CYCLE =     0

       18 WARNING MESSAGES SO FAR.
1   STARTING MCRUN.      FIELD LENGTH =      0      CPO =    .07                                PRINT TABLE 110

      DHLWG1-- DWPF GLASS   INFINITE ARRAY FLOODED
```

NPS	X	Y	Z	CELL	SURF	U	V	W	TIME	WEIGHT	ENERGY
1	2.141E+01	-1.891E+01	8.562E+01	5	0	5.085E-01	4.733E-01	7.193E-01	.000E+00	1.008E+00	2.110E+00
2	1.260E+01	-1.361E+01	4.903E+01	5	0	8.952E-01	-4.447E-01	-2.944E-02	.000E+00	1.008E+00	3.194E+00
3	1.659E+01	-2.409E+01	2.531E+01	5	0	-6.184E-01	-4.495E-01	6.446E-01	.000E+00	1.008E+00	4.631E+00
4	2.189E+01	-1.330E+00	3.912E+01	5	0	9.710E-01	-5.665E-02	-2.323E-01	.000E+00	1.008E+00	5.365E-01
5	8.805E+00	-7.845E-01	9.017E+01	5	0	5.861E-01	1.496E-01	-7.963E-01	.000E+00	1.008E+00	1.932E+00
6	-1.593E+01	-2.102E+01	8.684E+01	5	0	-6.489E-02	-1.626E-01	9.845E-01	.000E+00	1.008E+00	2.588E-01
7	-1.075E+01	2.567E+01	9.463E+01	5	0	-7.068E-02	3.263E-02	-9.970E-01	.000E+00	1.008E+00	1.184E+00
8	-1.146E+01	2.110E+01	9.739E+01	5	0	-3.915E-01	4.664E-01	-7.932E-01	.000E+00	1.008E+00	5.901E-01
9	-1.942E+01	-1.830E+01	7.458E+01	5	0	-2.368E-01	9.215E-01	-3.079E-01	.000E+00	1.008E+00	1.712E+00
10	-9.722E+00	-1.372E+00	7.623E+01	5	0	1.946E-01	-3.204E-01	9.271E-01	.000E+00	1.008E+00	2.387E+00
11	9.131E-01	1.108E-01	9.521E+01	5	0	-6.698E-01	-7.177E-01	-1.905E-01	.000E+00	1.008E+00	5.817E-01
12	-1.860E+01	-1.308E+01	9.728E+01	5	0	-8.398E-01	-4.129E-01	3.524E-01	.000E+00	1.008E+00	2.936E+00
13	-1.495E+01	-1.312E+01	9.543E+01	5	0	-1.714E-01	-8.572E-01	4.857E-01	.000E+00	1.008E+00	1.320E+00
14	-2.128E+00	3.256E+00	8.796E+01	5	0	-2.489E-01	-5.118E-01	-8.222E-01	.000E+00	1.008E+00	3.710E+00
15	1.865E+01	-6.944E+00	3.903E+01	5	0	-2.959E-01	2.119E-01	9.314E-01	.000E+00	1.008E+00	2.505E+00
16	1.564E+01	-5.523E+00	3.852E+01	5	0	1.395E-01	-9.829E-01	1.202E-01	.000E+00	1.008E+00	8.285E-01
17	-1.669E+01	-2.842E+00	8.878E+01	5	0	6.909E-01	-7.110E-01	1.307E-01	.000E+00	1.008E+00	4.032E+00
18	-1.605E+01	1.409E+01	1.874E+01	5	0	-6.580E-01	5.320E-01	-5.329E-01	.000E+00	1.008E+00	2.152E-01
19	-2.316E+01	7.735E+00	2.471E+01	5	0	-9.903E-01	-1.380E-01	1.353E-02	.000E+00	1.008E+00	7.017E-01
20	-2.761E+01	5.715E+00	2.721E+01	5	0	7.462E-01	4.859E-01	-4.551E-01	.000E+00	1.008E+00	7.060E-01
21	-2.638E+01	3.281E+00	3.582E+01	5	0	-1.977E-01	9.797E-01	3.360E-02	.000E+00	1.008E+00	4.954E-01
22	-2.536E+01	3.355E+00	3.565E+01	5	0	-9.117E-01	-3.647E-01	-1.891E-01	.000E+00	1.008E+00	1.611E+00
23	2.687E+01	-1.012E+01	1.196E+02	5	0	-4.287E-01	8.361E-01	-3.423E-01	.000E+00	1.008E+00	4.864E+00
24	1.018E+01	-4.110E+00	9.771E+01	5	0	1.080E-01	3.412E-01	-9.338E-01	.000E+00	1.008E+00	4.915E+00
25	2.531E+00	1.101E+01	7.018E+01	5	0	-9.111E-01	-9.012E-03	-4.122E-01	.000E+00	1.008E+00	2.526E+00
26	1.862E+01	9.643E+00	8.125E+01	5	0	-2.568E-01	-6.391E-01	-7.249E-01	.000E+00	1.008E+00	5.621E+00
27	1.730E+01	3.054E+00	6.809E+01	5	0	-2.912E-01	8.086E-01	5.113E-01	.000E+00	1.008E+00	4.922E-01
28	-8.631E-01	-1.343E-01	9.171E+01	5	0	1.472E-01	-9.514E-01	2.705E-01	.000E+00	1.008E+00	2.357E+00
29	-1.223E+01	3.273E+00	4.562E+01	5	0	-6.135E-01	-7.645E-01	-1.978E-01	.000E+00	1.008E+00	2.912E+00
30	-1.307E+01	5.575E+00	4.534E+01	5	0	-5.702E-01	5.651E-01	-5.963E-01	.000E+00	1.008E+00	3.157E+00
31	-2.309E+01	1.547E+01	1.189E+01	5	0	-6.607E-01	5.373E-01	-5.242E-01	.000E+00	1.008E+00	3.629E-01
32	7.128E+00	1.434E+01	8.058E+01	5	0	-9.742E-02	-3.639E-01	-9.263E-01	.000E+00	1.008E+00	2.765E+00
33	9.109E+00	1.105E+01	7.425E+01	5	0	-1.965E-01	-3.145E-01	-9.287E-01	.000E+00	1.008E+00	8.075E-01
34	2.053E+01	-8.410E+00	4.386E+01	5	0	4.097E-01	8.465E-01	-3.399E-01	.000E+00	1.008E+00	3.875E+00
35	2.163E+01	-1.300E+01	4.408E+01	5	0	-4.048E-02	8.831E-01	4.675E-01	.000E+00	1.008E+00	3.954E+00
36	2.157E+01	-1.325E+01	4.437E+01	5	0	3.371E-01	-9.269E-01	-1.652E-01	.000E+00	1.008E+00	1.091E+00
37	2.350E+01	-1.762E+01	4.264E+01	5	0	-1.867E-01	9.756E-01	-1.155E-01	.000E+00	1.008E+00	2.564E+00
38	1.888E+01	-2.162E+01	3.832E+01	5	0	-2.616E-01	2.336E-01	-9.365E-01	.000E+00	1.008E+00	2.354E+00
39	8.357E+00	8.021E+00	1.370E+02	5	0	9.780E-01	-7.641E-02	-1.939E-01	.000E+00	1.008E+00	2.578E+00
40	1.125E+01	6.428E+00	9.606E+01	5	0	2.580E-01	-7.076E-01	6.578E-01	.000E+00	1.008E+00	1.377E+00
41	2.030E+01	1.588E+01	1.091E+02	5	0	-3.212E-01	-7.678E-01	-5.543E-01	.000E+00	1.008E+00	2.129E+00

42	1.801E+01	2.137E+01	4.794E+01	5	0	5.039E-01	-1.460E-01	8.513E-01	.000E+00	1.008E+00	3.711E+00
43	-1.933E+00	1.538E+01	2.153E+01	5	0	6.080E-01	5.487E-01	5.738E-01	.000E+00	1.008E+00	7.345E-01
44	-9.222E+00	-2.238E+00	8.346E+01	5	0	-2.932E-01	9.304E-01	-2.199E-01	.000E+00	1.008E+00	4.079E+00
45	1.748E+01	-6.881E+00	3.903E+01	5	0	-8.475E-01	-3.993E-01	-3.497E-01	.000E+00	1.008E+00	4.964E+00
46	1.605E+01	-4.284E+00	4.268E+01	5	0	1.200E-01	-9.195E-01	-3.743E-01	.000E+00	1.008E+00	1.873E+00
47	-1.595E+01	1.758E+01	1.068E+02	5	0	7.085E-01	5.879E-01	3.904E-01	.000E+00	1.008E+00	6.829E-01
48	1.941E+01	-8.085E+00	2.285E+01	5	0	4.261E-01	9.046E-01	9.254E-03	.000E+00	1.008E+00	1.701E+00
49	1.191E+01	6.372E+00	2.414E+01	5	0	5.431E-01	4.270E-01	-7.230E-01	.000E+00	1.008E+00	3.658E+00
50	-1.549E+01	4.717E+00	2.828E+01	5	0	-1.053E-01	-9.805E-01	1.658E-01	.000E+00	1.008E+00	1.725E+00

CYCLE 1 K(COLLISION) .006524 REMOVAL LIFETIME(ABS) 4.7710E+03 SOURCE POINTS GENERATED 124

CYCLE 2 K(COLLISION) .005816 REMOVAL LIFETIME(ABS) 6.2381E+03 SOURCE POINTS GENERATED 422

CYCLE 3 K(COLLISION) .006554 REMOVAL LIFETIME(ABS) 5.8540E+03 SOURCE POINTS GENERATED 576

CYCLE 4 K(COLLISION) .006729 REMOVAL LIFETIME(ABS) 5.5808E+03 SOURCE POINTS GENERATED 515

CYCLE 5 K(COLLISION) .007433 REMOVAL LIFETIME(ABS) 5.7122E+03 SOURCE POINTS GENERATED 580

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 5

CYCLE 6 K(COLLISION) .007194 REMOVAL LIFETIME(ABS) 4.9959E+03 SOURCE POINTS GENERATED 485

ESTIMATOR	CYCLE 7	AVE OF 2 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.007584	.007389	.0264	K(COL/ABS)	.000000	.0000	.000000	.0000	.0000
K(ABSORPTION)	.013804	.011400	.2109	K(ABS/TK LN)	.000000	.0000	.000000	.0000	.0000
K(TRK LENGTH)	.007011	.007242	.0320	K(TK LN/COL)	.000000	.0000	.000000	.0000	.0000
REM LIFE(COL)	6.5030E+03	5.7274E+03	.1354						
REM LIFE(ABS)	6.4062E+03	5.7010E+03	.1237	LIFE(COL/ABS)	.0000E+00	.0000	.0000E+00	.0000	.0000
SOURCE POINTS GENERATED	534								

ESTIMATOR	CYCLE 8	AVE OF 3 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.007284	.007354	.0160	K(COL/ABS)	.009028	.0925	.007083	.0058	.9864
K(ABSORPTION)	.009305	.010701	.1452	K(ABS/TK LN)	.008981	.0794	.007523	.0100	-.9447
K(TRK LENGTH)	.007296	.007260	.0186	K(TK LN/COL)	.007307	.0019	.007310	.0021	-.9858
REM LIFE(COL)	5.9072E+03	5.7873E+03	.0781						
REM LIFE(ABS)	5.9079E+03	5.7700E+03	.0716	LIFE(COL/ABS)	5.7787E+03	.0748	5.6105E+03	.0398	.9994
SOURCE POINTS GENERATED	463								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 8

ESTIMATOR	CYCLE 9	AVE OF 4 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.006900	.007240	.0194	K(COL/ABS)	.008965	.0662	.007003	.0298	.5928
K(ABSORPTION)	.010652	.010689	.1028	K(ABS/TK LN)	.008915	.0571	.007441	.0250	-.5777
K(TRK LENGTH)	.006779	.007140	.0215	K(TK LN/COL)	.007190	.0163	.007196	.0202	.2696
REM LIFE(COL)	6.2842E+03	5.9116E+03	.0580	K(COL/ABS/TK LN)	.008356	.0446	.007396	.1652	
REM LIFE(ABS)	6.2502E+03	5.8900E+03	.0536	LIFE(COL/ABS)	5.9008E+03	.0558	5.6840E+03	.0301	.9993
SOURCE POINTS GENERATED	464								

ESTIMATOR	CYCLE 10	AVE OF 5 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.006655	.007123	.0225	K(COL/ABS)	.008531	.0741	.006802	.0221	.7869
K(ABSORPTION)	.006940	.009939	.1141	K(ABS/TK LN)	.008488	.0684	.007049	.0298	.1074
K(TRK LENGTH)	.006622	.007036	.0224	K(TK LN/COL)	.007080	.0202	.007078	.0235	.6191
REM LIFE(COL)	6.6813E+03	6.0655E+03	.0506	K(COL/ABS/TK LN)	.008033	.0540	.006700	.0483	
REM LIFE(ABS)	6.7357E+03	6.0592E+03	.0491	LIFE(COL/ABS)	6.0623E+03	.0498	6.0382E+03	.0542	.9963
SOURCE POINTS GENERATED	497								

ESTIMATOR	CYCLE 11	AVE OF 6 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.006943	.007093	.0189	K(COL/ABS)	.008248	.0714	.006864	.0166	.7756

K(ABSORPTION)	.006715	.009402	.1139	K(ABS/TK LN)	.008230	.0656	.007091	.0220	.0066
K(TRK LENGTH)	.007169	.007058	.0185	K(TK LN/COL)	.007076	.0165	.007075	.0185	.5569
REM LIFE(COL)	6.3016E+03	6.1049E+03	.0416	K(COL/ABS/TK LN)	.007851	.0507	.006771	.0348	
REM LIFE(ABS)	6.3129E+03	6.1015E+03	.0404	LIFE(COL/ABS)	6.1032E+03	.0409	6.0912E+03	.0435	.9963

SOURCE POINTS GENERATED 518

ESTIMATOR	CYCLE 12	AVE OF 7 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.007152	.007102	.0160	K(COL/ABS)	.008512	.0662	.006888	.0151	.7070
K(ABSORPTION)	.013052	.009923	.1053	K(ABS/TK LN)	.008498	.0623	.007084	.0187	.0715
K(TRK LENGTH)	.007161	.007073	.0158	K(TK LN/COL)	.007087	.0140	.007087	.0154	.5602
REM LIFE(COL)	4.9208E+03	5.9357E+03	.0460	K(COL/ABS/TK LN)	.008033	.0476	.006903	.0280	
REM LIFE(ABS)	4.8907E+03	5.9285E+03	.0457	LIFE(COL/ABS)	5.9321E+03	.0458	5.9201E+03	.0500	.9974

SOURCE POINTS GENERATED 500

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 12

ESTIMATOR	CYCLE 13	AVE OF 8 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.007838	.007194	.0187	K(COL/ABS)	.008518	.0573	.007059	.0211	.4533
K(ABSORPTION)	.009278	.009843	.0923	K(ABS/TK LN)	.008488	.0540	.007170	.0183	.0136
K(TRK LENGTH)	.007553	.007133	.0159	K(TK LN/COL)	.007163	.0160	.007146	.0169	.7080
REM LIFE(COL)	5.7525E+03	5.9128E+03	.0402	K(COL/ABS/TK LN)	.008056	.0412	.007142	.0300	
REM LIFE(ABS)	5.7789E+03	5.9098E+03	.0398	LIFE(COL/ABS)	5.9113E+03	.0400	5.9057E+03	.0428	.9973

SOURCE POINTS GENERATED 527

ESTIMATOR	CYCLE 14	AVE OF 9 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.006286	.007093	.0220	K(COL/ABS)	.008451	.0516	.006987	.0254	.3731
K(ABSORPTION)	.009533	.009808	.0817	K(ABS/TK LN)	.008425	.0486	.007101	.0219	.0390
K(TRK LENGTH)	.006307	.007041	.0193	K(TK LN/COL)	.007067	.0198	.007047	.0206	.8351
REM LIFE(COL)	5.4631E+03	5.8628E+03	.0367	K(COL/ABS/TK LN)	.007981	.0379	.007106	.0376	
REM LIFE(ABS)	5.4740E+03	5.8614E+03	.0363	LIFE(COL/ABS)	5.8621E+03	.0365	5.8589E+03	.0386	.9975

SOURCE POINTS GENERATED 400

ESTIMATOR	CYCLE 15	AVE OF 10 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.008058	.007189	.0236	K(COL/ABS)	.008461	.0461	.007183	.0268	.2459
K(ABSORPTION)	.009058	.009733	.0741	K(ABS/TK LN)	.008439	.0434	.007285	.0240	-.0381
K(TRK LENGTH)	.008081	.007145	.0224	K(TK LN/COL)	.007167	.0224	.007155	.0236	.8918
REM LIFE(COL)	5.4870E+03	5.8253E+03	.0337	K(COL/ABS/TK LN)	.008023	.0341	.007304	.0402	
REM LIFE(ABS)	5.4822E+03	5.8235E+03	.0334	LIFE(COL/ABS)	5.8244E+03	.0335	5.8206E+03	.0352	.9975

SOURCE POINTS GENERATED 648

ESTIMATOR	CYCLE 16	AVE OF 11 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.006558	.007132	.0230	K(COL/ABS)	.008257	.0494	.007049	.0253	.3690
K(ABSORPTION)	.005862	.009381	.0790	K(ABS/TK LN)	.008236	.0472	.007124	.0238	.1383
K(TRK LENGTH)	.006537	.007090	.0218	K(TK LN/COL)	.007111	.0219	.007099	.0229	.9053
REM LIFE(COL)	5.2087E+03	5.7692E+03	.0323	K(COL/ABS/TK LN)	.007868	.0371	.007109	.0359	
REM LIFE(ABS)	5.1967E+03	5.7665E+03	.0320	LIFE(COL/ABS)	5.7678E+03	.0321	5.7631E+03	.0337	.9977

SOURCE POINTS GENERATED 449

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 16

ESTIMATOR	CYCLE 17	AVE OF 12 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.006504	.007080	.0224	K(COL/ABS)	.008056	.0525	.006959	.0236	.4608
K(ABSORPTION)	.005205	.009033	.0842	K(ABS/TK LN)	.008037	.0506	.007013	.0229	.2644
K(TRK LENGTH)	.006510	.007041	.0212	K(TK LN/COL)	.007061	.0213	.007048	.0222	.9154
REM LIFE(COL)	5.5236E+03	5.7487E+03	.0298	K(COL/ABS/TK LN)	.007718	.0396	.006992	.0311	
REM LIFE(ABS)	5.5480E+03	5.7483E+03	.0295	LIFE(COL/ABS)	5.7485E+03	.0296	5.7476E+03	.0308	.9977

SOURCE POINTS GENERATED 507

ESTIMATOR	CYCLE 18	AVE OF 13 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.007578	.007118	.0212	K(COL/ABS)	.008075	.0482	.007007	.0223	.4452

K(ABSORPTION)	.009017	.009032	.0775	K(ABS/TK LN)	.008061	.0465	.007072	.0221	.2488
K(TRK LENGTH)	.007669	.007090	.0206	K(TK LN/COL)	.007104	.0204	.007098	.0213	.9195
REM LIFE(COL)	5.7588E+03	5.7495E+03	.0274	K(COL/ABS/TK LN)	.007747	.0365	.007038	.0302	
REM LIFE(ABS)	5.7479E+03	5.7482E+03	.0271	LIFE(COL/ABS)	5.7489E+03	.0273	5.7463E+03	.0282	.9977
SOURCE POINTS GENERATED	578								

ESTIMATOR	CYCLE 19	AVE OF 14 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.006711	.007089	.0201	K(COL/ABS)	.007990	.0464	.006972	.0209	.4694
K(ABSORPTION)	.007048	.008890	.0746	K(ABS/TK LN)	.007977	.0447	.007035	.0207	.2784
K(TRK LENGTH)	.006734	.007064	.0194	K(TK LN/COL)	.007077	.0194	.007071	.0201	.9224
REM LIFE(COL)	6.5458E+03	5.8064E+03	.0270	K(COL/ABS/TK LN)	.007681	.0351	.007001	.0279	
REM LIFE(ABS)	6.4437E+03	5.7979E+03	.0263	LIFE(COL/ABS)	5.8021E+03	.0266	5.7695E+03	.0266	.9971
SOURCE POINTS GENERATED	458								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 19

ESTIMATOR	CYCLE 20	AVE OF 15 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.007229	.007098	.0187	K(COL/ABS)	.007895	.0453	.007016	.0194	.4241
K(ABSORPTION)	.005901	.008691	.0746	K(ABS/TK LN)	.007878	.0440	.007042	.0191	.2633
K(TRK LENGTH)	.007074	.007065	.0181	K(TK LN/COL)	.007082	.0180	.007073	.0187	.9205
REM LIFE(COL)	6.1444E+03	5.8289E+03	.0253	K(COL/ABS/TK LN)	.007618	.0340	.007029	.0238	
REM LIFE(ABS)	6.1614E+03	5.8221E+03	.0248	LIFE(COL/ABS)	5.8255E+03	.0250	5.8020E+03	.0251	.9971
SOURCE POINTS GENERATED	554								

ESTIMATOR	CYCLE 21	AVE OF 16 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.007594	.007129	.0180	K(COL/ABS)	.007920	.0424	.007049	.0186	.4191
K(ABSORPTION)	.009007	.008711	.0697	K(ABS/TK LN)	.007903	.0412	.007073	.0183	.2634
K(TRK LENGTH)	.007533	.007094	.0173	K(TK LN/COL)	.007112	.0173	.007102	.0179	.9251
REM LIFE(COL)	5.6011E+03	5.8147E+03	.0238	K(COL/ABS/TK LN)	.007645	.0319	.007062	.0229	
REM LIFE(ABS)	5.5791E+03	5.8069E+03	.0234	LIFE(COL/ABS)	5.8108E+03	.0236	5.7851E+03	.0237	.9971
SOURCE POINTS GENERATED	505								

ESTIMATOR	CYCLE 22	AVE OF 17 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.007196	.007133	.0169	K(COL/ABS)	.007891	.0401	.007059	.0175	.4130
K(ABSORPTION)	.007669	.008650	.0663	K(ABS/TK LN)	.007872	.0390	.007074	.0171	.2618
K(TRK LENGTH)	.007096	.007094	.0163	K(TK LN/COL)	.007114	.0163	.007103	.0168	.9246
REM LIFE(COL)	6.7537E+03	5.8699E+03	.0241	K(COL/ABS/TK LN)	.007626	.0301	.007066	.0212	
REM LIFE(ABS)	6.6908E+03	5.8589E+03	.0235	LIFE(COL/ABS)	5.8644E+03	.0238	5.8147E+03	.0233	.9974
SOURCE POINTS GENERATED	473								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 22

ESTIMATOR	CYCLE 23	AVE OF 18 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.006421	.007094	.0170	K(COL/ABS)	.007726	.0441	.007004	.0168	.4992
K(ABSORPTION)	.003423	.008359	.0734	K(ABS/TK LN)	.007707	.0432	.007003	.0169	.3783
K(TRK LENGTH)	.006382	.007055	.0164	K(TK LN/COL)	.007074	.0164	.007064	.0169	.9330
REM LIFE(COL)	7.0224E+03	5.9339E+03	.0249	K(COL/ABS/TK LN)	.007503	.0332	.007002	.0193	
REM LIFE(ABS)	7.0367E+03	5.9244E+03	.0245	LIFE(COL/ABS)	5.9292E+03	.0247	5.8950E+03	.0249	.9977
SOURCE POINTS GENERATED	453								

ESTIMATOR	CYCLE 24	AVE OF 19 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.006893	.007083	.0161	K(COL/ABS)	.007728	.0417	.006993	.0160	.4947
K(ABSORPTION)	.008628	.008373	.0694	K(ABS/TK LN)	.007708	.0409	.006991	.0161	.3732
K(TRK LENGTH)	.006822	.007043	.0157	K(TK LN/COL)	.007063	.0156	.007052	.0161	.9335
REM LIFE(COL)	5.6267E+03	5.9178E+03	.0238	K(COL/ABS/TK LN)	.007500	.0314	.006990	.0186	
REM LIFE(ABS)	5.6402E+03	5.9094E+03	.0234	LIFE(COL/ABS)	5.9136E+03	.0236	5.8825E+03	.0236	.9977
SOURCE POINTS GENERATED	539								

ESTIMATOR	CYCLE 25	AVE OF 20 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.006590	.007058	.0157	K(COL/ABS)	.007756	.0396	.006979	.0159	.4456

K(ABSORPTION)	.009971	.008453	.0659	K(ABS/TK LN)	.007735	.0388	.006977	.0159	.3224
K(TRK LENGTH)	.006508	.007016	.0154	K(TK LN/COL)	.007037	.0153	.007028	.0157	.9368
REM LIFE(COL)	5.7110E+03	5.9074E+03	.0227	K(COL/ABS/TK LN)	.007509	.0298	.006976	.0188	
REM LIFE(ABS)	5.6535E+03	5.8966E+03	.0224	LIFE(COL/ABS)	5.9020E+03	.0225	5.8679E+03	.0227	.9976

SOURCE POINTS GENERATED 492

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 25

1PROBLEM SUMMARY

RUN TERMINATED WHEN 25 KCODE CYCLES WERE DONE.

+ 12/01/95 15:38:20

DHLWG1-- DWPF GLASS INFINITE ARRAY FLOODED PROBID = 12/01/95 15:29:13

0

NEUTRON CREATION	TRACKS	WEIGHT (PER SOURCE	ENERGY PARTICLE)
SOURCE	12265	1.0192E+00	2.0235E+00
WEIGHT WINDOW	0	0.	0.
CELL IMPORTANCE	0	0.	0.
WEIGHT CUTOFF	0	1.0538E-01	2.2853E-04
ENERGY IMPORTANCE	0	0.	0.
DXTRAN	0	0.	0.
FORCED COLLISIONS	0	0.	0.
EXP. TRANSFORM	0	0.	0.
UPSCATTERING	0	0.	3.1779E-07
(N,XN)	4	2.6054E-04	2.9512E-04
FISSION	0	0.	0.
TOTAL	12269	1.1248E+00	2.0240E+00

NEUTRON LOSS	TRACKS	WEIGHT (PER SOURCE	ENERGY PARTICLE)
ESCAPE	26	1.2340E-03	6.7485E-04
ENERGY CUTOFF	0	0.	0.
TIME CUTOFF	0	0.	0.
WEIGHT WINDOW	0	0.	0.
CELL IMPORTANCE	0	0.	0.
WEIGHT CUTOFF	12241	1.0146E-01	1.8918E-04
ENERGY IMPORTANCE	0	0.	0.
DXTRAN	0	0.	0.
FORCED COLLISIONS	0	0.	0.
EXP. TRANSFORM	0	0.	0.
DOWNSCATTERING	0	0.	1.9161E+00
CAPTURE	0	1.0189E+00	9.9789E-02
LOSS TO (N,XN)	2	1.3027E-04	1.4474E-03
LOSS TO FISSION	0	3.0580E-03	5.7987E-03
TOTAL	12269	1.1248E+00	2.0240E+00

NUMBER OF NEUTRONS BANKED 2

NEUTRON TRACKS PER SOURCE PARTICLE 1.0003E+00

NEUTRON COLLISIONS PER SOURCE PARTICLE 1.3519E+02

TOTAL NEUTRON COLLISIONS 1658113

NET MULTIPLICATION 1.0001E+00 .0029

AVERAGE LIFETIME, SHAKES

ESCAPE	1.4114E+04
CAPTURE	5.8104E+03
CAPTURE OR ESCAPE	5.8204E+03
ANY TERMINATION	7.1043E+03

CUTOFFS

TCO	1.0000E+34
ECO	.0000E+00
WC1	-5.0000E-01
WC2	-2.5000E-01

COMPUTER TIME SO FAR IN THIS RUN 8.07 MINUTES

COMPUTER TIME IN MCRUN 8.00 MINUTES

SOURCE PARTICLES PER MINUTE 1.5331E+03

RANDOM NUMBERS GENERATED 13778834

MAXIMUM NUMBER EVER IN BANK 1

BANK OVERFLOWS TO BACKUP FILE 0

FIELD LENGTH 0

MOST RANDOM NUMBERS USED WAS 8594 IN HISTORY 11130

RANGE OF SAMPLED SOURCE WEIGHTS = 7.7160E-01 TO 4.0323E+00

1NEUTRON ACTIVITY IN EACH CELL PRINT TABLE 126

CELL		TRACKS ENTERING	POPULATION	COLLISIONS	COLLISIONS * WEIGHT (PER HISTORY)	NUMBER WEIGHTED ENERGY	FLUX WEIGHTED ENERGY	AVERAGE TRACK WEIGHT (RELATIVE)	AVERAGE TRACK MFP (CM)
1	2	0	0	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	0	0	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	23226	12267	408096	2.8946E+01	6.3421E-02	6.0395E-01	8.8770E-01	3.7003E+00
5	6	27273	9088	34481	2.0930E+00	6.4848E-04	4.7998E-01	8.1959E-01	2.4562E+00
6	7	820	339	1630	9.5937E-02	7.9486E-04	4.3070E-01	8.0468E-01	2.4711E+00
7	8	28051	8590	1159897	5.3082E+01	4.5447E-05	1.8192E-01	6.2842E-01	7.5716E-01
8	9	641	309	54009	2.3967E+00	3.5339E-05	1.5526E-01	6.0338E-01	6.8816E-01
TOTAL		80011	30593	1658113	8.6614E+01				

1NEUTRON WEIGHT BALANCE IN EACH CELL -- EXTERNAL EVENTS PRINT TABLE 130

CELL		ENTERING	SOURCE	ENERGY CUTOFF	TIME CUTOFF	EXITING	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-1.2340E-03	-1.2340E-03
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-6.7185E-01	-6.7185E-01
4	5	7.0609E-01	1.0192E+00	.0000E+00	.0000E+00	-1.0810E+00	6.4423E-01
5	6	1.8430E+00	.0000E+00	.0000E+00	.0000E+00	-1.7470E+00	9.6044E-02
6	7	5.4184E-02	.0000E+00	.0000E+00	.0000E+00	-5.0385E-02	3.7984E-03
7	8	1.7309E+00	.0000E+00	.0000E+00	.0000E+00	-8.0202E-01	9.2886E-01
8	9	3.9784E-02	.0000E+00	.0000E+00	.0000E+00	-2.1706E-02	1.8079E-02
TOTAL		4.3739E+00	1.0192E+00	.0000E+00	.0000E+00	-4.3752E+00	1.0179E+00

1NEUTRON WEIGHT BALANCE IN EACH CELL -- VARIANCE REDUCTION EVENTS PRINT TABLE 130

CELL		WEIGHT WINDOW	CELL IMPORTANCE	WEIGHT CUTOFF	ENERGY IMPORTANCE	DXTRAN	FORCED COLLISION	EXPONENTIAL TRANSFORM	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	.0000E+00	.0000E+00	2.4573E-03	.0000E+00	.0000E+00	.0000E+00	.0000E+00	2.4573E-03
5	6	.0000E+00	.0000E+00	-1.7758E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-1.7758E-04
6	7	.0000E+00	.0000E+00	-1.3728E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-1.3728E-04
7	8	.0000E+00	.0000E+00	1.7005E-03	.0000E+00	.0000E+00	.0000E+00	.0000E+00	1.7005E-03
8	9	.0000E+00	.0000E+00	7.6521E-05	.0000E+00	.0000E+00	.0000E+00	.0000E+00	7.6521E-05
TOTAL		.0000E+00	.0000E+00	3.9194E-03	.0000E+00	.0000E+00	.0000E+00	.0000E+00	3.9194E-03

1NEUTRON WEIGHT BALANCE IN EACH CELL -- PHYSICAL EVENTS PRINT TABLE 130

CELL		(N,XN)	FISSION	CAPTURE	LOSS TO (N,XN)	LOSS TO FISSION	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	2.6054E-04	.0000E+00	-6.4376E-01	-1.3027E-04	-3.0580E-03	-6.4668E-01
5	6	.0000E+00	.0000E+00	-9.5867E-02	.0000E+00	.0000E+00	-9.5867E-02
6	7	.0000E+00	.0000E+00	-3.6611E-03	.0000E+00	.0000E+00	-3.6611E-03
7	8	.0000E+00	.0000E+00	-2.6334E-01	.0000E+00	.0000E+00	-2.6334E-01
8	9	.0000E+00	.0000E+00	-1.2293E-02	.0000E+00	.0000E+00	-1.2293E-02
TOTAL		2.6054E-04	.0000E+00	-1.0189E+00	-1.3027E-04	-3.0580E-03	-1.0218E+00

1NEUTRON ACTIVITY OF EACH NUCLIDE IN EACH CELL, PER SOURCE PARTICLE PRINT TABLE 140

CELL		NUCLIDES	ATOM FRACTION	TOTAL COLLISIONS	COLLISIONS * WEIGHT	WEIGHT LOST TO CAPTURE	WEIGHT LOSS TO FISSION	WEIGHT GAIN BY (N,XN)
1	2	1001.50C	6.6667E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	1001.50C	6.6667E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	3006.50C	3.7347E-03	1381	9.1460E-02	4.8524E-02	.0000E+00	.0000E+00
		3007.55C	3.9491E-02	6146	4.5744E-01	1.7497E-05	.0000E+00	.0000E+00
		5010.50C	1.2950E-02	13160	8.0626E-01	5.5123E-01	.0000E+00	.0000E+00
		5011.56C	4.7405E-02	20295	1.4291E+00	1.1522E-05	.0000E+00	.0000E+00
		8016.50C	5.7353E-01	216589	1.5593E+01	5.9437E-03	.0000E+00	.0000E+00
		9019.50C	3.4029E-04	198	1.4429E-02	1.5673E-05	.0000E+00	.0000E+00
		11023.50C	7.4491E-02	46461	3.1389E+00	1.6765E-03	.0000E+00	.0000E+00
		12000.50C	6.8859E-03	3780	2.7647E-01	7.4196E-05	.0000E+00	.0000E+00

		13027.50C	1.5858E-02	6226	4.6615E-01	4.2519E-04	.0000E+00	.0000E+00
		14000.50C	1.6269E-01	48441	3.6073E+00	4.3749E-03	.0000E+00	4.2473E-05
		16032.50C	8.2170E-04	206	1.5759E-02	2.2447E-04	.0000E+00	.0000E+00
		19000.50C	1.5513E-02	4070	2.9552E-01	4.2205E-03	.0000E+00	.0000E+00
		20000.50C	3.3518E-03	855	6.3719E-02	9.6782E-04	.0000E+00	.0000E+00
		22000.50C	2.5298E-03	3430	2.2969E-01	3.4331E-04	.0000E+00	.0000E+00
		25055.50C	5.7551E-03	11855	7.2985E-01	4.7796E-03	.0000E+00	.0000E+00
		26000.55C	2.6859E-02	16095	1.1132E+00	3.5757E-03	.0000E+00	.0000E+00
		28000.50C	2.5413E-03	3149	2.1377E-01	7.3901E-04	.0000E+00	.0000E+00
		15031.50C	9.2138E-05	33	2.3698E-03	5.9198E-06	.0000E+00	.0000E+00
		24000.50C	3.2224E-04	218	1.5154E-02	5.0071E-05	.0000E+00	.0000E+00
		29000.50C	4.8740E-04	383	2.6120E-02	3.0538E-04	.0000E+00	.0000E+00
		47109.50C	9.3705E-05	109	7.5416E-03	1.2106E-03	.0000E+00	8.7798E-05
		56138.50C	1.2192E-04	75	5.5845E-03	6.1602E-06	.0000E+00	.0000E+00
		82000.50C	5.9707E-05	63	4.3504E-03	2.1351E-06	.0000E+00	.0000E+00
		17000.50C	6.6358E-04	168	1.1698E-02	1.1999E-04	.0000E+00	.0000E+00
		90232.50C	1.6235E-04	217	1.5379E-02	6.8070E-04	2.1091E-05	.0000E+00
		62149.50C	6.1613E-07	1	3.4322E-05	3.4109E-05	.0000E+00	.0000E+00
		92233.50C	8.6822E-12	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		92234.50C	2.8983E-07	0	1.2803E-06	.0000E+00	.0000E+00	.0000E+00
		92236.50C	9.1294E-07	2	1.6086E-04	5.8697E-06	6.1247E-08	.0000E+00
		93237.55C	6.5891E-07	2	1.6252E-04	2.5609E-05	1.1885E-07	.0000E+00
		92235.50C	1.5345E-05	29	2.1955E-03	2.0404E-04	5.3240E-04	.0000E+00
		92238.50C	3.2103E-03	4436	3.1374E-01	1.3714E-02	2.1519E-03	.0000E+00
		94238.50C	4.5027E-06	7	5.7349E-04	4.6783E-05	4.7159E-05	.0000E+00
		94239.55C	1.0737E-05	14	1.1804E-03	1.2204E-04	3.0469E-04	.0000E+00
		94240.50C	1.9626E-06	2	1.7716E-04	8.2782E-05	5.4136E-07	.0000E+00
		94241.50C	8.3106E-07	0	2.7302E-05	.0000E+00	.0000E+00	.0000E+00
		94242.50C	1.6379E-07	0	4.1526E-07	.0000E+00	.0000E+00	.0000E+00
		95241.50C	1.6464E-07	0	1.0157E-06	.0000E+00	.0000E+00	.0000E+00
		95242.50C	7.6025E-11	0	3.3955E-09	.0000E+00	.0000E+00	.0000E+00
		95243.50C	1.4762E-09	0	7.9268E-09	.0000E+00	.0000E+00	.0000E+00
		96245.35C	1.9734E-12	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
5	6	6000.50C	1.3653E-03	18	1.2938E-03	5.0286E-09	.0000E+00	.0000E+00
		7014.50C	3.9036E-03	117	6.6736E-03	3.4452E-04	.0000E+00	.0000E+00
		14000.50C	1.4597E-02	151	1.0987E-02	7.5568E-05	.0000E+00	.0000E+00
		15031.50C	7.9416E-04	14	9.3128E-04	4.0182E-06	.0000E+00	.0000E+00
		16032.50C	5.1291E-04	7	4.8357E-04	3.2630E-06	.0000E+00	.0000E+00
		24000.50C	1.9975E-01	5295	3.3893E-01	2.0208E-02	.0000E+00	.0000E+00
		25055.50C	1.9900E-02	1657	1.0862E-01	8.7324E-03	.0000E+00	.0000E+00
		26000.55C	6.6604E-01	21627	1.2923E+00	5.3006E-02	.0000E+00	.0000E+00
		28000.50C	9.3142E-02	5595	3.3277E-01	1.3492E-02	.0000E+00	.0000E+00
6	7	6000.50C	1.3653E-03	2	1.5228E-04	1.0485E-09	.0000E+00	.0000E+00
		7014.50C	3.9036E-03	11	7.5471E-04	1.8920E-05	.0000E+00	.0000E+00
		14000.50C	1.4597E-02	8	5.4712E-04	2.9933E-06	.0000E+00	.0000E+00
		15031.50C	7.9416E-04	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		16032.50C	5.1291E-04	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		24000.50C	1.9975E-01	276	1.6540E-02	7.6893E-04	.0000E+00	.0000E+00
		25055.50C	1.9900E-02	55	3.0249E-03	2.9368E-04	.0000E+00	.0000E+00
		26000.55C	6.6604E-01	991	5.7693E-02	2.1068E-03	.0000E+00	.0000E+00
		28000.50C	9.3142E-02	287	1.7225E-02	4.6986E-04	.0000E+00	.0000E+00
7	8	1001.50C	6.6667E-01	1106379	5.0373E+01	2.6296E-01	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	53518	2.7087E+00	3.7781E-04	.0000E+00	.0000E+00
8	9	1001.50C	6.6667E-01	51548	2.2779E+00	1.2251E-02	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	2461	1.1878E-01	4.2828E-05	.0000E+00	.0000E+00

TOTAL	1658113	8.6616E+01	1.0189E+00	3.0580E-03	1.3027E-04

TOTAL OVER ALL CELLS FOR EACH NUCLIDE	TOTAL COLLISIONS	COLLISIONS * WEIGHT	WEIGHT LOST TO CAPTURE	WEIGHT GAIN BY FISSION	WEIGHT GAIN BY (N,XN)
1001.50C	1157927	5.2651E+01	2.7521E-01	.0000E+00	.0000E+00
3006.50C	1381	9.1460E-02	4.8524E-02	.0000E+00	.0000E+00
3007.55C	6146	4.5744E-01	1.7497E-05	.0000E+00	.0000E+00
5010.50C	13160	8.0626E-01	5.5123E-01	.0000E+00	.0000E+00
5011.56C	20295	1.4291E+00	1.1522E-05	.0000E+00	.0000E+00
6000.50C	20	1.4461E-03	6.0772E-09	.0000E+00	.0000E+00
7014.50C	128	7.4283E-03	3.6344E-04	.0000E+00	.0000E+00
8016.50C	272568	1.8421E+01	6.3644E-03	.0000E+00	.0000E+00
9019.50C	198	1.4429E-02	1.5673E-05	.0000E+00	.0000E+00
11023.50C	46461	3.1389E+00	1.6765E-03	.0000E+00	.0000E+00
12000.50C	3780	2.7647E-01	7.4196E-05	.0000E+00	.0000E+00
13027.50C	6226	4.6615E-01	4.2519E-04	.0000E+00	.0000E+00
14000.50C	48600	3.6188E+00	4.4534E-03	.0000E+00	4.2473E-05
15031.50C	47	3.3010E-03	9.9379E-06	.0000E+00	.0000E+00
16032.50C	213	1.6243E-02	2.2774E-04	.0000E+00	.0000E+00
17000.50C	168	1.1698E-02	1.1999E-04	.0000E+00	.0000E+00
19000.50C	4070	2.9552E-01	4.2205E-03	.0000E+00	.0000E+00
20000.50C	855	6.3719E-02	9.6782E-04	.0000E+00	.0000E+00
22000.50C	3430	2.2969E-01	3.4331E-04	.0000E+00	.0000E+00
24000.50C	5789	3.7062E-01	2.1027E-02	.0000E+00	.0000E+00
25055.50C	13567	8.4149E-01	1.3806E-02	.0000E+00	.0000E+00
26000.55C	38713	2.4632E+00	5.8689E-02	.0000E+00	.0000E+00
28000.50C	9031	5.6377E-01	1.4701E-02	.0000E+00	.0000E+00
29000.50C	383	2.6120E-02	3.0538E-04	.0000E+00	.0000E+00
47109.50C	109	7.5416E-03	1.2106E-03	.0000E+00	8.7798E-05
56138.50C	75	5.5845E-03	6.1602E-06	.0000E+00	.0000E+00
62149.50C	1	3.4322E-05	3.4109E-05	.0000E+00	.0000E+00
82000.50C	63	4.3504E-03	2.1351E-06	.0000E+00	.0000E+00
90232.50C	217	1.5379E-02	6.8070E-04	2.1091E-05	.0000E+00
92233.50C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
92234.50C	0	1.2803E-06	.0000E+00	.0000E+00	.0000E+00
92235.50C	29	2.1955E-03	2.0404E-04	5.3240E-04	.0000E+00
92236.50C	2	1.6086E-04	5.8697E-06	6.1247E-08	.0000E+00
92238.50C	4436	3.1374E-01	1.3714E-02	2.1519E-03	.0000E+00
93237.55C	2	1.6252E-04	2.5609E-05	1.1885E-07	.0000E+00
94238.50C	7	5.7349E-04	4.6783E-05	4.7159E-05	.0000E+00
94239.55C	14	1.1804E-03	1.2204E-04	3.0469E-04	.0000E+00
94240.50C	2	1.7716E-04	8.2782E-05	5.4136E-07	.0000E+00
94241.50C	0	2.7302E-05	.0000E+00	.0000E+00	.0000E+00
94242.50C	0	4.1526E-07	.0000E+00	.0000E+00	.0000E+00
95241.50C	0	1.0157E-06	.0000E+00	.0000E+00	.0000E+00
95242.50C	0	3.3955E-09	.0000E+00	.0000E+00	.0000E+00
95243.50C	0	7.9268E-09	.0000E+00	.0000E+00	.0000E+00
96245.35C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00

****

DUMP NO. 2 ON FILE RUNTPE NPS = 12265 CTM = 8.00

18 WARNING MESSAGES SO FAR.

RUN TERMINATED WHEN 25 KCODE CYCLES WERE DONE.

COMPUTER TIME = 8.07 MINUTES

MCNP VERSION 4A-B 10/04/91 12/01/95 15:38:20 PROBID = 12/01/95 15:29:13

```
1MCNP     VERSION 4A-B  LD=10/04/91                    12/01/95 16:35:12
 **************************************************************************     PROBID =   12/01/95 16:35:12
 INP=DHLWG2 OUTP=DHLWG2.O

        DHLWG2-- DWPF GLASS   INFINITE ARRAY DRY
        C       1     2  -1.00    -13 2 -20   IMP:N=1  FILL=3
        C      LATTICE OF CANISTERS
        2      2  -1.-4    -10 9 -12 11 2 -20 FILL=2 (32.0 32.0 0.) IMP:N=1
        3      0           10:-9:12:-11:-2:20  IMP:N=0
        C       CANISTER
        4      2  -1.-4   -6 5 -8 7 LAT=1 U=2 FILL=1 IMP:N=1
        5      1  -2.85    -1 -3 IMP:N=1 U=1 $ 5 WT% PU GLASS
        6      3  -7.9      1 -14 -3 IMP:N=1 U=1 $ SS304L CANISTER WALL
        7      3  -7.9    -14  3 -4 IMP:N=1 U=1 $ SS304L CANISTER WALL
        8      2  -1.-4   14 -4 IMP:N=1 U=1  $ WATER AROUND CANISTER
        9      2  -1.-4   4     IMP:N=1 U=1  $ WATER ABOVE CANISTER / REFLECTED ON CENTERL
        C
        C      10    4  -8.140 13 -19 2 -20 IMP:N=1 $ A 516 CARBON STEEL INNER BARRIER
        C      11    4  -8.140     -19 20 -21 IMP:N=1 $ A 516 CARBON STEEL INNER BARRIER L
        C      12    2  -1.00      -19 21 -23 IMP:N=1 $ GAP BETWEEN INNER AND OUTER BARRIE
        C      13    5  -8.9375  19 -22 2 -23 IMP:N=1 $ C71500 ALLOY INNER BARRIER
        C      14    5  -8.9375     -22     23 -24 IMP:N=1 $ C71500 ALLOY INNER BARRIER LI
        C      15    2  -1.00  22 2 -24  -16 15 -18 17 IMP:N=1 $ 6" OF WATER REFLECTED AR
        C      16    2  -1.00     24 -25  -16 15 -18 17 IMP:N=1 $ 12" OF WATER ABOVE CONTA
        C      17     0           -2:25:-15:16:-17:18     IMP:N=0   $ ZERO-IMPORTANCE OUTSI

        1      CZ 29.528
        2*     PZ  0.0
        3      PZ 137.13
        4      PZ  138.7175
        5      PX  -32.0
        6      PX   32.0
        7      PY  -32.0
        8      PY   32.0
        9*     PX -63.9999
        10*    PX  63.9999
        11*    PY -63.9999
        12*    PY  63.9999
        13     CZ  78.45
        14     CZ  30.48
        C      15*  PX  -100.74
        C      16*   PX   100.74
        C      17*   PY  -100.74
        C      18*   PY   100.74
        19     CZ   80.45
        20     PZ  153.75
        21     PZ  156.25
        22     CZ   85.45
        23     PZ  162.50
        24     PZ  171.0
        25     PZ  201.48

        KCODE 500 0.03 .5 25
        C      KSRC  22.78 25.28 16 30.28 22.78 30 22.78 40.28 40 35.28 22.78 100
        C       22.78 22.28 150 28.28 22.78 200 22.78 30.28 150 38.28 22.78 250.
        C       22.78 -25.28 16 30.28 -22.78 30 22.78 -40.28 40 35.28 -22.78 100
        C       22.78 -22.28 150 28.28 -22.78 200 22.78 -30.28 150 38.28 -22.78 250.
        C       -22.78 25.28 16 -30.28 22.78 30 -22.78 40.28 40 -35.28 22.78 100
        C       -22.78 22.28 150 -28.28 22.78 200 -22.78 30.28 150 -38.28 22.78 250.
        C       -22.78 -25.28 16 -30.28 -22.78 30 -22.78 -40.28 40 -35.28 -22.78 100
```

```
  57-       C       -22.78 -22.28 150 -28.28 -22.78 200 -22.78 -30.28 150 -38.28 -22.78 250.
  58-       C         C71500  D=8.9375 G/CC
  59-       M5   25055.50C  -0.10  26000.55C -0.70    28000.50C -31.000
WARNING.  MATERIAL   5 IS NOT USED IN THE PROBLEM.
  60-            29000.50C -67.150 82000.50C -0.050
  61-       C         ALLOY 825  D=8.140 G/CC
  62-       M4    6000.50C  -0.05  13027.50C  -0.20  14000.50C  -0.50
WARNING.  MATERIAL   4 IS NOT USED IN THE PROBLEM.
  63-            16032.50C  -0.03  22000.50C  -0.90  24000.50C -21.50
  64-            25055.50C  -1.00  26000.55C -28.57  28000.50C -42.00
  65-            29000.50C  -2.25  42000.50C  -3.00
  66-       C         SS304L D=7.9 G/CC
  67-       M3    6000.50C  -0.030 7014.50C  -0.100 14000.50C -0.75
  68-           15031.50C  -0.045 16032.50C  -0.030 24000.50C -19.000
  69-           25055.50C  -2.000 26000.55C -68.045 28000.50C -10.000
  70-       M2    1001.50C 2.0  8016.50C 1.0
  71-       MT2   LWTR.01T
  72-       M1     3006.50C -1.080-1   3007.55C -1.332     5010.50C -6.234-1 $ DHLW GLASS
  73-            5011.56C -2.509     8016.50C  -4.4102+1  9019.50C -3.108-2
  74-           11023.50C -8.233    12000.50C -8.046-1  13027.50C -2.057
  75-           14000.50C -2.1967+1 16032.50C -1.263-1  19000.50C -2.916
  76-           20000.50C -6.458-1  22000.50C -5.823-1  25055.50C -1.520
  77-           26000.55C -7.211    28000.50C -7.170-1  15031.50C -1.372-2
  78-           24000.50C -8.055-2 29000.50C  -1.489-1  47109.50C -4.906-2
  79-           56138.50C -8.083-2 82000.50C -5.948-2   17000.50C -1.131-1
  80-           90232.50C -1.811-1  62149.50C -4.411-4  92233.50C -9.727-9
  81-           92234.50C -3.261-4  92236.50C -1.036-3  93237.55C -7.509-4
  82-           92235.50C -1.734-2  92238.50C -3.674    94238.50C -5.153-3
  83-           94239.55C -1.234-2  94240.50C -2.265-3  94241.50C -9.631-4
  84-           94242.50C -1.906-4  95241.50C -1.908-4  95242.50C -8.847-8
  85-           95243.50C -1.725-6  96245.35C -2.325-9
  86-       PRINT
  87-       PRDMP
1     INITIAL SOURCE FROM FILE   SRCTP

 ORIGINAL NUMBER OF POINTS                          440
    POINTS NOT IN ANY CELL                 0
    POINTS IN CELLS OF ZERO IMPORTANCE     0
    POINTS IN VOID CELLS                   0
    POINTS IN AMBIGUOUS CELLS              0
 TOTAL POINTS REJECTED                              0
 POINTS REMAINING                                 440
 POINTS AFTER EXPANSION OR CONTRACTION            494
 NOMINAL SOURCE SIZE                              500

 INITIAL GUESS FOR K(EFF.)                   .030000

 CYCLES TO SKIP BEFORE TALLYING                     5

 TOTAL FISSION NUBAR DATA ARE BEING USED.
1MATERIAL COMPOSITION                                                    PRINT TABLE 40

 THE SUM OF THE FRACTIONS OF MATERIAL    3 WAS 1.000000E+02

 THE SUM OF THE FRACTIONS OF MATERIAL    2 WAS 3.000000E+00

 THE SUM OF THE FRACTIONS OF MATERIAL    1 WAS 9.992722E+01

 MATERIAL
  NUMBER      COMPONENT NUCLIDE, ATOM FRACTION
```

3	6000,	.00137	7014,	.00390	14000,	.01460	15031,	.00079
	16032,	.00051	24000,	.19975	25055,	.01990	26000,	.66604
	28000,	.09314						
2	1001,	.66667	8016,	.33333				

ASSOCIATED THERMAL S(A,B) DATA SETS: LWTR.01T

1	3006,	.00373	3007,	.03949	5010,	.01295	5011,	.04740
	8016,	.57353	9019,	.00034	11023,	.07449	12000,	.00689
	13027,	.01586	14000,	.16269	16032,	.00082	19000,	.01551
	20000,	.00335	22000,	.00253	25055,	.00576	26000,	.02686
	28000,	.00254	15031,	.00009	24000,	.00032	29000,	.00049
	47109,	.00009	56138,	.00012	82000,	.00006	17000,	.00066
	90232,	.00016	62149,	.00000	92233,	.00000	92234,	.00000
	92236,	.00000	93237,	.00000	92235,	.00002	92238,	.00321
	94238,	.00000	94239,	.00001	94240,	.00000	94241,	.00000
	94242,	.00000	95241,	.00000	95242,	.00000	95243,	.00000
	96245,	.00000						

MATERIAL NUMBER — COMPONENT NUCLIDE, MASS FRACTION

3	6000,	.00030	7014,	.00100	14000,	.00750	15031,	.00045
	16032,	.00030	24000,	.19000	25055,	.02000	26000,	.68045
	28000,	.10000						
2	1001,	.11191	8016,	.88809				
1	3006,	.00108	3007,	.01333	5010,	.00624	5011,	.02511
	8016,	.44134	9019,	.00031	11023,	.08239	12000,	.00805
	13027,	.02058	14000,	.21983	16032,	.00126	19000,	.02918
	20000,	.00646	22000,	.00583	25055,	.01521	26000,	.07216
	28000,	.00718	15031,	.00014	24000,	.00081	29000,	.00149
	47109,	.00049	56138,	.00081	82000,	.00060	17000,	.00113
	90232,	.00181	62149,	.00000	92233,	.00000	92234,	.00000
	92236,	.00001	93237,	.00001	92235,	.00017	92238,	.03677
	94238,	.00005	94239,	.00012	94240,	.00002	94241,	.00001
	94242,	.00000	95241,	.00000	95242,	.00000	95243,	.00000
	96245,	.00000						

WARNING. 3 OF THE MATERIALS HAD UNNORMALIZED FRACTIONS.

1CELL VOLUMES AND MASSES PRINT TABLE 50

CELL		ATOM DENSITY	GRAM DENSITY	INPUT VOLUME	CALCULATED VOLUME	MASS	PIECES	REASON VOLUME NOT CALCULATED
1	2	1.00309E-05	1.00000E-04	.00000E+00	2.51903E+06	2.51903E+02	0	
2	3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
3	4	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
4	5	8.25705E-02	2.85000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
5	6	8.70320E-02	7.90000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
6	7	8.70320E-02	7.90000E+00	.00000E+00	4.63333E+03	3.66033E+04	1	
7	8	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
8	9	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	.00000E+00	0	INFINITE

1SURFACE AREAS PRINT TABLE 50

SURFACE	INPUT AREA	CALCULATED AREA	REASON AREA NOT CALCULATED

1	1	.00000E+00	.00000E+00	INFINITE
2	2	.00000E+00	1.63839E+04	
3	3	.00000E+00	2.91864E+03	
4	4	.00000E+00	.00000E+00	INFINITE
5	5	.00000E+00	.00000E+00	INFINITE
6	6	.00000E+00	.00000E+00	INFINITE
7	7	.00000E+00	.00000E+00	INFINITE
8	8	.00000E+00	.00000E+00	INFINITE
9	9	.00000E+00	1.96800E+04	
10	10	.00000E+00	1.96800E+04	
11	11	.00000E+00	1.96800E+04	
12	12	.00000E+00	1.96800E+04	
13	13	.00000E+00	.00000E+00	NOT A BOUNDARY
14	14	.00000E+00	.00000E+00	INFINITE
15	19	.00000E+00	.00000E+00	NOT A BOUNDARY
16	20	.00000E+00	1.63839E+04	
17	21	.00000E+00	.00000E+00	NOT A BOUNDARY
18	22	.00000E+00	.00000E+00	NOT A BOUNDARY
19	23	.00000E+00	.00000E+00	NOT A BOUNDARY
20	24	.00000E+00	.00000E+00	NOT A BOUNDARY
21	25	.00000E+00	.00000E+00	NOT A BOUNDARY

1CELLS PRINT TABLE 60

CELL	MAT	ATOM DENSITY	GRAM DENSITY	VOLUME	MASS	PIECES	NEUTRON IMPORTANCE
1	2	2S 1.00309E-05	1.00000E-04	2.51903E+06	2.51903E+02	0	1.0000E+00
2	3	0 .00000E+00	.00000E+00	.00000E+00	.00000E+00	0	.0000E+00
3	4	2S 1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	0	1.0000E+00
4	5	1 8.25705E-02	2.85000E+00	.00000E+00	.00000E+00	0	1.0000E+00
5	6	3 8.70320E-02	7.90000E+00	.00000E+00	.00000E+00	0	1.0000E+00
6	7	3 8.70320E-02	7.90000E+00	4.63333E+03	3.66033E+04	1	1.0000E+00
7	8	2S 1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	0	1.0000E+00
8	9	2S 1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	0	1.0000E+00
TOTAL				2.52367E+06	3.68552E+04		

1SURFACES PRINT TABLE 70

SURFACE		TRANS	TYPE	SURFACE COEFFICIENTS
1	1		CZ	2.9528000E+01
2	2	REFL.	PZ	.0000000E+00
3	3		PZ	1.3713000E+02
4	4		PZ	1.3871750E+02
5	5		PX	-3.2000000E+01
6	6		PX	3.2000000E+01
7	7		PY	-3.2000000E+01
8	8		PY	3.2000000E+01
9	9	REFL.	PX	-6.3999900E+01
10	10	REFL.	PX	6.3999900E+01
11	11	REFL.	PY	-6.3999900E+01
12	12	REFL.	PY	6.3999900E+01
13	13		CZ	7.8450000E+01
14	14		CZ	3.0480000E+01
15	19		CZ	8.0450000E+01
16	20		PZ	1.5375000E+02
17	21		PZ	1.5625000E+02
18	22		CZ	8.5450000E+01
19	23		PZ	1.6250000E+02
20	24		PZ	1.7100000E+02

```
    21     25              PZ    2.0148000E+02

 WARNING.  SURFACE     13 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     19 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     21 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     22 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     23 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     24 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     25 IS NOT USED FOR ANYTHING.
1  TEMPERATURES OF THE CELLS.                                                PRINT TABLE 72

     TIME:        .0000E+00

     CELL          TMP 1
       2        2.5300E-08
       4        2.5300E-08
       5        2.5300E-08
       6        2.5300E-08
       7        2.5300E-08
       8        2.5300E-08
       9        2.5300E-08

       10 WARNING MESSAGES SO FAR.
1CROSS-SECTION TABLES                                                        PRINT TABLE 100

     TABLE    LENGTH

                      TABLES FROM FILE RMCCS2

   1001.50C    1153  NJOY                                          (  1301)     79/07/31.
   3006.50C    6551  NJOY                                          (  1303)     79/08/01.
   3007.55C   11053  NJOY                                          (  3007)     07/29/82
   5010.50C    9587  NJOY                                          (  1305)     79/09/10.
   6000.50C   16126  NJOY                                          (  1306)     79/07/31.
   7014.50C   22772  NJOY                                          (  1275)     79/09/08.
   8016.50C   23669  NJOY                                          (  1276)     05/14/81
  13027.50C   22891  NJOY                                          (  1313)     79/09/08.
  24000.50C   89104  NJOY                                          (  1324)     79/06/21.
  26000.55C   84136  NJOY                                          ( 260)       10/21/82
  28000.50C   82267  NJOY                                          (  1328)     79/06/21.
  29000.50C   22473  NJOY                                          (  1329)     02/05/80
  56138.50C    2479  NJOY                                          (  1353)     79/06/21.
  82000.50C   28695  NJOY                                          (  1382)     03/10/82
  92233.50C   14205  NJOY                          TOTAL NU        (  1393)     79/09/12.
  92235.50C   44188  NJOY                          TOTAL NU        (  1395)     79/09/12.
  92238.50C   66440  NJOY                          TOTAL NU        (  1398)     79/09/13.
  94239.55C   67551  NJOY                          TOTAL NU        (  1399)     02/21/85
  94240.50C   42744  NJOY                          TOTAL NU        (  1380)     79/09/13.

                      TABLES FROM FILE NEWXS2

  5011.56C   28379                                                              06/28/88

                      TABLES FROM FILE ENDF5P2
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  9019.50C   20657  NJOY                                                    (  1309)      79/06/22.
 11023.50C   36270  NJOY                                                    (  1311)      79/06/21.
 14000.50C   48275  NJOY                                                    (  1314)      79/06/21.
 17000.50C   12269  NJOY                                                    (  1149)      79/10/29.

 WARNING.  NUBAR OF  92234.50C MAY BE EITHER PROMPT OR TOTAL.
 92234.50C   76999  NJOY                                                    (  1394)      79/10/17.

 WARNING.  NUBAR OF  92236.50C MAY BE EITHER PROMPT OR TOTAL.
 92236.50C  119238  NJOY                                                    (  1396)      79/08/30.

 WARNING.  NUBAR OF  94238.50C MAY BE EITHER PROMPT OR TOTAL.
 94238.50C   16458  NJOY                                                    (  1338)      79/09/12.
 94241.50C   22523  NJOY                                    TOTAL NU        (  1381)      79/08/30.
 94242.50C   43433  NJOY                                    TOTAL NU        (  1342)      79/09/06.

                    TABLES FROM FILE ENDF5U2

 12000.50C   39283  NJOY                                                    (  1312)      79/08/30.
 15031.50C    2779  NJOY                                                    (  1315)      79/10/29.
 16032.50C    2684  NJOY                                                    (  1316)      79/10/29.
 19000.50C    9766  NJOY                                                    (  1150)      79/10/29.
 20000.50C   26104  NJOY                                                    (  1320)      79/06/22.
 22000.50C   25231  NJOY                                                    (  1322)      79/06/21.
 25055.50C   60097  NJOY                                                    (  1325)      79/06/21.
 62149.50C   11116  NJOY                                                    (  1319)      02/12/85
 90232.50C   95614  NJOY                                    TOTAL NU        (  1390)      07/10/80

 WARNING.  NUBAR OF  95241.50C MAY BE EITHER PROMPT OR TOTAL.
 95241.50C   29300  NJOY                                                    (  1361)      79/08/29.

 WARNING.  NUBAR OF  95242.50C MAY BE EITHER PROMPT OR TOTAL.
 95242.50C    5248  NJOY                                                    (  1369)      79/09/24.

 WARNING.  NUBAR OF  95243.50C MAY BE EITHER PROMPT OR TOTAL.
 95243.50C   51474  NJOY                                                    (  1363)      79/08/30.

                    TABLES FROM FILE RMCCSA2

 47109.50C   10147  NJOY                                                    (  1373)      11/01/85
 93237.55C   29142  NJOY                                    TOTAL NU        (  1337)      04/04/85

                    TABLES FROM FILE ENDL852


 WARNING.  NUBAR OF  96245.35C MAY BE EITHER PROMPT OR TOTAL.
 96245.35C   15310  ZA=96245 ENDL-85        85/04/24  T=0K                  (    93)       86/04/23

                    TABLES FROM FILE TMCCS2

  LWTR.01T   10193  HYDROGEN IN LIGHT WATER AT 300 DEGREES KELVIN          1001     0     010/22/85

 TOTAL      1506073

 WARNING.  NEUTRON ENERGY CUTOFF IS BELOW SOME CROSS-SECTION TABLES.
1DECIMAL WORDS OF DYNAMICALLY ALLOCATED STORAGE

     GENERAL              66794
     TALLIES                  0
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     BANK                 12403
     CROSS SECTIONS      1506073

     TOTAL               1585270

 ************************************************************************
 DUMP NO.  1 ON FILE   RUNTPJ          NPS =       0          CTM =     .00

 SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP          CYCLE =     0

       18 WARNING MESSAGES SO FAR.
1   STARTING MCRUN.      FIELD LENGTH =      0      CPO =    .07                                PRINT TABLE 110

      DHLWG2-- DWPF GLASS   INFINITE ARRAY DRY
```

NPS	X	Y	Z	CELL	SURF	U	V	W	TIME	WEIGHT	ENERGY
1	-1.521E+01	1.594E+01	9.648E+01	5	0	5.085E-01	4.733E-01	7.193E-01	.000E+00	1.012E+00	3.930E-01
2	-1.677E+01	1.402E+01	4.069E+01	5	0	8.952E-01	-4.447E-01	-2.944E-02	.000E+00	1.012E+00	1.849E+00
3	-1.275E+01	-1.709E+01	4.737E+01	5	0	-6.184E-01	-4.495E-01	6.446E-01	.000E+00	1.012E+00	5.488E-01
4	1.565E+01	3.000E+00	2.278E+00	5	0	9.710E-01	-5.665E-02	-2.323E-01	.000E+00	1.012E+00	7.899E-01
5	1.565E+01	3.000E+00	2.278E+00	5	0	5.861E-01	1.496E-01	-7.963E-01	.000E+00	1.012E+00	1.796E+00
6	-6.187E+00	6.029E-01	2.320E+01	5	0	-6.489E-02	-1.626E-01	9.845E-01	.000E+00	1.012E+00	9.036E-01
7	8.667E+00	-6.940E+00	2.690E+01	5	0	-7.068E-02	3.263E-02	-9.970E-01	.000E+00	1.012E+00	3.954E+00
8	-5.438E+00	2.597E+01	5.931E+01	5	0	-3.915E-01	4.664E-01	-7.932E-01	.000E+00	1.012E+00	8.708E-01
9	-2.323E+01	-2.514E+00	7.319E+01	5	0	-2.368E-01	9.215E-01	-3.079E-01	.000E+00	1.012E+00	1.655E+00
10	2.558E+01	-1.317E+01	6.492E+01	5	0	1.946E-01	-3.204E-01	9.271E-01	.000E+00	1.012E+00	1.396E+00
11	-6.359E+00	9.842E+00	1.084E+02	5	0	-6.698E-01	-7.177E-01	-1.905E-01	.000E+00	1.012E+00	4.950E+00
12	3.728E+00	-2.291E+01	8.584E+01	5	0	-8.398E-01	-4.129E-01	3.524E-01	.000E+00	1.012E+00	4.750E-01
13	3.728E+00	-2.291E+01	8.584E+01	5	0	-1.714E-01	-8.572E-01	4.857E-01	.000E+00	1.012E+00	6.649E-01
14	2.297E+01	-8.274E+00	9.321E+01	5	0	-2.489E-01	-5.118E-01	-8.222E-01	.000E+00	1.012E+00	2.679E-01
15	2.297E+01	-8.274E+00	9.321E+01	5	0	-2.959E-01	2.119E-01	9.314E-01	.000E+00	1.012E+00	5.103E-01
16	-1.327E+01	7.423E+00	3.247E+01	5	0	1.395E-01	-9.829E-01	1.202E-01	.000E+00	1.012E+00	3.220E+00
17	-1.969E+01	-2.124E+01	9.706E+00	5	0	6.909E-01	-7.110E-01	1.307E-01	.000E+00	1.012E+00	8.052E-01
18	-1.374E+01	-1.302E+01	9.160E+01	5	0	-6.580E-01	5.320E-01	-5.329E-01	.000E+00	1.012E+00	5.778E-01
19	-2.719E+01	-7.098E+00	8.813E+01	5	0	-9.903E-01	-1.380E-01	1.353E-02	.000E+00	1.012E+00	3.250E-01
20	-2.097E+01	-1.410E+01	8.424E+01	5	0	7.462E-01	4.859E-01	-4.551E-01	.000E+00	1.012E+00	2.946E+00
21	-2.465E+01	-1.426E+01	7.400E+01	5	0	-1.977E-01	9.797E-01	3.360E-02	.000E+00	1.012E+00	2.593E+00
22	5.710E+00	-2.154E+01	3.355E+01	5	0	-9.117E-01	-3.647E-01	-1.891E-01	.000E+00	1.012E+00	6.270E-01
23	8.601E+00	1.000E+01	3.989E+01	5	0	-4.287E-01	8.361E-01	-3.423E-01	.000E+00	1.012E+00	9.426E-01
24	2.217E+01	-1.529E+01	4.701E+01	5	0	1.080E-01	3.412E-01	-9.338E-01	.000E+00	1.012E+00	1.101E+00
25	2.217E+01	-1.529E+01	4.701E+01	5	0	-9.111E-01	-9.012E-03	-4.122E-01	.000E+00	1.012E+00	3.339E+00
26	-7.489E+00	2.259E+01	6.021E+01	5	0	-2.568E-01	-6.391E-01	-7.249E-01	.000E+00	1.012E+00	3.799E+00
27	1.156E+01	2.774E+00	2.791E+01	5	0	-2.912E-01	8.086E-01	5.113E-01	.000E+00	1.012E+00	8.114E-01
28	-2.310E+00	1.417E+01	2.604E+01	5	0	1.472E-01	-9.514E-01	2.705E-01	.000E+00	1.012E+00	3.697E+00
29	-2.143E+01	7.045E+00	3.864E+01	5	0	-6.135E-01	-7.645E-01	-1.978E-01	.000E+00	1.012E+00	4.388E+00
30	1.032E+01	2.403E+01	3.592E+01	5	0	-5.702E-01	5.651E-01	-5.963E-01	.000E+00	1.012E+00	5.246E-01
31	3.926E+00	-1.982E+01	3.000E+01	5	0	-6.607E-01	5.373E-01	-5.242E-01	.000E+00	1.012E+00	1.229E+00
32	3.926E+00	-1.982E+01	3.000E+01	5	0	-9.742E-02	-3.639E-01	-9.263E-01	.000E+00	1.012E+00	7.262E+00
33	-5.015E+00	-1.025E+01	3.999E+00	5	0	-1.965E-01	-3.145E-01	-9.287E-01	.000E+00	1.012E+00	2.676E+00
34	-3.711E+00	-1.193E+01	3.484E+00	5	0	4.097E-01	8.465E-01	-3.399E-01	.000E+00	1.012E+00	1.000E+00
35	-3.711E+00	-1.193E+01	3.484E+00	5	0	-4.048E-02	8.831E-01	4.675E-01	.000E+00	1.012E+00	5.295E-01
36	2.380E+01	-2.182E+00	3.755E+01	5	0	3.371E-01	-9.269E-01	-1.652E-01	.000E+00	1.012E+00	2.651E+00
37	2.380E+01	-2.182E+00	3.755E+01	5	0	-1.867E-01	9.756E-01	-1.155E-01	.000E+00	1.012E+00	5.384E-01
38	-1.429E+01	-5.060E+00	7.755E+00	5	0	-2.616E-01	2.336E-01	-9.365E-01	.000E+00	1.012E+00	1.486E+00
39	2.175E+01	-9.111E+00	1.697E+00	5	0	9.780E-01	-7.641E-02	-1.939E-01	.000E+00	1.012E+00	4.327E+00
40	2.799E+01	4.382E+00	1.303E+01	5	0	2.580E-01	-7.076E-01	6.578E-01	.000E+00	1.012E+00	1.509E+00
41	2.113E+01	1.350E+01	9.086E+01	5	0	-3.212E-01	-7.678E-01	-5.543E-01	.000E+00	1.012E+00	4.221E+00

42	7.902E+00	2.466E+00	9.262E+01	5	0	5.039E-01	-1.460E-01	8.513E-01	.000E+00	1.012E+00	6.540E-01
43	5.105E+00	5.621E+00	9.232E+01	5	0	6.080E-01	5.487E-01	5.738E-01	.000E+00	1.012E+00	9.490E-01
44	-2.701E+00	-4.031E+00	9.448E+01	5	0	-2.932E-01	9.304E-01	-2.199E-01	.000E+00	1.012E+00	1.066E+00
45	5.970E+00	-2.705E+01	7.737E+01	5	0	-8.475E-01	-3.993E-01	-3.497E-01	.000E+00	1.012E+00	7.280E-01
46	5.970E+00	-2.705E+01	7.737E+01	5	0	1.200E-01	-9.195E-01	-3.743E-01	.000E+00	1.012E+00	1.662E+00
47	-2.942E+01	-8.113E-01	1.027E+02	5	0	7.085E-01	5.879E-01	3.904E-01	.000E+00	1.012E+00	1.938E+00
48	8.625E+00	-2.055E+01	6.731E+01	5	0	4.261E-01	9.046E-01	9.254E-03	.000E+00	1.012E+00	1.090E+00
49	8.625E+00	-2.055E+01	6.731E+01	5	0	5.431E-01	4.270E-01	-7.230E-01	.000E+00	1.012E+00	1.041E+00
50	8.321E+00	-2.625E+01	6.565E+01	5	0	-1.053E-01	-9.805E-01	1.658E-01	.000E+00	1.012E+00	9.354E-01

CYCLE 1 K(COLLISION) .009075 REMOVAL LIFETIME(ABS) 1.3387E+02 SOURCE POINTS GENERATED 155

CYCLE 2 K(COLLISION) .007922 REMOVAL LIFETIME(ABS) 1.2660E+02 SOURCE POINTS GENERATED 445

CYCLE 3 K(COLLISION) .009127 REMOVAL LIFETIME(ABS) 1.2597E+02 SOURCE POINTS GENERATED 560

CYCLE 4 K(COLLISION) .009836 REMOVAL LIFETIME(ABS) 1.3631E+02 SOURCE POINTS GENERATED 544

CYCLE 5 K(COLLISION) .009072 REMOVAL LIFETIME(ABS) 1.2739E+02 SOURCE POINTS GENERATED 448

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 5

CYCLE 6 K(COLLISION) .008689 REMOVAL LIFETIME(ABS) 1.3113E+02 SOURCE POINTS GENERATED 489

ESTIMATOR	CYCLE 7	AVE OF 2 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.008612	.008651	.0045	K(COL/ABS)	.000000	.0000	.000000	.0000	.0000
K(ABSORPTION)	.008819	.008506	.0368	K(ABS/TK LN)	.000000	.0000	.000000	.0000	.0000
K(TRK LENGTH)	.008530	.008600	.0080	K(TK LN/COL)	.000000	.0000	.000000	.0000	.0000
REM LIFE(COL)	1.4867E+02	1.3988E+02	.0628						
REM LIFE(ABS)	1.3676E+02	1.3395E+02	.0210	LIFE(COL/ABS)	.0000E+00	.0000	.0000E+00	.0000	.0000
SOURCE POINTS GENERATED	520								

ESTIMATOR	CYCLE 8	AVE OF 3 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.008950	.008751	.0117	K(COL/ABS)	.008234	.0429	.008635	.0001	-1.0000
K(ABSORPTION)	.006141	.007717	.1048	K(ABS/TK LN)	.008214	.0421	.008585	.0022	-.9928
K(TRK LENGTH)	.008933	.008711	.0136	K(TK LN/COL)	.008731	.0126	.008888	.0144	.9921
REM LIFE(COL)	1.2416E+02	1.3464E+02	.0542						
REM LIFE(ABS)	1.2247E+02	1.3012E+02	.0319	LIFE(COL/ABS)	1.3238E+02	.0426	1.2654E+02	.0365	.9332
SOURCE POINTS GENERATED	511								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 8

ESTIMATOR	CYCLE 9	AVE OF 4 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.009015	.008817	.0111	K(COL/ABS)	.008294	.0310	.008697	.0101	-.6717
K(ABSORPTION)	.007930	.007771	.0739	K(ABS/TK LN)	.008229	.0298	.008568	.0026	-.9753
K(TRK LENGTH)	.008614	.008687	.0100	K(TK LN/COL)	.008752	.0092	.008736	.0121	.5151
REM LIFE(COL)	1.2722E+02	1.3278E+02	.0413	K(COL/ABS/TK LN)	.008425	.0169	.008595	.0023	
REM LIFE(ABS)	1.3175E+02	1.3053E+02	.0227	LIFE(COL/ABS)	1.3166E+02	.0308	1.2967E+02	.0255	.8233
SOURCE POINTS GENERATED	489								

ESTIMATOR	CYCLE 10	AVE OF 5 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.009052	.008864	.0101	K(COL/ABS)	.008358	.0250	.008755	.0103	-.4667
K(ABSORPTION)	.008177	.007852	.0576	K(ABS/TK LN)	.008339	.0263	.008672	.0190	-.2563
K(TRK LENGTH)	.009382	.008826	.0175	K(TK LN/COL)	.008845	.0127	.008867	.0116	.6653
REM LIFE(COL)	1.1016E+02	1.2826E+02	.0484	K(COL/ABS/TK LN)	.008514	.0167	.008759	.0163	
REM LIFE(ABS)	1.1597E+02	1.2762E+02	.0291	LIFE(COL/ABS)	1.2794E+02	.0380	1.2713E+02	.0259	.9215
SOURCE POINTS GENERATED	498								

ESTIMATOR	CYCLE 11	AVE OF 6 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.008590	.008818	.0098	K(COL/ABS)	.008492	.0256	.008743	.0077	-.6451

K(ABSORPTION)	.009741	.008167	.0594	K(ABS/TK LN)	.008490	.0276	.008739	.0146	-.2605
K(TRK LENGTH)	.008748	.008813	.0144	K(TK LN/COL)	.008815	.0109	.008818	.0109	.6154
REM LIFE(COL)	1.3125E+02	1.2876E+02	.0395	K(COL/ABS/TK LN)	.008599	.0167	.008741	.0098	
REM LIFE(ABS)	1.2730E+02	1.2756E+02	.0238	LIFE(COL/ABS)	1.2816E+02	.0310	1.2670E+02	.0210	.9152

SOURCE POINTS GENERATED 441

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 11

ESTIMATOR	CYCLE 12	AVE OF 7 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.009244	.008879	.0107	K(COL/ABS)	.008750	.0361	.008879	.0117	.1446
K(ABSORPTION)	.011343	.008621	.0710	K(ABS/TK LN)	.008747	.0372	.008875	.0153	.2190
K(TRK LENGTH)	.009245	.008874	.0139	K(TK LN/COL)	.008877	.0115	.008879	.0117	.7293
REM LIFE(COL)	1.2223E+02	1.2783E+02	.0344	K(COL/ABS/TK LN)	.008791	.0259	.008879	.0133	
REM LIFE(ABS)	1.2784E+02	1.2760E+02	.0201	LIFE(COL/ABS)	1.2771E+02	.0266	1.2747E+02	.0182	.8911

SOURCE POINTS GENERATED 505

ESTIMATOR	CYCLE 13	AVE OF 8 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.008675	.008853	.0097	K(COL/ABS)	.008756	.0313	.008852	.0105	.1167
K(ABSORPTION)	.008921	.008658	.0613	K(ABS/TK LN)	.008739	.0322	.008818	.0147	.1638
K(TRK LENGTH)	.008446	.008821	.0136	K(TK LN/COL)	.008837	.0109	.008856	.0105	.7556
REM LIFE(COL)	1.3991E+02	1.2934E+02	.0317	K(COL/ABS/TK LN)	.008777	.0225	.008854	.0117	
REM LIFE(ABS)	1.3812E+02	1.2892E+02	.0200	LIFE(COL/ABS)	1.2913E+02	.0252	1.2864E+02	.0184	.9004

SOURCE POINTS GENERATED 477

ESTIMATOR	CYCLE 14	AVE OF 9 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.008609	.008826	.0091	K(COL/ABS)	.008638	.0311	.008831	.0098	.2379
K(ABSORPTION)	.006778	.008449	.0607	K(ABS/TK LN)	.008610	.0325	.008777	.0142	.3100
K(TRK LENGTH)	.008369	.008771	.0133	K(TK LN/COL)	.008798	.0106	.008836	.0097	.7873
REM LIFE(COL)	1.3881E+02	1.3039E+02	.0289	K(COL/ABS/TK LN)	.008682	.0229	.008838	.0110	
REM LIFE(ABS)	1.2509E+02	1.2849E+02	.0180	LIFE(COL/ABS)	1.2944E+02	.0223	1.2795E+02	.0186	.7985

SOURCE POINTS GENERATED 498

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 14

ESTIMATOR	CYCLE 15	AVE OF 10 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.008799	.008824	.0082	K(COL/ABS)	.008696	.0285	.008826	.0087	.2205
K(ABSORPTION)	.009647	.008569	.0553	K(ABS/TK LN)	.008675	.0298	.008786	.0126	.3236
K(TRK LENGTH)	.008875	.008781	.0120	K(TK LN/COL)	.008802	.0095	.008830	.0086	.7791
REM LIFE(COL)	1.3253E+02	1.3060E+02	.0258	K(COL/ABS/TK LN)	.008725	.0209	.008831	.0094	
REM LIFE(ABS)	1.3759E+02	1.2940E+02	.0175	LIFE(COL/ABS)	1.3000E+02	.0204	1.2924E+02	.0184	.7551

SOURCE POINTS GENERATED 486

ESTIMATOR	CYCLE 16	AVE OF 11 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.009043	.008843	.0077	K(COL/ABS)	.008742	.0261	.008847	.0081	.2559
K(ABSORPTION)	.009353	.008640	.0503	K(ABS/TK LN)	.008716	.0273	.008796	.0114	.3359
K(TRK LENGTH)	.008902	.008792	.0109	K(TK LN/COL)	.008818	.0088	.008849	.0081	.7737
REM LIFE(COL)	1.2646E+02	1.3023E+02	.0236	K(COL/ABS/TK LN)	.008759	.0193	.008851	.0089	
REM LIFE(ABS)	1.2710E+02	1.2919E+02	.0159	LIFE(COL/ABS)	1.2971E+02	.0186	1.2905E+02	.0166	.7580

SOURCE POINTS GENERATED 526

ESTIMATOR	CYCLE 17	AVE OF 12 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.009946	.008935	.0124	K(COL/ABS)	.008851	.0266	.008942	.0129	.3870
K(ABSORPTION)	.010150	.008766	.0475	K(ABS/TK LN)	.008830	.0278	.008900	.0157	.4378
K(TRK LENGTH)	.010017	.008894	.0151	K(TK LN/COL)	.008915	.0135	.008952	.0128	.9112
REM LIFE(COL)	1.3369E+02	1.3052E+02	.0216	K(COL/ABS/TK LN)	.008865	.0211	.008954	.0137	
REM LIFE(ABS)	1.3325E+02	1.2953E+02	.0147	LIFE(COL/ABS)	1.3002E+02	.0171	1.2940E+02	.0153	.7601

SOURCE POINTS GENERATED 565

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 17

ESTIMATOR	CYCLE 18	AVE OF 13 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.009239	.008959	.0117	K(COL/ABS)	.008710	.0296	.008952	.0122	.1560
K(ABSORPTION)	.004800	.008461	.0579	K(ABS/TK LN)	.008694	.0303	.008916	.0150	.1711
K(TRK LENGTH)	.009321	.008927	.0143	K(TK LN/COL)	.008943	.0127	.008973	.0119	.9157
REM LIFE(COL)	1.1620E+02	1.2941E+02	.0218	K(COL/ABS/TK LN)	.008782	.0218	.008966	.0131	
REM LIFE(ABS)	1.2250E+02	1.2899E+02	.0142	LIFE(COL/ABS)	1.2920E+02	.0171	1.2890E+02	.0145	.7838
SOURCE POINTS GENERATED	445								

ESTIMATOR	CYCLE 19	AVE OF 14 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.008542	.008929	.0114	K(COL/ABS)	.008613	.0299	.008933	.0119	.2400
K(ABSORPTION)	.006167	.008297	.0581	K(ABS/TK LN)	.008593	.0307	.008888	.0147	.2592
K(TRK LENGTH)	.008381	.008888	.0140	K(TK LN/COL)	.008908	.0124	.008952	.0114	.9232
REM LIFE(COL)	1.0989E+02	1.2802E+02	.0231	K(COL/ABS/TK LN)	.008705	.0222	.008952	.0128	
REM LIFE(ABS)	1.2099E+02	1.2842E+02	.0140	LIFE(COL/ABS)	1.2822E+02	.0177	1.2854E+02	.0138	.8055
SOURCE POINTS GENERATED	450								

ESTIMATOR	CYCLE 20	AVE OF 15 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.009346	.008957	.0110	K(COL/ABS)	.008574	.0284	.008948	.0115	.1590
K(ABSORPTION)	.006705	.008191	.0563	K(ABS/TK LN)	.008548	.0292	.008897	.0137	.2179
K(TRK LENGTH)	.009131	.008904	.0132	K(TK LN/COL)	.008930	.0118	.008977	.0112	.9162
REM LIFE(COL)	1.2144E+02	1.2758E+02	.0219	K(COL/ABS/TK LN)	.008684	.0209	.008964	.0130	
REM LIFE(ABS)	1.2840E+02	1.2842E+02	.0130	LIFE(COL/ABS)	1.2800E+02	.0166	1.2866E+02	.0128	.7956
SOURCE POINTS GENERATED	540								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 20

ESTIMATOR	CYCLE 21	AVE OF 16 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.009432	.008986	.0108	K(COL/ABS)	.008625	.0270	.008983	.0112	.2002
K(ABSORPTION)	.009351	.008263	.0529	K(ABS/TK LN)	.008604	.0280	.008943	.0136	.2591
K(TRK LENGTH)	.009554	.008945	.0131	K(TK LN/COL)	.008966	.0117	.009008	.0108	.9243
REM LIFE(COL)	1.2961E+02	1.2771E+02	.0205	K(COL/ABS/TK LN)	.008732	.0202	.008998	.0123	
REM LIFE(ABS)	1.3202E+02	1.2864E+02	.0123	LIFE(COL/ABS)	1.2817E+02	.0155	1.2891E+02	.0121	.7935
SOURCE POINTS GENERATED	521								

ESTIMATOR	CYCLE 22	AVE OF 17 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.008873	.008980	.0101	K(COL/ABS)	.008612	.0255	.008977	.0105	.2028
K(ABSORPTION)	.007946	.008245	.0499	K(ABS/TK LN)	.008588	.0264	.008931	.0129	.2624
K(TRK LENGTH)	.008724	.008932	.0124	K(TK LN/COL)	.008956	.0110	.009005	.0101	.9241
REM LIFE(COL)	1.2411E+02	1.2750E+02	.0193	K(COL/ABS/TK LN)	.008719	.0190	.008995	.0117	
REM LIFE(ABS)	1.2913E+02	1.2867E+02	.0115	LIFE(COL/ABS)	1.2808E+02	.0146	1.2899E+02	.0114	.7887
SOURCE POINTS GENERATED	467								

ESTIMATOR	CYCLE 23	AVE OF 18 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.008529	.008955	.0100	K(COL/ABS)	.008561	.0249	.008959	.0104	.2461
K(ABSORPTION)	.006838	.008167	.0484	K(ABS/TK LN)	.008543	.0256	.008922	.0122	.2790
K(TRK LENGTH)	.008706	.008919	.0118	K(TK LN/COL)	.008937	.0106	.008966	.0102	.9143
REM LIFE(COL)	1.2452E+02	1.2733E+02	.0183	K(COL/ABS/TK LN)	.008680	.0185	.008966	.0118	
REM LIFE(ABS)	1.2360E+02	1.2839E+02	.0111	LIFE(COL/ABS)	1.2786E+02	.0139	1.2866E+02	.0110	.7852
SOURCE POINTS GENERATED	500								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 23

ESTIMATOR	CYCLE 24	AVE OF 19 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.007857	.008897	.0115	K(COL/ABS)	.008549	.0236	.008874	.0119	.1518
K(ABSORPTION)	.008807	.008200	.0458	K(ABS/TK LN)	.008532	.0242	.008841	.0133	.1978
K(TRK LENGTH)	.007854	.008863	.0129	K(TK LN/COL)	.008880	.0120	.008906	.0118	.9347
REM LIFE(COL)	1.1976E+02	1.2693E+02	.0176	K(COL/ABS/TK LN)	.008653	.0179	.008881	.0133	
REM LIFE(ABS)	1.2287E+02	1.2810E+02	.0108	LIFE(COL/ABS)	1.2752E+02	.0135	1.2841E+02	.0106	.7928
SOURCE POINTS GENERATED	474								

ESTIMATOR	CYCLE 25	AVE OF 20 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.008903	.008897	.0109	K(COL/ABS)	.008560	.0224	.008875	.0112	.1517
K(ABSORPTION)	.008634	.008222	.0434	K(ABS/TK LN)	.008540	.0230	.008836	.0126	.1939
K(TRK LENGTH)	.008746	.008857	.0122	K(TK LN/COL)	.008877	.0114	.008907	.0112	.9332
REM LIFE(COL)	1.2326E+02	1.2675E+02	.0168	K(COL/ABS/TK LN)	.008659	.0169	.008884	.0126	
REM LIFE(ABS)	1.2641E+02	1.2801E+02	.0102	LIFE(COL/ABS)	1.2738E+02	.0128	1.2836E+02	.0101	.7938

SOURCE POINTS GENERATED 590

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 25

1PROBLEM SUMMARY

RUN TERMINATED WHEN 25 KCODE CYCLES WERE DONE.

12/01/95 16:44:58

+ DHLWG2-- DWPF GLASS INFINITE ARRAY DRY PROBID = 12/01/95 16:35:12

0

NEUTRON CREATION	TRACKS	WEIGHT (PER SOURCE PARTICLE)	ENERGY (PER SOURCE PARTICLE)	NEUTRON LOSS	TRACKS	WEIGHT (PER SOURCE PARTICLE)	ENERGY (PER SOURCE PARTICLE)
SOURCE	12048	1.0375E+00	2.0354E+00	ESCAPE	1339	9.8430E-02	4.9479E-02
				ENERGY CUTOFF	0	0.	0.
				TIME CUTOFF	0	0.	0.
WEIGHT WINDOW	0	0.	0.	WEIGHT WINDOW	0	0.	0.
CELL IMPORTANCE	0	0.	0.	CELL IMPORTANCE	0	0.	0.
WEIGHT CUTOFF	0	7.2397E-02	4.1937E-04	WEIGHT CUTOFF	10709	7.1935E-02	4.1492E-04
ENERGY IMPORTANCE	0	0.	0.	ENERGY IMPORTANCE	0	0.	0.
DXTRAN	0	0.	0.	DXTRAN	0	0.	0.
FORCED COLLISIONS	0	0.	0.	FORCED COLLISIONS	0	0.	0.
EXP. TRANSFORM	0	0.	0.	EXP. TRANSFORM	0	0.	0.
UPSCATTERING	0	0.	0.	DOWNSCATTERING	0	0.	1.8570E+00
				CAPTURE	0	9.3636E-01	1.2285E-01
(N,XN)	0	0.	0.	LOSS TO (N,XN)	0	0.	0.
FISSION	0	0.	0.	LOSS TO FISSION	0	3.1900E-03	6.0850E-03
TOTAL	12048	1.1099E+00	2.0358E+00	TOTAL	12048	1.1099E+00	2.0358E+00

NUMBER OF NEUTRONS BANKED	0		
NEUTRON TRACKS PER SOURCE PARTICLE	1.0000E+00		
NEUTRON COLLISIONS PER SOURCE PARTICLE	6.5921E+01		
TOTAL NEUTRON COLLISIONS	794222		
NET MULTIPLICATION	1.0000E+00	.0023	

AVERAGE LIFETIME, SHAKES	
ESCAPE	7.0518E+01
CAPTURE	1.3442E+02
CAPTURE OR ESCAPE	1.2836E+02
ANY TERMINATION	1.2846E+02

CUTOFFS	
TCO	1.0000E+34
ECO	.0000E+00
WC1	-5.0000E-01
WC2	-2.5000E-01

COMPUTER TIME SO FAR IN THIS RUN	9.58 MINUTES
COMPUTER TIME IN MCRUN	9.52 MINUTES
SOURCE PARTICLES PER MINUTE	1.2660E+03
RANDOM NUMBERS GENERATED	7698615

MAXIMUM NUMBER EVER IN BANK	0
BANK OVERFLOWS TO BACKUP FILE	0
FIELD LENGTH	0
MOST RANDOM NUMBERS USED WAS	1499 IN HISTORY 11094

RANGE OF SAMPLED SOURCE WEIGHTS = 8.8496E-01 TO 3.2258E+00

1NEUTRON ACTIVITY IN EACH CELL PRINT TABLE 126

CELL		TRACKS ENTERING	POPULATION	COLLISIONS	COLLISIONS * WEIGHT (PER HISTORY)	NUMBER WEIGHTED ENERGY	FLUX WEIGHTED ENERGY	AVERAGE TRACK WEIGHT (RELATIVE)	AVERAGE TRACK MFP (CM)
1	2	0	0	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	0	0	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	48608	12048	712799	5.0004E+01	6.1829E-02	4.6108E-01	8.6331E-01	3.5413E+00
5	6	73522	9215	79894	5.2840E+00	5.4125E-02	4.1415E-01	8.5712E-01	2.8446E+00
6	7	981	764	1446	9.1660E-02	8.2164E-02	5.5556E-01	8.4728E-01	3.1295E+00
7	8	61324	8747	82	5.6336E-03	5.5709E-02	4.2729E-01	8.5746E-01	1.4691E+04
8	9	1615	1339	1	7.7968E-05	7.8754E-02	5.1338E-01	8.7902E-01	1.6216E+04

TOTAL 186050 32113 794222 5.5385E+01

1NEUTRON WEIGHT BALANCE IN EACH CELL -- EXTERNAL EVENTS PRINT TABLE 130

CELL		ENTERING	SOURCE	ENERGY CUTOFF	TIME CUTOFF	EXITING	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-9.8430E-02	-9.8430E-02
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-1.7362E+00	-1.7362E+00
4	5	2.5889E+00	1.0375E+00	.0000E+00	.0000E+00	-2.7055E+00	9.2094E-01
5	6	5.2353E+00	.0000E+00	.0000E+00	.0000E+00	-5.2174E+00	1.7859E-02
6	7	6.9436E-02	.0000E+00	.0000E+00	.0000E+00	-6.9179E-02	2.5677E-04
7	8	4.3623E+00	.0000E+00	.0000E+00	.0000E+00	-2.6461E+00	1.7162E+00
8	9	1.1849E-01	.0000E+00	.0000E+00	.0000E+00	-7.7966E-05	1.1841E-01
TOTAL		1.2374E+01	1.0375E+00	.0000E+00	.0000E+00	-1.2473E+01	9.3909E-01

1NEUTRON WEIGHT BALANCE IN EACH CELL -- VARIANCE REDUCTION EVENTS PRINT TABLE 130

CELL		WEIGHT WINDOW	CELL IMPORTANCE	WEIGHT CUTOFF	ENERGY IMPORTANCE	DXTRAN	FORCED COLLISION	EXPONENTIAL TRANSFORM	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	.0000E+00	.0000E+00	2.5740E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	2.5740E-04
5	6	.0000E+00	.0000E+00	1.9558E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	1.9558E-04
6	7	.0000E+00	.0000E+00	9.0790E-06	.0000E+00	.0000E+00	.0000E+00	.0000E+00	9.0790E-06
7	8	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
8	9	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
TOTAL		.0000E+00	.0000E+00	4.6206E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	4.6206E-04

1NEUTRON WEIGHT BALANCE IN EACH CELL -- PHYSICAL EVENTS PRINT TABLE 130

CELL		(N,XN)	FISSION	CAPTURE	LOSS TO (N,XN)	LOSS TO FISSION	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	.0000E+00	.0000E+00	-9.1801E-01	.0000E+00	-3.1900E-03	-9.2120E-01
5	6	.0000E+00	.0000E+00	-1.8054E-02	.0000E+00	.0000E+00	-1.8054E-02
6	7	.0000E+00	.0000E+00	-2.6585E-04	.0000E+00	.0000E+00	-2.6585E-04
7	8	.0000E+00	.0000E+00	-3.2569E-05	.0000E+00	.0000E+00	-3.2569E-05
8	9	.0000E+00	.0000E+00	-1.8526E-09	.0000E+00	.0000E+00	-1.8526E-09
TOTAL		.0000E+00	.0000E+00	-9.3636E-01	.0000E+00	-3.1900E-03	-9.3955E-01

1NEUTRON ACTIVITY OF EACH NUCLIDE IN EACH CELL, PER SOURCE PARTICLE PRINT TABLE 140

CELL		NUCLIDES	ATOM FRACTION	TOTAL COLLISIONS	COLLISIONS * WEIGHT	WEIGHT LOST TO CAPTURE	WEIGHT LOSS TO FISSION	WEIGHT GAIN BY (N,XN)
1	2	1001.50C	6.6667E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	1001.50C	6.6667E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	3006.50C	3.7347E-03	1891	1.2826E-01	6.6192E-02	.0000E+00	.0000E+00
		3007.55C	3.9491E-02	9837	7.2700E-01	2.9378E-05	.0000E+00	.0000E+00
		5010.50C	1.2950E-02	18939	1.2110E+00	7.7911E-01	.0000E+00	.0000E+00
		5011.56C	4.7405E-02	36783	2.5618E+00	2.3181E-05	.0000E+00	.0000E+00
		8016.50C	5.7353E-01	375039	2.6722E+01	6.8321E-03	.0000E+00	.0000E+00
		9019.50C	3.4029E-04	329	2.4455E-02	9.5317E-06	.0000E+00	.0000E+00

		11023.50C	7.4491E-02	88424	5.8781E+00	3.1056E-03	.0000E+00	.0000E+00
		12000.50C	6.8859E-03	6531	4.7909E-01	1.1302E-04	.0000E+00	.0000E+00
		13027.50C	1.5858E-02	9853	7.3929E-01	7.0617E-04	.0000E+00	.0000E+00
		14000.50C	1.6269E-01	78343	5.7880E+00	6.5253E-03	.0000E+00	.0000E+00
		16032.50C	8.2170E-04	348	2.6388E-02	2.6575E-04	.0000E+00	.0000E+00
		19000.50C	1.5513E-02	7063	5.0702E-01	6.3871E-03	.0000E+00	.0000E+00
		20000.50C	3.3518E-03	1396	1.0007E-01	1.0564E-03	.0000E+00	.0000E+00
		22000.50C	2.5298E-03	6710	4.5090E-01	5.4741E-04	.0000E+00	.0000E+00
		25055.50C	5.7551E-03	25373	1.5397E+00	1.0703E-02	.0000E+00	.0000E+00
		26000.55C	2.6859E-02	29596	2.0214E+00	6.8174E-03	.0000E+00	.0000E+00
		28000.50C	2.5413E-03	6063	3.9700E-01	1.2370E-03	.0000E+00	.0000E+00
		15031.50C	9.2138E-05	60	3.9097E-03	1.0818E-05	.0000E+00	.0000E+00
		24000.50C	3.2224E-04	432	3.0054E-02	1.3465E-04	.0000E+00	.0000E+00
		29000.50C	4.8740E-04	783	5.2661E-02	7.4950E-04	.0000E+00	.0000E+00
		47109.50C	9.3705E-05	180	1.2547E-02	1.4243E-03	.0000E+00	.0000E+00
		56138.50C	1.2192E-04	153	1.0893E-02	1.2026E-05	.0000E+00	.0000E+00
		82000.50C	5.9707E-05	81	5.6253E-03	2.0976E-06	.0000E+00	.0000E+00
		17000.50C	6.6358E-04	323	2.2660E-02	1.7153E-04	.0000E+00	.0000E+00
		90232.50C	1.6235E-04	358	2.3867E-02	1.4131E-03	2.3375E-05	.0000E+00
		62149.50C	6.1613E-07	5	3.3643E-04	9.9361E-05	.0000E+00	.0000E+00
		92233.50C	8.6822E-12	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		92234.50C	2.8983E-07	3	1.8460E-04	8.3473E-06	1.9617E-07	.0000E+00
		92236.50C	9.1294E-07	2	1.8178E-04	5.3281E-06	4.7210E-08	.0000E+00
		93237.55C	6.5891E-07	2	9.6913E-05	2.1991E-05	7.5191E-08	.0000E+00
		92235.50C	1.5345E-05	36	2.7760E-03	1.7658E-04	5.0390E-04	.0000E+00
		92238.50C	3.2103E-03	7817	5.3608E-01	2.3825E-02	2.3276E-03	.0000E+00
		94238.50C	4.5027E-06	18	1.3378E-03	9.9836E-05	9.5907E-05	.0000E+00
		94239.55C	1.0737E-05	20	1.8146E-03	1.4343E-04	2.1634E-04	.0000E+00
		94240.50C	1.9626E-06	8	5.9719E-04	4.5971E-05	2.2541E-05	.0000E+00
		94241.50C	8.3106E-07	0	4.2436E-05	.0000E+00	.0000E+00	.0000E+00
		94242.50C	1.6379E-07	0	5.4950E-07	.0000E+00	.0000E+00	.0000E+00
		95241.50C	1.6464E-07	0	1.4758E-06	.0000E+00	.0000E+00	.0000E+00
		95242.50C	7.6025E-11	0	7.4865E-09	.0000E+00	.0000E+00	.0000E+00
		95243.50C	1.4762E-09	0	7.5644E-08	.0000E+00	.0000E+00	.0000E+00
		96245.35C	1.9734E-12	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
5	6	6000.50C	1.3653E-03	71	5.1117E-03	5.5414E-09	.0000E+00	.0000E+00
		7014.50C	3.9036E-03	242	1.5756E-02	9.0761E-05	.0000E+00	.0000E+00
		14000.50C	1.4597E-02	481	3.4976E-02	5.5083E-05	.0000E+00	.0000E+00
		15031.50C	7.9416E-04	52	3.2376E-03	5.0627E-06	.0000E+00	.0000E+00
		16032.50C	5.1291E-04	21	1.6724E-03	6.6114E-06	.0000E+00	.0000E+00
		24000.50C	1.9975E-01	16307	1.0884E+00	4.6183E-03	.0000E+00	.0000E+00
		25055.50C	1.9900E-02	5436	3.2744E-01	2.2005E-03	.0000E+00	.0000E+00
		26000.55C	6.6604E-01	42821	2.8589E+00	8.4051E-03	.0000E+00	.0000E+00
		28000.50C	9.3142E-02	14463	9.4856E-01	2.6730E-03	.0000E+00	.0000E+00
6	7	6000.50C	1.3653E-03	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		7014.50C	3.9036E-03	4	2.7107E-04	1.2564E-06	.0000E+00	.0000E+00
		14000.50C	1.4597E-02	15	1.0332E-03	6.8548E-07	.0000E+00	.0000E+00
		15031.50C	7.9416E-04	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		16032.50C	5.1291E-04	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		24000.50C	1.9975E-01	315	2.0654E-02	6.4703E-05	.0000E+00	.0000E+00
		25055.50C	1.9900E-02	76	4.3368E-03	2.6350E-05	.0000E+00	.0000E+00
		26000.55C	6.6604E-01	785	5.0469E-02	1.3925E-04	.0000E+00	.0000E+00
		28000.50C	9.3142E-02	251	1.4896E-02	3.3601E-05	.0000E+00	.0000E+00
7	8	1001.50C	6.6667E-01	71	4.6407E-03	1.8080E-07	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	11	9.9288E-04	3.2389E-05	.0000E+00	.0000E+00
8	9	1001.50C	6.6667E-01	1	7.7968E-05	1.8526E-09	.0000E+00	.0000E+00

	8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
TOTAL			794222	5.5389E+01	9.3636E-01	3.1900E-03	.0000E+00

TOTAL OVER ALL CELLS FOR EACH NUCLIDE	TOTAL COLLISIONS	COLLISIONS * WEIGHT	WEIGHT LOST TO CAPTURE	WEIGHT GAIN BY FISSION	WEIGHT GAIN BY (N,XN)
1001.50C	72	4.7186E-03	1.8265E-07	.0000E+00	.0000E+00
3006.50C	1891	1.2826E-01	6.6192E-02	.0000E+00	.0000E+00
3007.55C	9837	7.2700E-01	2.9378E-05	.0000E+00	.0000E+00
5010.50C	18939	1.2110E+00	7.7911E-01	.0000E+00	.0000E+00
5011.56C	36783	2.5618E+00	2.3181E-05	.0000E+00	.0000E+00
6000.50C	71	5.1117E-03	5.5414E-09	.0000E+00	.0000E+00
7014.50C	246	1.6027E-02	9.2018E-05	.0000E+00	.0000E+00
8016.50C	375050	2.6723E+01	6.8645E-03	.0000E+00	.0000E+00
9019.50C	329	2.4455E-02	9.5317E-06	.0000E+00	.0000E+00
11023.50C	88424	5.8781E+00	3.1056E-03	.0000E+00	.0000E+00
12000.50C	6531	4.7909E-01	1.1302E-04	.0000E+00	.0000E+00
13027.50C	9853	7.3929E-01	7.0617E-04	.0000E+00	.0000E+00
14000.50C	78839	5.8240E+00	6.5811E-03	.0000E+00	.0000E+00
15031.50C	112	7.1473E-03	1.5881E-05	.0000E+00	.0000E+00
16032.50C	369	2.8061E-02	2.7236E-04	.0000E+00	.0000E+00
17000.50C	323	2.2660E-02	1.7153E-04	.0000E+00	.0000E+00
19000.50C	7063	5.0702E-01	6.3871E-03	.0000E+00	.0000E+00
20000.50C	1396	1.0007E-01	1.0564E-03	.0000E+00	.0000E+00
22000.50C	6710	4.5090E-01	5.4741E-04	.0000E+00	.0000E+00
24000.50C	17054	1.1391E+00	4.8177E-03	.0000E+00	.0000E+00
25055.50C	30885	1.8715E+00	1.2930E-02	.0000E+00	.0000E+00
26000.55C	73202	4.9307E+00	1.5362E-02	.0000E+00	.0000E+00
28000.50C	20777	1.3605E+00	3.9435E-03	.0000E+00	.0000E+00
29000.50C	783	5.2661E-02	7.4950E-04	.0000E+00	.0000E+00
47109.50C	180	1.2547E-02	1.4243E-03	.0000E+00	.0000E+00
56138.50C	153	1.0893E-02	1.2026E-05	.0000E+00	.0000E+00
62149.50C	5	3.3643E-04	9.9361E-05	.0000E+00	.0000E+00
82000.50C	81	5.6253E-03	2.0976E-06	.0000E+00	.0000E+00
90232.50C	358	2.3867E-02	1.4131E-03	2.3375E-05	.0000E+00
92233.50C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
92234.50C	3	1.8460E-04	8.3473E-06	1.9617E-07	.0000E+00
92235.50C	36	2.7760E-03	1.7658E-04	5.0390E-04	.0000E+00
92236.50C	2	1.8178E-04	5.3281E-06	4.7210E-08	.0000E+00
92238.50C	7817	5.3608E-01	2.3825E-02	2.3276E-03	.0000E+00
93237.55C	2	9.6913E-05	2.1991E-05	7.5191E-08	.0000E+00
94238.50C	18	1.3378E-03	9.9836E-05	9.5907E-05	.0000E+00
94239.55C	20	1.8146E-03	1.4343E-04	2.1634E-04	.0000E+00
94240.50C	8	5.9719E-04	4.5971E-05	2.2541E-05	.0000E+00
94241.50C	0	4.2436E-05	.0000E+00	.0000E+00	.0000E+00
94242.50C	0	5.4950E-07	.0000E+00	.0000E+00	.0000E+00
95241.50C	0	1.4758E-06	.0000E+00	.0000E+00	.0000E+00
95242.50C	0	7.4865E-09	.0000E+00	.0000E+00	.0000E+00
95243.50C	0	7.5644E-08	.0000E+00	.0000E+00	.0000E+00
96245.35C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00

****

DUMP NO. 2 ON FILE RUNTPJ NPS = 12048 CTM = 9.52

18 WARNING MESSAGES SO FAR.

RUN TERMINATED WHEN 25 KCODE CYCLES WERE DONE.

COMPUTER TIME = 9.60 MINUTES

MCNP VERSION 4A-B 10/04/91 12/01/95 16:44:58 PROBID = 12/01/95 16:35:12

```
1MCNP     VERSION 4A-B  LD=10/04/91                         12/01/95 16:09:24
*************************************************************************           PROBID =    12/01/95 16:09:24
 INP=DHLWG3 OUTP=DHLWG3.O

         DHLWG3-- DWPF GLASS   INFINITE ARRAY DRY - FISSILE X 100
         C      1     2  -1.00   -13 2 -20   IMP:N=1  FILL=3
         C      LATTICE OF CANISTERS
         2      2  -1.-4    -10 9 -12 11 2 -20 FILL=2 (32.0 32.0 0.) IMP:N=1
         3      0          10:-9:12:-11:-2:20  IMP:N=0
         C       CANISTER
         4      2  -1.-4   -6 5 -8 7 LAT=1 U=2 FILL=1 IMP:N=1
         5      1  -2.85    -1 -3 IMP:N=1 U=1 $ 5 WT% PU GLASS
         6      3  -7.9     1 -14 -3 IMP:N=1 U=1 $ SS304L CANISTER WALL
         7      3  -7.9    -14  3 -4 IMP:N=1 U=1 $ SS304L CANISTER WALL
         8      2  -1.-4   14 -4 IMP:N=1 U=1  $ WATER AROUND CANISTER
         9      2  -1.-4    4     IMP:N=1 U=1  $ WATER ABOVE CANISTER / REFLECTED ON CENTERL
         C
         C      10     4  -8.140 13 -19 2 -20 IMP:N=1 $ A 516 CARBON STEEL INNER BARRIER
         C      11     4  -8.140     -19 20 -21 IMP:N=1 $ A 516 CARBON STEEL INNER BARRIER L
         C      12     2  -1.00      -19 21 -23 IMP:N=1 $ GAP BETWEEN INNER AND OUTER BARRIE
         C      13     5  -8.9375  19 -22 2 -23 IMP:N=1 $ C71500 ALLOY INNER BARRIER
         C      14     5  -8.9375      -22     23 -24 IMP:N=1 $ C71500 ALLOY INNER BARRIER LI
         C      15     2  -1.00  22 2 -24   -16 15 -18 17 IMP:N=1 $ 6" OF WATER REFLECTED AR
         C      16     2  -1.00     24 -25  -16 15 -18 17 IMP:N=1 $ 12" OF WATER ABOVE CONTA
         C      17      0           -2:25:-15:16:-17:18      IMP:N=0   $ ZERO-IMPORTANCE OUTSI

         1      CZ 29.528
         2*     PZ  0.0
         3      PZ 137.13
         4      PZ  138.7175
         5      PX  -32.0
         6      PX   32.0
         7      PY  -32.0
         8      PY   32.0
         9*     PX -63.9999
         10*    PX  63.9999
         11*    PY -63.9999
         12*    PY  63.9999
         13     CZ  78.45
         14     CZ  30.48
         C      15*  PX  -100.74
         C      16*   PX   100.74
         C      17*   PY  -100.74
         C      18*   PY   100.74
         19     CZ   80.45
         20     PZ  153.75
         21     PZ  156.25
         22     CZ   85.45
         23     PZ  162.50
         24     PZ  171.0
         25     PZ  201.48

         KCODE 500 0.03 5 25
         C      KSRC  22.78 25.28 16 30.28 22.78 30 22.78 40.28 40 35.28 22.78 100
         C       22.78 22.28 150 28.28 22.78 200 22.78 30.28 150 38.28 22.78 250.
         C       22.78 -25.28 16 30.28 -22.78 30 22.78 -40.28 40 35.28 -22.78 100
         C       22.78 -22.28 150 28.28 -22.78 200 22.78 -30.28 150 38.28 -22.78 250.
         C       -22.78 25.28 16 -30.28 22.78 30 -22.78 40.28 40 -35.28 22.78 100
         C       -22.78 22.28 150 -28.28 22.78 200 -22.78 30.28 150 -38.28 22.78 250.
         C       -22.78 -25.28 16 -30.28 -22.78 30 -22.78 -40.28 40 -35.28 -22.78 100
```

```
   57-       C      -22.78 -22.28 150 -28.28 -22.78 200 -22.78 -30.28 150 -38.28 -22.78 250.
   58-       C        C71500  D=8.9375 G/CC
   59-       M5   25055.50C  -0.10  26000.55C -0.70    28000.50C -31.000
 WARNING.  MATERIAL   5 IS NOT USED IN THE PROBLEM.
   60-            29000.50C -67.150 82000.50C -0.050
   61-       C        ALLOY 825  D=8.140 G/CC
   62-       M4    6000.50C  -0.05  13027.50C  -0.20  14000.50C  -0.50
 WARNING.  MATERIAL   4 IS NOT USED IN THE PROBLEM.
   63-            16032.50C  -0.03  22000.50C  -0.90  24000.50C -21.50
   64-            25055.50C  -1.00  26000.55C -28.57  28000.50C -42.00
   65-            29000.50C  -2.25  42000.50C  -3.00
   66-       C        SS304L D=7.9 G/CC
   67-       M3    6000.50C  -0.030 7014.50C  -0.100 14000.50C -0.75
   68-           15031.50C  -0.045 16032.50C  -0.030 24000.50C -19.000
   69-           25055.50C  -2.000 26000.55C -68.045 28000.50C -10.000
   70-       M2    1001.50C 2.0  8016.50C 1.0
   71-       MT2   LWTR.01T
   72-       M1     3006.50C -1.080-1   3007.55C -1.332     5010.50C -6.234-1 $ DHLW GLASS
   73-            5011.56C -2.509     8016.50C  -4.4102+1  9019.50C -3.108-2
   74-           11023.50C -8.233    12000.50C -8.046-1  13027.50C -2.057
   75-           14000.50C -2.1967+1 16032.50C -1.263-1  19000.50C -2.916
   76-           20000.50C -6.458-1  22000.50C -5.823-1  25055.50C -1.520
   77-           26000.55C -7.211    28000.50C -7.170-1  15031.50C -1.372-2
   78-           24000.50C -8.055-2 29000.50C  -1.489-1  47109.50C -4.906-2
   79-           56138.50C -8.083-2 82000.50C -5.948-2   17000.50C -1.131-1
   80-           90232.50C -1.811-1  62149.50C -4.411-4  92233.50C -9.727-9
   81-           92234.50C -3.261-4  92236.50C -1.036-3  93237.55C -7.509-4
   82-           92235.50C -1.734    92238.50C -3.674     94238.50C -5.153-3
   83-           94239.55C -1.234   94240.50C -2.265-3  94241.50C -9.631-4
   84-           94242.50C -1.906-4  95241.50C -1.908-4  95242.50C -8.847-8
   85-           95243.50C -1.725-6  96245.35C -2.325-9
   86-       PRINT
   87-       PRDMP
1     INITIAL SOURCE FROM FILE   SRCTP

 ORIGINAL NUMBER OF POINTS                          507
    POINTS NOT IN ANY CELL                 0
    POINTS IN CELLS OF ZERO IMPORTANCE     0
    POINTS IN VOID CELLS                   0
    POINTS IN AMBIGUOUS CELLS              0
 TOTAL POINTS REJECTED                              0
 POINTS REMAINING                                 507
 POINTS AFTER EXPANSION OR CONTRACTION            502
 NOMINAL SOURCE SIZE                              500

 INITIAL GUESS FOR K(EFF.)                   .030000

 CYCLES TO SKIP BEFORE TALLYING                     5

 TOTAL FISSION NUBAR DATA ARE BEING USED.
1MATERIAL COMPOSITION                                                    PRINT TABLE 40

 THE SUM OF THE FRACTIONS OF MATERIAL    3 WAS 1.000000E+02

 THE SUM OF THE FRACTIONS OF MATERIAL    2 WAS 3.000000E+00

 THE SUM OF THE FRACTIONS OF MATERIAL    1 WAS 1.028655E+02

 MATERIAL
  NUMBER      COMPONENT NUCLIDE, ATOM FRACTION
```

3	6000,	.00137	7014,	.00390	14000,	.01460	15031,	.00079
	16032,	.00051	24000,	.19975	25055,	.01990	26000,	.66604
	28000,	.09314						
2	1001,	.66667	8016,	.33333				

ASSOCIATED THERMAL S(A,B) DATA SETS: LWTR.01T

1	3006,	.00373	3007,	.03939	5010,	.01292	5011,	.04728
	8016,	.57205	9019,	.00034	11023,	.07430	12000,	.00687
	13027,	.01582	14000,	.16227	16032,	.00082	19000,	.01547
	20000,	.00334	22000,	.00252	25055,	.00574	26000,	.02679
	28000,	.00253	15031,	.00009	24000,	.00032	29000,	.00049
	47109,	.00009	56138,	.00012	82000,	.00006	17000,	.00066
	90232,	.00016	62149,	.00000	92233,	.00000	92234,	.00000
	92236,	.00000	93237,	.00000	92235,	.00153	92238,	.00320
	94238,	.00000	94239,	.00107	94240,	.00000	94241,	.00000
	94242,	.00000	95241,	.00000	95242,	.00000	95243,	.00000
	96245,	.00000						

MATERIAL NUMBER — COMPONENT NUCLIDE, MASS FRACTION

3	6000,	.00030	7014,	.00100	14000,	.00750	15031,	.00045
	16032,	.00030	24000,	.19000	25055,	.02000	26000,	.68045
	28000,	.10000						
2	1001,	.11191	8016,	.88809				
1	3006,	.00105	3007,	.01295	5010,	.00606	5011,	.02439
	8016,	.42873	9019,	.00030	11023,	.08004	12000,	.00782
	13027,	.02000	14000,	.21355	16032,	.00123	19000,	.02835
	20000,	.00628	22000,	.00566	25055,	.01478	26000,	.07010
	28000,	.00697	15031,	.00013	24000,	.00078	29000,	.00145
	47109,	.00048	56138,	.00079	82000,	.00058	17000,	.00110
	90232,	.00176	62149,	.00000	92233,	.00000	92234,	.00000
	92236,	.00001	93237,	.00001	92235,	.01686	92238,	.03572
	94238,	.00005	94239,	.01200	94240,	.00002	94241,	.00001
	94242,	.00000	95241,	.00000	95242,	.00000	95243,	.00000
	96245,	.00000						

WARNING. 3 OF THE MATERIALS HAD UNNORMALIZED FRACTIONS.

1CELL VOLUMES AND MASSES PRINT TABLE 50

CELL		ATOM DENSITY	GRAM DENSITY	INPUT VOLUME	CALCULATED VOLUME	MASS	PIECES	REASON VOLUME NOT CALCULATED
1	2	1.00309E-05	1.00000E-04	.00000E+00	2.51903E+06	2.51903E+02	0	
2	3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
3	4	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
4	5	8.04191E-02	2.85000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
5	6	8.70320E-02	7.90000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
6	7	8.70320E-02	7.90000E+00	.00000E+00	4.63333E+03	3.66033E+04	1	
7	8	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
8	9	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	.00000E+00	0	INFINITE

1SURFACE AREAS PRINT TABLE 50

SURFACE	INPUT AREA	CALCULATED AREA	REASON AREA NOT CALCULATED

1	1	.00000E+00	.00000E+00	INFINITE
2	2	.00000E+00	1.63839E+04	
3	3	.00000E+00	2.91864E+03	
4	4	.00000E+00	.00000E+00	INFINITE
5	5	.00000E+00	.00000E+00	INFINITE
6	6	.00000E+00	.00000E+00	INFINITE
7	7	.00000E+00	.00000E+00	INFINITE
8	8	.00000E+00	.00000E+00	INFINITE
9	9	.00000E+00	1.96800E+04	
10	10	.00000E+00	1.96800E+04	
11	11	.00000E+00	1.96800E+04	
12	12	.00000E+00	1.96800E+04	
13	13	.00000E+00	.00000E+00	NOT A BOUNDARY
14	14	.00000E+00	.00000E+00	INFINITE
15	19	.00000E+00	.00000E+00	NOT A BOUNDARY
16	20	.00000E+00	1.63839E+04	
17	21	.00000E+00	.00000E+00	NOT A BOUNDARY
18	22	.00000E+00	.00000E+00	NOT A BOUNDARY
19	23	.00000E+00	.00000E+00	NOT A BOUNDARY
20	24	.00000E+00	.00000E+00	NOT A BOUNDARY
21	25	.00000E+00	.00000E+00	NOT A BOUNDARY

1CELLS PRINT TABLE 60

CELL	MAT	ATOM DENSITY	GRAM DENSITY	VOLUME	MASS	PIECES	NEUTRON IMPORTANCE
1	2S	1.00309E-05	1.00000E-04	2.51903E+06	2.51903E+02	0	1.0000E+00
2	0	.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	.0000E+00
3	2S	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	0	1.0000E+00
4	1	8.04191E-02	2.85000E+00	.00000E+00	.00000E+00	0	1.0000E+00
5	3	8.70320E-02	7.90000E+00	.00000E+00	.00000E+00	0	1.0000E+00
6	3	8.70320E-02	7.90000E+00	4.63333E+03	3.66033E+04	1	1.0000E+00
7	2S	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	0	1.0000E+00
8	2S	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	0	1.0000E+00
TOTAL				2.52367E+06	3.68552E+04		

1SURFACES PRINT TABLE 70

SURFACE		TRANS	TYPE	SURFACE COEFFICIENTS
1	1		CZ	2.9528000E+01
2	2	REFL.	PZ	.0000000E+00
3	3		PZ	1.3713000E+02
4	4		PZ	1.3871750E+02
5	5		PX	-3.2000000E+01
6	6		PX	3.2000000E+01
7	7		PY	-3.2000000E+01
8	8		PY	3.2000000E+01
9	9	REFL.	PX	-6.3999900E+01
10	10	REFL.	PX	6.3999900E+01
11	11	REFL.	PY	-6.3999900E+01
12	12	REFL.	PY	6.3999900E+01
13	13		CZ	7.8450000E+01
14	14		CZ	3.0480000E+01
15	19		CZ	8.0450000E+01
16	20		PZ	1.5375000E+02
17	21		PZ	1.5625000E+02
18	22		CZ	8.5450000E+01
19	23		PZ	1.6250000E+02
20	24		PZ	1.7100000E+02

```
    21      25              PZ     2.0148000E+02

 WARNING.  SURFACE     13 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     19 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     21 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     22 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     23 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     24 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     25 IS NOT USED FOR ANYTHING.
1  TEMPERATURES OF THE CELLS.                                                PRINT TABLE 72

     TIME:        .0000E+00

     CELL          TMP 1
       2         2.5300E-08
       4         2.5300E-08
       5         2.5300E-08
       6         2.5300E-08
       7         2.5300E-08
       8         2.5300E-08
       9         2.5300E-08

       10 WARNING MESSAGES SO FAR.
1CROSS-SECTION TABLES                                                        PRINT TABLE 100

     TABLE    LENGTH

                        TABLES FROM FILE RMCCS2

   1001.50C     1153  NJOY                                          (  1301)      79/07/31.
   3006.50C     6551  NJOY                                          (  1303)      79/08/01.
   3007.55C    11053  NJOY                                          (  3007)     07/29/82
   5010.50C     9587  NJOY                                          (  1305)      79/09/10.
   6000.50C    16126  NJOY                                          (  1306)      79/07/31.
   7014.50C    22772  NJOY                                          (  1275)      79/09/08.
   8016.50C    23669  NJOY                                          ( 1276)      05/14/81
  13027.50C    22891  NJOY                                          (  1313)      79/09/08.
  24000.50C    89104  NJOY                                          (  1324)      79/06/21.
  26000.55C    84136  NJOY                                          ( 260)       10/21/82
  28000.50C    82267  NJOY                                          (  1328)      79/06/21.
  29000.50C    22473  NJOY                                          (  1329)      02/05/80
  56138.50C     2479  NJOY                                          (  1353)      79/06/21.
  82000.50C    28695  NJOY                                          ( 1382)      03/10/82
  92233.50C    14205  NJOY                TOTAL NU                  (  1393)      79/09/12.
  92235.50C    44188  NJOY                TOTAL NU                  (  1395)      79/09/12.
  92238.50C    66440  NJOY                TOTAL NU                  (  1398)      79/09/13.
  94239.55C    67551  NJOY                TOTAL NU                  ( 1399)      02/21/85
  94240.50C    42744  NJOY                TOTAL NU                  (  1380)      79/09/13.

                        TABLES FROM FILE NEWXS2

   5011.56C    28379                                                                06/28/88

                        TABLES FROM FILE ENDF5P2
```

9019.50C	20657	NJOY			(1309)	79/06/22.
11023.50C	36270	NJOY			(1311)	79/06/21.
14000.50C	48275	NJOY			(1314)	79/06/21.
17000.50C	12269	NJOY			(1149)	79/10/29.
WARNING. NUBAR OF		92234.50C MAY BE EITHER PROMPT OR TOTAL.				
92234.50C	76999	NJOY			(1394)	79/10/17.
WARNING. NUBAR OF		92236.50C MAY BE EITHER PROMPT OR TOTAL.				
92236.50C	119238	NJOY			(1396)	79/08/30.
WARNING. NUBAR OF		94238.50C MAY BE EITHER PROMPT OR TOTAL.				
94238.50C	16458	NJOY			(1338)	79/09/12.
94241.50C	22523	NJOY	TOTAL NU		(1381)	79/08/30.
94242.50C	43433	NJOY	TOTAL NU		(1342)	79/09/06.
		TABLES FROM FILE ENDF5U2				
12000.50C	39283	NJOY			(1312)	79/08/30.
15031.50C	2779	NJOY			(1315)	79/10/29.
16032.50C	2684	NJOY			(1316)	79/10/29.
19000.50C	9766	NJOY			(1150)	79/10/29.
20000.50C	26104	NJOY			(1320)	79/06/22.
22000.50C	25231	NJOY			(1322)	79/06/21.
25055.50C	60097	NJOY			(1325)	79/06/21.
62149.50C	11116	NJOY			(1319)	02/12/85
90232.50C	95614	NJOY	TOTAL NU		(1390)	07/10/80
WARNING. NUBAR OF		95241.50C MAY BE EITHER PROMPT OR TOTAL.				
95241.50C	29300	NJOY			(1361)	79/08/29.
WARNING. NUBAR OF		95242.50C MAY BE EITHER PROMPT OR TOTAL.				
95242.50C	5248	NJOY			(1369)	79/09/24.
WARNING. NUBAR OF		95243.50C MAY BE EITHER PROMPT OR TOTAL.				
95243.50C	51474	NJOY			(1363)	79/08/30.
		TABLES FROM FILE RMCCSA2				
47109.50C	10147	NJOY			(1373)	11/01/85
93237.55C	29142	NJOY	TOTAL NU		(1337)	04/04/85
		TABLES FROM FILE ENDL852				
WARNING. NUBAR OF		96245.35C MAY BE EITHER PROMPT OR TOTAL.				
96245.35C	15310	ZA=96245 ENDL-85 85/04/24 T=0K			(93)	86/04/23
		TABLES FROM FILE TMCCS2				
LWTR.01T	10193	HYDROGEN IN LIGHT WATER AT 300 DEGREES KELVIN		1001	0	010/22/85
TOTAL	1506073					

WARNING. NEUTRON ENERGY CUTOFF IS BELOW SOME CROSS-SECTION TABLES.
1DECIMAL WORDS OF DYNAMICALLY ALLOCATED STORAGE

GENERAL	66794
TALLIES	0

```
     BANK                 12403
     CROSS SECTIONS      1506073

     TOTAL               1585270

 ************************************************************************
 DUMP NO.  1 ON FILE   RUNTPH          NPS =       0          CTM =      .00

 SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP           CYCLE =      0

       18 WARNING MESSAGES SO FAR.
1   STARTING MCRUN.      FIELD LENGTH =      0      CPO =    .05                                  PRINT TABLE 110

      DHLWG3-- DWPF GLASS   INFINITE ARRAY DRY - FISSILE X 100
```

NPS	X	Y	Z	CELL	SURF	U	V	W	TIME	WEIGHT	ENERGY
1	-6.264E+00	5.591E+00	5.388E+01	5	0	5.085E-01	4.733E-01	7.193E-01	.000E+00	9.960E-01	9.361E-01
2	-3.528E+00	1.109E+01	6.183E+01	5	0	8.952E-01	-4.447E-01	-2.944E-02	.000E+00	9.960E-01	7.857E-01
3	1.038E+01	1.610E+01	7.435E+01	5	0	-6.184E-01	-4.495E-01	6.446E-01	.000E+00	9.960E-01	1.643E+00
4	1.068E+01	1.613E+01	7.407E+01	5	0	9.710E-01	-5.665E-02	-2.323E-01	.000E+00	9.960E-01	2.062E+00
5	4.344E+00	4.710E+00	5.528E+01	5	0	5.861E-01	1.496E-01	-7.963E-01	.000E+00	9.960E-01	1.585E+00
6	-2.228E-01	2.951E+01	2.068E+01	5	0	-6.489E-02	-1.626E-01	9.845E-01	.000E+00	9.960E-01	1.452E+00
7	-1.918E+01	9.677E+00	8.957E+00	5	0	-7.068E-02	3.263E-02	-9.970E-01	.000E+00	9.960E-01	1.125E+00
8	-1.643E+01	-8.845E+00	1.862E+01	5	0	-3.915E-01	4.664E-01	-7.932E-01	.000E+00	9.960E-01	3.844E+00
9	-2.779E+01	-9.620E+00	1.311E+01	5	0	-2.368E-01	9.215E-01	-3.079E-01	.000E+00	9.960E-01	2.533E+00
10	1.373E+01	-1.377E+01	8.409E+00	5	0	1.946E-01	-3.204E-01	9.271E-01	.000E+00	9.960E-01	1.839E+00
11	5.349E+00	1.781E+01	3.218E+01	5	0	-6.698E-01	-7.177E-01	-1.905E-01	.000E+00	9.960E-01	2.569E+00
12	2.488E+00	1.790E+01	3.281E+01	5	0	-8.398E-01	-4.129E-01	3.524E-01	.000E+00	9.960E-01	4.123E-01
13	5.388E+00	1.609E+01	3.853E+01	5	0	-1.714E-01	-8.572E-01	4.857E-01	.000E+00	9.960E-01	6.927E-01
14	4.915E+00	1.604E+01	4.199E+01	5	0	-2.489E-01	-5.118E-01	-8.222E-01	.000E+00	9.960E-01	1.304E+00
15	4.824E+00	1.750E+01	3.701E+01	5	0	-2.959E-01	2.119E-01	9.314E-01	.000E+00	9.960E-01	6.603E+00
16	4.386E+00	2.093E+01	3.737E+01	5	0	1.395E-01	-9.829E-01	1.202E-01	.000E+00	9.960E-01	6.197E-01
17	6.219E+00	2.289E+01	4.039E+01	5	0	6.909E-01	-7.110E-01	1.307E-01	.000E+00	9.960E-01	3.542E+00
18	1.064E+01	2.447E+01	3.886E+01	5	0	-6.580E-01	5.320E-01	-5.329E-01	.000E+00	9.960E-01	3.678E+00
19	1.500E+01	-3.535E+00	2.339E+01	5	0	-9.903E-01	-1.380E-01	1.353E-02	.000E+00	9.960E-01	2.351E+00
20	-6.494E-01	-7.495E+00	4.643E+00	5	0	7.462E-01	4.859E-01	-4.551E-01	.000E+00	9.960E-01	3.848E+00
21	-4.103E+00	-7.439E+00	6.573E+00	5	0	-1.977E-01	9.797E-01	3.360E-02	.000E+00	9.960E-01	1.558E-01
22	4.998E-01	1.536E+01	3.700E+00	5	0	-9.117E-01	-3.647E-01	-1.891E-01	.000E+00	9.960E-01	7.770E-01
23	1.027E+01	2.001E+00	3.554E+00	5	0	-4.287E-01	8.361E-01	-3.423E-01	.000E+00	9.960E-01	2.900E+00
24	5.132E+00	-2.873E+01	1.002E+01	5	0	1.080E-01	3.412E-01	-9.338E-01	.000E+00	9.960E-01	4.831E-01
25	7.393E+00	-1.011E+01	1.294E+01	5	0	-9.111E-01	-9.012E-03	-4.122E-01	.000E+00	9.960E-01	5.955E-01
26	1.160E+01	-1.736E+00	7.832E+00	5	0	-2.568E-01	-6.391E-01	-7.249E-01	.000E+00	9.960E-01	2.069E+00
27	6.838E+00	-2.200E+01	2.229E+00	5	0	-2.912E-01	8.086E-01	5.113E-01	.000E+00	9.960E-01	4.596E+00
28	1.151E+01	-2.569E+01	3.592E+00	5	0	1.472E-01	-9.514E-01	2.705E-01	.000E+00	9.960E-01	3.459E+00
29	6.862E+00	-1.905E+01	8.746E+00	5	0	-6.135E-01	-7.645E-01	-1.978E-01	.000E+00	9.960E-01	1.923E+00
30	6.392E+00	-1.952E+01	6.612E+00	5	0	-5.702E-01	5.651E-01	-5.963E-01	.000E+00	9.960E-01	2.444E+00
31	1.118E+01	-1.757E+01	5.791E+00	5	0	-6.607E-01	5.373E-01	-5.242E-01	.000E+00	9.960E-01	2.854E+00
32	-6.760E+00	-2.378E+01	3.545E-01	5	0	-9.742E-02	-3.639E-01	-9.263E-01	.000E+00	9.960E-01	1.187E+00
33	-6.756E+00	-2.327E+01	1.037E-01	5	0	-1.965E-01	-3.145E-01	-9.287E-01	.000E+00	9.960E-01	3.209E+00
34	-4.818E+00	-2.737E+01	2.189E+00	5	0	4.097E-01	8.465E-01	-3.399E-01	.000E+00	9.960E-01	4.621E+00
35	-1.477E+01	-1.959E+01	3.971E+00	5	0	-4.048E-02	8.831E-01	4.675E-01	.000E+00	9.960E-01	8.288E-01
36	2.881E+01	6.147E+00	3.748E+01	5	0	3.371E-01	-9.269E-01	-1.652E-01	.000E+00	9.960E-01	9.473E-01
37	-1.206E+01	-4.563E+00	2.463E+01	5	0	-1.867E-01	9.756E-01	-1.155E-01	.000E+00	9.960E-01	6.611E-01
38	-2.190E+01	8.395E+00	3.472E+01	5	0	-2.616E-01	2.336E-01	-9.365E-01	.000E+00	9.960E-01	4.676E-01
39	-1.629E+01	1.035E+01	1.263E+01	5	0	9.780E-01	-7.641E-02	-1.939E-01	.000E+00	9.960E-01	2.497E-01
40	-6.315E+00	-2.881E+01	1.299E+02	5	0	2.580E-01	-7.076E-01	6.578E-01	.000E+00	9.960E-01	1.344E+00
41	2.933E+01	1.639E+00	2.434E+01	5	0	-3.212E-01	-7.678E-01	-5.543E-01	.000E+00	9.960E-01	5.025E+00

42	-1.917E-01	2.923E+01	1.356E+01	5	0	5.039E-01	-1.460E-01	8.513E-01	.000E+00	9.960E-01	5.080E+00
43	-6.922E+00	-5.244E-01	3.527E+00	5	0	6.080E-01	5.487E-01	5.738E-01	.000E+00	9.960E-01	6.345E-01
44	-7.456E+00	-2.420E+00	4.689E+00	5	0	-2.932E-01	9.304E-01	-2.199E-01	.000E+00	9.960E-01	2.333E+00
45	1.994E+01	1.299E+01	7.056E+01	5	0	-8.475E-01	-3.993E-01	-3.497E-01	.000E+00	9.960E-01	3.911E+00
46	1.482E-01	9.425E+00	5.909E+01	5	0	1.200E-01	-9.195E-01	-3.743E-01	.000E+00	9.960E-01	1.650E+00
47	2.910E+01	-3.475E+00	8.612E+01	5	0	7.085E-01	5.879E-01	3.904E-01	.000E+00	9.960E-01	2.222E+00
48	1.069E+01	-6.677E+00	7.337E+01	5	0	4.261E-01	9.046E-01	9.254E-03	.000E+00	9.960E-01	1.750E+00
49	-8.515E+00	-3.224E+00	7.175E+01	5	0	5.431E-01	4.270E-01	-7.230E-01	.000E+00	9.960E-01	3.659E+00
50	1.908E+00	-2.750E+01	6.466E+01	5	0	-1.053E-01	-9.805E-01	1.658E-01	.000E+00	9.960E-01	1.909E+00

CYCLE 1 K(COLLISION) .215824 REMOVAL LIFETIME(ABS) 1.1699E+02 SOURCE POINTS GENERATED 3627
WARNING. WEIGHT OF SOURCE PARTICLE IS BELOW CUTOFF.
NPS = 503 IJK = 46069157077329 WGT = 1.37855E-01

CYCLE 2 K(COLLISION) .212499 REMOVAL LIFETIME(ABS) 1.1737E+02 SOURCE POINTS GENERATED 438

CYCLE 3 K(COLLISION) .209436 REMOVAL LIFETIME(ABS) 1.2615E+02 SOURCE POINTS GENERATED 472

CYCLE 4 K(COLLISION) .205754 REMOVAL LIFETIME(ABS) 1.2143E+02 SOURCE POINTS GENERATED 465

CYCLE 5 K(COLLISION) .207800 REMOVAL LIFETIME(ABS) 1.0917E+02 SOURCE POINTS GENERATED 475

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 5

CYCLE 6 K(COLLISION) .209553 REMOVAL LIFETIME(ABS) 1.1886E+02 SOURCE POINTS GENERATED 532

ESTIMATOR	CYCLE 7	AVE OF 2 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.201163	.205358	.0204	K(COL/ABS)	.000000	.0000	.000000	.0000	.0000
K(ABSORPTION)	.222722	.211807	.0515	K(ABS/TK LN)	.000000	.0000	.000000	.0000	.0000
K(TRK LENGTH)	.203945	.207576	.0175	K(TK LN/COL)	.000000	.0000	.000000	.0000	.0000
REM LIFE(COL)	1.1134E+02	1.1717E+02	.0498						
REM LIFE(ABS)	1.1731E+02	1.1808E+02	.0066	LIFE(COL/ABS)	.0000E+00	.0000	.0000E+00	.0000	.0000
SOURCE POINTS GENERATED	481								

ESTIMATOR	CYCLE 8	AVE OF 3 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.202527	.204414	.0127	K(COL/ABS)	.204781	.0208	.204520	.0146	-.3767
K(ABSORPTION)	.191827	.205147	.0447	K(ABS/TK LN)	.205748	.0217	.206218	.0149	-.2264
K(TRK LENGTH)	.203896	.206349	.0118	K(TK LN/COL)	.205382	.0122	.209845	.0323	.9876
REM LIFE(COL)	1.1288E+02	1.1574E+02	.0316						
REM LIFE(ABS)	1.2001E+02	1.1873E+02	.0066	LIFE(COL/ABS)	1.1723E+02	.0166	1.1872E+02	.0098	.2054
SOURCE POINTS GENERATED	494								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 8

ESTIMATOR	CYCLE 9	AVE OF 4 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.198894	.203034	.0113	K(COL/ABS)	.202382	.0190	.202922	.0133	.0134
K(ABSORPTION)	.191480	.201730	.0363	K(ABS/TK LN)	.202833	.0212	.203804	.0177	.2638
K(TRK LENGTH)	.196695	.203936	.0145	K(TK LN/COL)	.203485	.0128	.202130	.0126	.9471
REM LIFE(COL)	1.0561E+02	1.1321E+02	.0320	K(COL/ABS/TK LN)	.202900	.0158	.201093	.0145	
REM LIFE(ABS)	1.1088E+02	1.1676E+02	.0175	LIFE(COL/ABS)	1.1499E+02	.0229	1.1735E+02	.0224	.7131
SOURCE POINTS GENERATED	498								

ESTIMATOR	CYCLE 10	AVE OF 5 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.192723	.200972	.0136	K(COL/ABS)	.200881	.0166	.200945	.0148	.1323
K(ABSORPTION)	.197030	.200790	.0287	K(ABS/TK LN)	.201271	.0183	.201616	.0176	.3011
K(TRK LENGTH)	.193014	.201751	.0157	K(TK LN/COL)	.201362	.0145	.199930	.0146	.9702
REM LIFE(COL)	9.7006E+01	1.0997E+02	.0390	K(COL/ABS/TK LN)	.201171	.0150	.199037	.0150	
REM LIFE(ABS)	1.0661E+02	1.1473E+02	.0224	LIFE(COL/ABS)	1.1235E+02	.0297	1.1743E+02	.0238	.8834
SOURCE POINTS GENERATED	462								

ESTIMATOR	CYCLE 11	AVE OF 6 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.205946	.201801	.0118	K(COL/ABS)	.201547	.0139	.201721	.0124	.1604
K(ABSORPTION)	.203804	.201292	.0235	K(ABS/TK LN)	.201917	.0152	.202353	.0144	.3174
K(TRK LENGTH)	.206495	.202542	.0134	K(TK LN/COL)	.202172	.0125	.200864	.0125	.9715
REM LIFE(COL)	1.1869E+02	1.1142E+02	.0340	K(COL/ABS/TK LN)	.201878	.0127	.199880	.0129	
REM LIFE(ABS)	1.1994E+02	1.1560E+02	.0197	LIFE(COL/ABS)	1.1351E+02	.0261	1.1830E+02	.0189	.9005
SOURCE POINTS GENERATED	541								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 11

ESTIMATOR	CYCLE 12	AVE OF 7 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.204900	.202244	.0102	K(COL/ABS)	.203173	.0142	.202380	.0110	.2521
K(ABSORPTION)	.220967	.204103	.0239	K(ABS/TK LN)	.203490	.0149	.202962	.0124	.3402
K(TRK LENGTH)	.204886	.202877	.0114	K(TK LN/COL)	.202560	.0107	.201555	.0107	.9699
REM LIFE(COL)	1.0811E+02	1.1095E+02	.0292	K(COL/ABS/TK LN)	.203075	.0122	.201580	.0123	
REM LIFE(ABS)	1.1309E+02	1.1524E+02	.0170	LIFE(COL/ABS)	1.1310E+02	.0224	1.1806E+02	.0160	.9025
SOURCE POINTS GENERATED	457								

ESTIMATOR	CYCLE 13	AVE OF 8 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.211736	.203430	.0105	K(COL/ABS)	.203432	.0123	.203432	.0106	.1211
K(ABSORPTION)	.198785	.203438	.0210	K(ABS/TK LN)	.203534	.0129	.203607	.0110	.2599
K(TRK LENGTH)	.208898	.203630	.0105	K(TK LN/COL)	.203530	.0104	.203531	.0112	.9506
REM LIFE(COL)	1.2220E+02	1.1236E+02	.0279	K(COL/ABS/TK LN)	.203499	.0108	.203418	.0117	
REM LIFE(ABS)	1.2265E+02	1.1617E+02	.0166	LIFE(COL/ABS)	1.1426E+02	.0218	1.1914E+02	.0144	.9229
SOURCE POINTS GENERATED	519								

ESTIMATOR	CYCLE 14	AVE OF 9 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.212425	.204430	.0104	K(COL/ABS)	.203723	.0109	.204108	.0100	.0544
K(ABSORPTION)	.199644	.203017	.0187	K(ABS/TK LN)	.203691	.0114	.204143	.0100	.2003
K(TRK LENGTH)	.210254	.204366	.0099	K(TK LN/COL)	.204398	.0101	.204363	.0106	.9527
REM LIFE(COL)	1.1524E+02	1.1268E+02	.0247	K(COL/ABS/TK LN)	.203937	.0097	.204126	.0108	
REM LIFE(ABS)	1.1566E+02	1.1611E+02	.0147	LIFE(COL/ABS)	1.1439E+02	.0192	1.1856E+02	.0129	.9124
SOURCE POINTS GENERATED	508								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 14

ESTIMATOR	CYCLE 15	AVE OF 10 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.213576	.205344	.0103	K(COL/ABS)	.204424	.0103	.204882	.0098	.1099
K(ABSORPTION)	.207889	.203504	.0169	K(ABS/TK LN)	.204341	.0107	.204867	.0097	.2390
K(TRK LENGTH)	.212481	.205177	.0097	K(TK LN/COL)	.205261	.0099	.205129	.0102	.9608
REM LIFE(COL)	1.1302E+02	1.1271E+02	.0221	K(COL/ABS/TK LN)	.204675	.0094	.204878	.0105	
REM LIFE(ABS)	1.1277E+02	1.1578E+02	.0135	LIFE(COL/ABS)	1.1424E+02	.0173	1.1757E+02	.0126	.8881
SOURCE POINTS GENERATED	529								

ESTIMATOR	CYCLE 16	AVE OF 11 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.215146	.206235	.0102	K(COL/ABS)	.204722	.0094	.205316	.0092	.0591
K(ABSORPTION)	.200249	.203208	.0153	K(ABS/TK LN)	.204588	.0097	.205302	.0092	.1794
K(TRK LENGTH)	.213880	.205968	.0095	K(TK LN/COL)	.206102	.0098	.205823	.0099	.9672
REM LIFE(COL)	1.2381E+02	1.1372E+02	.0217	K(COL/ABS/TK LN)	.205137	.0088	.205314	.0100	
REM LIFE(ABS)	1.2158E+02	1.1630E+02	.0129	LIFE(COL/ABS)	1.1501E+02	.0169	1.1800E+02	.0113	.9024
SOURCE POINTS GENERATED	548								

ESTIMATOR	CYCLE 17	AVE OF 12 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.195846	.205370	.0103	K(COL/ABS)	.203601	.0103	.204457	.0099	.2268
K(ABSORPTION)	.186694	.201832	.0157	K(ABS/TK LN)	.203506	.0104	.204557	.0096	.3233
K(TRK LENGTH)	.196497	.205179	.0095	K(TK LN/COL)	.205274	.0098	.205032	.0098	.9726
REM LIFE(COL)	1.0100E+02	1.1266E+02	.0221	K(COL/ABS/TK LN)	.204127	.0094	.204570	.0106	
REM LIFE(ABS)	1.0487E+02	1.1535E+02	.0145	LIFE(COL/ABS)	1.1401E+02	.0179	1.1731E+02	.0131	.9136
SOURCE POINTS GENERATED	428								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 17

ESTIMATOR	CYCLE 18	AVE OF 13 CYCLES	
K(COLLISION)	.211338	.205829	.0097
K(ABSORPTION)	.224270	.203558	.0166
K(TRK LENGTH)	.208581	.205441	.0089
REM LIFE(COL)	1.1476E+02	1.1282E+02	.0204
REM LIFE(ABS)	1.1600E+02	1.1540E+02	.0133

SOURCE POINTS GENERATED 537

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.204693	.0108	.205443	.0097	.3071
K(ABS/TK LN)	.204499	.0107	.205231	.0091	.3486
K(TK LN/COL)	.205635	.0092	.205107	.0090	.9698
K(COL/ABS/TK LN)	.204942	.0095	.204977	.0096	
LIFE(COL/ABS)	1.1411E+02	.0165	1.1727E+02	.0120	.9131

ESTIMATOR	CYCLE 19	AVE OF 14 CYCLES	
K(COLLISION)	.206375	.205868	.0090
K(ABSORPTION)	.197520	.203127	.0156
K(TRK LENGTH)	.205703	.205459	.0082
REM LIFE(COL)	1.0963E+02	1.1259E+02	.0190
REM LIFE(ABS)	1.1398E+02	1.1530E+02	.0124

SOURCE POINTS GENERATED 463

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.204497	.0101	.205408	.0090	.3013
K(ABS/TK LN)	.204293	.0099	.205204	.0084	.3438
K(TK LN/COL)	.205664	.0085	.205109	.0083	.9698
K(COL/ABS/TK LN)	.204818	.0088	.204944	.0089	
LIFE(COL/ABS)	1.1395E+02	.0153	1.1726E+02	.0111	.9132

ESTIMATOR	CYCLE 20	AVE OF 15 CYCLES	
K(COLLISION)	.210571	.206181	.0085
K(ABSORPTION)	.210534	.203621	.0147
K(TRK LENGTH)	.210527	.205797	.0078
REM LIFE(COL)	1.2277E+02	1.1327E+02	.0186
REM LIFE(ABS)	1.2355E+02	1.1585E+02	.0124

SOURCE POINTS GENERATED 541

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.204901	.0096	.205770	.0085	.3220
K(ABS/TK LN)	.204709	.0095	.205574	.0080	.3663
K(TK LN/COL)	.205989	.0081	.205485	.0079	.9704
K(COL/ABS/TK LN)	.205200	.0084	.205343	.0085	
LIFE(COL/ABS)	1.1456E+02	.0152	1.1788E+02	.0110	.9220

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 20

ESTIMATOR	CYCLE 21	AVE OF 16 CYCLES	
K(COLLISION)	.213891	.206663	.0083
K(ABSORPTION)	.176714	.201939	.0161
K(TRK LENGTH)	.215147	.206382	.0078
REM LIFE(COL)	1.2140E+02	1.1378E+02	.0179
REM LIFE(ABS)	1.2101E+02	1.1617E+02	.0119

SOURCE POINTS GENERATED 540

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.204301	.0094	.205792	.0080	.1189
K(ABS/TK LN)	.204160	.0093	.205633	.0076	.1051
K(TK LN/COL)	.206522	.0080	.206263	.0080	.9699
K(COL/ABS/TK LN)	.204995	.0079	.205498	.0083	
LIFE(COL/ABS)	1.1498E+02	.0146	1.1815E+02	.0103	.9264

ESTIMATOR	CYCLE 22	AVE OF 17 CYCLES	
K(COLLISION)	.207619	.206719	.0078
K(ABSORPTION)	.210117	.202420	.0153
K(TRK LENGTH)	.209609	.206572	.0074
REM LIFE(COL)	1.1274E+02	1.1372E+02	.0168
REM LIFE(ABS)	1.1670E+02	1.1620E+02	.0112

SOURCE POINTS GENERATED 490

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.204570	.0089	.205949	.0075	.1228
K(ABS/TK LN)	.204496	.0088	.205899	.0072	.1223
K(TK LN/COL)	.206645	.0075	.206538	.0076	.9661
K(COL/ABS/TK LN)	.205237	.0075	.205866	.0078	
LIFE(COL/ABS)	1.1496E+02	.0137	1.1823E+02	.0097	.9249

ESTIMATOR	CYCLE 23	AVE OF 18 CYCLES	
K(COLLISION)	.211113	.206963	.0074
K(ABSORPTION)	.210244	.202855	.0146
K(TRK LENGTH)	.212183	.206883	.0071
REM LIFE(COL)	1.2187E+02	1.1417E+02	.0163
REM LIFE(ABS)	1.1614E+02	1.1620E+02	.0106

SOURCE POINTS GENERATED 518

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.204909	.0086	.206249	.0072	.1434
K(ABS/TK LN)	.204869	.0085	.206248	.0069	.1494
K(TK LN/COL)	.206923	.0072	.206876	.0073	.9659
K(COL/ABS/TK LN)	.205567	.0073	.206242	.0075	
LIFE(COL/ABS)	1.1519E+02	.0130	1.1745E+02	.0096	.8964

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 23

ESTIMATOR	CYCLE 24	AVE OF 19 CYCLES	
K(COLLISION)	.213701	.207318	.0072
K(ABSORPTION)	.213859	.203434	.0140
K(TRK LENGTH)	.210675	.207083	.0068
REM LIFE(COL)	1.2184E+02	1.1457E+02	.0157
REM LIFE(ABS)	1.1751E+02	1.1627E+02	.0100

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.205376	.0084	.206682	.0070	.1846
K(ABS/TK LN)	.205258	.0083	.206548	.0067	.1737
K(TK LN/COL)	.207200	.0069	.207021	.0070	.9625
K(COL/ABS/TK LN)	.205945	.0071	.206471	.0072	
LIFE(COL/ABS)	1.1542E+02	.0125	1.1723E+02	.0091	.8853

SOURCE POINTS GENERATED 500

ESTIMATOR	CYCLE 25	AVE OF 20 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.212322	.207568	.0069	K(COL/ABS)	.205568	.0080	.206900	.0068	.1902
K(ABSORPTION)	.206127	.203568	.0133	K(ABS/TK LN)	.205436	.0079	.206748	.0064	.1792
K(TRK LENGTH)	.211486	.207303	.0065	K(TK LN/COL)	.207436	.0067	.207222	.0067	.9635
REM LIFE(COL)	1.1372E+02	1.1453E+02	.0149	K(COL/ABS/TK LN)	.206147	.0068	.206649	.0069	
REM LIFE(ABS)	1.1955E+02	1.1643E+02	.0096	LIFE(COL/ABS)	1.1548E+02	.0118	1.1738E+02	.0089	.8717

SOURCE POINTS GENERATED 488

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 25

1PROBLEM SUMMARY

RUN TERMINATED WHEN 25 KCODE CYCLES WERE DONE. 12/01/95 16:19:26

\+ DHLWG3-- DWPF GLASS INFINITE ARRAY DRY - FISSILE X 100 PROBID = 12/01/95 16:09:24

0

NEUTRON CREATION	TRACKS	WEIGHT (PER SOURCE	ENERGY PARTICLE)	NEUTRON LOSS	TRACKS	WEIGHT (PER SOURCE	ENERGY PARTICLE)
SOURCE	15565	8.0308E-01	2.0750E+00	ESCAPE	1401	7.0762E-02	4.4117E-02
				ENERGY CUTOFF	0	0.	0.
				TIME CUTOFF	0	0.	0.
WEIGHT WINDOW	0	0.	0.	WEIGHT WINDOW	0	0.	0.
CELL IMPORTANCE	0	0.	0.	CELL IMPORTANCE	0	0.	0.
WEIGHT CUTOFF	0	8.7610E-02	5.6959E-02	WEIGHT CUTOFF	14165	8.7714E-02	6.0597E-02
ENERGY IMPORTANCE	0	0.	0.	ENERGY IMPORTANCE	0	0.	0.
DXTRAN	0	0.	0.	DXTRAN	0	0.	0.
FORCED COLLISIONS	0	0.	0.	FORCED COLLISIONS	0	0.	0.
EXP. TRANSFORM	0	0.	0.	EXP. TRANSFORM	0	0.	0.
UPSCATTERING	0	0.	0.	DOWNSCATTERING	0	0.	1.8653E+00
				CAPTURE	0	6.6978E-01	1.3324E-01
(N,XN)	2	4.5517E-05	5.4242E-05	LOSS TO (N,XN)	1	2.2759E-05	2.3424E-04
FISSION	0	0.	0.	LOSS TO FISSION	0	6.2462E-02	2.8559E-02
TOTAL	15567	8.9074E-01	2.1320E+00	TOTAL	15567	8.9074E-01	2.1320E+00

NUMBER OF NEUTRONS BANKED	1	AVERAGE LIFETIME, SHAKES	CUTOFFS
NEUTRON TRACKS PER SOURCE PARTICLE	1.0001E+00	ESCAPE 7.8207E+01	TCO 1.0000E+34
NEUTRON COLLISIONS PER SOURCE PARTICLE	5.3988E+01	CAPTURE 1.2053E+02	ECO .0000E+00
TOTAL NEUTRON COLLISIONS	840329	CAPTURE OR ESCAPE 1.1680E+02	WC1 -5.0000E-01
NET MULTIPLICATION	1.0000E+00 .0037	ANY TERMINATION 1.1467E+02	WC2 -2.5000E-01

COMPUTER TIME SO FAR IN THIS RUN	10.00 MINUTES	MAXIMUM NUMBER EVER IN BANK	1
COMPUTER TIME IN MCRUN	9.95 MINUTES	BANK OVERFLOWS TO BACKUP FILE	0
SOURCE PARTICLES PER MINUTE	1.5643E+03	FIELD LENGTH	0
RANDOM NUMBERS GENERATED	8160967	MOST RANDOM NUMBERS USED WAS	1486 IN HISTORY 7010

RANGE OF SAMPLED SOURCE WEIGHTS = 1.3785E-01 TO 1.1682E+00

3627 SOURCE PARTICLES HAD WEIGHT BELOW CUTOFF.

1WARNING. THE FOLLOWING CELLS ARE BOUNDED BY CELLS WITH NEUTRON IMPORTANCES PRINT TABLE 120
THAT MAY BE A FACTOR OF FOUR OR MORE DIFFERENT.

CELL	IMPORTANCE	MAXIMUM NEIGHBOR	IMPORTANCE	RATIO	MINIMUM NEIGHBOR	IMPORTANCE	RATIO
9	NO DATA AVAILABLE YET FOR THIS CELL.						

1NEUTRON ACTIVITY IN EACH CELL PRINT TABLE 126

	TRACKS	POPULATION	COLLISIONS	COLLISIONS	NUMBER	FLUX	AVERAGE	AVERAGE

CELL		ENTERING			* WEIGHT (PER HISTORY)	WEIGHTED ENERGY	WEIGHTED ENERGY	TRACK WEIGHT (RELATIVE)	TRACK MFP (CM)
1	2	0	0	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	0	0	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	54959	15566	753856	3.7128E+01	6.9487E-02	4.8669E-01	7.8333E-01	3.6415E+00
5	6	79931	10177	85090	3.9564E+00	6.2666E-02	4.4190E-01	7.8187E-01	2.9228E+00
6	7	885	717	1274	5.9345E-02	7.7272E-02	5.0898E-01	7.8747E-01	3.0261E+00
7	8	67376	9586	105	4.8606E-03	6.2799E-02	4.4724E-01	7.8186E-01	1.5018E+04
8	9	1705	1401	4	1.6604E-04	8.1984E-02	4.8542E-01	7.9675E-01	1.5793E+04
TOTAL		204856	37447	840329	4.1149E+01				

1NEUTRON WEIGHT BALANCE IN EACH CELL -- EXTERNAL EVENTS PRINT TABLE 130

CELL		ENTERING	SOURCE	ENERGY CUTOFF	TIME CUTOFF	EXITING	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-7.0762E-02	-7.0762E-02
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-1.3604E+00	-1.3604E+00
4	5	1.9763E+00	8.0308E-01	.0000E+00	.0000E+00	-2.0608E+00	7.1857E-01
5	6	4.0160E+00	.0000E+00	.0000E+00	.0000E+00	-4.0025E+00	1.3520E-02
6	7	4.4950E-02	.0000E+00	.0000E+00	.0000E+00	-4.4719E-02	2.3079E-04
7	8	3.3814E+00	.0000E+00	.0000E+00	.0000E+00	-2.0361E+00	1.3453E+00
8	9	8.5831E-02	.0000E+00	.0000E+00	.0000E+00	.0000E+00	8.5831E-02
TOTAL		9.5045E+00	8.0308E-01	.0000E+00	.0000E+00	-9.5753E+00	7.3232E-01

1NEUTRON WEIGHT BALANCE IN EACH CELL -- VARIANCE REDUCTION EVENTS PRINT TABLE 130

CELL		WEIGHT WINDOW	CELL IMPORTANCE	WEIGHT CUTOFF	ENERGY IMPORTANCE	DXTRAN	FORCED COLLISION	EXPONENTIAL TRANSFORM	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	.0000E+00	.0000E+00	-9.4621E-05	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-9.4621E-05
5	6	.0000E+00	.0000E+00	1.4359E-05	.0000E+00	.0000E+00	.0000E+00	.0000E+00	1.4359E-05
6	7	.0000E+00	.0000E+00	-2.3311E-05	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-2.3311E-05
7	8	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
8	9	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
TOTAL		.0000E+00	.0000E+00	-1.0357E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-1.0357E-04

1NEUTRON WEIGHT BALANCE IN EACH CELL -- PHYSICAL EVENTS PRINT TABLE 130

CELL		(N,XN)	FISSION	CAPTURE	LOSS TO (N,XN)	LOSS TO FISSION	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	4.5517E-05	.0000E+00	-6.5604E-01	-2.2759E-05	-6.2462E-02	-7.1848E-01
5	6	.0000E+00	.0000E+00	-1.3535E-02	.0000E+00	.0000E+00	-1.3535E-02
6	7	.0000E+00	.0000E+00	-2.0748E-04	.0000E+00	.0000E+00	-2.0748E-04
7	8	.0000E+00	.0000E+00	-1.4921E-07	.0000E+00	.0000E+00	-1.4921E-07
8	9	.0000E+00	.0000E+00	-5.5258E-10	.0000E+00	.0000E+00	-5.5258E-10
TOTAL		4.5517E-05	.0000E+00	-6.6978E-01	-2.2759E-05	-6.2462E-02	-7.3222E-01

1NEUTRON ACTIVITY OF EACH NUCLIDE IN EACH CELL, PER SOURCE PARTICLE PRINT TABLE 140

CELL		NUCLIDES	ATOM FRACTION	TOTAL COLLISIONS	COLLISIONS * WEIGHT	WEIGHT LOST TO CAPTURE	WEIGHT LOSS TO FISSION	WEIGHT GAIN BY (N,XN)
1	2	1001.50C	6.6667E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00

		8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	1001.50C	6.6667E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	3006.50C	3.7251E-03	2001	9.7474E-02	4.7994E-02	.0000E+00	.0000E+00
		3007.55C	3.9389E-02	10574	5.5167E-01	2.1200E-05	.0000E+00	.0000E+00
		5010.50C	1.2917E-02	18993	8.5058E-01	5.3333E-01	.0000E+00	.0000E+00
		5011.56C	4.7283E-02	38565	1.8836E+00	1.4818E-05	.0000E+00	.0000E+00
		8016.50C	5.7205E-01	394166	1.9717E+01	5.9516E-03	.0000E+00	.0000E+00
		9019.50C	3.3941E-04	337	1.7187E-02	6.4485E-06	.0000E+00	.0000E+00
		11023.50C	7.4299E-02	92717	4.3239E+00	2.2346E-03	.0000E+00	.0000E+00
		12000.50C	6.8682E-03	6808	3.5120E-01	6.8722E-05	.0000E+00	.0000E+00
		13027.50C	1.5817E-02	10715	5.6496E-01	5.7988E-04	.0000E+00	.0000E+00
		14000.50C	1.6227E-01	82658	4.3080E+00	5.1250E-03	.0000E+00	.0000E+00
		16032.50C	8.1958E-04	341	1.8617E-02	2.1453E-04	.0000E+00	.0000E+00
		19000.50C	1.5474E-02	7378	3.7205E-01	4.9153E-03	.0000E+00	.0000E+00
		20000.50C	3.3431E-03	1535	7.7301E-02	9.6905E-04	.0000E+00	.0000E+00
		22000.50C	2.5233E-03	7066	3.3052E-01	4.1638E-04	.0000E+00	.0000E+00
		25055.50C	5.7402E-03	25514	1.0778E+00	6.9076E-03	.0000E+00	.0000E+00
		26000.55C	2.6790E-02	30603	1.4550E+00	4.7028E-03	.0000E+00	.0000E+00
		28000.50C	2.5347E-03	6412	2.9668E-01	9.5726E-04	.0000E+00	.0000E+00
		15031.50C	9.1901E-05	67	3.2336E-03	8.8779E-06	.0000E+00	.0000E+00
		24000.50C	3.2141E-04	415	1.9826E-02	8.6290E-05	.0000E+00	.0000E+00
		29000.50C	4.8615E-04	860	4.0609E-02	5.4628E-04	.0000E+00	.0000E+00
		47109.50C	9.3463E-05	213	1.0080E-02	1.1025E-03	.0000E+00	.0000E+00
		56138.50C	1.2161E-04	171	8.4691E-03	9.5499E-06	.0000E+00	.0000E+00
		82000.50C	5.9553E-05	112	5.4602E-03	1.9099E-06	.0000E+00	.0000E+00
		17000.50C	6.6187E-04	332	1.6498E-02	1.3940E-04	.0000E+00	.0000E+00
		90232.50C	1.6193E-04	390	1.8869E-02	8.2998E-04	1.6646E-05	.0000E+00
		62149.50C	6.1454E-07	2	6.9002E-05	2.5300E-05	.0000E+00	.0000E+00
		92233.50C	8.6598E-12	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		92234.50C	2.8908E-07	0	1.1718E-06	.0000E+00	.0000E+00	.0000E+00
		92236.50C	9.1059E-07	2	8.1616E-05	1.9874E-05	3.5202E-07	.0000E+00
		93237.55C	6.5721E-07	4	2.0382E-04	1.7605E-05	1.3078E-05	.0000E+00
		92235.50C	1.5306E-03	4005	2.2525E-01	1.2830E-02	3.7743E-02	2.2759E-05
		92238.50C	3.2021E-03	8117	3.8985E-01	1.6056E-02	1.6817E-03	.0000E+00
		94238.50C	4.4911E-06	19	8.8929E-04	6.7809E-05	6.0883E-05	.0000E+00
		94239.55C	1.0710E-03	2760	1.5836E-01	9.8779E-03	2.2924E-02	.0000E+00
		94240.50C	1.9576E-06	2	1.3321E-04	5.6699E-06	7.5669E-07	.0000E+00
		94241.50C	8.2892E-07	2	1.4919E-04	3.0190E-06	2.1149E-05	.0000E+00
		94242.50C	1.6337E-07	0	5.0650E-07	.0000E+00	.0000E+00	.0000E+00
		95241.50C	1.6422E-07	0	5.6035E-07	.0000E+00	.0000E+00	.0000E+00
		95242.50C	7.5829E-11	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		95243.50C	1.4724E-09	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		96245.35C	1.9683E-12	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
5	6	6000.50C	1.3653E-03	79	4.0852E-03	4.1586E-09	.0000E+00	.0000E+00
		7014.50C	3.9036E-03	264	1.2224E-02	3.8033E-05	.0000E+00	.0000E+00
		14000.50C	1.4597E-02	545	2.8003E-02	5.2687E-05	.0000E+00	.0000E+00
		15031.50C	7.9416E-04	43	1.9020E-03	2.9073E-06	.0000E+00	.0000E+00
		16032.50C	5.1291E-04	13	7.7315E-04	8.1171E-06	.0000E+00	.0000E+00
		24000.50C	1.9975E-01	17247	8.1085E-01	3.3365E-03	.0000E+00	.0000E+00
		25055.50C	1.9900E-02	5572	2.3358E-01	1.4864E-03	.0000E+00	.0000E+00
		26000.55C	6.6604E-01	45828	2.1574E+00	6.4513E-03	.0000E+00	.0000E+00
		28000.50C	9.3142E-02	15499	7.0763E-01	2.1587E-03	.0000E+00	.0000E+00
6	7	6000.50C	1.3653E-03	2	8.9941E-05	1.3399E-10	.0000E+00	.0000E+00
		7014.50C	3.9036E-03	6	3.3312E-04	1.4187E-05	.0000E+00	.0000E+00
		14000.50C	1.4597E-02	16	6.9608E-04	4.6575E-07	.0000E+00	.0000E+00

		15031.50C	7.9416E-04	1	5.9077E-05	7.6781E-08	.0000E+00	.0000E+00
		16032.50C	5.1291E-04	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		24000.50C	1.9975E-01	241	1.1414E-02	6.6599E-05	.0000E+00	.0000E+00
		25055.50C	1.9900E-02	97	4.0386E-03	1.7986E-05	.0000E+00	.0000E+00
		26000.55C	6.6604E-01	674	3.1787E-02	8.0972E-05	.0000E+00	.0000E+00
		28000.50C	9.3142E-02	237	1.0927E-02	2.7192E-05	.0000E+00	.0000E+00
7	8	1001.50C	6.6667E-01	90	4.1551E-03	1.4916E-07	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	15	7.0550E-04	4.4577E-11	.0000E+00	.0000E+00
8	9	1001.50C	6.6667E-01	2	5.0064E-05	5.4974E-10	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	2	1.1597E-04	2.8463E-12	.0000E+00	.0000E+00
TOTAL				840329	4.1212E+01	6.6978E-01	6.2462E-02	2.2759E-05

TOTAL OVER ALL CELLS FOR EACH NUCLIDE	TOTAL COLLISIONS	COLLISIONS * WEIGHT	WEIGHT LOST TO CAPTURE	WEIGHT GAIN BY FISSION	WEIGHT GAIN BY (N,XN)
1001.50C	92	4.2052E-03	1.4971E-07	.0000E+00	.0000E+00
3006.50C	2001	9.7474E-02	4.7994E-02	.0000E+00	.0000E+00
3007.55C	10574	5.5167E-01	2.1200E-05	.0000E+00	.0000E+00
5010.50C	18993	8.5058E-01	5.3333E-01	.0000E+00	.0000E+00
5011.56C	38565	1.8836E+00	1.4818E-05	.0000E+00	.0000E+00
6000.50C	81	4.1751E-03	4.2926E-09	.0000E+00	.0000E+00
7014.50C	270	1.2557E-02	5.2219E-05	.0000E+00	.0000E+00
8016.50C	394183	1.9718E+01	5.9516E-03	.0000E+00	.0000E+00
9019.50C	337	1.7187E-02	6.4485E-06	.0000E+00	.0000E+00
11023.50C	92717	4.3239E+00	2.2346E-03	.0000E+00	.0000E+00
12000.50C	6808	3.5120E-01	6.8722E-05	.0000E+00	.0000E+00
13027.50C	10715	5.6496E-01	5.7988E-04	.0000E+00	.0000E+00
14000.50C	83219	4.3367E+00	5.1781E-03	.0000E+00	.0000E+00
15031.50C	111	5.1947E-03	1.1862E-05	.0000E+00	.0000E+00
16032.50C	354	1.9390E-02	2.2264E-04	.0000E+00	.0000E+00
17000.50C	332	1.6498E-02	1.3940E-04	.0000E+00	.0000E+00
19000.50C	7378	3.7205E-01	4.9153E-03	.0000E+00	.0000E+00
20000.50C	1535	7.7301E-02	9.6905E-04	.0000E+00	.0000E+00
22000.50C	7066	3.3052E-01	4.1638E-04	.0000E+00	.0000E+00
24000.50C	17903	8.4209E-01	3.4894E-03	.0000E+00	.0000E+00
25055.50C	31183	1.3154E+00	8.4119E-03	.0000E+00	.0000E+00
26000.55C	77105	3.6441E+00	1.1235E-02	.0000E+00	.0000E+00
28000.50C	22148	1.0152E+00	3.1432E-03	.0000E+00	.0000E+00
29000.50C	860	4.0609E-02	5.4628E-04	.0000E+00	.0000E+00
47109.50C	213	1.0080E-02	1.1025E-03	.0000E+00	.0000E+00
56138.50C	171	8.4691E-03	9.5499E-06	.0000E+00	.0000E+00
62149.50C	2	6.9002E-05	2.5300E-05	.0000E+00	.0000E+00
82000.50C	112	5.4602E-03	1.9099E-06	.0000E+00	.0000E+00
90232.50C	390	1.8869E-02	8.2998E-04	1.6646E-05	.0000E+00
92233.50C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
92234.50C	0	1.1718E-06	.0000E+00	.0000E+00	.0000E+00
92235.50C	4005	2.2525E-01	1.2830E-02	3.7743E-02	2.2759E-05
92236.50C	2	8.1616E-05	1.9874E-05	3.5202E-07	.0000E+00
92238.50C	8117	3.8985E-01	1.6056E-02	1.6817E-03	.0000E+00
93237.55C	4	2.0382E-04	1.7605E-05	1.3078E-05	.0000E+00
94238.50C	19	8.8929E-04	6.7809E-05	6.0883E-05	.0000E+00
94239.55C	2760	1.5836E-01	9.8779E-03	2.2924E-02	.0000E+00
94240.50C	2	1.3321E-04	5.6699E-06	7.5669E-07	.0000E+00
94241.50C	2	1.4919E-04	3.0190E-06	2.1149E-05	.0000E+00
94242.50C	0	5.0650E-07	.0000E+00	.0000E+00	.0000E+00
95241.50C	0	5.6035E-07	.0000E+00	.0000E+00	.0000E+00

95242.50C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
95243.50C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
96245.35C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00

****

DUMP NO. 2 ON FILE RUNTPH NPS = 15565 CTM = 9.95

19 WARNING MESSAGES SO FAR.

RUN TERMINATED WHEN 25 KCODE CYCLES WERE DONE.

COMPUTER TIME = 10.00 MINUTES

MCNP VERSION 4A-B 10/04/91 12/01/95 16:19:26 PROBID = 12/01/95 16:09:24

```
1MCNP     VERSION 4A-B  LD=10/04/91                         12/01/95 15:39:10
***************************************************************************       PROBID =    12/01/95 15:39:10
 INP=DHLWG4 OUTP=DHLWG4.O

          DHLWG4-- DWPF GLASS W/ NO ABSORBERS  INFINITE ARRAY FLOODED
          C       1     2  -1.00    -13 2 -20   IMP:N=1  FILL=3
          C      LATTICE OF CANISTERS
          2      2  -1.00    -10 9 -12 11 2 -20 FILL=2 (32.0 32.0 0.) IMP:N=1
          3      0          10:-9:12:-11:-2:20  IMP:N=0
          C       CANISTER
          4      2  -1.00   -6 5 -8 7 LAT=1 U=2 FILL=1 IMP:N=1
          5      1  -2.85    -1 -3 IMP:N=1 U=1 $ 5 WT% PU GLASS
          6      3  -7.9     1 -14 -3 IMP:N=1 U=1 $ SS304L CANISTER WALL
          7      3  -7.9    -14  3 -4 IMP:N=1 U=1 $ SS304L CANISTER WALL
          8      2  -1.00  14 -4 IMP:N=1 U=1  $ WATER AROUND CANISTER
          9      2  -1.00   4     IMP:N=1 U=1  $ WATER ABOVE CANISTER / REFLECTED ON CENTERL
          C
          C      10    4  -8.140 13 -19 2 -20 IMP:N=1 $ A 516 CARBON STEEL INNER BARRIER
          C      11    4  -8.140     -19 20 -21 IMP:N=1 $ A 516 CARBON STEEL INNER BARRIER L
          C      12    2  -1.00      -19 21 -23 IMP:N=1 $ GAP BETWEEN INNER AND OUTER BARRIE
          C      13    5  -8.9375  19 -22 2 -23 IMP:N=1 $ C71500 ALLOY INNER BARRIER
          C      14    5  -8.9375     -22    23 -24 IMP:N=1 $ C71500 ALLOY INNER BARRIER LI
          C      15    2  -1.00  22 2 -24   -16 15 -18 17 IMP:N=1 $ 6" OF WATER REFLECTED AR
          C      16    2  -1.00     24 -25  -16 15 -18 17 IMP:N=1 $ 12" OF WATER ABOVE CONTA
          C      17     0          -2:25:-15:16:-17:18     IMP:N=0   $ ZERO-IMPORTANCE OUTSI

          1      CZ 29.528
          2*     PZ  0.0
          3      PZ 137.13
          4      PZ  138.7175
          5      PX  -32.0
          6      PX   32.0
          7      PY  -32.0
          8      PY   32.0
          9*     PX -63.9999
          10*    PX  63.9999
          11*    PY -63.9999
          12*    PY  63.9999
          13     CZ  78.45
          14     CZ  30.48
          C      15*  PX  -100.74
          C      16*   PX   100.74
          C      17*   PY  -100.74
          C      18*   PY   100.74
          19     CZ   80.45
          20     PZ  153.75
          21     PZ  156.25
          22     CZ   85.45
          23     PZ  162.50
          24     PZ  171.0
          25     PZ  201.48

          KCODE 500 0.03 5 25
          C      KSRC  22.78 25.28 16 30.28 22.78 30 22.78 40.28 40 35.28 22.78 100
          C       22.78 22.28 150 28.28 22.78 200 22.78 30.28 150 38.28 22.78 250.
          C       22.78 -25.28 16 30.28 -22.78 30 22.78 -40.28 40 35.28 -22.78 100
          C       22.78 -22.28 150 28.28 -22.78 200 22.78 -30.28 150 38.28 -22.78 250.
          C       -22.78 25.28 16 -30.28 22.78 30 -22.78 40.28 40 -35.28 22.78 100
          C       -22.78 22.28 150 -28.28 22.78 200 -22.78 30.28 150 -38.28 22.78 250.
          C       -22.78 -25.28 16 -30.28 -22.78 30 -22.78 -40.28 40 -35.28 -22.78 100
```

```
   57-        C       -22.78 -22.28 150 -28.28 -22.78 200 -22.78 -30.28 150 -38.28 -22.78 250.
   58-        C         C71500  D=8.9375 G/CC
   59-        C     M5   25055.50C  -0.10  26000.55C -0.70    28000.50C -31.000
   60-        C      29000.50C -67.150 82000.50C -0.050
   61-        C         ALLOY 825  D=8.140 G/CC
   62-        C     M4    6000.50C  -0.05  13027.50C  -0.20  14000.50C  -0.50
   63-        C      16032.50C  -0.03  22000.50C  -0.90  24000.50C -21.50
   64-        C      25055.50C  -1.00  26000.55C -28.57  28000.50C -42.00
   65-        C      29000.50C  -2.25  42000.50C  -3.00
   66-        C         SS304L D=7.9 G/CC
   67-        M3     6000.50C  -0.030 7014.50C  -0.100 14000.50C -0.75
   68-              15031.50C  -0.045 16032.50C  -0.030 24000.50C -19.000
   69-              25055.50C  -2.000 26000.55C -68.045 28000.50C -10.000
   70-        M2     1001.50C 2.0  8016.50C 1.0
   71-        MT2    LWTR.01T
   72-        C     DHLW GLASS WITH NONACTINIDE ABSORBERS REMOVED IE. ACTINIDES + SIO2
   73-        M1      8016.50C  -5.1282+1  14000.50C -4.5004+1 92233.50C -9.727-9
   74-              92234.50C -3.261-4  92236.50C -1.036-3  93237.55C -7.509-4
   75-              92235.50C -1.734-2  92238.50C -3.674    94238.50C -5.153-3
   76-              94239.55C -1.234-2  94240.50C -2.265-3  94241.50C -9.631-4
   77-              94242.50C -1.906-4  95241.50C -1.908-4  95242.50C -8.847-8
   78-              95243.50C -1.725-6  96245.35C -2.325-9
   79-        PRINT
   80-        PRDMP
1     INITIAL SOURCE FROM FILE   SRCTP

 ORIGINAL NUMBER OF POINTS                          492
    POINTS NOT IN ANY CELL                 0
    POINTS IN CELLS OF ZERO IMPORTANCE     0
    POINTS IN VOID CELLS                   0
    POINTS IN AMBIGUOUS CELLS              0
 TOTAL POINTS REJECTED                              0
 POINTS REMAINING                                 492
 POINTS AFTER EXPANSION OR CONTRACTION            501
 NOMINAL SOURCE SIZE                              500

 INITIAL GUESS FOR K(EFF.)                     .030000

 CYCLES TO SKIP BEFORE TALLYING                     5

 TOTAL FISSION NUBAR DATA ARE BEING USED.
1MATERIAL COMPOSITION                                                    PRINT TABLE 40

 THE SUM OF THE FRACTIONS OF MATERIAL    3 WAS 1.000000E+02

 THE SUM OF THE FRACTIONS OF MATERIAL    2 WAS 3.000000E+00

 THE SUM OF THE FRACTIONS OF MATERIAL    1 WAS 1.000006E+02

 MATERIAL
  NUMBER      COMPONENT NUCLIDE, ATOM FRACTION

     3            6000,   .00137      7014,   .00390      14000,   .01460      15031,   .00079
                 16032,   .00051     24000,   .19975      25055,   .01990      26000,   .66604
                 28000,   .09314
     2            1001,   .66667      8016,   .33333
 ASSOCIATED THERMAL S(A,B) DATA SETS:    LWTR.01T
     1            8016,   .66460     14000,   .33216      92233,   .00000      92234,   .00000
                 92236,   .00000     93237,   .00000      92235,   .00002      92238,   .00320
                 94238,   .00000     94239,   .00001      94240,   .00000      94241,   .00000
```

94242,	.00000	95241,	.00000	95242,	.00000	95243,	.00000
96245,	.00000						

MATERIAL NUMBER	COMPONENT NUCLIDE, MASS FRACTION							
3	6000,	.00030	7014,	.00100	14000,	.00750	15031,	.00045
	16032,	.00030	24000,	.19000	25055,	.02000	26000,	.68045
	28000,	.10000						
2	1001,	.11191	8016,	.88809				
1	8016,	.51282	14000,	.45004	92233,	.00000	92234,	.00000
	92236,	.00001	93237,	.00001	92235,	.00017	92238,	.03674
	94238,	.00005	94239,	.00012	94240,	.00002	94241,	.00001
	94242,	.00000	95241,	.00000	95242,	.00000	95243,	.00000
	96245,	.00000						

WARNING. 3 OF THE MATERIALS HAD UNNORMALIZED FRACTIONS.

1CELL VOLUMES AND MASSES PRINT TABLE 50

CELL		ATOM DENSITY	GRAM DENSITY	INPUT VOLUME	CALCULATED VOLUME	MASS	PIECES	REASON VOLUME NOT CALCULATED
1	2	1.00309E-01	1.00000E+00	.00000E+00	2.51903E+06	2.51903E+06	0	
2	3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
3	4	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
4	5	8.27954E-02	2.85000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
5	6	8.70320E-02	7.90000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
6	7	8.70320E-02	7.90000E+00	.00000E+00	4.63333E+03	3.66033E+04	1	
7	8	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
8	9	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE

1SURFACE AREAS PRINT TABLE 50

SURFACE		INPUT AREA	CALCULATED AREA	REASON AREA NOT CALCULATED
1	1	.00000E+00	.00000E+00	INFINITE
2	2	.00000E+00	1.63839E+04	
3	3	.00000E+00	2.91864E+03	
4	4	.00000E+00	.00000E+00	INFINITE
5	5	.00000E+00	.00000E+00	INFINITE
6	6	.00000E+00	.00000E+00	INFINITE
7	7	.00000E+00	.00000E+00	INFINITE
8	8	.00000E+00	.00000E+00	INFINITE
9	9	.00000E+00	1.96800E+04	
10	10	.00000E+00	1.96800E+04	
11	11	.00000E+00	1.96800E+04	
12	12	.00000E+00	1.96800E+04	
13	13	.00000E+00	.00000E+00	NOT A BOUNDARY
14	14	.00000E+00	.00000E+00	INFINITE
15	19	.00000E+00	.00000E+00	NOT A BOUNDARY
16	20	.00000E+00	1.63839E+04	
17	21	.00000E+00	.00000E+00	NOT A BOUNDARY
18	22	.00000E+00	.00000E+00	NOT A BOUNDARY
19	23	.00000E+00	.00000E+00	NOT A BOUNDARY
20	24	.00000E+00	.00000E+00	NOT A BOUNDARY
21	25	.00000E+00	.00000E+00	NOT A BOUNDARY

1CELLS PRINT TABLE 60

	CELL	MAT	ATOM DENSITY	GRAM DENSITY	VOLUME	MASS	PIECES	NEUTRON IMPORTANCE
1	2	2S	1.00309E-01	1.00000E+00	2.51903E+06	2.51903E+06	0	1.0000E+00
2	3	0	.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	.0000E+00
3	4	2S	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	0	1.0000E+00
4	5	1	8.27954E-02	2.85000E+00	.00000E+00	.00000E+00	0	1.0000E+00
5	6	3	8.70320E-02	7.90000E+00	.00000E+00	.00000E+00	0	1.0000E+00
6	7	3	8.70320E-02	7.90000E+00	4.63333E+03	3.66033E+04	1	1.0000E+00
7	8	2S	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	0	1.0000E+00
8	9	2S	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	0	1.0000E+00
TOTAL					2.52367E+06	2.55564E+06		

1SURFACES PRINT TABLE 70

	SURFACE	TRANS	TYPE	SURFACE COEFFICIENTS
1	1		CZ	2.9528000E+01
2	2	REFL.	PZ	.0000000E+00
3	3		PZ	1.3713000E+02
4	4		PZ	1.3871750E+02
5	5		PX	-3.2000000E+01
6	6		PX	3.2000000E+01
7	7		PY	-3.2000000E+01
8	8		PY	3.2000000E+01
9	9	REFL.	PX	-6.3999900E+01
10	10	REFL.	PX	6.3999900E+01
11	11	REFL.	PY	-6.3999900E+01
12	12	REFL.	PY	6.3999900E+01
13	13		CZ	7.8450000E+01
14	14		CZ	3.0480000E+01
15	19		CZ	8.0450000E+01
16	20		PZ	1.5375000E+02
17	21		PZ	1.5625000E+02
18	22		CZ	8.5450000E+01
19	23		PZ	1.6250000E+02
20	24		PZ	1.7100000E+02
21	25		PZ	2.0148000E+02

WARNING. SURFACE 13 IS NOT USED FOR ANYTHING.

WARNING. SURFACE 19 IS NOT USED FOR ANYTHING.

WARNING. SURFACE 21 IS NOT USED FOR ANYTHING.

WARNING. SURFACE 22 IS NOT USED FOR ANYTHING.

WARNING. SURFACE 23 IS NOT USED FOR ANYTHING.

WARNING. SURFACE 24 IS NOT USED FOR ANYTHING.

WARNING. SURFACE 25 IS NOT USED FOR ANYTHING.

1 TEMPERATURES OF THE CELLS. PRINT TABLE 72

TIME: .0000E+00

CELL	TMP 1
2	2.5300E-08

```
      4        2.5300E-08
      5        2.5300E-08
      6        2.5300E-08
      7        2.5300E-08
      8        2.5300E-08
      9        2.5300E-08

       8 WARNING MESSAGES SO FAR.
1CROSS-SECTION TABLES                                                    PRINT TABLE 100

    TABLE    LENGTH

                      TABLES FROM FILE RMCCS2

  1001.50C     1153  NJOY                                          (  1301)     79/07/31.
  6000.50C    16126  NJOY                                          (  1306)     79/07/31.
  7014.50C    22772  NJOY                                          (  1275)     79/09/08.
  8016.50C    23669  NJOY                                          ( 1276)     05/14/81
 24000.50C    89104  NJOY                                          (  1324)     79/06/21.
 26000.55C    84136  NJOY                                          ( 260)      10/21/82
 28000.50C    82267  NJOY                                          (  1328)     79/06/21.
 92233.50C    14205  NJOY                          TOTAL NU        (  1393)     79/09/12.
 92235.50C    44188  NJOY                          TOTAL NU        (  1395)     79/09/12.
 92238.50C    66440  NJOY                          TOTAL NU        (  1398)     79/09/13.
 94239.55C    67551  NJOY                          TOTAL NU        ( 1399)     02/21/85
 94240.50C    42744  NJOY                          TOTAL NU        (  1380)     79/09/13.

                      TABLES FROM FILE ENDF5P2

 14000.50C    48275  NJOY                                          (  1314)     79/06/21.

 WARNING.  NUBAR OF  92234.50C MAY BE EITHER PROMPT OR TOTAL.
 92234.50C    76999  NJOY                                          (  1394)     79/10/17.

 WARNING.  NUBAR OF  92236.50C MAY BE EITHER PROMPT OR TOTAL.
 92236.50C   119238  NJOY                                          (  1396)     79/08/30.

 WARNING.  NUBAR OF  94238.50C MAY BE EITHER PROMPT OR TOTAL.
 94238.50C    16458  NJOY                                          (  1338)     79/09/12.
 94241.50C    22523  NJOY                          TOTAL NU        (  1381)     79/08/30.
 94242.50C    43433  NJOY                          TOTAL NU        (  1342)     79/09/06.

                      TABLES FROM FILE ENDF5U2

 15031.50C     2779  NJOY                                          (  1315)     79/10/29.
 16032.50C     2684  NJOY                                          (  1316)     79/10/29.
 25055.50C    60097  NJOY                                          (  1325)     79/06/21.

 WARNING.  NUBAR OF  95241.50C MAY BE EITHER PROMPT OR TOTAL.
 95241.50C    29300  NJOY                                          (  1361)     79/08/29.

 WARNING.  NUBAR OF  95242.50C MAY BE EITHER PROMPT OR TOTAL.
 95242.50C     5248  NJOY                                          (  1369)     79/09/24.

 WARNING.  NUBAR OF  95243.50C MAY BE EITHER PROMPT OR TOTAL.
 95243.50C    51474  NJOY                                          (  1363)     79/08/30.

                      TABLES FROM FILE RMCCSA2

 93237.55C    29142  NJOY                          TOTAL NU         ( 1337)     04/04/85
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TABLES FROM FILE ENDL852

WARNING. NUBAR OF 96245.35C MAY BE EITHER PROMPT OR TOTAL.
96245.35C 15310 ZA=96245 ENDL-85 85/04/24 T=0K (93) 86/04/23

TABLES FROM FILE TMCCS2

LWTR.01T 10193 HYDROGEN IN LIGHT WATER AT 300 DEGREES KELVIN 1001 0 010/22/85

TOTAL 1087508

WARNING. NEUTRON ENERGY CUTOFF IS BELOW SOME CROSS-SECTION TABLES.
1DECIMAL WORDS OF DYNAMICALLY ALLOCATED STORAGE

GENERAL	63084
TALLIES	0
BANK	12403
CROSS-SECTIONS	1087508
TOTAL	1162995

****
DUMP NO. 1 ON FILE RUNTPF NPS = 0 CTM = .00

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 0

16 WARNING MESSAGES SO FAR.
1 STARTING MCRUN. FIELD LENGTH = 0 CPO = .03 PRINT TABLE 110

DHLWG4-- DWPF GLASS W/ NO ABSORBERS INFINITE ARRAY FLOODED

NPS	X	Y	Z	CELL	SURF	U	V	W	TIME	WEIGHT	ENERGY
1	-2.798E+01	-5.256E+00	5.727E+01	5	0	5.085E-01	4.733E-01	7.193E-01	.000E+00	9.980E-01	6.976E+00
2	-2.922E+01	3.019E-02	6.434E+01	5	0	8.952E-01	-4.447E-01	-2.944E-02	.000E+00	9.980E-01	3.535E+00
3	-6.841E+00	3.877E+00	7.237E+01	5	0	-6.184E-01	-4.495E-01	6.446E-01	.000E+00	9.980E-01	1.224E+00
4	-1.212E+01	5.036E+00	5.961E+01	5	0	9.710E-01	-5.665E-02	-2.323E-01	.000E+00	9.980E-01	2.855E+00
5	-1.190E+01	-2.159E+01	1.094E+02	5	0	5.861E-01	1.496E-01	-7.963E-01	.000E+00	9.980E-01	1.218E+00
6	8.907E+00	-9.255E+00	1.097E+02	5	0	-6.489E-02	-1.626E-01	9.845E-01	.000E+00	9.980E-01	3.424E+00
7	1.941E+01	-1.772E+01	1.073E+02	5	0	-7.068E-02	3.263E-02	-9.970E-01	.000E+00	9.980E-01	6.471E-01
8	-3.594E+00	-5.711E+00	1.193E+02	5	0	-3.915E-01	4.664E-01	-7.932E-01	.000E+00	9.980E-01	2.294E+00
9	1.749E+01	-7.422E+00	1.347E+02	5	0	-2.368E-01	9.215E-01	-3.079E-01	.000E+00	9.980E-01	8.083E-01
10	2.281E+01	-4.160E+00	1.365E+02	5	0	1.946E-01	-3.204E-01	9.271E-01	.000E+00	9.980E-01	2.650E+00
11	-2.318E+01	-1.701E+01	1.298E+02	5	0	-6.698E-01	-7.177E-01	-1.905E-01	.000E+00	9.980E-01	5.998E-01
12	-2.207E+01	-2.595E+00	1.021E+01	5	0	-8.398E-01	-4.129E-01	3.524E-01	.000E+00	9.980E-01	2.063E+00
13	2.319E+01	5.465E+00	1.197E+02	5	0	-1.714E-01	-8.572E-01	4.857E-01	.000E+00	9.980E-01	1.488E+00
14	2.933E+01	6.324E-01	1.186E+02	5	0	-2.489E-01	-5.118E-01	-8.222E-01	.000E+00	9.980E-01	2.575E+00
15	2.122E+01	-1.387E+01	1.128E+02	5	0	-2.959E-01	2.119E-01	9.314E-01	.000E+00	9.980E-01	7.327E-01
16	-3.872E+00	2.618E+01	1.112E+02	5	0	1.395E-01	-9.829E-01	1.202E-01	.000E+00	9.980E-01	5.739E+00
17	-6.634E+00	2.418E+01	1.131E+02	5	0	6.909E-01	-7.110E-01	1.307E-01	.000E+00	9.980E-01	1.838E+00
18	1.674E+01	-1.786E+01	8.545E+01	5	0	-6.580E-01	5.320E-01	-5.329E-01	.000E+00	9.980E-01	2.500E+00
19	1.751E+01	-1.385E+01	1.293E+02	5	0	-9.903E-01	-1.380E-01	1.353E-02	.000E+00	9.980E-01	1.153E+00
20	9.947E-01	2.231E+01	9.560E+01	5	0	7.462E-01	4.859E-01	-4.551E-01	.000E+00	9.980E-01	1.995E+00
21	4.729E+00	1.943E+01	8.977E+01	5	0	-1.977E-01	9.797E-01	3.360E-02	.000E+00	9.980E-01	1.355E+00
22	5.561E+00	2.061E+01	9.068E+01	5	0	-9.117E-01	-3.647E-01	-1.891E-01	.000E+00	9.980E-01	9.638E-01
23	2.739E+00	3.029E+00	4.436E+00	5	0	-4.287E-01	8.361E-01	-3.423E-01	.000E+00	9.980E-01	2.434E+00

24	2.050E+00	2.991E+00	4.376E+00	5	0	1.080E-01	3.412E-01	-9.338E-01	.000E+00	9.980E-01	2.986E+00
25	5.443E+00	2.889E+01	2.480E+00	5	0	-9.111E-01	-9.012E-03	-4.122E-01	.000E+00	9.980E-01	1.322E+00
26	-1.391E+01	1.614E+01	3.100E+01	5	0	-2.568E-01	-6.391E-01	-7.249E-01	.000E+00	9.980E-01	3.261E+00
27	1.477E+01	2.175E+01	4.277E+01	5	0	-2.912E-01	8.086E-01	5.113E-01	.000E+00	9.980E-01	2.851E+00
28	1.988E+01	1.867E+01	3.368E+01	5	0	1.472E-01	-9.514E-01	2.705E-01	.000E+00	9.980E-01	2.495E+00
29	1.528E+01	1.135E+01	6.599E+00	5	0	-6.135E-01	-7.645E-01	-1.978E-01	.000E+00	9.980E-01	5.244E+00
30	6.174E+00	1.028E+01	5.074E+01	5	0	-5.702E-01	5.651E-01	-5.963E-01	.000E+00	9.980E-01	2.771E+00
31	8.899E+00	1.415E+01	4.767E+01	5	0	-6.607E-01	5.373E-01	-5.242E-01	.000E+00	9.980E-01	4.328E-01
32	5.854E+00	-6.142E+00	4.231E+01	5	0	-9.742E-02	-3.639E-01	-9.263E-01	.000E+00	9.980E-01	1.301E+00
33	6.382E+00	-6.124E+00	4.308E+01	5	0	-1.965E-01	-3.145E-01	-9.287E-01	.000E+00	9.980E-01	4.511E-01
34	7.463E+00	-4.374E+00	4.313E+01	5	0	4.097E-01	8.465E-01	-3.399E-01	.000E+00	9.980E-01	1.139E+00
35	4.186E+00	-6.667E+00	4.356E+01	5	0	-4.048E-02	8.831E-01	4.675E-01	.000E+00	9.980E-01	3.151E-01
36	3.135E-01	-6.019E+00	3.994E+01	5	0	3.371E-01	-9.269E-01	-1.652E-01	.000E+00	9.980E-01	9.859E-01
37	-6.714E+00	-1.082E+01	3.781E+01	5	0	-1.867E-01	9.756E-01	-1.155E-01	.000E+00	9.980E-01	6.717E+00
38	3.209E+00	7.801E+00	3.357E+01	5	0	-2.616E-01	2.336E-01	-9.365E-01	.000E+00	9.980E-01	1.519E+00
39	2.928E+00	8.448E+00	3.470E+01	5	0	9.780E-01	-7.641E-02	-1.939E-01	.000E+00	9.980E-01	9.901E-01
40	4.759E+00	1.088E+01	3.978E+01	5	0	2.580E-01	-7.076E-01	6.578E-01	.000E+00	9.980E-01	1.192E+00
41	6.214E+00	1.527E+01	4.169E+01	5	0	-3.212E-01	-7.678E-01	-5.543E-01	.000E+00	9.980E-01	3.105E+00
42	1.018E+01	1.471E+01	4.051E+01	5	0	5.039E-01	-1.460E-01	8.513E-01	.000E+00	9.980E-01	2.483E+00
43	-3.684E+00	6.815E+00	5.637E+01	5	0	6.080E-01	5.487E-01	5.738E-01	.000E+00	9.980E-01	1.161E+00
44	1.811E+01	8.354E+00	2.193E+01	5	0	-2.932E-01	9.304E-01	-2.199E-01	.000E+00	9.980E-01	1.786E+00
45	2.770E+01	8.669E+00	1.341E+01	5	0	-8.475E-01	-3.993E-01	-3.497E-01	.000E+00	9.980E-01	2.822E-01
46	6.597E+00	4.881E+00	5.436E+01	5	0	1.200E-01	-9.195E-01	-3.743E-01	.000E+00	9.980E-01	4.031E-01
47	1.146E+01	-9.487E+00	3.176E+01	5	0	7.085E-01	5.879E-01	3.904E-01	.000E+00	9.980E-01	1.159E+00
48	2.333E+01	-2.218E+00	1.342E+01	5	0	4.261E-01	9.046E-01	9.254E-03	.000E+00	9.980E-01	2.950E+00
49	-6.568E+00	2.609E+01	1.983E+01	5	0	5.431E-01	4.270E-01	-7.230E-01	.000E+00	9.980E-01	1.986E+00
50	-2.657E+00	1.766E+01	2.783E+01	5	0	-1.053E-01	-9.805E-01	1.658E-01	.000E+00	9.980E-01	2.751E+00

CYCLE 1 K(COLLISION) .075782 REMOVAL LIFETIME(ABS) 1.5715E+04 SOURCE POINTS GENERATED 1209

CYCLE 2 K(COLLISION) .073708 REMOVAL LIFETIME(ABS) 1.4859E+04 SOURCE POINTS GENERATED 490

CYCLE 3 K(COLLISION) .079834 REMOVAL LIFETIME(ABS) 1.8001E+04 SOURCE POINTS GENERATED 593

CYCLE 4 K(COLLISION) .070448 REMOVAL LIFETIME(ABS) 1.4288E+04 SOURCE POINTS GENERATED 408

CYCLE 5 K(COLLISION) .082040 REMOVAL LIFETIME(ABS) 1.6549E+04 SOURCE POINTS GENERATED 551

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 5

CYCLE 6 K(COLLISION) .068939 REMOVAL LIFETIME(ABS) 1.5633E+04 SOURCE POINTS GENERATED 444

ESTIMATOR	CYCLE 7	AVE OF 2 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.081291	.075115	.0822	K(COL/ABS)	.000000	.0000	.000000	.0000	.0000
K(ABSORPTION)	.056842	.064844	.1234	K(ABS/TK LN)	.000000	.0000	.000000	.0000	.0000
K(TRK LENGTH)	.080840	.075206	.0749	K(TK LN/COL)	.000000	.0000	.000000	.0000	.0000
REM LIFE(COL)	1.9172E+04	1.7257E+04	.1110						
REM LIFE(ABS)	1.8251E+04	1.6942E+04	.0773	LIFE(COL/ABS)	.0000E+00	.0000	.0000E+00	.0000	.0000
SOURCE POINTS GENERATED	580								

ESTIMATOR	CYCLE 8	AVE OF 3 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.072858	.074363	.0490	K(COL/ABS)	.073496	.0484	.073921	.0393	-.6769
K(ABSORPTION)	.088198	.072629	.1246	K(ABS/TK LN)	.073732	.0511	.074344	.0397	-.6044
K(TRK LENGTH)	.074095	.074836	.0437	K(TK LN/COL)	.074599	.0463	.077086	.0449	.9955
REM LIFE(COL)	1.6819E+04	1.7111E+04	.0652						
REM LIFE(ABS)	1.7085E+04	1.6990E+04	.0446	LIFE(COL/ABS)	1.7050E+04	.0547	1.6796E+04	.0346	.9812
SOURCE POINTS GENERATED	425								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 8

ESTIMATOR	CYCLE 9	AVE OF 4 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.078057	.075286	.0364	K(COL/ABS)	.076379	.0501	.075650	.0368	-.3045
K(ABSORPTION)	.092004	.077473	.1036	K(ABS/TK LN)	.076596	.0511	.075957	.0349	-.2349
K(TRK LENGTH)	.078373	.075720	.0327	K(TK LN/COL)	.075503	.0345	.077880	.0293	.9959
REM LIFE(COL)	1.7289E+04	1.7156E+04	.0460	K(COL/ABS/TK LN)	.076160	.0363	.078604	.0565	
REM LIFE(ABS)	1.7542E+04	1.7128E+04	.0323	LIFE(COL/ABS)	1.7142E+04	.0388	1.7092E+04	.0284	.9627
SOURCE POINTS GENERATED	489								

ESTIMATOR	CYCLE 10	AVE OF 5 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.078836	.075996	.0294	K(COL/ABS)	.077801	.0422	.076505	.0302	-.1701
K(ABSORPTION)	.088136	.079605	.0826	K(ABS/TK LN)	.078127	.0435	.076970	.0300	-.0587
K(TRK LENGTH)	.080364	.076649	.0278	K(TK LN/COL)	.076323	.0285	.077534	.0336	.9883
REM LIFE(COL)	1.6731E+04	1.7071E+04	.0362	K(COL/ABS/TK LN)	.077417	.0321	.076614	.0571	
REM LIFE(ABS)	1.6801E+04	1.7062E+04	.0254	LIFE(COL/ABS)	1.7067E+04	.0305	1.7051E+04	.0210	.9634
SOURCE POINTS GENERATED	547								

ESTIMATOR	CYCLE 11	AVE OF 6 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.068566	.074758	.0295	K(COL/ABS)	.075961	.0428	.074987	.0318	.1043
K(ABSORPTION)	.064956	.077164	.0764	K(ABS/TK LN)	.076158	.0447	.075281	.0337	.2295
K(TRK LENGTH)	.067666	.075152	.0306	K(TK LN/COL)	.074955	.0299	.074415	.0333	.9862
REM LIFE(COL)	1.6250E+04	1.6934E+04	.0309	K(COL/ABS/TK LN)	.075691	.0352	.073928	.0364	
REM LIFE(ABS)	1.6174E+04	1.6914E+04	.0227	LIFE(COL/ABS)	1.6924E+04	.0265	1.6890E+04	.0199	.9588
SOURCE POINTS GENERATED	423								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 11

ESTIMATOR	CYCLE 12	AVE OF 7 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.070680	.074175	.0263	K(COL/ABS)	.072781	.0578	.074202	.0289	.2908
K(ABSORPTION)	.036726	.071387	.1069	K(ABS/TK LN)	.072937	.0592	.074601	.0299	.3872
K(TRK LENGTH)	.070497	.074487	.0275	K(TK LN/COL)	.074331	.0269	.073788	.0286	.9871
REM LIFE(COL)	1.8167E+04	1.7110E+04	.0278	K(COL/ABS/TK LN)	.073350	.0443	.073452	.0376	
REM LIFE(ABS)	1.7658E+04	1.7021E+04	.0200	LIFE(COL/ABS)	1.7065E+04	.0237	1.6904E+04	.0166	.9616
SOURCE POINTS GENERATED	526								

ESTIMATOR	CYCLE 13	AVE OF 8 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.081400	.075078	.0255	K(COL/ABS)	.072383	.0506	.074852	.0275	.1312
K(ABSORPTION)	.057794	.069688	.0979	K(ABS/TK LN)	.072546	.0518	.075274	.0288	.2190
K(TRK LENGTH)	.081822	.075404	.0265	K(TK LN/COL)	.075241	.0260	.074627	.0274	.9898
REM LIFE(COL)	1.7997E+04	1.7221E+04	.0248	K(COL/ABS/TK LN)	.073390	.0383	.073500	.0361	
REM LIFE(ABS)	1.7504E+04	1.7081E+04	.0177	LIFE(COL/ABS)	1.7151E+04	.0210	1.6901E+04	.0142	.9619
SOURCE POINTS GENERATED	577								

ESTIMATOR	CYCLE 14	AVE OF 9 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.076709	.075260	.0226	K(COL/ABS)	.073132	.0453	.075111	.0241	.1502
K(ABSORPTION)	.081542	.071005	.0867	K(ABS/TK LN)	.073309	.0464	.075542	.0252	.2377
K(TRK LENGTH)	.077286	.075613	.0235	K(TK LN/COL)	.075436	.0230	.074748	.0240	.9899
REM LIFE(COL)	1.6953E+04	1.7191E+04	.0219	K(COL/ABS/TK LN)	.073959	.0344	.073759	.0317	
REM LIFE(ABS)	1.6683E+04	1.7037E+04	.0158	LIFE(COL/ABS)	1.7114E+04	.0187	1.6845E+04	.0131	.9588
SOURCE POINTS GENERATED	469								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 14

ESTIMATOR	CYCLE 15	AVE OF 10 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.076831	.075417	.0203	K(COL/ABS)	.073802	.0412	.075324	.0215	.1677
K(ABSORPTION)	.082837	.072188	.0781	K(ABS/TK LN)	.073839	.0418	.075425	.0224	.2155
K(TRK LENGTH)	.074387	.075490	.0211	K(TK LN/COL)	.075453	.0206	.075398	.0215	.9738
REM LIFE(COL)	1.4207E+04	1.6893E+04	.0267	K(COL/ABS/TK LN)	.074365	.0311	.075279	.0234	
REM LIFE(ABS)	1.4333E+04	1.6766E+04	.0216	LIFE(COL/ABS)	1.6830E+04	.0240	1.6560E+04	.0189	.9725
SOURCE POINTS GENERATED	513								

ESTIMATOR	CYCLE 16	AVE OF 11 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.084475	.076240	.0211	K(COL/ABS)	.074563	.0383	.076131	.0222	.2122
K(ABSORPTION)	.079870	.072886	.0706	K(ABS/TK LN)	.074547	.0387	.076140	.0223	.2517
K(TRK LENGTH)	.083388	.076208	.0211	K(TK LN/COL)	.076224	.0210	.076224	.0221	.9771
REM LIFE(COL)	1.6570E+04	1.6863E+04	.0242	K(COL/ABS/TK LN)	.075112	.0296	.076138	.0239	
REM LIFE(ABS)	1.6380E+04	1.6731E+04	.0197	LIFE(COL/ABS)	1.6797E+04	.0218	1.6517E+04	.0173	.9721
SOURCE POINTS GENERATED	530								

ESTIMATOR	CYCLE 17	AVE OF 12 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.075390	.076169	.0193	K(COL/ABS)	.074273	.0353	.076052	.0202	.2159
K(ABSORPTION)	.066760	.072376	.0653	K(ABS/TK LN)	.074276	.0356	.076102	.0203	.2525
K(TRK LENGTH)	.075820	.076176	.0193	K(TK LN/COL)	.076173	.0192	.076173	.0201	.9768
REM LIFE(COL)	1.4781E+04	1.6690E+04	.0246	K(COL/ABS/TK LN)	.074907	.0272	.076079	.0219	
REM LIFE(ABS)	1.5183E+04	1.6602E+04	.0197	LIFE(COL/ABS)	1.6646E+04	.0221	1.6444E+04	.0161	.9763
SOURCE POINTS GENERATED	435								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 17

ESTIMATOR	CYCLE 18	AVE OF 13 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.074749	.076060	.0179	K(COL/ABS)	.074847	.0331	.075974	.0186	.1843
K(ABSORPTION)	.088728	.073634	.0614	K(ABS/TK LN)	.074803	.0333	.075897	.0187	.1984
K(TRK LENGTH)	.073529	.075972	.0180	K(TK LN/COL)	.076016	.0178	.076028	.0186	.9747
REM LIFE(COL)	1.6198E+04	1.6652E+04	.0228	K(COL/ABS/TK LN)	.075222	.0253	.075951	.0197	
REM LIFE(ABS)	1.5906E+04	1.6549E+04	.0185	LIFE(COL/ABS)	1.6600E+04	.0205	1.6374E+04	.0157	.9739
SOURCE POINTS GENERATED	493								

ESTIMATOR	CYCLE 19	AVE OF 14 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.073971	.075911	.0167	K(COL/ABS)	.075225	.0309	.075853	.0172	.1540
K(ABSORPTION)	.086318	.074540	.0575	K(ABS/TK LN)	.075102	.0309	.075609	.0177	.1387
K(TRK LENGTH)	.071674	.075665	.0172	K(TK LN/COL)	.075788	.0168	.075898	.0174	.9684
REM LIFE(COL)	1.6034E+04	1.6608E+04	.0214	K(COL/ABS/TK LN)	.075372	.0234	.075834	.0184	
REM LIFE(ABS)	1.5830E+04	1.6497E+04	.0174	LIFE(COL/ABS)	1.6553E+04	.0193	1.6315E+04	.0151	.9730
SOURCE POINTS GENERATED	550								

ESTIMATOR	CYCLE 20	AVE OF 15 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.075059	.075854	.0156	K(COL/ABS)	.075157	.0288	.075796	.0160	.1547
K(ABSORPTION)	.073351	.074461	.0536	K(ABS/TK LN)	.075051	.0288	.075583	.0164	.1390
K(TRK LENGTH)	.075316	.075642	.0160	K(TK LN/COL)	.075748	.0157	.075838	.0162	.9681
REM LIFE(COL)	1.6816E+04	1.6622E+04	.0199	K(COL/ABS/TK LN)	.075319	.0218	.075775	.0170	
REM LIFE(ABS)	1.6565E+04	1.6502E+04	.0162	LIFE(COL/ABS)	1.6562E+04	.0179	1.6305E+04	.0140	.9727
SOURCE POINTS GENERATED	487								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 20

ESTIMATOR	CYCLE 21	AVE OF 16 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.076124	.075871	.0145	K(COL/ABS)	.074644	.0280	.075773	.0149	.1449
K(ABSORPTION)	.057780	.073418	.0528	K(ABS/TK LN)	.074539	.0280	.075554	.0153	.1296
K(TRK LENGTH)	.075925	.075660	.0150	K(TK LN/COL)	.075765	.0147	.075855	.0151	.9681
REM LIFE(COL)	1.7225E+04	1.6659E+04	.0187	K(COL/ABS/TK LN)	.074983	.0210	.075752	.0160	
REM LIFE(ABS)	1.7008E+04	1.6534E+04	.0153	LIFE(COL/ABS)	1.6597E+04	.0169	1.6325E+04	.0132	.9731
SOURCE POINTS GENERATED	541								

ESTIMATOR	CYCLE 22	AVE OF 17 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.069021	.075468	.0147	K(COL/ABS)	.074163	.0273	.075376	.0152	.1886
K(ABSORPTION)	.063883	.072857	.0505	K(ABS/TK LN)	.074049	.0273	.075139	.0156	.1749
K(TRK LENGTH)	.068545	.075241	.0152	K(TK LN/COL)	.075355	.0149	.075471	.0152	.9723
REM LIFE(COL)	1.7257E+04	1.6695E+04	.0177	K(COL/ABS/TK LN)	.074522	.0208	.075376	.0163	
REM LIFE(ABS)	1.6783E+04	1.6548E+04	.0144	LIFE(COL/ABS)	1.6621E+04	.0159	1.6314E+04	.0124	.9717
SOURCE POINTS GENERATED	413								

ESTIMATOR	CYCLE 23	AVE OF 18 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.081208	.075787	.0145	K(COL/ABS)	.074248	.0257	.075643	.0148	.1679
K(ABSORPTION)	.070186	.072709	.0478	K(ABS/TK LN)	.074119	.0257	.075381	.0151	.1579
K(TRK LENGTH)	.080418	.075529	.0148	K(TK LN/COL)	.075658	.0145	.075751	.0149	.9738
REM LIFE(COL)	1.7670E+04	1.6749E+04	.0169	K(COL/ABS/TK LN)	.074675	.0197	.075602	.0161	
REM LIFE(ABS)	1.7367E+04	1.6594E+04	.0138	LIFE(COL/ABS)	1.6671E+04	.0152	1.6339E+04	.0118	.9727

SOURCE POINTS GENERATED 610

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 23

ESTIMATOR	CYCLE 24	AVE OF 19 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.078905	.075951	.0138	K(COL/ABS)	.074950	.0258	.075896	.0142	.2104
K(ABSORPTION)	.096280	.073949	.0475	K(ABS/TK LN)	.074828	.0259	.075650	.0145	.2041
K(TRK LENGTH)	.078895	.075706	.0142	K(TK LN/COL)	.075828	.0139	.075926	.0142	.9744
REM LIFE(COL)	1.5962E+04	1.6707E+04	.0162	K(COL/ABS/TK LN)	.075202	.0198	.075871	.0152	
REM LIFE(ABS)	1.6031E+04	1.6564E+04	.0132	LIFE(COL/ABS)	1.6636E+04	.0146	1.6325E+04	.0112	.9731

SOURCE POINTS GENERATED 438

ESTIMATOR	CYCLE 25	AVE OF 20 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.077403	.076024	.0131	K(COL/ABS)	.074770	.0247	.075948	.0135	.1987
K(ABSORPTION)	.065284	.073516	.0457	K(ABS/TK LN)	.074645	.0248	.075697	.0138	.1932
K(TRK LENGTH)	.077076	.075774	.0134	K(TK LN/COL)	.075899	.0132	.075997	.0135	.9745
REM LIFE(COL)	1.7646E+04	1.6754E+04	.0156	K(COL/ABS/TK LN)	.075105	.0188	.075921	.0145	
REM LIFE(ABS)	1.7137E+04	1.6593E+04	.0126	LIFE(COL/ABS)	1.6674E+04	.0140	1.6325E+04	.0106	.9729

SOURCE POINTS GENERATED 496

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 25

1PROBLEM SUMMARY

RUN TERMINATED WHEN 25 KCODE CYCLES WERE DONE.

+ 12/01/95 15:48:55

DHLWG4-- DWPF GLASS W/ NO ABSORBERS INFINITE ARRAY FLOODED PROBID = 12/01/95 15:39:10

0

NEUTRON CREATION	TRACKS	WEIGHT (PER SOURCE PARTICLE)	ENERGY	NEUTRON LOSS	TRACKS	WEIGHT (PER SOURCE PARTICLE)	ENERGY
SOURCE	13242	9.4397E-01	2.0645E+00	ESCAPE	33	1.8253E-03	1.8297E-03
				ENERGY CUTOFF	0	0.	0.
				TIME CUTOFF	0	0.	0.
WEIGHT WINDOW	0	0.	0.	WEIGHT WINDOW	0	0.	0.
CELL IMPORTANCE	0	0.	0.	CELL IMPORTANCE	0	0.	0.
WEIGHT CUTOFF	0	1.9908E-01	1.5341E-04	WEIGHT CUTOFF	13210	1.9872E-01	3.0115E-04
ENERGY IMPORTANCE	0	0.	0.	ENERGY IMPORTANCE	0	0.	0.
DXTRAN	0	0.	0.	DXTRAN	0	0.	0.
FORCED COLLISIONS	0	0.	0.	FORCED COLLISIONS	0	0.	0.
EXP. TRANSFORM	0	0.	0.	EXP. TRANSFORM	0	0.	0.
UPSCATTERING	0	0.	5.5335E-07	DOWNSCATTERING	0	0.	1.9791E+00
				CAPTURE	0	9.1697E-01	7.7208E-02
(N,XN)	2	1.2859E-04	4.3351E-05	LOSS TO (N,XN)	1	6.4296E-05	4.9683E-04
FISSION	0	0.	0.	LOSS TO FISSION	0	2.5590E-02	5.7092E-03
TOTAL	13244	1.1432E+00	2.0647E+00	TOTAL	13244	1.1432E+00	2.0647E+00

NUMBER OF NEUTRONS BANKED	1	AVERAGE LIFETIME, SHAKES		CUTOFFS	
NEUTRON TRACKS PER SOURCE PARTICLE	1.0002E+00	ESCAPE	5.6706E+03	TCO	1.0000E+34
NEUTRON COLLISIONS PER SOURCE PARTICLE	2.0750E+02	CAPTURE	1.6464E+04	ECO	.0000E+00
TOTAL NEUTRON COLLISIONS	2747752	CAPTURE OR ESCAPE	1.6443E+04	WC1	-5.0000E-01
NET MULTIPLICATION	1.0001E+00 .0019	ANY TERMINATION	1.9429E+04	WC2	-2.5000E-01

COMPUTER TIME SO FAR IN THIS RUN	9.62 MINUTES	MAXIMUM NUMBER EVER IN BANK	1
COMPUTER TIME IN MCRUN	9.58 MINUTES	BANK OVERFLOWS TO BACKUP FILE	0

SOURCE PARTICLES PER MINUTE 1.3818E+03 FIELD LENGTH 0
RANDOM NUMBERS GENERATED 24455969 MOST RANDOM NUMBERS USED WAS 10821 IN HISTORY 8383

RANGE OF SAMPLED SOURCE WEIGHTS = 4.1356E-01 TO 1.2255E+00

1NEUTRON ACTIVITY IN EACH CELL PRINT TABLE 126

CELL		TRACKS ENTERING	POPULATION	COLLISIONS	COLLISIONS * WEIGHT (PER HISTORY)	NUMBER WEIGHTED ENERGY	FLUX WEIGHTED ENERGY	AVERAGE TRACK WEIGHT (RELATIVE)	AVERAGE TRACK MFP (CM)
1	2	0	0	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	0	0	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	36689	13243	642332	3.8554E+01	5.9595E-04	3.9492E-01	7.9728E-01	4.0143E+00
5	6	58878	12740	85994	4.2666E+00	2.3349E-04	3.4095E-01	7.1622E-01	1.9628E+00
6	7	1334	519	3041	1.5432E-01	2.6995E-04	2.9157E-01	7.2766E-01	1.9520E+00
7	8	51575	12466	1948224	7.9021E+01	3.5565E-05	1.5334E-01	5.9380E-01	6.9515E-01
8	9	883	442	68161	2.6904E+00	2.9822E-05	1.3729E-01	5.7530E-01	6.5585E-01
TOTAL		149359	39410	2747752	1.2469E+02				

1NEUTRON WEIGHT BALANCE IN EACH CELL -- EXTERNAL EVENTS PRINT TABLE 130

CELL		ENTERING	SOURCE	ENERGY CUTOFF	TIME CUTOFF	EXITING	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-1.8253E-03	-1.8253E-03
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-9.7204E-01	-9.7204E-01
4	5	1.2202E+00	9.4397E-01	.0000E+00	.0000E+00	-1.9533E+00	2.1081E-01
5	6	3.2055E+00	.0000E+00	.0000E+00	.0000E+00	-2.8985E+00	3.0699E-01
6	7	7.3366E-02	.0000E+00	.0000E+00	.0000E+00	-6.4514E-02	8.8528E-03
7	8	2.6771E+00	.0000E+00	.0000E+00	.0000E+00	-1.3086E+00	1.3685E+00
8	9	4.7700E-02	.0000E+00	.0000E+00	.0000E+00	-2.6811E-02	2.0889E-02
TOTAL		7.2238E+00	9.4397E-01	.0000E+00	.0000E+00	-7.2256E+00	9.4214E-01

1NEUTRON WEIGHT BALANCE IN EACH CELL -- VARIANCE REDUCTION EVENTS PRINT TABLE 130

CELL		WEIGHT WINDOW	CELL IMPORTANCE	WEIGHT CUTOFF	ENERGY IMPORTANCE	DXTRAN	FORCED COLLISION	EXPONENTIAL TRANSFORM	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	.0000E+00	.0000E+00	3.1430E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	3.1430E-04
5	6	.0000E+00	.0000E+00	6.7816E-05	.0000E+00	.0000E+00	.0000E+00	.0000E+00	6.7816E-05
6	7	.0000E+00	.0000E+00	2.3334E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	2.3334E-04
7	8	.0000E+00	.0000E+00	4.2193E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	4.2193E-04
8	9	.0000E+00	.0000E+00	-6.7840E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-6.7840E-04
TOTAL		.0000E+00	.0000E+00	3.5898E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	3.5898E-04

1NEUTRON WEIGHT BALANCE IN EACH CELL -- PHYSICAL EVENTS PRINT TABLE 130

CELL		(N,XN)	FISSION	CAPTURE	LOSS TO (N,XN)	LOSS TO FISSION	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	1.2859E-04	.0000E+00	-1.8560E-01	-6.4296E-05	-2.5590E-02	-2.1112E-01
5	6	.0000E+00	.0000E+00	-3.0706E-01	.0000E+00	.0000E+00	-3.0706E-01
6	7	.0000E+00	.0000E+00	-9.0861E-03	.0000E+00	.0000E+00	-9.0861E-03
7	8	.0000E+00	.0000E+00	-4.0115E-01	.0000E+00	.0000E+00	-4.0115E-01
8	9	.0000E+00	.0000E+00	-1.4078E-02	.0000E+00	.0000E+00	-1.4078E-02

TOTAL 1.2859E-04 .0000E+00 -9.1697E-01 -6.4296E-05 -2.5590E-02 -9.4250E-01

1NEUTRON ACTIVITY OF EACH NUCLIDE IN EACH CELL, PER SOURCE PARTICLE PRINT TABLE 140

CELL		NUCLIDES	ATOM FRACTION	TOTAL COLLISIONS	COLLISIONS * WEIGHT	WEIGHT LOST TO CAPTURE	WEIGHT LOSS TO FISSION	WEIGHT GAIN BY (N,XN)
1	2	1001.50C	6.6667E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	1001.50C	6.6667E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	8016.50C	6.6460E-01	471099	2.8087E+01	7.3802E-03	.0000E+00	.0000E+00
		14000.50C	3.3216E-01	160544	9.8517E+00	7.1813E-02	.0000E+00	.0000E+00
		92233.50C	8.6523E-12	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		92234.50C	2.8883E-07	6	3.0120E-04	2.6385E-04	5.5974E-07	.0000E+00
		92236.50C	9.0980E-07	4	1.7551E-04	3.7404E-05	5.1069E-07	.0000E+00
		93237.55C	6.5664E-07	5	2.3428E-04	1.4513E-04	9.8389E-08	.0000E+00
		92235.50C	1.5293E-05	388	2.4224E-02	2.1656E-03	1.0308E-02	.0000E+00
		92238.50C	3.1993E-03	9548	5.7379E-01	9.0408E-02	1.9414E-03	6.4296E-05
		94238.50C	4.4872E-06	111	4.3230E-03	3.0813E-03	1.7129E-04	.0000E+00
		94239.55C	1.0700E-05	508	3.2675E-02	6.1147E-03	1.2307E-02	.0000E+00
		94240.50C	1.9559E-06	79	4.2301E-03	3.7339E-03	2.3711E-06	.0000E+00
		94241.50C	8.2819E-07	37	2.5457E-03	2.8860E-04	8.5834E-04	.0000E+00
		94242.50C	1.6322E-07	0	5.3817E-07	.0000E+00	.0000E+00	.0000E+00
		95241.50C	1.6407E-07	3	1.7258E-04	1.6631E-04	7.7597E-07	.0000E+00
		95242.50C	7.5762E-11	0	3.1907E-08	.0000E+00	.0000E+00	.0000E+00
		95243.50C	1.4711E-09	0	1.0694E-08	.0000E+00	.0000E+00	.0000E+00
		96245.35C	1.9666E-12	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
5	6	6000.50C	1.3653E-03	50	2.6698E-03	3.7181E-07	.0000E+00	.0000E+00
		7014.50C	3.9036E-03	308	1.4942E-02	8.2125E-04	.0000E+00	.0000E+00
		14000.50C	1.4597E-02	320	1.8174E-02	2.4966E-04	.0000E+00	.0000E+00
		15031.50C	7.9416E-04	28	1.6005E-03	1.1067E-05	.0000E+00	.0000E+00
		16032.50C	5.1291E-04	10	5.3062E-04	5.3050E-05	.0000E+00	.0000E+00
		24000.50C	1.9975E-01	11065	5.8094E-01	6.1702E-02	.0000E+00	.0000E+00
		25055.50C	1.9900E-02	3485	2.0698E-01	2.7434E-02	.0000E+00	.0000E+00
		26000.55C	6.6604E-01	56860	2.7533E+00	1.7346E-01	.0000E+00	.0000E+00
		28000.50C	9.3142E-02	13868	6.8750E-01	4.3332E-02	.0000E+00	.0000E+00
6	7	6000.50C	1.3653E-03	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		7014.50C	3.9036E-03	13	7.8406E-04	1.3097E-05	.0000E+00	.0000E+00
		14000.50C	1.4597E-02	15	8.1705E-04	9.5182E-06	.0000E+00	.0000E+00
		15031.50C	7.9416E-04	1	7.5257E-05	1.6121E-07	.0000E+00	.0000E+00
		16032.50C	5.1291E-04	2	1.3195E-04	1.0335E-05	.0000E+00	.0000E+00
		24000.50C	1.9975E-01	379	2.0675E-02	1.6223E-03	.0000E+00	.0000E+00
		25055.50C	1.9900E-02	167	1.0184E-02	1.0829E-03	.0000E+00	.0000E+00
		26000.55C	6.6604E-01	1990	9.7397E-02	5.1227E-03	.0000E+00	.0000E+00
		28000.50C	9.3142E-02	474	2.4255E-02	1.2252E-03	.0000E+00	.0000E+00
7	8	1001.50C	6.6667E-01	1860202	7.5113E+01	4.0059E-01	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	88022	3.9077E+00	5.5785E-04	.0000E+00	.0000E+00
8	9	1001.50C	6.6667E-01	65151	2.5633E+00	1.4064E-02	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	3010	1.2703E-01	1.3885E-05	.0000E+00	.0000E+00
TOTAL				2747752	1.2471E+02	9.1697E-01	2.5590E-02	6.4296E-05

TOTAL OVER ALL CELLS FOR EACH NUCLIDE	TOTAL	COLLISIONS	WEIGHT LOST	WEIGHT GAIN	WEIGHT GAIN

	COLLISIONS	* WEIGHT	TO CAPTURE	BY FISSION	BY (N,XN)
1001.50C	1925353	7.7677E+01	4.1466E-01	.0000E+00	.0000E+00
6000.50C	50	2.6698E-03	3.7181E-07	.0000E+00	.0000E+00
7014.50C	321	1.5726E-02	8.3435E-04	.0000E+00	.0000E+00
8016.50C	562131	3.2121E+01	7.9520E-03	.0000E+00	.0000E+00
14000.50C	160879	9.8707E+00	7.2073E-02	.0000E+00	.0000E+00
15031.50C	29	1.6757E-03	1.1228E-05	.0000E+00	.0000E+00
16032.50C	12	6.6257E-04	6.3385E-05	.0000E+00	.0000E+00
24000.50C	11444	6.0162E-01	6.3325E-02	.0000E+00	.0000E+00
25055.50C	3652	2.1717E-01	2.8517E-02	.0000E+00	.0000E+00
26000.55C	58850	2.8507E+00	1.7858E-01	.0000E+00	.0000E+00
28000.50C	14342	7.1176E-01	4.4557E-02	.0000E+00	.0000E+00
92233.50C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
92234.50C	6	3.0120E-04	2.6385E-04	5.5974E-07	.0000E+00
92235.50C	388	2.4224E-02	2.1656E-03	1.0308E-02	.0000E+00
92236.50C	4	1.7551E-04	3.7404E-05	5.1069E-07	.0000E+00
92238.50C	9548	5.7379E-01	9.0408E-02	1.9414E-03	6.4296E-05
93237.55C	5	2.3428E-04	1.4513E-04	9.8389E-08	.0000E+00
94238.50C	111	4.3230E-03	3.0813E-03	1.7129E-04	.0000E+00
94239.55C	508	3.2675E-02	6.1147E-03	1.2307E-02	.0000E+00
94240.50C	79	4.2301E-03	3.7339E-03	2.3711E-06	.0000E+00
94241.50C	37	2.5457E-03	2.8860E-04	8.5834E-04	.0000E+00
94242.50C	0	5.3817E-07	.0000E+00	.0000E+00	.0000E+00
95241.50C	3	1.7258E-04	1.6631E-04	7.7597E-07	.0000E+00
95242.50C	0	3.1907E-08	.0000E+00	.0000E+00	.0000E+00
95243.50C	0	1.0694E-08	.0000E+00	.0000E+00	.0000E+00
96245.35C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00

****

DUMP NO. 2 ON FILE RUNTPF NPS = 13242 CTM = 9.58

16 WARNING MESSAGES SO FAR.

RUN TERMINATED WHEN 25 KCODE CYCLES WERE DONE.

COMPUTER TIME = 9.62 MINUTES

MCNP VERSION 4A-B 10/04/91 12/01/95 15:48:55 PROBID = 12/01/95 15:39:10

```
1MCNP     VERSION 4A-B  LD=10/04/91                          12/01/95 16:22:05
 ******************************************************************************        PROBID =    12/01/95 16:22:05
 INP=DHLWG5 OUTP=DHLWG5.O

         DHLWG5-- DWPF GLASS W/ NO ABSORBERS  INFINITE ARRAY DRY
         C       1     2  -1.00    -13 2 -20    IMP:N=1  FILL=3
         C      LATTICE OF CANISTERS
         2      2  -1.-4    -10 9 -12 11 2 -20 FILL=2 (32.0 32.0 0.) IMP:N=1
         3      0           10:-9:12:-11:-2:20  IMP:N=0
         C       CANISTER
         4      2  -1.-4   -6 5 -8 7 LAT=1 U=2 FILL=1 IMP:N=1
         5      1  -2.85    -1 -3 IMP:N=1 U=1 $ 5 WT% PU GLASS
         6      3  -7.9      1 -14 -3 IMP:N=1 U=1 $ SS304L CANISTER WALL
         7      3  -7.9     -14  3 -4 IMP:N=1 U=1 $ SS304L CANISTER WALL
         8      2  -1.-4   14 -4 IMP:N=1 U=1  $ WATER AROUND CANISTER
         9      2  -1.-4    4     IMP:N=1 U=1  $ WATER ABOVE CANISTER / REFLECTED ON CENTERL
         C
         C      10    4  -8.140 13 -19 2 -20 IMP:N=1 $ A 516 CARBON STEEL INNER BARRIER
         C      11    4  -8.140     -19 20 -21 IMP:N=1 $ A 516 CARBON STEEL INNER BARRIER L
         C      12    2  -1.00      -19 21 -23 IMP:N=1 $ GAP BETWEEN INNER AND OUTER BARRIE
         C      13    5  -8.9375  19 -22 2 -23 IMP:N=1 $ C71500 ALLOY INNER BARRIER
         C      14    5  -8.9375      -22     23 -24 IMP:N=1 $ C71500 ALLOY INNER BARRIER LI
         C      15    2  -1.00  22 2 -24   -16 15 -18 17 IMP:N=1 $ 6" OF WATER REFLECTED AR
         C      16    2  -1.00     24 -25   -16 15 -18 17 IMP:N=1 $ 12" OF WATER ABOVE CONTA
         C      17     0            -2:25:-15:16:-17:18      IMP:N=0    $ ZERO-IMPORTANCE OUTSI

         1      CZ 29.528
         2*     PZ  0.0
         3      PZ 137.13
         4      PZ  138.7175
         5      PX  -32.0
         6      PX   32.0
         7      PY  -32.0
         8      PY   32.0
         9*     PX -63.9999
         10*    PX  63.9999
         11*    PY -63.9999
         12*    PY  63.9999
         13     CZ  78.45
         14     CZ  30.48
         C      15*  PX   -100.74
         C      16*   PX    100.74
         C      17*   PY  -100.74
         C      18*   PY    100.74
         19     CZ   80.45
         20     PZ  153.75
         21     PZ  156.25
         22     CZ   85.45
         23     PZ  162.50
         24     PZ  171.0
         25     PZ  201.48

         KCODE 500 0.03 5 25
         C      KSRC  22.78 25.28 16 30.28 22.78 30 22.78 40.28 40 35.28 22.78 100
         C       22.78 22.28 150 28.28 22.78 200 22.78 30.28 150 38.28 22.78 250.
         C       22.78 -25.28 16 30.28 -22.78 30 22.78 -40.28 40 35.28 -22.78 100
         C       22.78 -22.28 150 28.28 -22.78 200 22.78 -30.28 150 38.28 -22.78 250.
         C       -22.78 25.28 16 -30.28 22.78 30 -22.78 40.28 40 -35.28 22.78 100
         C       -22.78 22.28 150 -28.28 22.78 200 -22.78 30.28 150 -38.28 22.78 250.
         C       -22.78 -25.28 16 -30.28 -22.78 30 -22.78 -40.28 40 -35.28 -22.78 100
```

```
   57-        C       -22.78 -22.28 150 -28.28 -22.78 200 -22.78 -30.28 150 -38.28 -22.78 250.
   58-        C         C71500  D=8.9375 G/CC
   59-        C     M5   25055.50C  -0.10  26000.55C -0.70    28000.50C -31.000
   60-        C      29000.50C -67.150 82000.50C -0.050
   61-        C         ALLOY 825  D=8.140 G/CC
   62-        C     M4    6000.50C  -0.05  13027.50C  -0.20  14000.50C  -0.50
   63-        C      16032.50C  -0.03  22000.50C  -0.90  24000.50C -21.50
   64-        C      25055.50C  -1.00  26000.55C -28.57  28000.50C -42.00
   65-        C      29000.50C  -2.25  42000.50C  -3.00
   66-        C         SS304L D=7.9 G/CC
   67-        M3     6000.50C  -0.030 7014.50C  -0.100 14000.50C -0.75
   68-              15031.50C  -0.045 16032.50C  -0.030 24000.50C -19.000
   69-              25055.50C  -2.000 26000.55C -68.045 28000.50C -10.000
   70-        M2     1001.50C 2.0  8016.50C 1.0
   71-        MT2    LWTR.01T
   72-        C     DHLW GLASS WITH NONACTINIDE ABSORBERS REMOVED IE. ACTINIDES + SIO2
   73-        M1      8016.50C  -5.1282+1  14000.50C -4.5004+1 92233.50C -9.727-9
   74-               92234.50C -3.261-4  92236.50C -1.036-3  93237.55C -7.509-4
   75-               92235.50C -1.734-2  92238.50C -3.674    94238.50C -5.153-3
   76-               94239.55C -1.234-2  94240.50C -2.265-3  94241.50C -9.631-4
   77-               94242.50C -1.906-4  95241.50C -1.908-4  95242.50C -8.847-8
   78-               95243.50C -1.725-6  96245.35C -2.325-9
   79-        PRINT
   80-        PRDMP
1     INITIAL SOURCE FROM FILE   SRCTP

 ORIGINAL NUMBER OF POINTS                          488
    POINTS NOT IN ANY CELL                  0
    POINTS IN CELLS OF ZERO IMPORTANCE      0
    POINTS IN VOID CELLS                    0
    POINTS IN AMBIGUOUS CELLS               0
 TOTAL POINTS REJECTED                              0
 POINTS REMAINING                                 488
 POINTS AFTER EXPANSION OR CONTRACTION            498
 NOMINAL SOURCE SIZE                              500

 INITIAL GUESS FOR K(EFF.)                     .030000

 CYCLES TO SKIP BEFORE TALLYING                     5

 TOTAL FISSION NUBAR DATA ARE BEING USED.
1MATERIAL COMPOSITION                                                    PRINT TABLE 40

 THE SUM OF THE FRACTIONS OF MATERIAL    3 WAS 1.000000E+02

 THE SUM OF THE FRACTIONS OF MATERIAL    2 WAS 3.000000E+00

 THE SUM OF THE FRACTIONS OF MATERIAL    1 WAS 1.000006E+02

 MATERIAL
  NUMBER     COMPONENT NUCLIDE, ATOM FRACTION

     3           6000,   .00137      7014,   .00390      14000,   .01460      15031,   .00079
                16032,   .00051     24000,   .19975      25055,   .01990      26000,   .66604
                28000,   .09314
     2           1001,   .66667      8016,   .33333
 ASSOCIATED THERMAL S(A,B) DATA SETS:    LWTR.01T
     1           8016,   .66460     14000,   .33216      92233,   .00000      92234,   .00000
                92236,   .00000     93237,   .00000      92235,   .00002      92238,   .00320
                94238,   .00000     94239,   .00001      94240,   .00000      94241,   .00000
```

94242,	.00000	95241,	.00000	95242,	.00000	95243,	.00000
96245,	.00000						

MATERIAL NUMBER	COMPONENT NUCLIDE, MASS FRACTION							
3	6000,	.00030	7014,	.00100	14000,	.00750	15031,	.00045
	16032,	.00030	24000,	.19000	25055,	.02000	26000,	.68045
	28000,	.10000						
2	1001,	.11191	8016,	.88809				
1	8016,	.51282	14000,	.45004	92233,	.00000	92234,	.00000
	92236,	.00001	93237,	.00001	92235,	.00017	92238,	.03674
	94238,	.00005	94239,	.00012	94240,	.00002	94241,	.00001
	94242,	.00000	95241,	.00000	95242,	.00000	95243,	.00000
	96245,	.00000						

WARNING. 3 OF THE MATERIALS HAD UNNORMALIZED FRACTIONS.

1CELL VOLUMES AND MASSES PRINT TABLE 50

CELL		ATOM DENSITY	GRAM DENSITY	INPUT VOLUME	CALCULATED VOLUME	MASS	PIECES	REASON VOLUME NOT CALCULATED
1	2	1.00309E-05	1.00000E-04	.00000E+00	2.51903E+06	2.51903E+02	0	
2	3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
3	4	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
4	5	8.27954E-02	2.85000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
5	6	8.70320E-02	7.90000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
6	7	8.70320E-02	7.90000E+00	.00000E+00	4.63333E+03	3.66033E+04	1	
7	8	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
8	9	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	.00000E+00	0	INFINITE

1SURFACE AREAS PRINT TABLE 50

SURFACE		INPUT AREA	CALCULATED AREA	REASON AREA NOT CALCULATED
1	1	.00000E+00	.00000E+00	INFINITE
2	2	.00000E+00	1.63839E+04	
3	3	.00000E+00	2.91864E+03	
4	4	.00000E+00	.00000E+00	INFINITE
5	5	.00000E+00	.00000E+00	INFINITE
6	6	.00000E+00	.00000E+00	INFINITE
7	7	.00000E+00	.00000E+00	INFINITE
8	8	.00000E+00	.00000E+00	INFINITE
9	9	.00000E+00	1.96800E+04	
10	10	.00000E+00	1.96800E+04	
11	11	.00000E+00	1.96800E+04	
12	12	.00000E+00	1.96800E+04	
13	13	.00000E+00	.00000E+00	NOT A BOUNDARY
14	14	.00000E+00	.00000E+00	INFINITE
15	19	.00000E+00	.00000E+00	NOT A BOUNDARY
16	20	.00000E+00	1.63839E+04	
17	21	.00000E+00	.00000E+00	NOT A BOUNDARY
18	22	.00000E+00	.00000E+00	NOT A BOUNDARY
19	23	.00000E+00	.00000E+00	NOT A BOUNDARY
20	24	.00000E+00	.00000E+00	NOT A BOUNDARY
21	25	.00000E+00	.00000E+00	NOT A BOUNDARY

1CELLS PRINT TABLE 60

	CELL	MAT	ATOM DENSITY	GRAM DENSITY	VOLUME	MASS	PIECES	NEUTRON IMPORTANCE
1	2	2S	1.00309E-05	1.00000E-04	2.51903E+06	2.51903E+02	0	1.0000E+00
2	3	0	.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	.0000E+00
3	4	2S	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	0	1.0000E+00
4	5	1	8.27954E-02	2.85000E+00	.00000E+00	.00000E+00	0	1.0000E+00
5	6	3	8.70320E-02	7.90000E+00	.00000E+00	.00000E+00	0	1.0000E+00
6	7	3	8.70320E-02	7.90000E+00	4.63333E+03	3.66033E+04	1	1.0000E+00
7	8	2S	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	0	1.0000E+00
8	9	2S	1.00309E-05	1.00000E-04	.00000E+00	.00000E+00	0	1.0000E+00
TOTAL					2.52367E+06	3.68552E+04		

1SURFACES PRINT TABLE 70

	SURFACE	TRANS	TYPE	SURFACE COEFFICIENTS
1	1		CZ	2.9528000E+01
2	2	REFL.	PZ	.0000000E+00
3	3		PZ	1.3713000E+02
4	4		PZ	1.3871750E+02
5	5		PX	-3.2000000E+01
6	6		PX	3.2000000E+01
7	7		PY	-3.2000000E+01
8	8		PY	3.2000000E+01
9	9	REFL.	PX	-6.3999900E+01
10	10	REFL.	PX	6.3999900E+01
11	11	REFL.	PY	-6.3999900E+01
12	12	REFL.	PY	6.3999900E+01
13	13		CZ	7.8450000E+01
14	14		CZ	3.0480000E+01
15	19		CZ	8.0450000E+01
16	20		PZ	1.5375000E+02
17	21		PZ	1.5625000E+02
18	22		CZ	8.5450000E+01
19	23		PZ	1.6250000E+02
20	24		PZ	1.7100000E+02
21	25		PZ	2.0148000E+02

WARNING. SURFACE 13 IS NOT USED FOR ANYTHING.

WARNING. SURFACE 19 IS NOT USED FOR ANYTHING.

WARNING. SURFACE 21 IS NOT USED FOR ANYTHING.

WARNING. SURFACE 22 IS NOT USED FOR ANYTHING.

WARNING. SURFACE 23 IS NOT USED FOR ANYTHING.

WARNING. SURFACE 24 IS NOT USED FOR ANYTHING.

WARNING. SURFACE 25 IS NOT USED FOR ANYTHING.

1 TEMPERATURES OF THE CELLS. PRINT TABLE 72

TIME: .0000E+00

CELL	TMP 1
2	2.5300E-08

```
      4        2.5300E-08
      5        2.5300E-08
      6        2.5300E-08
      7        2.5300E-08
      8        2.5300E-08
      9        2.5300E-08

       8 WARNING MESSAGES SO FAR.
1CROSS-SECTION TABLES                                                    PRINT TABLE 100

     TABLE     LENGTH

                        TABLES FROM FILE RMCCS2

   1001.50C     1153  NJOY                                          (  1301)     79/07/31.
   6000.50C    16126  NJOY                                          (  1306)     79/07/31.
   7014.50C    22772  NJOY                                          (  1275)     79/09/08.
   8016.50C    23669  NJOY                                          (  1276)     05/14/81
  24000.50C    89104  NJOY                                          (  1324)     79/06/21.
  26000.55C    84136  NJOY                                          (  260)      10/21/82
  28000.50C    82267  NJOY                                          (  1328)     79/06/21.
  92233.50C    14205  NJOY                              TOTAL NU    (  1393)     79/09/12.
  92235.50C    44188  NJOY                              TOTAL NU    (  1395)     79/09/12.
  92238.50C    66440  NJOY                              TOTAL NU    (  1398)     79/09/13.
  94239.55C    67551  NJOY                              TOTAL NU    (  1399)     02/21/85
  94240.50C    42744  NJOY                              TOTAL NU    (  1380)     79/09/13.

                        TABLES FROM FILE ENDF5P2

  14000.50C    48275  NJOY                                          (  1314)     79/06/21.

 WARNING.  NUBAR OF  92234.50C MAY BE EITHER PROMPT OR TOTAL.
  92234.50C    76999  NJOY                                          (  1394)     79/10/17.

 WARNING.  NUBAR OF  92236.50C MAY BE EITHER PROMPT OR TOTAL.
  92236.50C   119238  NJOY                                          (  1396)     79/08/30.

 WARNING.  NUBAR OF  94238.50C MAY BE EITHER PROMPT OR TOTAL.
  94238.50C    16458  NJOY                                          (  1338)     79/09/12.
  94241.50C    22523  NJOY                              TOTAL NU    (  1381)     79/08/30.
  94242.50C    43433  NJOY                              TOTAL NU    (  1342)     79/09/06.

                        TABLES FROM FILE ENDF5U2

  15031.50C     2779  NJOY                                          (  1315)     79/10/29.
  16032.50C     2684  NJOY                                          (  1316)     79/10/29.
  25055.50C    60097  NJOY                                          (  1325)     79/06/21.

 WARNING.  NUBAR OF  95241.50C MAY BE EITHER PROMPT OR TOTAL.
  95241.50C    29300  NJOY                                          (  1361)     79/08/29.

 WARNING.  NUBAR OF  95242.50C MAY BE EITHER PROMPT OR TOTAL.
  95242.50C     5248  NJOY                                          (  1369)     79/09/24.

 WARNING.  NUBAR OF  95243.50C MAY BE EITHER PROMPT OR TOTAL.
  95243.50C    51474  NJOY                                          (  1363)     79/08/30.

                        TABLES FROM FILE RMCCSA2

  93237.55C    29142  NJOY                              TOTAL NU    (  1337)     04/04/85
```

TABLES FROM FILE ENDL852

WARNING. NUBAR OF 96245.35C MAY BE EITHER PROMPT OR TOTAL.
96245.35C 15310 ZA=96245 ENDL-85 85/04/24 T=0K (93) 86/04/23

TABLES FROM FILE TMCCS2

LWTR.01T 10193 HYDROGEN IN LIGHT WATER AT 300 DEGREES KELVIN 1001 0 010/22/85

TOTAL 1087508

WARNING. NEUTRON ENERGY CUTOFF IS BELOW SOME CROSS-SECTION TABLES.
1DECIMAL WORDS OF DYNAMICALLY ALLOCATED STORAGE

GENERAL	63076
TALLIES	0
BANK	12403
CROSS SECTIONS	1087508
TOTAL	1162987

****
DUMP NO. 1 ON FILE RUNTPI NPS = 0 CTM = .00

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 0

16 WARNING MESSAGES SO FAR.
1 STARTING MCRUN. FIELD LENGTH = 0 CPO = .03 PRINT TABLE 110

DHLWG5-- DWPF GLASS W/ NO ABSORBERS INFINITE ARRAY DRY

NPS	X	Y	Z	CELL	SURF	U	V	W	TIME	WEIGHT	ENERGY
1	1.604E+01	7.069E+00	8.153E+01	5	0	5.085E-01	4.733E-01	7.193E-01	.000E+00	1.004E+00	5.427E-01
2	-1.404E+01	-8.154E+00	6.211E+01	5	0	8.952E-01	-4.447E-01	-2.944E-02	.000E+00	1.004E+00	2.103E+00
3	-1.655E+01	-9.819E-01	5.826E+01	5	0	-6.184E-01	-4.495E-01	6.446E-01	.000E+00	1.004E+00	7.596E+00
4	-1.778E+01	-6.853E-02	5.863E+01	5	0	9.710E-01	-5.665E-02	-2.323E-01	.000E+00	1.004E+00	4.841E-01
5	-2.263E+01	-6.651E+00	4.696E+01	5	0	5.861E-01	1.496E-01	-7.963E-01	.000E+00	1.004E+00	1.283E+01
6	5.661E+00	3.938E+00	4.293E+01	5	0	-6.489E-02	-1.626E-01	9.845E-01	.000E+00	1.004E+00	1.272E+00
7	-1.456E+01	1.435E+01	8.077E+01	5	0	-7.068E-02	3.263E-02	-9.970E-01	.000E+00	1.004E+00	8.540E-01
8	1.338E+01	-2.357E+00	7.302E+01	5	0	-3.915E-01	4.664E-01	-7.932E-01	.000E+00	1.004E+00	2.474E+00
9	-1.328E+01	1.964E+00	1.174E+02	5	0	-2.368E-01	9.215E-01	-3.079E-01	.000E+00	1.004E+00	3.382E-01
10	-1.980E+01	5.048E+00	1.166E+02	5	0	1.946E-01	-3.204E-01	9.271E-01	.000E+00	1.004E+00	7.245E-01
11	-1.403E+01	8.862E+00	1.325E+02	5	0	-6.698E-01	-7.177E-01	-1.905E-01	.000E+00	1.004E+00	1.448E+00
12	-2.636E+01	1.152E+01	5.523E+01	5	0	-8.398E-01	-4.129E-01	3.524E-01	.000E+00	1.004E+00	8.178E-01
13	-1.963E+01	1.450E+01	5.798E+01	5	0	-1.714E-01	-8.572E-01	4.857E-01	.000E+00	1.004E+00	2.433E+00
14	-1.125E+01	2.534E+01	9.999E+01	5	0	-2.489E-01	-5.118E-01	-8.222E-01	.000E+00	1.004E+00	1.272E+00
15	-1.301E+01	9.996E+00	3.985E+00	5	0	-2.959E-01	2.119E-01	9.314E-01	.000E+00	1.004E+00	7.279E-01
16	-1.590E+01	-6.480E+00	3.834E+00	5	0	1.395E-01	-9.829E-01	1.202E-01	.000E+00	1.004E+00	1.289E+00
17	-2.781E+01	-1.345E+00	6.887E+00	5	0	6.909E-01	-7.110E-01	1.307E-01	.000E+00	1.004E+00	1.889E+00
18	1.673E+01	-1.133E+00	2.278E+01	5	0	-6.580E-01	5.320E-01	-5.329E-01	.000E+00	1.004E+00	1.471E+00
19	1.880E+00	-1.860E+01	4.437E+01	5	0	-9.903E-01	-1.380E-01	1.353E-02	.000E+00	1.004E+00	2.587E+00
20	-1.679E+01	-7.874E+00	6.024E+00	5	0	7.462E-01	4.859E-01	-4.551E-01	.000E+00	1.004E+00	8.904E-01
21	8.284E+00	-1.220E+01	5.377E+01	5	0	-1.977E-01	9.797E-01	3.360E-02	.000E+00	1.004E+00	1.268E+00
22	3.316E+00	-3.008E+00	6.969E+01	5	0	-9.117E-01	-3.647E-01	-1.891E-01	.000E+00	1.004E+00	8.271E-01
23	-4.020E+00	1.853E+01	3.383E+01	5	0	-4.287E-01	8.361E-01	-3.423E-01	.000E+00	1.004E+00	4.994E-01

24	-1.349E+00	-1.066E+01	9.331E+00	5	0	1.080E-01	3.412E-01	-9.338E-01	.000E+00	1.004E+00	2.981E+00
25	-7.675E+00	-2.432E+01	7.900E+01	5	0	-9.111E-01	-9.012E-03	-4.122E-01	.000E+00	1.004E+00	1.920E+00
26	3.672E-01	-1.629E+01	8.039E+01	5	0	-2.568E-01	-6.391E-01	-7.249E-01	.000E+00	1.004E+00	1.620E+00
27	6.980E-01	-2.660E+01	7.162E+01	5	0	-2.912E-01	8.086E-01	5.113E-01	.000E+00	1.004E+00	5.124E+00
28	1.429E+01	1.768E+01	6.169E+01	5	0	1.472E-01	-9.514E-01	2.705E-01	.000E+00	1.004E+00	8.025E-01
29	1.425E+01	1.985E+01	6.938E+01	5	0	-6.135E-01	-7.645E-01	-1.978E-01	.000E+00	1.004E+00	4.400E+00
30	1.860E+01	-2.264E+00	6.782E+01	5	0	-5.702E-01	5.651E-01	-5.963E-01	.000E+00	1.004E+00	2.986E+00
31	4.635E+00	1.245E+00	5.751E+01	5	0	-6.607E-01	5.373E-01	-5.242E-01	.000E+00	1.004E+00	3.598E+00
32	-1.302E+00	-4.053E+00	5.742E+01	5	0	-9.742E-02	-3.639E-01	-9.263E-01	.000E+00	1.004E+00	3.202E-01
33	-1.209E+01	-3.040E+00	5.687E+01	5	0	-1.965E-01	-3.145E-01	-9.287E-01	.000E+00	1.004E+00	2.405E+00
34	-1.658E+01	-1.213E+00	6.978E+01	5	0	4.097E-01	8.465E-01	-3.399E-01	.000E+00	1.004E+00	1.705E+00
35	-1.946E+01	-5.008E-01	7.699E+01	5	0	-4.048E-02	8.831E-01	4.675E-01	.000E+00	1.004E+00	2.876E+00
36	-1.850E+01	-7.956E+00	7.825E+01	5	0	3.371E-01	-9.269E-01	-1.652E-01	.000E+00	1.004E+00	1.206E+00
37	2.874E+01	-6.390E+00	6.578E+01	5	0	-1.867E-01	9.756E-01	-1.155E-01	.000E+00	1.004E+00	1.718E+00
38	-3.818E+00	-6.804E+00	4.957E+01	5	0	-2.616E-01	2.336E-01	-9.365E-01	.000E+00	1.004E+00	2.359E+00
39	-9.933E+00	4.181E+00	6.604E+01	5	0	9.780E-01	-7.641E-02	-1.939E-01	.000E+00	1.004E+00	3.830E-01
40	-3.568E+00	1.013E+01	6.501E+01	5	0	2.580E-01	-7.076E-01	6.578E-01	.000E+00	1.004E+00	7.904E-01
41	-5.028E+00	9.074E+00	6.840E+01	5	0	-3.212E-01	-7.678E-01	-5.543E-01	.000E+00	1.004E+00	5.390E+00
42	2.745E+01	-1.997E+00	3.511E+00	5	0	5.039E-01	-1.460E-01	8.513E-01	.000E+00	1.004E+00	2.418E+00
43	2.241E+01	-8.853E+00	3.652E+01	5	0	6.080E-01	5.487E-01	5.738E-01	.000E+00	1.004E+00	2.620E+00
44	7.053E+00	-2.440E+00	4.083E+01	5	0	-2.932E-01	9.304E-01	-2.199E-01	.000E+00	1.004E+00	1.618E+00
45	-8.744E+00	1.862E+01	5.393E+01	5	0	-8.475E-01	-3.993E-01	-3.497E-01	.000E+00	1.004E+00	2.388E+00
46	-9.649E+00	1.978E+01	5.180E+01	5	0	1.200E-01	-9.195E-01	-3.743E-01	.000E+00	1.004E+00	3.319E-01
47	-1.188E+01	2.298E+01	5.805E+01	5	0	7.085E-01	5.879E-01	3.904E-01	.000E+00	1.004E+00	2.063E+00
48	-1.180E+01	2.058E+01	5.335E+01	5	0	4.261E-01	9.046E-01	9.254E-03	.000E+00	1.004E+00	1.597E+00
49	-1.139E+01	-1.500E+01	9.337E+01	5	0	5.431E-01	4.270E-01	-7.230E-01	.000E+00	1.004E+00	2.961E+00
50	1.599E+01	2.459E+01	5.713E+01	5	0	-1.053E-01	-9.805E-01	1.658E-01	.000E+00	1.004E+00	1.817E+00

CYCLE 1 K(COLLISION) .117542 REMOVAL LIFETIME(ABS) 1.0973E+04 SOURCE POINTS GENERATED 2010
WARNING. WEIGHT OF SOURCE PARTICLE IS BELOW CUTOFF.
NPS = 499 IJK = 25859221408705 WGT = 2.48756E-01

CYCLE 2 K(COLLISION) .114594 REMOVAL LIFETIME(ABS) 1.1177E+04 SOURCE POINTS GENERATED 479

CYCLE 3 K(COLLISION) .130086 REMOVAL LIFETIME(ABS) 1.1826E+04 SOURCE POINTS GENERATED 554

CYCLE 4 K(COLLISION) .123662 REMOVAL LIFETIME(ABS) 1.1289E+04 SOURCE POINTS GENERATED 446

CYCLE 5 K(COLLISION) .118571 REMOVAL LIFETIME(ABS) 1.2602E+04 SOURCE POINTS GENERATED 502

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 5

CYCLE 6 K(COLLISION) .121817 REMOVAL LIFETIME(ABS) 1.1426E+04 SOURCE POINTS GENERATED 504

ESTIMATOR	CYCLE 7	AVE OF 2 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.120799	.121308	.0042	K(COL/ABS)	.000000	.0000	.000000	.0000	.0000
K(ABSORPTION)	.143253	.138364	.0353	K(ABS/TK LN)	.000000	.0000	.000000	.0000	.0000
K(TRK LENGTH)	.122783	.122551	.0019	K(TK LN/COL)	.000000	.0000	.000000	.0000	.0000
REM LIFE(COL)	1.2128E+04	1.1796E+04	.0281						
REM LIFE(ABS)	1.1836E+04	1.1631E+04	.0176	LIFE(COL/ABS)	.0000E+00	.0000	.0000E+00	.0000	.0000
SOURCE POINTS GENERATED	474								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 7

ESTIMATOR	CYCLE 8	AVE OF 3 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.133822	.125479	.0333	K(COL/ABS)	.125231	.0381	.125363	.0050	-.9905
K(ABSORPTION)	.098221	.124983	.1094	K(ABS/TK LN)	.125773	.0391	.126209	.0084	-.9710
K(TRK LENGTH)	.134589	.126563	.0317	K(TK LN/COL)	.126021	.0325	.129578	.0579	.9946
REM LIFE(COL)	1.3991E+04	1.2528E+04	.0604						
REM LIFE(ABS)	1.3144E+04	1.2135E+04	.0427	LIFE(COL/ABS)	1.2332E+04	.0517	1.1288E+04	.0063	.9997

SOURCE POINTS GENERATED 517

ESTIMATOR	CYCLE 9	AVE OF 4 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.123302	.124935	.0241	K(COL/ABS)	.125938	.0274	.125402	.0031	-.9907
K(ABSORPTION)	.132814	.126941	.0777	K(ABS/TK LN)	.126486	.0280	.126235	.0051	-.9720
K(TRK LENGTH)	.124436	.126032	.0229	K(TK LN/COL)	.125483	.0235	.129147	.0364	.9948
REM LIFE(COL)	1.1418E+04	1.2250E+04	.0492	K(COL/ABS/TK LN)	.125969	.0112	.124220	.0020	
REM LIFE(ABS)	1.1832E+04	1.2059E+04	.0310	LIFE(COL/ABS)	1.2155E+04	.0398	1.1847E+04	.0246	.9624

SOURCE POINTS GENERATED 475

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 9

ESTIMATOR	CYCLE 10	AVE OF 5 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.123229	.124594	.0189	K(COL/ABS)	.123803	.0276	.124285	.0105	-.8056
K(ABSORPTION)	.107302	.123013	.0699	K(ABS/TK LN)	.124254	.0285	.125040	.0119	-.7339
K(TRK LENGTH)	.123347	.125495	.0183	K(TK LN/COL)	.125044	.0186	.126144	.0248	.9909
REM LIFE(COL)	1.0002E+04	1.1801E+04	.0549	K(COL/ABS/TK LN)	.124367	.0156	.121390	.0191	
REM LIFE(ABS)	1.0141E+04	1.1676E+04	.0412	LIFE(COL/ABS)	1.1738E+04	.0477	1.1481E+04	.0351	.9713

SOURCE POINTS GENERATED 494

ESTIMATOR	CYCLE 11	AVE OF 6 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.110636	.122267	.0247	K(COL/ABS)	.121346	.0307	.121923	.0234	-.2144
K(ABSORPTION)	.107479	.120424	.0621	K(ABS/TK LN)	.121602	.0323	.122338	.0264	-.1072
K(TRK LENGTH)	.109208	.122780	.0269	K(TK LN/COL)	.122524	.0257	.120414	.0237	.9931
REM LIFE(COL)	9.2737E+03	1.1380E+04	.0594	K(COL/ABS/TK LN)	.121824	.0246	.118920	.0108	
REM LIFE(ABS)	9.5221E+03	1.1317E+04	.0470	LIFE(COL/ABS)	1.1348E+04	.0530	1.1189E+04	.0375	.9811

SOURCE POINTS GENERATED 443

ESTIMATOR	CYCLE 12	AVE OF 7 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.119821	.121918	.0211	K(COL/ABS)	.121491	.0259	.121756	.0194	-.2250
K(ABSORPTION)	.124910	.121065	.0525	K(ABS/TK LN)	.121834	.0273	.122314	.0219	-.1128
K(TRK LENGTH)	.121547	.122604	.0228	K(TK LN/COL)	.122261	.0219	.120063	.0216	.9905
REM LIFE(COL)	1.1489E+04	1.1395E+04	.0502	K(COL/ABS/TK LN)	.121862	.0208	.118568	.0150	
REM LIFE(ABS)	1.1446E+04	1.1335E+04	.0397	LIFE(COL/ABS)	1.1365E+04	.0447	1.1214E+04	.0311	.9810

SOURCE POINTS GENERATED 507

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 12

ESTIMATOR	CYCLE 13	AVE OF 8 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.119098	.121565	.0186	K(COL/ABS)	.121894	.0226	.121691	.0166	-.2497
K(ABSORPTION)	.130323	.122222	.0460	K(ABS/TK LN)	.122171	.0237	.122139	.0188	-.1486
K(TRK LENGTH)	.118727	.122119	.0202	K(TK LN/COL)	.121842	.0193	.120070	.0182	.9900
REM LIFE(COL)	1.0663E+04	1.1304E+04	.0445	K(COL/ABS/TK LN)	.121969	.0180	.119627	.0133	
REM LIFE(ABS)	1.1048E+04	1.1299E+04	.0346	LIFE(COL/ABS)	1.1302E+04	.0394	1.1292E+04	.0272	.9773

SOURCE POINTS GENERATED 514

ESTIMATOR	CYCLE 14	AVE OF 9 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.119785	.121368	.0165	K(COL/ABS)	.122909	.0214	.121908	.0147	-.2672
K(ABSORPTION)	.142282	.124451	.0437	K(ABS/TK LN)	.123147	.0222	.122316	.0165	-.1861
K(TRK LENGTH)	.119632	.121843	.0180	K(TK LN/COL)	.121605	.0172	.120088	.0158	.9897
REM LIFE(COL)	1.0824E+04	1.1250E+04	.0398	K(COL/ABS/TK LN)	.122554	.0165	.120458	.0130	
REM LIFE(ABS)	1.1247E+04	1.1294E+04	.0306	LIFE(COL/ABS)	1.1272E+04	.0349	1.1364E+04	.0247	.9722

SOURCE POINTS GENERATED 520

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 14

ESTIMATOR	CYCLE 15	AVE OF 10 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.111897	.120421	.0168	K(COL/ABS)	.122359	.0198	.121178	.0149	-.2212
K(ABSORPTION)	.122911	.124297	.0391	K(ABS/TK LN)	.122561	.0205	.121536	.0165	-.1506
K(TRK LENGTH)	.111666	.120825	.0183	K(TK LN/COL)	.120623	.0175	.119130	.0156	.9919

REM LIFE(COL)	1.0421E+04	1.1167E+04	.0366	K(COL/ABS/TK LN)	.121848	.0159	.119803	.0126	
REM LIFE(ABS)	1.0800E+04	1.1244E+04	.0278	LIFE(COL/ABS)	1.1206E+04	.0320	1.1368E+04	.0219	.9721
SOURCE POINTS GENERATED	436								

ESTIMATOR	CYCLE 16	AVE OF 11 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.119220	.120311	.0152	K(COL/ABS)	.121333	.0199	.120652	.0139	-.1780
K(ABSORPTION)	.102932	.122355	.0393	K(ABS/TK LN)	.121552	.0205	.121032	.0153	-.1224
K(TRK LENGTH)	.119996	.120750	.0166	K(TK LN/COL)	.120531	.0159	.118949	.0142	.9917
REM LIFE(COL)	1.1143E+04	1.1165E+04	.0331	K(COL/ABS/TK LN)	.121139	.0156	.119214	.0129	
REM LIFE(ABS)	1.1088E+04	1.1230E+04	.0252	LIFE(COL/ABS)	1.1198E+04	.0289	1.1333E+04	.0200	.9712
SOURCE POINTS GENERATED	569								

ESTIMATOR	CYCLE 17	AVE OF 12 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.114281	.119809	.0146	K(COL/ABS)	.120841	.0187	.120153	.0134	-.1381
K(ABSORPTION)	.116574	.121873	.0362	K(ABS/TK LN)	.121044	.0192	.120508	.0147	-.0861
K(TRK LENGTH)	.114321	.120214	.0158	K(TK LN/COL)	.120012	.0152	.118478	.0134	.9923
REM LIFE(COL)	1.0530E+04	1.1112E+04	.0307	K(COL/ABS/TK LN)	.120632	.0149	.118759	.0123	
REM LIFE(ABS)	1.0525E+04	1.1171E+04	.0237	LIFE(COL/ABS)	1.1142E+04	.0270	1.1263E+04	.0193	.9699
SOURCE POINTS GENERATED	471								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 17

ESTIMATOR	CYCLE 18	AVE OF 13 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.114071	.119367	.0140	K(COL/ABS)	.120222	.0180	.119638	.0131	-.0798
K(ABSORPTION)	.111522	.121077	.0342	K(ABS/TK LN)	.120327	.0188	.119835	.0147	-.0137
K(TRK LENGTH)	.111931	.119577	.0156	K(TK LN/COL)	.119472	.0147	.118761	.0122	.9898
REM LIFE(COL)	9.4524E+03	1.0985E+04	.0309	K(COL/ABS/TK LN)	.120007	.0148	.119014	.0105	
REM LIFE(ABS)	9.5123E+03	1.1044E+04	.0249	LIFE(COL/ABS)	1.1014E+04	.0277	1.1135E+04	.0215	.9707
SOURCE POINTS GENERATED	503								

ESTIMATOR	CYCLE 19	AVE OF 14 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.116558	.119167	.0131	K(COL/ABS)	.120857	.0174	.119685	.0121	-.1200
K(ABSORPTION)	.141671	.122548	.0335	K(ABS/TK LN)	.120925	.0180	.119853	.0136	-.0691
K(TRK LENGTH)	.115718	.119301	.0146	K(TK LN/COL)	.119234	.0138	.118779	.0113	.9896
REM LIFE(COL)	9.3850E+03	1.0870E+04	.0307	K(COL/ABS/TK LN)	.120339	.0139	.119298	.0101	
REM LIFE(ABS)	9.7373E+03	1.0950E+04	.0248	LIFE(COL/ABS)	1.0910E+04	.0276	1.1086E+04	.0207	.9741
SOURCE POINTS GENERATED	482								

ESTIMATOR	CYCLE 20	AVE OF 15 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.113092	.118762	.0127	K(COL/ABS)	.119740	.0188	.118975	.0124	.0120
K(ABSORPTION)	.095093	.120717	.0351	K(ABS/TK LN)	.119820	.0192	.119148	.0137	.0370
K(TRK LENGTH)	.113633	.118923	.0140	K(TK LN/COL)	.118843	.0133	.118322	.0113	.9892
REM LIFE(COL)	1.1224E+04	1.0894E+04	.0286	K(COL/ABS/TK LN)	.119468	.0149	.118533	.0112	
REM LIFE(ABS)	1.0990E+04	1.0953E+04	.0231	LIFE(COL/ABS)	1.0923E+04	.0257	1.1048E+04	.0195	.9721
SOURCE POINTS GENERATED	510								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 20

ESTIMATOR	CYCLE 21	AVE OF 16 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.103893	.117832	.0143	K(COL/ABS)	.119075	.0186	.118167	.0139	.0654
K(ABSORPTION)	.114304	.120317	.0331	K(ABS/TK LN)	.119144	.0190	.118328	.0150	.0838
K(TRK LENGTH)	.103694	.117972	.0155	K(TK LN/COL)	.117902	.0149	.117416	.0131	.9917
REM LIFE(COL)	8.1866E+03	1.0725E+04	.0314	K(COL/ABS/TK LN)	.118707	.0155	.117744	.0129	
REM LIFE(ABS)	8.5545E+03	1.0803E+04	.0259	LIFE(COL/ABS)	1.0764E+04	.0285	1.0954E+04	.0214	.9788
SOURCE POINTS GENERATED	445								

ESTIMATOR	CYCLE 22	AVE OF 17 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.114536	.117639	.0136	K(COL/ABS)	.118750	.0177	.117930	.0132	.0791
K(ABSORPTION)	.112565	.119861	.0315	K(ABS/TK LN)	.118846	.0180	.118132	.0142	.0928
K(TRK LENGTH)	.115577	.117831	.0146	K(TK LN/COL)	.117735	.0141	.117118	.0127	.9910

REM LIFE(COL)	1.0996E+04	1.0741E+04	.0295	K(COL/ABS/TK LN)	.118443	.0147	.117408	.0126
REM LIFE(ABS)	1.0961E+04	1.0812E+04	.0243	LIFE(COL/ABS)	1.0776E+04	.0268	1.0950E+04	.0201 .9787
SOURCE POINTS GENERATED	568							

ESTIMATOR	CYCLE 23	AVE OF 18 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.115428	.117516	.0128	K(COL/ABS)	.118571	.0168	.117790	.0125	.0840
K(ABSORPTION)	.115648	.119627	.0298	K(ABS/TK LN)	.118719	.0171	.118079	.0133	.0934
K(TRK LENGTH)	.117480	.117811	.0138	K(TK LN/COL)	.117663	.0133	.116892	.0124	.9886
REM LIFE(COL)	1.1095E+04	1.0760E+04	.0279	K(COL/ABS/TK LN)	.118318	.0139	.117178	.0126	
REM LIFE(ABS)	1.1539E+04	1.0853E+04	.0231	LIFE(COL/ABS)	1.0807E+04	.0253	1.1006E+04	.0202	.9745
SOURCE POINTS GENERATED	511								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 23

ESTIMATOR	CYCLE 24	AVE OF 19 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.121924	.117748	.0123	K(COL/ABS)	.118498	.0159	.117954	.0119	.0645
K(ABSORPTION)	.112440	.119248	.0284	K(ABS/TK LN)	.118641	.0162	.118221	.0126	.0758
K(TRK LENGTH)	.122056	.118035	.0132	K(TK LN/COL)	.117891	.0127	.117152	.0119	.9887
REM LIFE(COL)	1.1215E+04	1.0784E+04	.0264	K(COL/ABS/TK LN)	.118344	.0132	.117375	.0119	
REM LIFE(ABS)	1.1303E+04	1.0876E+04	.0220	LIFE(COL/ABS)	1.0830E+04	.0240	1.1029E+04	.0191	.9746
SOURCE POINTS GENERATED	536								

ESTIMATOR	CYCLE 25	AVE OF 20 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.110102	.117366	.0121	K(COL/ABS)	.118362	.0152	.117665	.0116	.0530
K(ABSORPTION)	.121438	.119358	.0270	K(ABS/TK LN)	.118521	.0154	.117960	.0122	.0658
K(TRK LENGTH)	.111039	.117685	.0129	K(TK LN/COL)	.117525	.0125	.116784	.0120	.9887
REM LIFE(COL)	1.0340E+04	1.0762E+04	.0252	K(COL/ABS/TK LN)	.118136	.0126	.117097	.0120	
REM LIFE(ABS)	1.0474E+04	1.0856E+04	.0210	LIFE(COL/ABS)	1.0809E+04	.0229	1.1013E+04	.0182	.9748
SOURCE POINTS GENERATED	440								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 25

1PROBLEM SUMMARY

RUN TERMINATED WHEN 25 KCODE CYCLES WERE DONE. 12/01/95 16:34:51

\+ DHLWG5-- DWPF GLASS W/ NO ABSORBERS INFINITE ARRAY DRY PROBID = 12/01/95 16:22:05

0

NEUTRON CREATION	TRACKS	WEIGHT (PER SOURCE	ENERGY PARTICLE)	NEUTRON LOSS	TRACKS	WEIGHT (PER SOURCE	ENERGY PARTICLE)
SOURCE	13968	8.9490E-01	2.1050E+00	ESCAPE	2991	1.6939E-01	5.1653E-02
				ENERGY CUTOFF	0	0.	0.
				TIME CUTOFF	0	0.	0.
WEIGHT WINDOW	0	0.	0.	WEIGHT WINDOW	0	0.	0.
CELL IMPORTANCE	0	0.	0.	CELL IMPORTANCE	0	0.	0.
WEIGHT CUTOFF	0	1.1077E-01	4.0833E-02	WEIGHT CUTOFF	10978	1.1490E-01	4.3788E-02
ENERGY IMPORTANCE	0	0.	0.	ENERGY IMPORTANCE	0	0.	0.
DXTRAN	0	0.	0.	DXTRAN	0	0.	0.
FORCED COLLISIONS	0	0.	0.	FORCED COLLISIONS	0	0.	0.
EXP. TRANSFORM	0	0.	0.	EXP. TRANSFORM	0	0.	0.
UPSCATTERING	0	0.	5.9030E-08	DOWNSCATTERING	0	0.	1.9474E+00
				CAPTURE	0	6.8235E-01	9.5254E-02
(N,XN)	2	1.1716E-04	7.2589E-05	LOSS TO (N,XN)	1	5.8580E-05	4.9871E-04
FISSION	0	0.	0.	LOSS TO FISSION	0	3.9086E-02	7.2974E-03
TOTAL	13970	1.0058E+00	2.1459E+00	TOTAL	13970	1.0058E+00	2.1459E+00

NUMBER OF NEUTRONS BANKED	1	AVERAGE LIFETIME, SHAKES		CUTOFFS	
NEUTRON TRACKS PER SOURCE PARTICLE	1.0001E+00	ESCAPE	2.9310E+03	TCO	1.0000E+34
NEUTRON COLLISIONS PER SOURCE PARTICLE	1.2833E+02	CAPTURE	1.2956E+04	ECO	.0000E+00
TOTAL NEUTRON COLLISIONS	1792536	CAPTURE OR ESCAPE	1.1050E+04	WC1	-5.0000E-01

NET MULTIPLICATION 1.0001E+00 .0026 ANY TERMINATION 1.3225E+04 WC2 -2.5000E-01

COMPUTER TIME SO FAR IN THIS RUN 12.70 MINUTES
COMPUTER TIME IN MCRUN 12.67 MINUTES
SOURCE PARTICLES PER MINUTE 1.1027E+03
RANDOM NUMBERS GENERATED 21137273

MAXIMUM NUMBER EVER IN BANK 1
BANK OVERFLOWS TO BACKUP FILE 0
FIELD LENGTH 0
MOST RANDOM NUMBERS USED WAS 7074 IN HISTORY 5011

RANGE OF SAMPLED SOURCE WEIGHTS = 2.4876E-01 TO 1.1468E+00

2010 SOURCE PARTICLES HAD WEIGHT BELOW CUTOFF.

1NEUTRON ACTIVITY IN EACH CELL PRINT TABLE 126

CELL		TRACKS ENTERING	POPULATION	COLLISIONS	COLLISIONS * WEIGHT (PER HISTORY)	NUMBER WEIGHTED ENERGY	FLUX WEIGHTED ENERGY	AVERAGE TRACK WEIGHT (RELATIVE)	AVERAGE TRACK MFP (CM)
1	2	0	0	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	0	0	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	99705	13969	1531600	8.7346E+01	7.3500E-04	2.3015E-01	7.9768E-01	3.9003E+00
5	6	175770	12412	255480	1.3856E+01	1.1045E-03	2.1278E-01	7.9143E-01	1.9766E+00
6	7	2232	1536	5143	2.7776E-01	1.0067E-03	2.3345E-01	7.8167E-01	1.9088E+00
7	8	145884	12061	301	1.6267E-02	1.1322E-03	2.1908E-01	7.8992E-01	1.0684E+04
8	9	3604	2993	12	5.8618E-04	1.3097E-03	2.8242E-01	7.9142E-01	1.1827E+04
TOTAL		427195	42971	1792536	1.0150E+02				

1NEUTRON WEIGHT BALANCE IN EACH CELL -- EXTERNAL EVENTS PRINT TABLE 130

CELL		ENTERING	SOURCE	ENERGY CUTOFF	TIME CUTOFF	EXITING	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-1.6939E-01	-1.6939E-01
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-3.3268E+00	-3.3268E+00
4	5	4.8526E+00	8.9490E-01	.0000E+00	.0000E+00	-5.2294E+00	5.1811E-01
5	6	9.9805E+00	.0000E+00	.0000E+00	.0000E+00	-9.7775E+00	2.0300E-01
6	7	1.2591E-01	.0000E+00	.0000E+00	.0000E+00	-1.2152E-01	4.3918E-03
7	8	8.2632E+00	.0000E+00	.0000E+00	.0000E+00	-4.9709E+00	3.2923E+00
8	9	2.0405E-01	.0000E+00	.0000E+00	.0000E+00	-1.5728E-04	2.0390E-01
TOTAL		2.3426E+01	8.9490E-01	.0000E+00	.0000E+00	-2.3596E+01	7.2551E-01

1NEUTRON WEIGHT BALANCE IN EACH CELL -- VARIANCE REDUCTION EVENTS PRINT TABLE 130

CELL		WEIGHT WINDOW	CELL IMPORTANCE	WEIGHT CUTOFF	ENERGY IMPORTANCE	DXTRAN	FORCED COLLISION	EXPONENTIAL TRANSFORM	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	.0000E+00	.0000E+00	-1.9465E-03	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-1.9465E-03
5	6	.0000E+00	.0000E+00	-2.0352E-03	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-2.0352E-03
6	7	.0000E+00	.0000E+00	-1.4938E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-1.4938E-04
7	8	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
8	9	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
TOTAL		.0000E+00	.0000E+00	-4.1310E-03	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-4.1310E-03

1NEUTRON WEIGHT BALANCE IN EACH CELL -- PHYSICAL EVENTS PRINT TABLE 130

CELL		(N,XN)	FISSION	CAPTURE	LOSS TO (N,XN)	LOSS TO FISSION	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00

4	5	1.1716E-04	.0000E+00	-4.7714E-01	-5.8580E-05	-3.9086E-02	-5.1616E-01
5	6	.0000E+00	.0000E+00	-2.0096E-01	.0000E+00	.0000E+00	-2.0096E-01
6	7	.0000E+00	.0000E+00	-4.2425E-03	.0000E+00	.0000E+00	-4.2425E-03
7	8	.0000E+00	.0000E+00	-9.4399E-06	.0000E+00	.0000E+00	-9.4399E-06
8	9	.0000E+00	.0000E+00	-4.2532E-07	.0000E+00	.0000E+00	-4.2532E-07
TOTAL		1.1716E-04	.0000E+00	-6.8235E-01	-5.8580E-05	-3.9086E-02	-7.2138E-01

1NEUTRON ACTIVITY OF EACH NUCLIDE IN EACH CELL, PER SOURCE PARTICLE PRINT TABLE 140

CELL		NUCLIDES	ATOM FRACTION	TOTAL COLLISIONS	COLLISIONS * WEIGHT	WEIGHT LOST TO CAPTURE	WEIGHT LOSS TO FISSION	WEIGHT GAIN BY (N,XN)
1	2	1001.50C	6.6667E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	1001.50C	6.6667E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	8016.50C	6.6460E-01	1141923	6.4892E+01	8.9611E-03	.0000E+00	.0000E+00
		14000.50C	3.3216E-01	358495	2.0764E+01	9.0952E-02	.0000E+00	.0000E+00
		92233.50C	8.6523E-12	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		92234.50C	2.8883E-07	5	2.7060E-04	5.2434E-05	1.4540E-07	.0000E+00
		92236.50C	9.0980E-07	15	8.2566E-04	3.1273E-04	1.2373E-05	.0000E+00
		93237.55C	6.5664E-07	26	1.1445E-03	8.8461E-04	8.9944E-06	.0000E+00
		92235.50C	1.5293E-05	556	3.4573E-02	4.2155E-03	1.3869E-02	.0000E+00
		92238.50C	3.1993E-03	29098	1.6106E+00	3.4369E-01	2.4535E-03	5.8580E-05
		94238.50C	4.4872E-06	141	6.1538E-03	3.5478E-03	2.9033E-04	.0000E+00
		94239.55C	1.0700E-05	955	5.7491E-02	1.2242E-02	2.0594E-02	.0000E+00
		94240.50C	1.9559E-06	299	1.2804E-02	1.1186E-02	4.9068E-06	.0000E+00
		94241.50C	8.2819E-07	75	4.7180E-03	6.7210E-04	1.8511E-03	.0000E+00
		94242.50C	1.6322E-07	3	1.4245E-04	5.5361E-05	5.0150E-07	.0000E+00
		95241.50C	1.6407E-07	9	3.7837E-04	3.6731E-04	1.9269E-06	.0000E+00
		95242.50C	7.5762E-11	0	9.2268E-07	.0000E+00	.0000E+00	.0000E+00
		95243.50C	1.4711E-09	0	3.5912E-09	.0000E+00	.0000E+00	.0000E+00
		96245.35C	1.9666E-12	0	8.0508E-09	.0000E+00	.0000E+00	.0000E+00
5	6	6000.50C	1.3653E-03	182	1.0296E-02	2.4632E-07	.0000E+00	.0000E+00
		7014.50C	3.9036E-03	858	4.5210E-02	4.8334E-04	.0000E+00	.0000E+00
		14000.50C	1.4597E-02	995	5.7112E-02	1.7301E-04	.0000E+00	.0000E+00
		15031.50C	7.9416E-04	86	4.7108E-03	1.6985E-05	.0000E+00	.0000E+00
		16032.50C	5.1291E-04	22	1.1964E-03	4.6348E-05	.0000E+00	.0000E+00
		24000.50C	1.9975E-01	36139	2.0870E+00	4.1189E-02	.0000E+00	.0000E+00
		25055.50C	1.9900E-02	16393	9.8775E-01	2.5049E-02	.0000E+00	.0000E+00
		26000.55C	6.6604E-01	158113	8.3290E+00	1.0724E-01	.0000E+00	.0000E+00
		28000.50C	9.3142E-02	42692	2.3336E+00	2.6764E-02	.0000E+00	.0000E+00
6	7	6000.50C	1.3653E-03	3	2.0897E-04	3.6740E-10	.0000E+00	.0000E+00
		7014.50C	3.9036E-03	13	6.1983E-04	4.4176E-06	.0000E+00	.0000E+00
		14000.50C	1.4597E-02	24	1.3228E-03	5.1633E-06	.0000E+00	.0000E+00
		15031.50C	7.9416E-04	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		16032.50C	5.1291E-04	1	7.4098E-05	5.8419E-07	.0000E+00	.0000E+00
		24000.50C	1.9975E-01	719	4.1398E-02	8.6766E-04	.0000E+00	.0000E+00
		25055.50C	1.9900E-02	325	2.0012E-02	6.0418E-04	.0000E+00	.0000E+00
		26000.55C	6.6604E-01	3175	1.6607E-01	2.2149E-03	.0000E+00	.0000E+00
		28000.50C	9.3142E-02	883	4.8048E-02	5.4559E-04	.0000E+00	.0000E+00
7	8	1001.50C	6.6667E-01	277	1.4861E-02	9.4384E-06	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	24	1.4064E-03	1.5454E-09	.0000E+00	.0000E+00
8	9	1001.50C	6.6667E-01	12	5.8618E-04	4.2532E-07	.0000E+00	.0000E+00

8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
TOTAL		1792536	1.0154E+02	6.8235E-01	3.9086E-02	5.8580E-05

TOTAL OVER ALL CELLS FOR EACH NUCLIDE	TOTAL COLLISIONS	COLLISIONS * WEIGHT	WEIGHT LOST TO CAPTURE	WEIGHT GAIN BY FISSION	WEIGHT GAIN BY (N,XN)
1001.50C	289	1.5447E-02	9.8637E-06	.0000E+00	.0000E+00
6000.50C	185	1.0505E-02	2.4668E-07	.0000E+00	.0000E+00
7014.50C	871	4.5829E-02	4.8776E-04	.0000E+00	.0000E+00
8016.50C	1141947	6.4893E+01	8.9611E-03	.0000E+00	.0000E+00
14000.50C	359514	2.0823E+01	9.1130E-02	.0000E+00	.0000E+00
15031.50C	86	4.7108E-03	1.6985E-05	.0000E+00	.0000E+00
16032.50C	23	1.2705E-03	4.6932E-05	.0000E+00	.0000E+00
24000.50C	36858	2.1284E+00	4.2057E-02	.0000E+00	.0000E+00
25055.50C	16718	1.0078E+00	2.5653E-02	.0000E+00	.0000E+00
26000.55C	161288	8.4951E+00	1.0945E-01	.0000E+00	.0000E+00
28000.50C	43575	2.3817E+00	2.7310E-02	.0000E+00	.0000E+00
92233.50C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
92234.50C	5	2.7060E-04	5.2434E-05	1.4540E-07	.0000E+00
92235.50C	556	3.4573E-02	4.2155E-03	1.3869E-02	.0000E+00
92236.50C	15	8.2566E-04	3.1273E-04	1.2373E-05	.0000E+00
92238.50C	29098	1.6106E+00	3.4369E-01	2.4535E-03	5.8580E-05
93237.55C	26	1.1445E-03	8.8461E-04	8.9944E-06	.0000E+00
94238.50C	141	6.1538E-03	3.5478E-03	2.9033E-04	.0000E+00
94239.55C	955	5.7491E-02	1.2242E-02	2.0594E-02	.0000E+00
94240.50C	299	1.2804E-02	1.1186E-02	4.9068E-06	.0000E+00
94241.50C	75	4.7180E-03	6.7210E-04	1.8511E-03	.0000E+00
94242.50C	3	1.4245E-04	5.5361E-05	5.0150E-07	.0000E+00
95241.50C	9	3.7837E-04	3.6731E-04	1.9269E-06	.0000E+00
95242.50C	0	9.2268E-07	.0000E+00	.0000E+00	.0000E+00
95243.50C	0	3.5912E-09	.0000E+00	.0000E+00	.0000E+00
96245.35C	0	8.0508E-09	.0000E+00	.0000E+00	.0000E+00

****

DUMP NO. 2 ON FILE RUNTPI NPS = 13968 CTM = 12.67

17 WARNING MESSAGES SO FAR.

RUN TERMINATED WHEN 25 KCODE CYCLES WERE DONE.

COMPUTER TIME = 12.70 MINUTES

MCNP VERSION 4A-B 10/04/91 12/01/95 16:34:51 PROBID = 12/01/95 16:22:05

```
1MCNP     VERSION 4A-B  LD=10/04/91                        12/01/95 15:50:08
 **************************************************************************       PROBID =    12/01/95 15:50:08
 INP=DHLWG6 OUTP=DHLWG6.O

          DHLWG6-- DWPF GLASS   INFINITE ARRAY Flooded - FISSILE X 100
          C      1     2  -1.00    -13 2 -20   IMP:N=1  FILL=3
          C      LATTICE OF CANISTERS
          2      2  -1.00    -10 9 -12 11 2 -20 FILL=2 (32.0 32.0 0.) IMP:N=1
          3      0          10:-9:12:-11:-2:20  IMP:N=0
          C       CANISTER
          4      2  -1.00   -6 5 -8 7 LAT=1 U=2 FILL=1 IMP:N=1
          5      1  -2.85    -1 -3 IMP:N=1 U=1 $ 5 WT% PU GLASS
          6      3  -7.9      1 -14 -3 IMP:N=1 U=1 $ SS304L CANISTER WALL
          7      3  -7.9    -14  3 -4 IMP:N=1 U=1 $ SS304L CANISTER WALL
          8      2  -1.00   14 -4 IMP:N=1 U=1  $ WATER AROUND CANISTER
          9      2  -1.00    4     IMP:N=1 U=1  $ WATER ABOVE CANISTER / REFLECTED ON CENTERL
          C
          C      10     4  -8.140 13 -19 2 -20 IMP:N=1 $ A 516 CARBON STEEL INNER BARRIER
          C      11     4  -8.140     -19 20 -21 IMP:N=1 $ A 516 CARBON STEEL INNER BARRIER L
          C      12     2  -1.00      -19 21 -23 IMP:N=1 $ GAP BETWEEN INNER AND OUTER BARRIE
          C      13     5  -8.9375  19 -22 2 -23 IMP:N=1 $ C71500 ALLOY INNER BARRIER
          C      14     5  -8.9375      -22     23 -24 IMP:N=1 $ C71500 ALLOY INNER BARRIER LI
          C      15     2  -1.00  22 2 -24   -16 15 -18 17 IMP:N=1 $ 6" OF WATER REFLECTED AR
          C      16     2  -1.00     24 -25   -16 15 -18 17 IMP:N=1 $ 12" OF WATER ABOVE CONTA
          C      17      0          -2:25:-15:16:-17:18     IMP:N=0   $ ZERO-IMPORTANCE OUTSI

          1      CZ 29.528
          2*     PZ  0.0
          3      PZ 137.13
          4      PZ  138.7175
          5      PX  -32.0
          6      PX   32.0
          7      PY  -32.0
          8      PY   32.0
          9*     PX -63.9999
          10*    PX  63.9999
          11*    PY -63.9999
          12*    PY  63.9999
          13     CZ  78.45
          14     CZ  30.48
          C      15*  PX  -100.74
          C      16*   PX    100.74
          C      17*   PY  -100.74
          C      18*   PY    100.74
          19     CZ   80.45
          20     PZ  153.75
          21     PZ  156.25
          22     CZ   85.45
          23     PZ  162.50
          24     PZ  171.0
          25     PZ  201.48

          KCODE 500 0.03 5 25
          C      KSRC  22.78 25.28 16 30.28 22.78 30 22.78 40.28 40 35.28 22.78 100
          C       22.78 22.28 150 28.28 22.78 200 22.78 30.28 150 38.28 22.78 250.
          C       22.78 -25.28 16 30.28 -22.78 30 22.78 -40.28 40 35.28 -22.78 100
          C       22.78 -22.28 150 28.28 -22.78 200 22.78 -30.28 150 38.28 -22.78 250.
          C       -22.78 25.28 16 -30.28 22.78 30 -22.78 40.28 40 -35.28 22.78 100
          C       -22.78 22.28 150 -28.28 22.78 200 -22.78 30.28 150 -38.28 22.78 250.
          C       -22.78 -25.28 16 -30.28 -22.78 30 -22.78 -40.28 40 -35.28 -22.78 100
```

```
   57-        C      -22.78 -22.28 150 -28.28 -22.78 200 -22.78 -30.28 150 -38.28 -22.78 250.
   58-        C        C71500  D=8.9375 G/CC
   59-        M5   25055.50C  -0.10  26000.55C -0.70    28000.50C -31.000
 WARNING.  MATERIAL   5 IS NOT USED IN THE PROBLEM.
   60-             29000.50C -67.150 82000.50C -0.050
   61-        C        ALLOY 825  D=8.140 G/CC
   62-        M4    6000.50C  -0.05  13027.50C  -0.20  14000.50C  -0.50
 WARNING.  MATERIAL   4 IS NOT USED IN THE PROBLEM.
   63-             16032.50C  -0.03  22000.50C  -0.90  24000.50C -21.50
   64-             25055.50C  -1.00  26000.55C -28.57  28000.50C -42.00
   65-             29000.50C  -2.25  42000.50C  -3.00
   66-        C        SS304L D=7.9 G/CC
   67-        M3    6000.50C  -0.030 7014.50C  -0.100 14000.50C -0.75
   68-             15031.50C  -0.045 16032.50C  -0.030 24000.50C -19.000
   69-             25055.50C  -2.000 26000.55C -68.045 28000.50C -10.000
   70-        M2    1001.50C 2.0  8016.50C 1.0
   71-        MT2   LWTR.01T
   72-        M1     3006.50C -1.080-1   3007.55C -1.332     5010.50C -6.234-1 $ DHLW GLASS
   73-               5011.56C -2.509     8016.50C  -4.4102+1  9019.50C -3.108-2
   74-              11023.50C -8.233    12000.50C -8.046-1  13027.50C -2.057
   75-              14000.50C -2.1967+1 16032.50C -1.263-1  19000.50C -2.916
   76-              20000.50C -6.458-1  22000.50C -5.823-1  25055.50C -1.520
   77-              26000.55C -7.211    28000.50C -7.170-1  15031.50C -1.372-2
   78-              24000.50C -8.055-2 29000.50C  -1.489-1  47109.50C -4.906-2
   79-              56138.50C -8.083-2 82000.50C -5.948-2   17000.50C -1.131-1
   80-              90232.50C -1.811-1  62149.50C -4.411-4  92233.50C -9.727-9
   81-              92234.50C -3.261-4  92236.50C -1.036-3  93237.55C -7.509-4
   82-              92235.50C -1.734    92238.50C -3.674    94238.50C -5.153-3
   83-              94239.55C -1.234   94240.50C -2.265-3  94241.50C -9.631-4
   84-              94242.50C -1.906-4  95241.50C -1.908-4  95242.50C -8.847-8
   85-              95243.50C -1.725-6  96245.35C -2.325-9
   86-        PRINT
   87-        PRDMP
1     INITIAL SOURCE FROM FILE   SRCTP

 ORIGINAL NUMBER OF POINTS                          496
    POINTS NOT IN ANY CELL                    0
    POINTS IN CELLS OF ZERO IMPORTANCE        0
    POINTS IN VOID CELLS                      0
    POINTS IN AMBIGUOUS CELLS                 0
 TOTAL POINTS REJECTED                              0
 POINTS REMAINING                                 496
 POINTS AFTER EXPANSION OR CONTRACTION            499
 NOMINAL SOURCE SIZE                              500

 INITIAL GUESS FOR K(EFF.)                    .030000

 CYCLES TO SKIP BEFORE TALLYING                     5

 TOTAL FISSION NUBAR DATA ARE BEING USED.
1MATERIAL COMPOSITION                                                    PRINT TABLE 40

 THE SUM OF THE FRACTIONS OF MATERIAL    3 WAS 1.000000E+02

 THE SUM OF THE FRACTIONS OF MATERIAL    2 WAS 3.000000E+00

 THE SUM OF THE FRACTIONS OF MATERIAL    1 WAS 1.028655E+02

 MATERIAL
  NUMBER     COMPONENT NUCLIDE, ATOM FRACTION
```

3	6000,	.00137	7014,	.00390	14000,	.01460	15031,	.00079
	16032,	.00051	24000,	.19975	25055,	.01990	26000,	.66604
	28000,	.09314						
2	1001,	.66667	8016,	.33333				

ASSOCIATED THERMAL S(A,B) DATA SETS: LWTR.01T

1	3006,	.00373	3007,	.03939	5010,	.01292	5011,	.04728
	8016,	.57205	9019,	.00034	11023,	.07430	12000,	.00687
	13027,	.01582	14000,	.16227	16032,	.00082	19000,	.01547
	20000,	.00334	22000,	.00252	25055,	.00574	26000,	.02679
	28000,	.00253	15031,	.00009	24000,	.00032	29000,	.00049
	47109,	.00009	56138,	.00012	82000,	.00006	17000,	.00066
	90232,	.00016	62149,	.00000	92233,	.00000	92234,	.00000
	92236,	.00000	93237,	.00000	92235,	.00153	92238,	.00320
	94238,	.00000	94239,	.00107	94240,	.00000	94241,	.00000
	94242,	.00000	95241,	.00000	95242,	.00000	95243,	.00000
	96245,	.00000						

MATERIAL NUMBER — COMPONENT NUCLIDE, MASS FRACTION

3	6000,	.00030	7014,	.00100	14000,	.00750	15031,	.00045
	16032,	.00030	24000,	.19000	25055,	.02000	26000,	.68045
	28000,	.10000						
2	1001,	.11191	8016,	.88809				
1	3006,	.00105	3007,	.01295	5010,	.00606	5011,	.02439
	8016,	.42873	9019,	.00030	11023,	.08004	12000,	.00782
	13027,	.02000	14000,	.21355	16032,	.00123	19000,	.02835
	20000,	.00628	22000,	.00566	25055,	.01478	26000,	.07010
	28000,	.00697	15031,	.00013	24000,	.00078	29000,	.00145
	47109,	.00048	56138,	.00079	82000,	.00058	17000,	.00110
	90232,	.00176	62149,	.00000	92233,	.00000	92234,	.00000
	92236,	.00001	93237,	.00001	92235,	.01686	92238,	.03572
	94238,	.00005	94239,	.01200	94240,	.00002	94241,	.00001
	94242,	.00000	95241,	.00000	95242,	.00000	95243,	.00000
	96245,	.00000						

WARNING. 3 OF THE MATERIALS HAD UNNORMALIZED FRACTIONS.

1CELL VOLUMES AND MASSES PRINT TABLE 50

CELL		ATOM DENSITY	GRAM DENSITY	INPUT VOLUME	CALCULATED VOLUME	MASS	PIECES	REASON VOLUME NOT CALCULATED
1	2	1.00309E-01	1.00000E+00	.00000E+00	2.51903E+06	2.51903E+06	0	
2	3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
3	4	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
4	5	8.04191E-02	2.85000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
5	6	8.70320E-02	7.90000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
6	7	8.70320E-02	7.90000E+00	.00000E+00	4.63333E+03	3.66033E+04	1	
7	8	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE
8	9	1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	.00000E+00	0	INFINITE

1SURFACE AREAS PRINT TABLE 50

SURFACE	INPUT AREA	CALCULATED AREA	REASON AREA NOT CALCULATED

1	1	.00000E+00	.00000E+00	INFINITE
2	2	.00000E+00	1.63839E+04	
3	3	.00000E+00	2.91864E+03	
4	4	.00000E+00	.00000E+00	INFINITE
5	5	.00000E+00	.00000E+00	INFINITE
6	6	.00000E+00	.00000E+00	INFINITE
7	7	.00000E+00	.00000E+00	INFINITE
8	8	.00000E+00	.00000E+00	INFINITE
9	9	.00000E+00	1.96800E+04	
10	10	.00000E+00	1.96800E+04	
11	11	.00000E+00	1.96800E+04	
12	12	.00000E+00	1.96800E+04	
13	13	.00000E+00	.00000E+00	NOT A BOUNDARY
14	14	.00000E+00	.00000E+00	INFINITE
15	19	.00000E+00	.00000E+00	NOT A BOUNDARY
16	20	.00000E+00	1.63839E+04	
17	21	.00000E+00	.00000E+00	NOT A BOUNDARY
18	22	.00000E+00	.00000E+00	NOT A BOUNDARY
19	23	.00000E+00	.00000E+00	NOT A BOUNDARY
20	24	.00000E+00	.00000E+00	NOT A BOUNDARY
21	25	.00000E+00	.00000E+00	NOT A BOUNDARY

1CELLS PRINT TABLE 60

CELL	MAT	ATOM DENSITY	GRAM DENSITY	VOLUME	MASS	PIECES	NEUTRON IMPORTANCE
1	2	2S 1.00309E-01	1.00000E+00	2.51903E+06	2.51903E+06	0	1.0000E+00
2	3	0 .00000E+00	.00000E+00	.00000E+00	.00000E+00	0	.0000E+00
3	4	2S 1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	0	1.0000E+00
4	5	1 8.04191E-02	2.85000E+00	.00000E+00	.00000E+00	0	1.0000E+00
5	6	3 8.70320E-02	7.90000E+00	.00000E+00	.00000E+00	0	1.0000E+00
6	7	3 8.70320E-02	7.90000E+00	4.63333E+03	3.66033E+04	1	1.0000E+00
7	8	2S 1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	0	1.0000E+00
8	9	2S 1.00309E-01	1.00000E+00	.00000E+00	.00000E+00	0	1.0000E+00
TOTAL				2.52367E+06	2.55564E+06		

1SURFACES PRINT TABLE 70

SURFACE		TRANS	TYPE	SURFACE COEFFICIENTS
1	1		CZ	2.9528000E+01
2	2	REFL.	PZ	.0000000E+00
3	3		PZ	1.3713000E+02
4	4		PZ	1.3871750E+02
5	5		PX	-3.2000000E+01
6	6		PX	3.2000000E+01
7	7		PY	-3.2000000E+01
8	8		PY	3.2000000E+01
9	9	REFL.	PX	-6.3999900E+01
10	10	REFL.	PX	6.3999900E+01
11	11	REFL.	PY	-6.3999900E+01
12	12	REFL.	PY	6.3999900E+01
13	13		CZ	7.8450000E+01
14	14		CZ	3.0480000E+01
15	19		CZ	8.0450000E+01
16	20		PZ	1.5375000E+02
17	21		PZ	1.5625000E+02
18	22		CZ	8.5450000E+01
19	23		PZ	1.6250000E+02
20	24		PZ	1.7100000E+02

```
    21      25              PZ     2.0148000E+02

 WARNING.  SURFACE     13 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     19 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     21 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     22 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     23 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     24 IS NOT USED FOR ANYTHING.

 WARNING.  SURFACE     25 IS NOT USED FOR ANYTHING.
1  TEMPERATURES OF THE CELLS.                                          PRINT TABLE 72

     TIME:        .0000E+00

     CELL          TMP 1
       2         2.5300E-08
       4         2.5300E-08
       5         2.5300E-08
       6         2.5300E-08
       7         2.5300E-08
       8         2.5300E-08
       9         2.5300E-08

       10 WARNING MESSAGES SO FAR.
1CROSS-SECTION TABLES                                                  PRINT TABLE 100

     TABLE    LENGTH

                        TABLES FROM FILE RMCCS2

   1001.50C     1153  NJOY                                          (  1301)      79/07/31.
   3006.50C     6551  NJOY                                          (  1303)      79/08/01.
   3007.55C    11053  NJOY                                          (  3007)     07/29/82
   5010.50C     9587  NJOY                                          (  1305)      79/09/10.
   6000.50C    16126  NJOY                                          (  1306)      79/07/31.
   7014.50C    22772  NJOY                                          (  1275)      79/09/08.
   8016.50C    23669  NJOY                                           ( 1276)     05/14/81
  13027.50C    22891  NJOY                                          (  1313)      79/09/08.
  24000.50C    89104  NJOY                                          (  1324)      79/06/21.
  26000.55C    84136  NJOY                                          ( 260)       10/21/82
  28000.50C    82267  NJOY                                          (  1328)      79/06/21.
  29000.50C    22473  NJOY                                          (  1329)     02/05/80
  56138.50C     2479  NJOY                                          (  1353)      79/06/21.
  82000.50C    28695  NJOY                                           ( 1382)     03/10/82
  92233.50C    14205  NJOY                              TOTAL NU    (  1393)      79/09/12.
  92235.50C    44188  NJOY                              TOTAL NU    (  1395)      79/09/12.
  92238.50C    66440  NJOY                              TOTAL NU    (  1398)      79/09/13.
  94239.55C    67551  NJOY                              TOTAL NU     ( 1399)     02/21/85
  94240.50C    42744  NJOY                              TOTAL NU    (  1380)      79/09/13.

                        TABLES FROM FILE NEWXS2

   5011.56C    28379                                                                06/28/88

                        TABLES FROM FILE ENDF5P2
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```
 9019.50C   20657  NJOY                                                ( 1309)      79/06/22.
11023.50C   36270  NJOY                                                ( 1311)      79/06/21.
14000.50C   48275  NJOY                                                ( 1314)      79/06/21.
17000.50C   12269  NJOY                                                ( 1149)      79/10/29.

WARNING.  NUBAR OF  92234.50C MAY BE EITHER PROMPT OR TOTAL.
92234.50C   76999  NJOY                                                ( 1394)      79/10/17.

WARNING.  NUBAR OF  92236.50C MAY BE EITHER PROMPT OR TOTAL.
92236.50C  119238  NJOY                                                ( 1396)      79/08/30.

WARNING.  NUBAR OF  94238.50C MAY BE EITHER PROMPT OR TOTAL.
94238.50C   16458  NJOY                                                ( 1338)      79/09/12.
94241.50C   22523  NJOY                                 TOTAL NU       ( 1381)      79/08/30.
94242.50C   43433  NJOY                                 TOTAL NU       ( 1342)      79/09/06.

                     TABLES FROM FILE ENDF5U2

12000.50C   39283  NJOY                                                ( 1312)      79/08/30.
15031.50C    2779  NJOY                                                ( 1315)      79/10/29.
16032.50C    2684  NJOY                                                ( 1316)      79/10/29.
19000.50C    9766  NJOY                                                ( 1150)      79/10/29.
20000.50C   26104  NJOY                                                ( 1320)      79/06/22.
22000.50C   25231  NJOY                                                ( 1322)      79/06/21.
25055.50C   60097  NJOY                                                ( 1325)      79/06/21.
62149.50C   11116  NJOY                                                ( 1319)      02/12/85
90232.50C   95614  NJOY                                 TOTAL NU       ( 1390)      07/10/80

WARNING.  NUBAR OF  95241.50C MAY BE EITHER PROMPT OR TOTAL.
95241.50C   29300  NJOY                                                ( 1361)      79/08/29.

WARNING.  NUBAR OF  95242.50C MAY BE EITHER PROMPT OR TOTAL.
95242.50C    5248  NJOY                                                ( 1369)      79/09/24.

WARNING.  NUBAR OF  95243.50C MAY BE EITHER PROMPT OR TOTAL.
95243.50C   51474  NJOY                                                ( 1363)      79/08/30.

                     TABLES FROM FILE RMCCSA2

47109.50C   10147  NJOY                                                ( 1373)      11/01/85
93237.55C   29142  NJOY                                 TOTAL NU       ( 1337)      04/04/85

                     TABLES FROM FILE ENDL852


WARNING.  NUBAR OF  96245.35C MAY BE EITHER PROMPT OR TOTAL.
96245.35C   15310  ZA=96245 ENDL-85        85/04/24  T=0K              (   93)       86/04/23

                     TABLES FROM FILE TMCCS2

 LWTR.01T   10193  HYDROGEN IN LIGHT WATER AT 300 DEGREES KELVIN      1001      0     010/22/85

 TOTAL      1506073

 WARNING.  NEUTRON ENERGY CUTOFF IS BELOW SOME CROSS-SECTION TABLES.
1DECIMAL WORDS OF DYNAMICALLY ALLOCATED STORAGE

     GENERAL              66802
     TALLIES                  0
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     BANK                 12403
     CROSS SECTIONS     1506073

     TOTAL              1585278

 ************************************************************************
 DUMP NO.  1 ON FILE   RUNTPG          NPS =       0          CTM =     .00

 SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP           CYCLE =     0

       18 WARNING MESSAGES SO FAR.
1   STARTING MCRUN.      FIELD LENGTH =      0      CPO =    .07                                PRINT TABLE 110

      DHLWG6-- DWPF GLASS   INFINITE ARRAY Flooded - FISSILE X 100
```

NPS	X	Y	Z	CELL	SURF	U	V	W	TIME	WEIGHT	ENERGY
1	5.327E+00	-2.874E+01	1.150E+02	5	0	5.085E-01	4.733E-01	7.193E-01	.000E+00	1.002E+00	2.566E-02
2	2.695E+01	6.780E+00	8.574E+01	5	0	8.952E-01	-4.447E-01	-2.944E-02	.000E+00	1.002E+00	1.300E+00
3	2.682E+01	6.480E+00	8.619E+01	5	0	-6.184E-01	-4.495E-01	6.446E-01	.000E+00	1.002E+00	9.777E-01
4	2.790E+01	6.571E+00	8.585E+01	5	0	9.710E-01	-5.665E-02	-2.323E-01	.000E+00	1.002E+00	2.458E+00
5	2.594E+01	8.495E+00	8.797E+01	5	0	5.861E-01	1.496E-01	-7.963E-01	.000E+00	1.002E+00	2.832E+00
6	2.858E+01	2.653E+00	9.756E+01	5	0	-6.489E-02	-1.626E-01	9.845E-01	.000E+00	1.002E+00	2.780E+00
7	2.222E+01	1.290E+01	1.301E+01	5	0	-7.068E-02	3.263E-02	-9.970E-01	.000E+00	1.002E+00	2.631E+00
8	2.148E+01	8.242E+00	1.088E+01	5	0	-3.915E-01	4.664E-01	-7.932E-01	.000E+00	1.002E+00	2.905E-01
9	1.561E+01	3.978E+00	1.130E+01	5	0	-2.368E-01	9.215E-01	-3.079E-01	.000E+00	1.002E+00	3.910E+00
10	1.100E+01	2.755E+00	1.104E+01	5	0	1.946E-01	-3.204E-01	9.271E-01	.000E+00	1.002E+00	3.325E-01
11	3.186E+00	2.081E+01	2.443E+01	5	0	-6.698E-01	-7.177E-01	-1.905E-01	.000E+00	1.002E+00	3.641E+00
12	5.299E+00	2.109E+01	2.392E+01	5	0	-8.398E-01	-4.129E-01	3.524E-01	.000E+00	1.002E+00	1.220E-01
13	6.064E+00	2.032E+01	1.746E+01	5	0	-1.714E-01	-8.572E-01	4.857E-01	.000E+00	1.002E+00	2.101E-01
14	6.053E+00	2.022E+01	1.741E+01	5	0	-2.489E-01	-5.118E-01	-8.222E-01	.000E+00	1.002E+00	6.594E-01
15	-1.501E+01	-1.354E+01	5.114E-01	5	0	-2.959E-01	2.119E-01	9.314E-01	.000E+00	1.002E+00	1.077E+00
16	1.131E+00	2.288E+00	4.426E+00	5	0	1.395E-01	-9.829E-01	1.202E-01	.000E+00	1.002E+00	2.129E+00
17	3.630E+00	-1.839E+01	1.977E+01	5	0	6.909E-01	-7.110E-01	1.307E-01	.000E+00	1.002E+00	1.955E+00
18	3.958E+00	-2.677E+01	4.662E+01	5	0	-6.580E-01	5.320E-01	-5.329E-01	.000E+00	1.002E+00	2.858E+00
19	-9.792E+00	1.391E+01	9.322E+01	5	0	-9.903E-01	-1.380E-01	1.353E-02	.000E+00	1.002E+00	5.479E+00
20	-1.033E+01	1.536E+01	8.634E+01	5	0	7.462E-01	4.859E-01	-4.551E-01	.000E+00	1.002E+00	1.370E+00
21	4.437E+00	2.248E+01	1.004E+02	5	0	-1.977E-01	9.797E-01	3.360E-02	.000E+00	1.002E+00	3.145E+00
22	4.355E+00	2.248E+01	1.010E+02	5	0	-9.117E-01	-3.647E-01	-1.891E-01	.000E+00	1.002E+00	7.156E-01
23	1.146E+01	1.853E+01	9.977E+01	5	0	-4.287E-01	8.361E-01	-3.423E-01	.000E+00	1.002E+00	4.486E+00
24	1.211E+01	2.449E+01	9.178E+01	5	0	1.080E-01	3.412E-01	-9.338E-01	.000E+00	1.002E+00	7.887E-01
25	1.512E+01	2.357E+01	5.072E+01	5	0	-9.111E-01	-9.012E-03	-4.122E-01	.000E+00	1.002E+00	3.773E+00
26	2.252E+01	-1.684E+01	4.598E+01	5	0	-2.568E-01	-6.391E-01	-7.249E-01	.000E+00	1.002E+00	6.340E-01
27	1.654E+01	-1.839E+01	5.248E+01	5	0	-2.912E-01	8.086E-01	5.113E-01	.000E+00	1.002E+00	1.613E+00
28	5.320E+00	2.726E+01	6.466E+01	5	0	1.472E-01	-9.514E-01	2.705E-01	.000E+00	1.002E+00	7.090E-01
29	5.652E+00	2.561E+01	6.242E+01	5	0	-6.135E-01	-7.645E-01	-1.978E-01	.000E+00	1.002E+00	9.485E-01
30	1.531E+01	-3.702E+00	1.301E+02	5	0	-5.702E-01	5.651E-01	-5.963E-01	.000E+00	1.002E+00	6.245E-01
31	1.320E+01	1.777E+01	1.107E+02	5	0	-6.607E-01	5.373E-01	-5.242E-01	.000E+00	1.002E+00	1.483E+00
32	1.278E+01	1.430E+01	1.162E+02	5	0	-9.742E-02	-3.639E-01	-9.263E-01	.000E+00	1.002E+00	4.946E-01
33	9.212E+00	-1.428E+01	1.207E+02	5	0	-1.965E-01	-3.145E-01	-9.287E-01	.000E+00	1.002E+00	2.290E-01
34	-2.640E+01	1.138E+01	4.135E+01	5	0	4.097E-01	8.465E-01	-3.399E-01	.000E+00	1.002E+00	7.226E-01
35	-2.089E+01	1.244E+01	1.825E+01	5	0	-4.048E-02	8.831E-01	4.675E-01	.000E+00	1.002E+00	2.376E+00
36	-9.898E+00	9.764E+00	2.030E+01	5	0	3.371E-01	-9.269E-01	-1.652E-01	.000E+00	1.002E+00	4.150E+00
37	-6.622E+00	-4.241E+00	2.525E+01	5	0	-1.867E-01	9.756E-01	-1.155E-01	.000E+00	1.002E+00	3.258E+00
38	-2.057E+00	-5.368E+00	2.716E+01	5	0	-2.616E-01	2.336E-01	-9.365E-01	.000E+00	1.002E+00	1.231E+00
39	2.045E+01	-2.949E+00	2.149E+01	5	0	9.780E-01	-7.641E-02	-1.939E-01	.000E+00	1.002E+00	2.685E-01
40	1.999E+01	-6.209E+00	2.240E+01	5	0	2.580E-01	-7.076E-01	6.578E-01	.000E+00	1.002E+00	2.452E+00
41	2.217E+01	-5.915E+00	2.917E+01	5	0	-3.212E-01	-7.678E-01	-5.543E-01	.000E+00	1.002E+00	1.831E+00

42	2.151E+01	2.355E+00	3.393E+01	5	0	5.039E-01	-1.460E-01	8.513E-01	.000E+00	1.002E+00	1.234E+00
43	2.367E+01	3.600E+00	3.933E+01	5	0	6.080E-01	5.487E-01	5.738E-01	.000E+00	1.002E+00	5.404E+00
44	2.135E+01	3.269E+00	3.841E+01	5	0	-2.932E-01	9.304E-01	-2.199E-01	.000E+00	1.002E+00	3.557E+00
45	6.618E+00	-2.172E+01	4.997E+01	5	0	-8.475E-01	-3.993E-01	-3.497E-01	.000E+00	1.002E+00	5.718E+00
46	5.920E+00	-2.479E+01	4.218E+01	5	0	1.200E-01	-9.195E-01	-3.743E-01	.000E+00	1.002E+00	1.841E+00
47	3.733E+00	-2.534E+01	4.294E+01	5	0	7.085E-01	5.879E-01	3.904E-01	.000E+00	1.002E+00	3.327E+00
48	3.855E+00	-2.865E+01	2.253E+01	5	0	4.261E-01	9.046E-01	9.254E-03	.000E+00	1.002E+00	4.014E-01
49	2.389E+01	3.497E+00	3.510E+01	5	0	5.431E-01	4.270E-01	-7.230E-01	.000E+00	1.002E+00	2.367E-01
50	1.996E+01	-3.688E+00	3.599E+01	5	0	-1.053E-01	-9.805E-01	1.658E-01	.000E+00	1.002E+00	2.889E+00

CYCLE 1 K(COLLISION) .121848 REMOVAL LIFETIME(ABS) 6.8711E+03 SOURCE POINTS GENERATED 2109
WARNING. WEIGHT OF SOURCE PARTICLE IS BELOW CUTOFF.
NPS = 500 IJK = 141599184048461 WGT = 2.37079E-01

CYCLE 2 K(COLLISION) .120429 REMOVAL LIFETIME(ABS) 7.0113E+03 SOURCE POINTS GENERATED 457

CYCLE 3 K(COLLISION) .126672 REMOVAL LIFETIME(ABS) 6.0199E+03 SOURCE POINTS GENERATED 516

CYCLE 4 K(COLLISION) .132820 REMOVAL LIFETIME(ABS) 5.7669E+03 SOURCE POINTS GENERATED 533

CYCLE 5 K(COLLISION) .125459 REMOVAL LIFETIME(ABS) 5.6543E+03 SOURCE POINTS GENERATED 449

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 5

CYCLE 6 K(COLLISION) .136123 REMOVAL LIFETIME(ABS) 5.8115E+03 SOURCE POINTS GENERATED 516

ESTIMATOR	CYCLE 7	AVE OF 2 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.128257	.132190	.0298	K(COL/ABS)	.000000	.0000	.000000	.0000	.0000
K(ABSORPTION)	.108855	.124862	.1282	K(ABS/TK LN)	.000000	.0000	.000000	.0000	.0000
K(TRK LENGTH)	.126105	.131429	.0405	K(TK LN/COL)	.000000	.0000	.000000	.0000	.0000
REM LIFE(COL)	5.3917E+03	5.5796E+03	.0337						
REM LIFE(ABS)	5.4139E+03	5.6127E+03	.0354	LIFE(COL/ABS)	.0000E+00	.0000	.0000E+00	.0000	.0000
SOURCE POINTS GENERATED	417								

ESTIMATOR	CYCLE 8	AVE OF 3 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.130090	.131490	.0181	K(COL/ABS)	.129507	.0451	.132382	.0176	.8368
K(ABSORPTION)	.132845	.127523	.0754	K(ABS/TK LN)	.128758	.0481	.130581	.0317	.7534
K(TRK LENGTH)	.127120	.129992	.0261	K(TK LN/COL)	.130741	.0220	.134440	.0123	.9905
REM LIFE(COL)	5.2434E+03	5.4675E+03	.0285						
REM LIFE(ABS)	5.1942E+03	5.4732E+03	.0330	LIFE(COL/ABS)	5.4704E+03	.0307	5.4407E+03	.0210	.9968
SOURCE POINTS GENERATED	479								

ESTIMATOR	CYCLE 9	AVE OF 4 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.130149	.131155	.0131	K(COL/ABS)	.130173	.0321	.131506	.0127	.7504
K(ABSORPTION)	.134193	.129190	.0542	K(ABS/TK LN)	.129299	.0341	.129443	.0217	.6546
K(TRK LENGTH)	.127654	.129408	.0191	K(TK LN/COL)	.130281	.0160	.134492	.0079	.9900
REM LIFE(COL)	5.4338E+03	5.4591E+03	.0203	K(COL/ABS/TK LN)	.129918	.0265	.134384	.0039	
REM LIFE(ABS)	5.4845E+03	5.4760E+03	.0233	LIFE(COL/ABS)	5.4676E+03	.0218	5.4014E+03	.0182	.9919
SOURCE POINTS GENERATED	466								

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 9

ESTIMATOR	CYCLE 10	AVE OF 5 CYCLES		COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COLLISION)	.124831	.129890	.0141	K(COL/ABS)	.129693	.0253	.129918	.0160	.5035
K(ABSORPTION)	.130719	.129496	.0419	K(ABS/TK LN)	.129101	.0265	.128613	.0177	.5942
K(TRK LENGTH)	.125901	.128706	.0158	K(TK LN/COL)	.129298	.0146	.129955	.0171	.9104
REM LIFE(COL)	6.1262E+03	5.5925E+03	.0284	K(COL/ABS/TK LN)	.129364	.0211	.129784	.0244	
REM LIFE(ABS)	6.1013E+03	5.6011E+03	.0285	LIFE(COL/ABS)	5.5968E+03	.0284	5.5936E+03	.0329	.9924
SOURCE POINTS GENERATED	492								

ESTIMATOR	CYCLE 11	AVE OF 6 CYCLES	
K(COLLISION)	.130147	.129933	.0115
K(ABSORPTION)	.141754	.131539	.0371
K(TRK LENGTH)	.130634	.129028	.0131
REM LIFE(COL)	5.0441E+03	5.5011E+03	.0288
REM LIFE(ABS)	5.0612E+03	5.5111E+03	.0287

SOURCE POINTS GENERATED 515

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.130736	.0220	.129833	.0127	.4691
K(ABS/TK LN)	.130283	.0233	.128700	.0141	.6093
K(TK LN/COL)	.129480	.0120	.129995	.0132	.8989
K(COL/ABS/TK LN)	.130167	.0182	.129689	.0181	
LIFE(COL/ABS)	5.5061E+03	.0287	5.5073E+03	.0323	.9949

ESTIMATOR	CYCLE 12	AVE OF 7 CYCLES	
K(COLLISION)	.122233	.128833	.0130
K(ABSORPTION)	.130196	.131347	.0315
K(TRK LENGTH)	.120188	.127765	.0149
REM LIFE(COL)	5.1117E+03	5.4455E+03	.0266
REM LIFE(ABS)	5.1038E+03	5.4529E+03	.0268

SOURCE POINTS GENERATED 480

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.130090	.0193	.128859	.0143	.3842
K(ABS/TK LN)	.129556	.0206	.127711	.0166	.4872
K(TK LN/COL)	.128299	.0138	.129357	.0144	.9428
K(COL/ABS/TK LN)	.129315	.0168	.129612	.0207	
LIFE(COL/ABS)	5.4492E+03	.0267	5.4444E+03	.0293	.9955

ESTIMATOR	CYCLE 13	AVE OF 8 CYCLES	
K(COLLISION)	.122900	.128091	.0127
K(ABSORPTION)	.125175	.130576	.0280
K(TRK LENGTH)	.128173	.127816	.0129
REM LIFE(COL)	6.0423E+03	5.5201E+03	.0265
REM LIFE(ABS)	6.0436E+03	5.5268E+03	.0265

SOURCE POINTS GENERATED 495

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.129333	.0178	.128112	.0138	.4303
K(ABS/TK LN)	.129196	.0181	.127788	.0141	.4695
K(TK LN/COL)	.127954	.0123	.127965	.0132	.8252
K(COL/ABS/TK LN)	.128828	.0151	.127904	.0153	
LIFE(COL/ABS)	5.5234E+03	.0264	5.5218E+03	.0286	.9966

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 13

ESTIMATOR	CYCLE 14	AVE OF 9 CYCLES	
K(COLLISION)	.127403	.128015	.0112
K(ABSORPTION)	.108734	.128149	.0315
K(TRK LENGTH)	.127253	.127753	.0114
REM LIFE(COL)	5.9264E+03	5.5653E+03	.0245
REM LIFE(ABS)	5.9014E+03	5.5684E+03	.0244

SOURCE POINTS GENERATED 537

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.128082	.0186	.128014	.0120	.3754
K(ABS/TK LN)	.127951	.0188	.127747	.0122	.4007
K(TK LN/COL)	.127884	.0108	.127894	.0116	.8255
K(COL/ABS/TK LN)	.127972	.0150	.127886	.0126	
LIFE(COL/ABS)	5.5668E+03	.0244	5.5700E+03	.0260	.9967

ESTIMATOR	CYCLE 15	AVE OF 10 CYCLES	
K(COLLISION)	.122808	.127494	.0109
K(ABSORPTION)	.125824	.127916	.0283
K(TRK LENGTH)	.120869	.127065	.0116
REM LIFE(COL)	5.5450E+03	5.5632E+03	.0220
REM LIFE(ABS)	5.5486E+03	5.5664E+03	.0218

SOURCE POINTS GENERATED 447

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.127705	.0170	.127496	.0116	.3714
K(ABS/TK LN)	.127491	.0173	.127075	.0123	.3837
K(TK LN/COL)	.127280	.0108	.127366	.0114	.8518
K(COL/ABS/TK LN)	.127492	.0140	.127364	.0124	
LIFE(COL/ABS)	5.5648E+03	.0219	5.5680E+03	.0231	.9967

ESTIMATOR	CYCLE 16	AVE OF 11 CYCLES	
K(COLLISION)	.132926	.127988	.0105
K(ABSORPTION)	.107173	.126031	.0300
K(TRK LENGTH)	.128736	.127217	.0106
REM LIFE(COL)	5.2508E+03	5.5348E+03	.0206
REM LIFE(ABS)	5.2874E+03	5.5410E+03	.0203

SOURCE POINTS GENERATED 532

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.127009	.0164	.127827	.0108	.1170
K(ABS/TK LN)	.126624	.0172	.127180	.0111	.2739
K(TK LN/COL)	.127602	.0101	.127592	.0107	.8291
K(COL/ABS/TK LN)	.127078	.0131	.127563	.0117	
LIFE(COL/ABS)	5.5379E+03	.0204	5.5492E+03	.0213	.9966

ESTIMATOR	CYCLE 17	AVE OF 12 CYCLES	
K(COLLISION)	.142576	.129203	.0134
K(ABSORPTION)	.136673	.126917	.0281
K(TRK LENGTH)	.143210	.128550	.0141
REM LIFE(COL)	5.1634E+03	5.5039E+03	.0197
REM LIFE(ABS)	5.1846E+03	5.5113E+03	.0194

SOURCE POINTS GENERATED 540

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.128060	.0169	.128944	.0137	.2555
K(ABS/TK LN)	.127734	.0178	.128414	.0146	.3629
K(TK LN/COL)	.128877	.0135	.129052	.0140	.9164
K(COL/ABS/TK LN)	.128224	.0148	.128921	.0150	
LIFE(COL/ABS)	5.5076E+03	.0196	5.5245E+03	.0202	.9968

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 17

ESTIMATOR	CYCLE 18	AVE OF 13 CYCLES	
K(COLLISION)	.130617	.129312	.0123
K(ABSORPTION)	.136705	.127670	.0263
K(TRK LENGTH)	.134271	.128990	.0134
REM LIFE(COL)	5.7819E+03	5.5253E+03	.0185
REM LIFE(ABS)	5.7360E+03	5.5286E+03	.0181

SOURCE POINTS GENERATED 453

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.128491	.0159	.129143	.0126	.2637
K(ABS/TK LN)	.128330	.0169	.128900	.0139	.3991
K(TK LN/COL)	.129151	.0125	.129273	.0129	.9014
K(COL/ABS/TK LN)	.128657	.0140	.129155	.0134	
LIFE(COL/ABS)	5.5269E+03	.0183	5.5362E+03	.0185	.9962

ESTIMATOR	CYCLE 19	AVE OF 14 CYCLES	
K(COLLISION)	.136854	.129851	.0121
K(ABSORPTION)	.153594	.129522	.0280
K(TRK LENGTH)	.141894	.129912	.0142
REM LIFE(COL)	5.7208E+03	5.5392E+03	.0173
REM LIFE(ABS)	5.7133E+03	5.5418E+03	.0169

SOURCE POINTS GENERATED 542

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.129686	.0172	.129843	.0126	.3881
K(ABS/TK LN)	.129717	.0188	.129924	.0147	.5528
K(TK LN/COL)	.129881	.0128	.129837	.0125	.9046
K(COL/ABS/TK LN)	.129761	.0154	.129805	.0130	
LIFE(COL/ABS)	5.5405E+03	.0170	5.5480E+03	.0171	.9963

ESTIMATOR	CYCLE 20	AVE OF 15 CYCLES	
K(COLLISION)	.130616	.129902	.0113
K(ABSORPTION)	.143434	.130449	.0268
K(TRK LENGTH)	.131404	.130011	.0132
REM LIFE(COL)	5.3773E+03	5.5284E+03	.0162
REM LIFE(ABS)	5.3790E+03	5.5310E+03	.0159

SOURCE POINTS GENERATED 460

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.130176	.0164	.129912	.0117	.3832
K(ABS/TK LN)	.130230	.0179	.129994	.0137	.5474
K(TK LN/COL)	.129956	.0120	.129876	.0116	.9046
K(COL/ABS/TK LN)	.130121	.0146	.129894	.0120	
LIFE(COL/ABS)	5.5297E+03	.0160	5.5370E+03	.0161	.9963

ESTIMATOR	CYCLE 21	AVE OF 16 CYCLES	
K(COLLISION)	.122255	.129424	.0112
K(ABSORPTION)	.146004	.131422	.0260
K(TRK LENGTH)	.121491	.129479	.0131
REM LIFE(COL)	6.1115E+03	5.5649E+03	.0164
REM LIFE(ABS)	6.1055E+03	5.5669E+03	.0161

SOURCE POINTS GENERATED 485

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.130423	.0155	.129576	.0114	.2530
K(ABS/TK LN)	.130450	.0168	.129579	.0135	.4085
K(TK LN/COL)	.129451	.0119	.129408	.0115	.9143
K(COL/ABS/TK LN)	.130108	.0136	.129639	.0116	
LIFE(COL/ABS)	5.5659E+03	.0162	5.5723E+03	.0162	.9969

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 21

ESTIMATOR	CYCLE 22	AVE OF 17 CYCLES	
K(COLLISION)	.131561	.129550	.0106
K(ABSORPTION)	.128210	.131233	.0245
K(TRK LENGTH)	.130586	.129544	.0123
REM LIFE(COL)	4.7539E+03	5.5172E+03	.0178
REM LIFE(ABS)	4.8531E+03	5.5249E+03	.0170

SOURCE POINTS GENERATED 553

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.130391	.0145	.129683	.0107	.2461
K(ABS/TK LN)	.130388	.0158	.129634	.0126	.4051
K(TK LN/COL)	.129547	.0112	.129551	.0108	.9135
K(COL/ABS/TK LN)	.130109	.0128	.129763	.0109	
LIFE(COL/ABS)	5.5210E+03	.0174	5.5604E+03	.0157	.9966

ESTIMATOR	CYCLE 23	AVE OF 18 CYCLES	
K(COLLISION)	.119866	.129012	.0108
K(ABSORPTION)	.124778	.130874	.0233
K(TRK LENGTH)	.119295	.128974	.0124
REM LIFE(COL)	6.2684E+03	5.5589E+03	.0183
REM LIFE(ABS)	6.1846E+03	5.5615E+03	.0172

SOURCE POINTS GENERATED 464

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.129943	.0142	.129179	.0110	.2708
K(ABS/TK LN)	.129924	.0154	.129104	.0127	.4178
K(TK LN/COL)	.128993	.0114	.129024	.0111	.9248
K(COL/ABS/TK LN)	.129620	.0127	.129298	.0111	
LIFE(COL/ABS)	5.5602E+03	.0177	5.5755E+03	.0149	.9967

ESTIMATOR	CYCLE 24	AVE OF 19 CYCLES	
K(COLLISION)	.125327	.128818	.0104
K(ABSORPTION)	.099529	.129224	.0257
K(TRK LENGTH)	.122372	.128627	.0121
REM LIFE(COL)	6.4850E+03	5.6076E+03	.0192
REM LIFE(ABS)	6.4995E+03	5.6109E+03	.0184

SOURCE POINTS GENERATED 523

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.129021	.0153	.128835	.0106	.3046
K(ABS/TK LN)	.128926	.0166	.128628	.0125	.4643
K(TK LN/COL)	.128722	.0110	.128890	.0105	.9243
K(COL/ABS/TK LN)	.128890	.0133	.128978	.0106	
LIFE(COL/ABS)	5.6093E+03	.0188	5.6269E+03	.0169	.9970

ESTIMATOR	CYCLE 25	AVE OF 20 CYCLES	
K(COLLISION)	.132015	.128978	.0099

COMBINATION	SIMPLE AVERAGE		COMBINED AVERAGE		CORR
K(COL/ABS)	.128917	.0145	.128971	.0101	.2857

K(ABSORPTION)	.121878	.128857	.0246	K(ABS/TK LN)	.128811	.0158	.128767	.0118	.4483
K(TRK LENGTH)	.131406	.128766	.0115	K(TK LN/COL)	.128872	.0105	.129055	.0100	.9247
REM LIFE(COL)	6.4309E+03	5.6488E+03	.0195	K(COL/ABS/TK LN)	.128867	.0127	.129100	.0101	
REM LIFE(ABS)	6.4759E+03	5.6541E+03	.0189	LIFE(COL/ABS)	5.6515E+03	.0192	5.6732E+03	.0185	.9969

SOURCE POINTS GENERATED 507

SOURCE DISTRIBUTION WRITTEN TO FILE SRCTP CYCLE = 25

1PROBLEM SUMMARY

RUN TERMINATED WHEN 25 KCODE CYCLES WERE DONE. 12/01/95 15:58:02

\+ DHLWG6-- DWPF GLASS INFINITE ARRAY Flooded - FISSILE X 100 PROBID = 12/01/95 15:50:08

0

NEUTRON CREATION	TRACKS	WEIGHT (PER SOURCE	ENERGY PARTICLE)	NEUTRON LOSS	TRACKS	WEIGHT (PER SOURCE	ENERGY PARTICLE)
SOURCE	13959	8.9548E-01	2.0858E+00	ESCAPE	23	8.7691E-04	5.2750E-04
				ENERGY CUTOFF	0	0.	0.
				TIME CUTOFF	0	0.	0.
WEIGHT WINDOW	0	0.	0.	WEIGHT WINDOW	0	0.	0.
CELL IMPORTANCE	0	0.	0.	CELL IMPORTANCE	0	0.	0.
WEIGHT CUTOFF	0	1.1189E-01	4.1821E-02	WEIGHT CUTOFF	13937	1.1576E-01	4.5710E-02
ENERGY IMPORTANCE	0	0.	0.	ENERGY IMPORTANCE	0	0.	0.
DXTRAN	0	0.	0.	DXTRAN	0	0.	0.
FORCED COLLISIONS	0	0.	0.	FORCED COLLISIONS	0	0.	0.
EXP. TRANSFORM	0	0.	0.	EXP. TRANSFORM	0	0.	0.
UPSCATTERING	0	0.	3.2389E-07	DOWNSCATTERING	0	0.	1.9545E+00
				CAPTURE	0	8.4820E-01	1.0326E-01
(N,XN)	2	1.2363E-04	9.6171E-05	LOSS TO (N,XN)	1	6.1817E-05	7.7828E-04
FISSION	0	0.	0.	LOSS TO FISSION	0	4.2593E-02	2.2951E-02
TOTAL	13961	1.0075E+00	2.1278E+00	TOTAL	13961	1.0075E+00	2.1278E+00

NUMBER OF NEUTRONS BANKED	1		
NEUTRON TRACKS PER SOURCE PARTICLE	1.0001E+00		
NEUTRON COLLISIONS PER SOURCE PARTICLE	1.2195E+02		
TOTAL NEUTRON COLLISIONS	1702231		
NET MULTIPLICATION	1.0001E+00	.0027	

AVERAGE LIFETIME, SHAKES		CUTOFFS	
ESCAPE	1.2250E+04	TCO	1.0000E+34
CAPTURE	5.7946E+03	ECO	.0000E+00
CAPTURE OR ESCAPE	5.8009E+03	WC1	-5.0000E-01
ANY TERMINATION	7.0027E+03	WC2	-2.5000E-01

COMPUTER TIME SO FAR IN THIS RUN	7.77 MINUTES
COMPUTER TIME IN MCRUN	7.70 MINUTES
SOURCE PARTICLES PER MINUTE	1.8129E+03
RANDOM NUMBERS GENERATED	14153825

MAXIMUM NUMBER EVER IN BANK	1
BANK OVERFLOWS TO BACKUP FILE	0
FIELD LENGTH	0
MOST RANDOM NUMBERS USED WAS	9686 IN HISTORY 296

RANGE OF SAMPLED SOURCE WEIGHTS = 2.3708E-01 TO 1.1990E+00

2109 SOURCE PARTICLES HAD WEIGHT BELOW CUTOFF.

1NEUTRON ACTIVITY IN EACH CELL PRINT TABLE 126

CELL		TRACKS ENTERING	POPULATION	COLLISIONS	COLLISIONS * WEIGHT (PER HISTORY)	NUMBER WEIGHTED ENERGY	FLUX WEIGHTED ENERGY	AVERAGE TRACK WEIGHT (RELATIVE)	AVERAGE TRACK MFP (CM)
1	2	0	0	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	0	0	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	26130	13960	382146	2.2358E+01	6.6041E-02	6.5156E-01	8.3459E-01	3.8231E+00
5	6	30726	10146	37870	1.9556E+00	7.5651E-04	5.6448E-01	7.9088E-01	2.5721E+00
6	7	698	325	1208	6.0423E-02	9.1385E-04	5.7676E-01	7.8422E-01	2.7360E+00
7	8	31165	9640	1231096	4.8138E+01	5.2696E-05	2.0931E-01	6.1270E-01	8.0459E-01
8	9	562	291	49911	1.8606E+00	3.7673E-05	1.7108E-01	5.7423E-01	7.1226E-01

TOTAL 89281 34362 1702231 7.4373E+01

1NEUTRON WEIGHT BALANCE IN EACH CELL -- EXTERNAL EVENTS PRINT TABLE 130

CELL		ENTERING	SOURCE	ENERGY CUTOFF	TIME CUTOFF	EXITING	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-8.7691E-04	-8.7691E-04
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-6.2446E-01	-6.2446E-01
4	5	6.6274E-01	8.9548E-01	.0000E+00	.0000E+00	-1.0063E+00	5.5189E-01
5	6	1.7458E+00	.0000E+00	.0000E+00	.0000E+00	-1.6548E+00	9.1042E-02
6	7	3.8328E-02	.0000E+00	.0000E+00	.0000E+00	-3.5632E-02	2.6962E-03
7	8	1.6303E+00	.0000E+00	.0000E+00	.0000E+00	-7.6894E-01	8.6138E-01
8	9	2.9206E-02	.0000E+00	.0000E+00	.0000E+00	-1.6273E-02	1.2933E-02
TOTAL		4.1064E+00	8.9548E-01	.0000E+00	.0000E+00	-4.1073E+00	8.9460E-01

1NEUTRON WEIGHT BALANCE IN EACH CELL -- VARIANCE REDUCTION EVENTS PRINT TABLE 130

CELL		WEIGHT WINDOW	CELL IMPORTANCE	WEIGHT CUTOFF	ENERGY IMPORTANCE	DXTRAN	FORCED COLLISION	EXPONENTIAL TRANSFORM	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	.0000E+00	.0000E+00	-1.1529E-03	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-1.1529E-03
5	6	.0000E+00	.0000E+00	-7.9753E-05	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-7.9753E-05
6	7	.0000E+00	.0000E+00	-2.8538E-05	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-2.8538E-05
7	8	.0000E+00	.0000E+00	-2.3536E-03	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-2.3536E-03
8	9	.0000E+00	.0000E+00	-2.5539E-04	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-2.5539E-04
TOTAL		.0000E+00	.0000E+00	-3.8701E-03	.0000E+00	.0000E+00	.0000E+00	.0000E+00	-3.8701E-03

1NEUTRON WEIGHT BALANCE IN EACH CELL -- PHYSICAL EVENTS PRINT TABLE 130

CELL		(N,XN)	FISSION	CAPTURE	LOSS TO (N,XN)	LOSS TO FISSION	TOTAL
1	2	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	1.2363E-04	.0000E+00	-5.0821E-01	-6.1817E-05	-4.2593E-02	-5.5074E-01
5	6	.0000E+00	.0000E+00	-9.0962E-02	.0000E+00	.0000E+00	-9.0962E-02
6	7	.0000E+00	.0000E+00	-2.6676E-03	.0000E+00	.0000E+00	-2.6676E-03
7	8	.0000E+00	.0000E+00	-2.3678E-01	.0000E+00	.0000E+00	-2.3678E-01
8	9	.0000E+00	.0000E+00	-9.5827E-03	.0000E+00	.0000E+00	-9.5827E-03
TOTAL		1.2363E-04	.0000E+00	-8.4820E-01	-6.1817E-05	-4.2593E-02	-8.9073E-01

1NEUTRON ACTIVITY OF EACH NUCLIDE IN EACH CELL, PER SOURCE PARTICLE PRINT TABLE 140

CELL		NUCLIDES	ATOM FRACTION	TOTAL COLLISIONS	COLLISIONS * WEIGHT	WEIGHT LOST TO CAPTURE	WEIGHT LOSS TO FISSION	WEIGHT GAIN BY (N,XN)
1	2	1001.50C	6.6667E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
3	4	1001.50C	6.6667E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
4	5	3006.50C	3.7251E-03	1257	6.9386E-02	3.7219E-02	.0000E+00	.0000E+00
		3007.55C	3.9389E-02	5914	3.6295E-01	1.6417E-05	.0000E+00	6.1817E-05
		5010.50C	1.2917E-02	12277	6.1712E-01	4.2223E-01	.0000E+00	.0000E+00
		5011.56C	4.7283E-02	18907	1.1015E+00	1.1384E-05	.0000E+00	.0000E+00
		8016.50C	5.7205E-01	201320	1.1959E+01	5.5726E-03	.0000E+00	.0000E+00
		9019.50C	3.3941E-04	168	1.0087E-02	7.7062E-06	.0000E+00	.0000E+00

		11023.50C	7.4299E-02	42611	2.3813E+00	1.2346E-03	.0000E+00	.0000E+00
		12000.50C	6.8682E-03	3665	2.2088E-01	5.5963E-05	.0000E+00	.0000E+00
		13027.50C	1.5817E-02	5816	3.5764E-01	3.3868E-04	.0000E+00	.0000E+00
		14000.50C	1.6227E-01	45530	2.8007E+00	3.5784E-03	.0000E+00	.0000E+00
		16032.50C	8.1958E-04	194	1.2063E-02	8.7664E-05	.0000E+00	.0000E+00
		19000.50C	1.5474E-02	3890	2.3228E-01	3.4836E-03	.0000E+00	.0000E+00
		20000.50C	3.3431E-03	845	5.1123E-02	7.8484E-04	.0000E+00	.0000E+00
		22000.50C	2.5233E-03	3164	1.7206E-01	2.1775E-04	.0000E+00	.0000E+00
		25055.50C	5.7402E-03	10213	5.1813E-01	3.3501E-03	.0000E+00	.0000E+00
		26000.55C	2.6790E-02	14837	8.4114E-01	2.8907E-03	.0000E+00	.0000E+00
		28000.50C	2.5347E-03	2770	1.5266E-01	5.9763E-04	.0000E+00	.0000E+00
		15031.50C	9.1901E-05	22	1.4302E-03	3.1979E-06	.0000E+00	.0000E+00
		24000.50C	3.2141E-04	201	1.1759E-02	3.5936E-05	.0000E+00	.0000E+00
		29000.50C	4.8615E-04	411	2.2899E-02	2.0932E-04	.0000E+00	.0000E+00
		47109.50C	9.3463E-05	91	5.2338E-03	9.3038E-04	.0000E+00	.0000E+00
		56138.50C	1.2161E-04	92	5.5722E-03	4.7622E-06	.0000E+00	.0000E+00
		82000.50C	5.9553E-05	56	3.3104E-03	1.2347E-06	.0000E+00	.0000E+00
		17000.50C	6.6187E-04	184	1.1058E-02	1.9610E-04	.0000E+00	.0000E+00
		90232.50C	1.6193E-04	218	1.2281E-02	6.2182E-04	3.0306E-05	.0000E+00
		62149.50C	6.1454E-07	8	2.8670E-04	2.1820E-04	.0000E+00	.0000E+00
		92233.50C	8.6598E-12	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		92234.50C	2.8908E-07	0	1.0881E-06	.0000E+00	.0000E+00	.0000E+00
		92236.50C	9.1059E-07	0	9.0258E-07	.0000E+00	.0000E+00	.0000E+00
		93237.55C	6.5721E-07	0	1.7115E-06	.0000E+00	.0000E+00	.0000E+00
		92235.50C	1.5306E-03	1962	1.3196E-01	7.4496E-03	2.3234E-02	.0000E+00
		92238.50C	3.2021E-03	4004	2.3120E-01	9.9656E-03	1.7311E-03	.0000E+00
		94238.50C	4.4911E-06	11	6.8126E-04	3.4566E-05	7.2639E-05	.0000E+00
		94239.55C	1.0710E-03	1506	1.0273E-01	6.8532E-03	1.7524E-02	.0000E+00
		94240.50C	1.9576E-06	2	1.3385E-04	5.5540E-06	7.9877E-07	.0000E+00
		94241.50C	8.2892E-07	0	1.8795E-05	.0000E+00	.0000E+00	.0000E+00
		94242.50C	1.6337E-07	0	4.4111E-07	.0000E+00	.0000E+00	.0000E+00
		95241.50C	1.6422E-07	0	1.3992E-06	.0000E+00	.0000E+00	.0000E+00
		95242.50C	7.5829E-11	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		95243.50C	1.4724E-09	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		96245.35C	1.9683E-12	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
5	6	6000.50C	1.3653E-03	22	1.2176E-03	1.1095E-07	.0000E+00	.0000E+00
		7014.50C	3.9036E-03	114	6.0372E-03	2.2838E-04	.0000E+00	.0000E+00
		14000.50C	1.4597E-02	187	1.0362E-02	7.7278E-05	.0000E+00	.0000E+00
		15031.50C	7.9416E-04	13	7.9465E-04	3.8589E-06	.0000E+00	.0000E+00
		16032.50C	5.1291E-04	4	2.7501E-04	2.3309E-05	.0000E+00	.0000E+00
		24000.50C	1.9975E-01	5719	3.0947E-01	1.8204E-02	.0000E+00	.0000E+00
		25055.50C	1.9900E-02	1684	9.1215E-02	8.7786E-03	.0000E+00	.0000E+00
		26000.55C	6.6604E-01	24010	1.2226E+00	5.0935E-02	.0000E+00	.0000E+00
		28000.50C	9.3142E-02	6117	3.1363E-01	1.2711E-02	.0000E+00	.0000E+00
6	7	6000.50C	1.3653E-03	3	1.2766E-04	1.2964E-08	.0000E+00	.0000E+00
		7014.50C	3.9036E-03	6	3.2562E-04	2.3186E-05	.0000E+00	.0000E+00
		14000.50C	1.4597E-02	8	3.7323E-04	3.1257E-06	.0000E+00	.0000E+00
		15031.50C	7.9416E-04	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		16032.50C	5.1291E-04	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
		24000.50C	1.9975E-01	170	8.9959E-03	5.4862E-04	.0000E+00	.0000E+00
		25055.50C	1.9900E-02	63	3.0819E-03	2.6151E-04	.0000E+00	.0000E+00
		26000.55C	6.6604E-01	760	3.7732E-02	1.4723E-03	.0000E+00	.0000E+00
		28000.50C	9.3142E-02	198	9.7866E-03	3.5886E-04	.0000E+00	.0000E+00
7	8	1001.50C	6.6667E-01	1172975	4.5622E+01	2.3632E-01	.0000E+00	.0000E+00
		8016.50C	3.3333E-01	58121	2.5160E+00	4.5991E-04	.0000E+00	.0000E+00
8	9	1001.50C	6.6667E-01	47712	1.7724E+00	9.5575E-03	.0000E+00	.0000E+00

	8016.50C	3.3333E-01	2199	8.8131E-02	2.5167E-05	.0000E+00	.0000E+00
TOTAL			1702231	7.4416E+01	8.4820E-01	4.2593E-02	6.1817E-05

TOTAL OVER ALL CELLS FOR EACH NUCLIDE	TOTAL COLLISIONS	COLLISIONS * WEIGHT	WEIGHT LOST TO CAPTURE	WEIGHT GAIN BY FISSION	WEIGHT GAIN BY (N,XN)
1001.50C	1220687	4.7395E+01	2.4588E-01	.0000E+00	.0000E+00
3006.50C	1257	6.9386E-02	3.7219E-02	.0000E+00	.0000E+00
3007.55C	5914	3.6295E-01	1.6417E-05	.0000E+00	6.1817E-05
5010.50C	12277	6.1712E-01	4.2223E-01	.0000E+00	.0000E+00
5011.56C	18907	1.1015E+00	1.1384E-05	.0000E+00	.0000E+00
6000.50C	25	1.3453E-03	1.2391E-07	.0000E+00	.0000E+00
7014.50C	120	6.3629E-03	2.5157E-04	.0000E+00	.0000E+00
8016.50C	261640	1.4564E+01	6.0576E-03	.0000E+00	.0000E+00
9019.50C	168	1.0087E-02	7.7062E-06	.0000E+00	.0000E+00
11023.50C	42611	2.3813E+00	1.2346E-03	.0000E+00	.0000E+00
12000.50C	3665	2.2088E-01	5.5963E-05	.0000E+00	.0000E+00
13027.50C	5816	3.5764E-01	3.3868E-04	.0000E+00	.0000E+00
14000.50C	45725	2.8115E+00	3.6588E-03	.0000E+00	.0000E+00
15031.50C	35	2.2248E-03	7.0568E-06	.0000E+00	.0000E+00
16032.50C	198	1.2338E-02	1.1097E-04	.0000E+00	.0000E+00
17000.50C	184	1.1058E-02	1.9610E-04	.0000E+00	.0000E+00
19000.50C	3890	2.3228E-01	3.4836E-03	.0000E+00	.0000E+00
20000.50C	845	5.1123E-02	7.8484E-04	.0000E+00	.0000E+00
22000.50C	3164	1.7206E-01	2.1775E-04	.0000E+00	.0000E+00
24000.50C	6090	3.3022E-01	1.8788E-02	.0000E+00	.0000E+00
25055.50C	11960	6.1243E-01	1.2390E-02	.0000E+00	.0000E+00
26000.55C	39607	2.1014E+00	5.5298E-02	.0000E+00	.0000E+00
28000.50C	9085	4.7607E-01	1.3668E-02	.0000E+00	.0000E+00
29000.50C	411	2.2899E-02	2.0932E-04	.0000E+00	.0000E+00
47109.50C	91	5.2338E-03	9.3038E-04	.0000E+00	.0000E+00
56138.50C	92	5.5722E-03	4.7622E-06	.0000E+00	.0000E+00
62149.50C	8	2.8670E-04	2.1820E-04	.0000E+00	.0000E+00
82000.50C	56	3.3104E-03	1.2347E-06	.0000E+00	.0000E+00
90232.50C	218	1.2281E-02	6.2182E-04	3.0306E-05	.0000E+00
92233.50C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
92234.50C	0	1.0881E-06	.0000E+00	.0000E+00	.0000E+00
92235.50C	1962	1.3196E-01	7.4496E-03	2.3234E-02	.0000E+00
92236.50C	0	9.0258E-07	.0000E+00	.0000E+00	.0000E+00
92238.50C	4004	2.3120E-01	9.9656E-03	1.7311E-03	.0000E+00
93237.55C	0	1.7115E-06	.0000E+00	.0000E+00	.0000E+00
94238.50C	11	6.8126E-04	3.4566E-05	7.2639E-05	.0000E+00
94239.55C	1506	1.0273E-01	6.8532E-03	1.7524E-02	.0000E+00
94240.50C	2	1.3385E-04	5.5540E-06	7.9877E-07	.0000E+00
94241.50C	0	1.8795E-05	.0000E+00	.0000E+00	.0000E+00
94242.50C	0	4.4111E-07	.0000E+00	.0000E+00	.0000E+00
95241.50C	0	1.3992E-06	.0000E+00	.0000E+00	.0000E+00
95242.50C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
95243.50C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00
96245.35C	0	.0000E+00	.0000E+00	.0000E+00	.0000E+00

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DUMP NO. 2 ON FILE RUNTPG NPS = 13959 CTM = 7.70

19 WARNING MESSAGES SO FAR.

RUN TERMINATED WHEN 25 KCODE CYCLES WERE DONE.

COMPUTER TIME = 7.77 MINUTES

MCNP VERSION 4A-B 10/04/91 12/01/95 15:58:03 PROBID = 12/01/95 15:50:08