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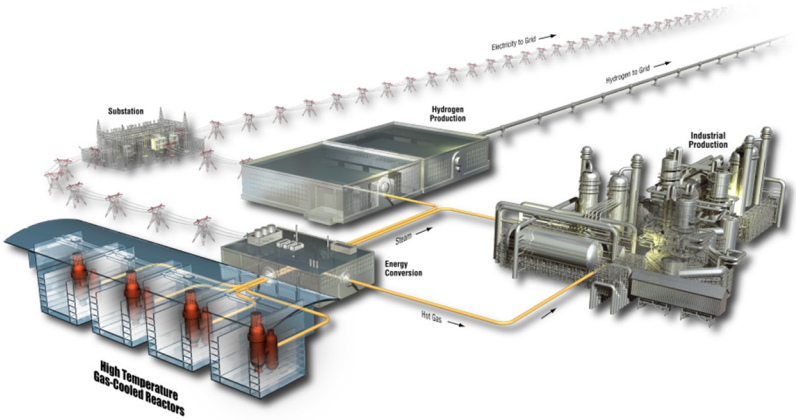
AGR-1 Depletion Benchmark

James W. Sterbentz
Joshua J. Cogliati

July 2018



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Idaho National Laboratory
INL ART Program
Idaho Falls, Idaho 83415

http://www.inl.gov

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Authors:

James W. Sterbentz — June 28, 2018
Date

Joshua J. Cogliati — 2018-July-2
Date

Technical Reviewer:

Mark D. DeHart — July 2, 2018
Date
Directorate Fellow, Nuclear Science and Technology
Directorate

Approvers:

Hans D. Gougar — 29 June 2018
Date
INL ART Director

Diane V. Croson — 6/29/18
Date
INL ART Deputy Director

Michelle T. Sharp — 6/29/18
Date
INL Quality Engineer

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ABSTRACT

The AGR-1 TRISO particle irradiation test was the first Advanced Gas Reactor test irradiated in the Advanced Test Reactor (ATR) at the Idaho National Laboratory. The TRISO particle fuel was 350 μm diameter uranium oxy-carbide (UCO) kernels enriched to 19.75 wt% U-235. The particles were embedded in cylindrical graphite compacts, placed in test capsules, and irradiated over a period of three years or 13 ATR power cycles. The fuel compacts achieved burnups approaching 20% FIMA and accumulated fast fluence up to 4.25E+25 n/m^2 (E_n>0.18 MeV). This report describes the AGR-1 test train, capsules, compacts, and TRISO particle fuel in sufficient detail for a physics analyst to model the AGR-1 experiment as part of a larger ATR neutron transport model and perform a depletion calculation. The intent of the data herein is to define a practical numerical TRISO particle depletion benchmark problem for the AGR-1 irradiation test.

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ACRONYMS

AGR	Advanced Gas Reactor
ART	Advanced Reactor Technologies
ASTM	American Society for Testing and Materials
ATR	Advanced Test Reactor
FIMA	fissions per initial metal atom
HTGR	high-temperature, gas-cooled reactor
ID	inner diameter
INL	Idaho National Laboratory
IPyC	inner pyrolytic carbon
IR	inner radius
MCNP	Monte Carlo N-Particle Transport Code
NGNP	Next Generation Nuclear Plant
OD	outer diameter
OPyC	outer pyrolytic carbon
OR	outer radius
OSCC	outer shim control cylinder
SiC	silicon carbide
TAVA	time-averaged, volume-averaged
TC	thermocouple
TRISO	tristructural isotropic
UCO	uranium oxy-carbide

AGR-1 Depletion Benchmark

1. INTRODUCTION

The first Advanced Gas Reactor (AGR) irradiation test or AGR-1 was a tristructural isotropic (TRISO) particle irradiation test in the Advanced Test Reactor (ATR) at the Idaho National Laboratory. The AGR-1 experiment was the first in a series of four TRISO particle fuel irradiations as part of the Department of Energy Advanced Gas Reactor Fuel Development and Qualification Program to support the development of the Next Generation Nuclear Plant. The Next Generation Nuclear Plant was proposed to be high-temperature, gas-cooled reactor (HTGR) fueled with the new high-performance TRISO fuel developed on the AGR program.

The AGR experiments have multiple specific goals that include: (1) provide irradiation performance data to support the fuel development process, (2) provide irradiated fuel and materials for post-irradiation examination and safety testing, (3) validate fuel performance and fission product transport models and codes, and (4) qualify fuel for normal operating conditions in a high-temperature, gas-cooled demonstration reactor, either a prismatic-block or pebble-bed reactor.

The AGR-1 test was a very successful test with no observed fuel particle failures despite maximum compact burnups up to 20% heavy metal fissions per initial atom (FIMA) and cumulative fast fluences approaching 4.5E+25 n/m^2 (E_n> 0.18 MeV). The AGR-1 test was irradiated in ATR over a period of three years, corresponding to 13 power cycles, for a total of approximately 662 irradiation days.

The following data has been compiled to develop a benchmark model of the AGR-1 experiment. The data includes material descriptions and component dimensions for the AGR-1 test train, test capsules, fuel compacts, and TRISO particles. There should be sufficient data to enable a physics analyst to build a neutron transport model of the AGR-1 experiment to any desired level of rigor and perform a depletion calculation with the goal to benchmark HTGR computer codes, models, and modelling assumptions.

Due to the geometrical complexity of the ATR core, a Monte Carlo N-Particle transport code (MCNP) quarter-core model of ATR is provided separately, along with the benchmark data in this report. In the supplied quarter-core model, the B-10 irradiation test position or test facility is purposely voided to allow the physics analyst to build the AGR-1 test train, capsules, and fuel compacts as they see fit and per their own modelling assumptions.

Three supplimental reports may be useful to the physics analyst as guides to modelling the AGR-1 depletion benchmark problem and providing expectations for the calculated results. Reference [1] gives calculated results for fuel compact burnup, fast fluence, and end-of-irradiation isotopic concentrations using the MCNP quarter-core ATR model. Results are compared for a variety of modelling assumptions to show sensitivities. Reference [2] is similar to the quarter-core work, but is a more rigorous AGR-1 depletion calculation using a full-core MCNP ATR model. Reference [3] provides a comparison of the Reference [2] calculated results to actual post-irradiation examination measured data. The physics analyst should be able to gain insight into how the AGR-1 model can be constructed, the impact of certain modeling assumptions, and the type of results to expect from these three reports.

2. ATR DESCRIPTION

ATR is a compact, geometrically-complex reactor core with a serpentine driver core and a beryllium reflector (Reference [4]). Forty high-enriched driver fuel elements form the serpentine or cloverleaf core that naturally creates a 3x3 array of large-volume flux traps for experiment irradiations (Figure 1). The driver fuel elements consist of 19 curved plates with high-enriched (93%) uranium, aluminum cladding, and light-water coolant. The active core fuel height is 121.92 cm (48 in.). The light-water coolant and beryllium metal reflector produce a predominantly thermal neutron spectrum.

In addition to the 9 flux traps, the beryllium reflector has additional irradiation test positions, including the large B-10 position where the AGR-1 test train was located (Figure 1). The beryllium reflector also contains 16 outer shim control cylinders (OSCC) that are beryllium cylinders (drums) with partial-circumferential hafnium plates on the surface. The hafnium plates on the OSCCs are not discernable in Figure 1, but in Figure 2 below the hafnium plates are visible. The hafnium plate on the OSCCs can be rotated either toward or away from the driver core to adjust core reactivity. The depletion benchmark data includes OSCC cycle rotation data so that the reactivity effects of the OSCCs can be simulated in the depletion calculation at each timestep.

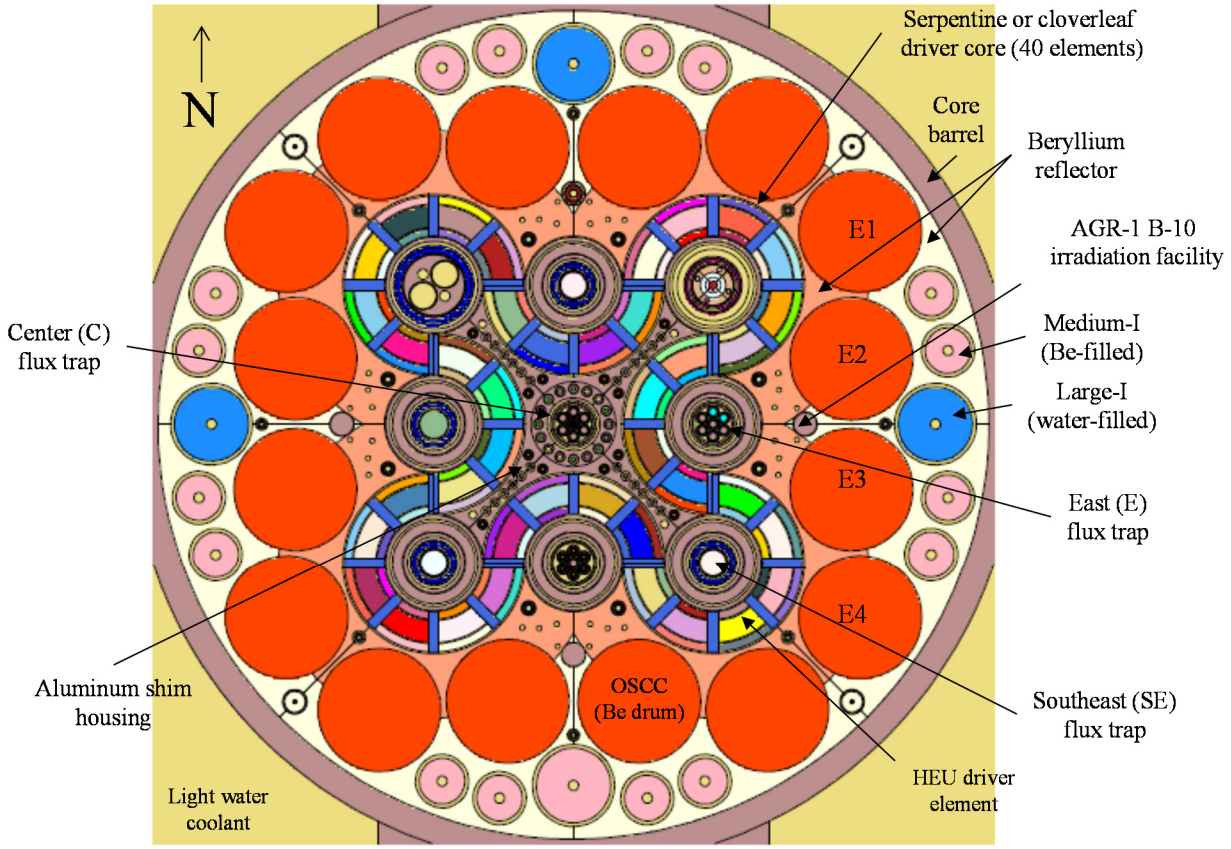

Figure 1. Cross section view of the ATR core showing the B-10 irradiation test facility along with 3×3 array of flux traps (southeast flux trap is indicated), serpentine driver core, and east outer shim control cylinders (E1, E2, E3, and E4).

ATR typically runs at a total core power of between 100-110 MWth. At these power levels, intense neutron irradiation fluxes can be generated to accelerate irradiation testing. The five core lobes, northeast (NE), southeast (SE), southwest (SW), northwest (NW), and center (C) consist of 8 driver fuel elements each and typically operate a different power levels in the 14-22 MW range. The lobe powers are adjusted through the 16 OSCCs in the reflector. Each ATR power cycle typically lasts for 40-60 days.

Small core reactivity and lobe power adjustments can also be made through the insertion or withdrawal of the 24 hafnium neck shim rods located in the aluminum shim housing between the inboard flux traps (northeast, southeast, southwest, and northwest) and the center flux trap. Figure 2 shows the aluminum housing and neck shims. With the exception of the regulating rod (SE4), the neck shim rods are either fully withdrawn or fully inserted. Typically, at beginning-of-cycle most of the shim rods are fully inserted into the core. When a neck is withdrawn, the cell volume is then filled by an aluminum follower rod.

As previously mentioned, the beryllium reflector also contains a number of smaller diameter irradiation test positions. One of those positions is the B-10 position where the AGR-1 experiment was placed and underwent 13 ATR power cycles over a three-year period.

3. MCNP QUARTER-CORE ATR MODEL

Due to the complexity of the ATR core, an MCNP quarter-core model of the ATR is provided with this benchmark problem (Appendix D). The quarter-core model is intended to reduce the size of the benchmark depletion model without significant loss of numerical accuracy and allow the physics analyst to focus more on the modelling of the AGR-1 experiment in the B-10 test position.

The MCNP quarter-core model represents the east core quadrant of the ATR core. The east quadrant includes the east outboard flux trap, one-half of the southeast and northeast flux traps, and one-quarter of the center flux trap as shown in Figure 2 (MCNP plot). The quarter-core model also includes ATR driver fuel elements 6 through 15, the beryllium reflector (green and orange), beryllium reflector irradiation positions (medium I-4, I-5, I-7, and I-8 in blue and large I-6 in yellow), outer shim control cylinders (E1, E2, E3, and E4), one-half the six hafnium neck shims rods in both the southeast and northeast aluminum neck shim housing, core barrel, and outer light-water radiation shield. The driver fuel in the model is for the beginning-of-cycle 145A and is assumed to be appropriate for beginning-of-cycle for the other 12 cycles as well. The northeast and the southeast radial sides that intersect at the core center or center of the center flux trap have a reflective boundary condition applied along these planes to reflect neutrons back into the model.

The B-10 test position, where the AGR-1 experiment is placed, is completely voided in the model and left to the physics analyst to develop the AGR-1 experiment geometry and material model based on the AGR-1 test data that follows. In Figure 2, the B-10 test position is voided (white circle).

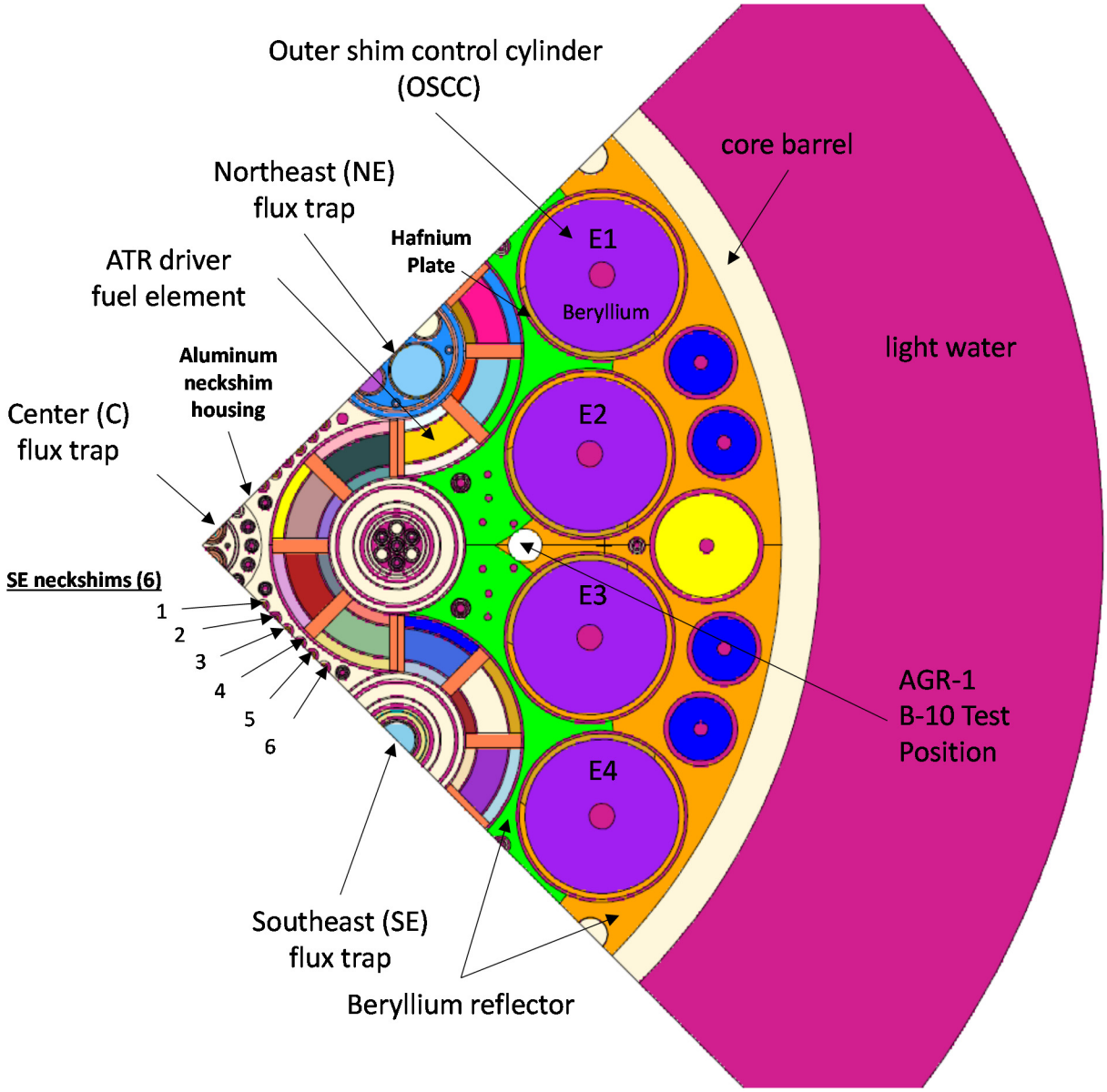

Figure 2. Cross section view of the MCNP quarter-core model (MCNP plot).

4. AGR-1 EXPERIMENT DESCRIPTION

This section will describe the AGR-1 experiment in some detail with the goal to help the physics analyst to better understand the AGR-1 experiment and therefore aid in the development of the AGR-1 experiment for the MCNP quarter-core model.

The AGR-1 experiment consisted of six cylindrical test capsules containing a total of 72 total TRISO particle fuel compacts. The capsules were stacked vertically as part of the AGR-1 experiment test train in the active core region of ATR. The test train was located in the B-10 test position (Figure 1). The B-10 test position has a 3.81 cm (1.5 in.) diameter vertical bore hole in the beryllium side reflector of the ATR core. The cylindrical test train was lowered into the B-10 test hole and positioned such that the axial centerline between capsules 3 and 4 coincided with the ATR core midplane. The ATR core midplane is the axial center or midpoint of the ATR fuel (axial elevation of z=60.96 cm in the MCNP ATR quarter-

core model). The zero cm elevation (z=0) in the quarter-core model is then at the bottom of the active core, or bottom of the driver fuel meat. The ATR active core height is 121.96 cm (48 in.).

The capsules were stacked end-to-end with each capsule separated by graphite spacers on top and bottom of each capsule with a gas plenum in between the spacers. The top (upper) and bottom (lower) graphite spacers are pure graphite (no boron). The upper graphite spacers have a density of 0.95 g/cm^3 and the lower graphite spacers have a density of 1.015 g/cm^3. Figure 3 is an MCNP plot and shows the six capsules in an axial view. Capsule 1 was at the bottom of the test train, and capsule 6 at the top. Each capsule contained a borated graphite cylindrical holder. Each graphite holder had three equally-spaced vertical bore holes arranged on a triangular pitch. Each of the three holder holes contained a stack of four compacts, or 12 compacts per capsule.

Figure 3 shows the six AGR-1 capsules stacked vertically (z-direction) inside the test train. Capsule 1 is on the bottom of the stack and Capsule 6 is on the top. The ATR core midplane is exactly between Capsules 3 and 4 or through the middle of the gas plenum. The colored squares in the expanded view of Capsule 4 show two stacks of compacts, where each compact has been subdivided axially into two pieces, or the 8 colored squares represent 4 cylindrical compacts in a capsule stack. The compact subdivision was needed in Reference [2] to increase the resolution of the compact heat rates for the thermal analyses. The graphite holder, top and bottom graphite spacers, capsule lids, and gas plenums are also shown. The ATR light-water coolant (dark blue) outside the test train. The axial view here slices through 2 of the 3 compact stacks. The combined length of the six capsules is approximately 90 cm and the outer diameter of the capsule wall is approximately 3.57 cm.

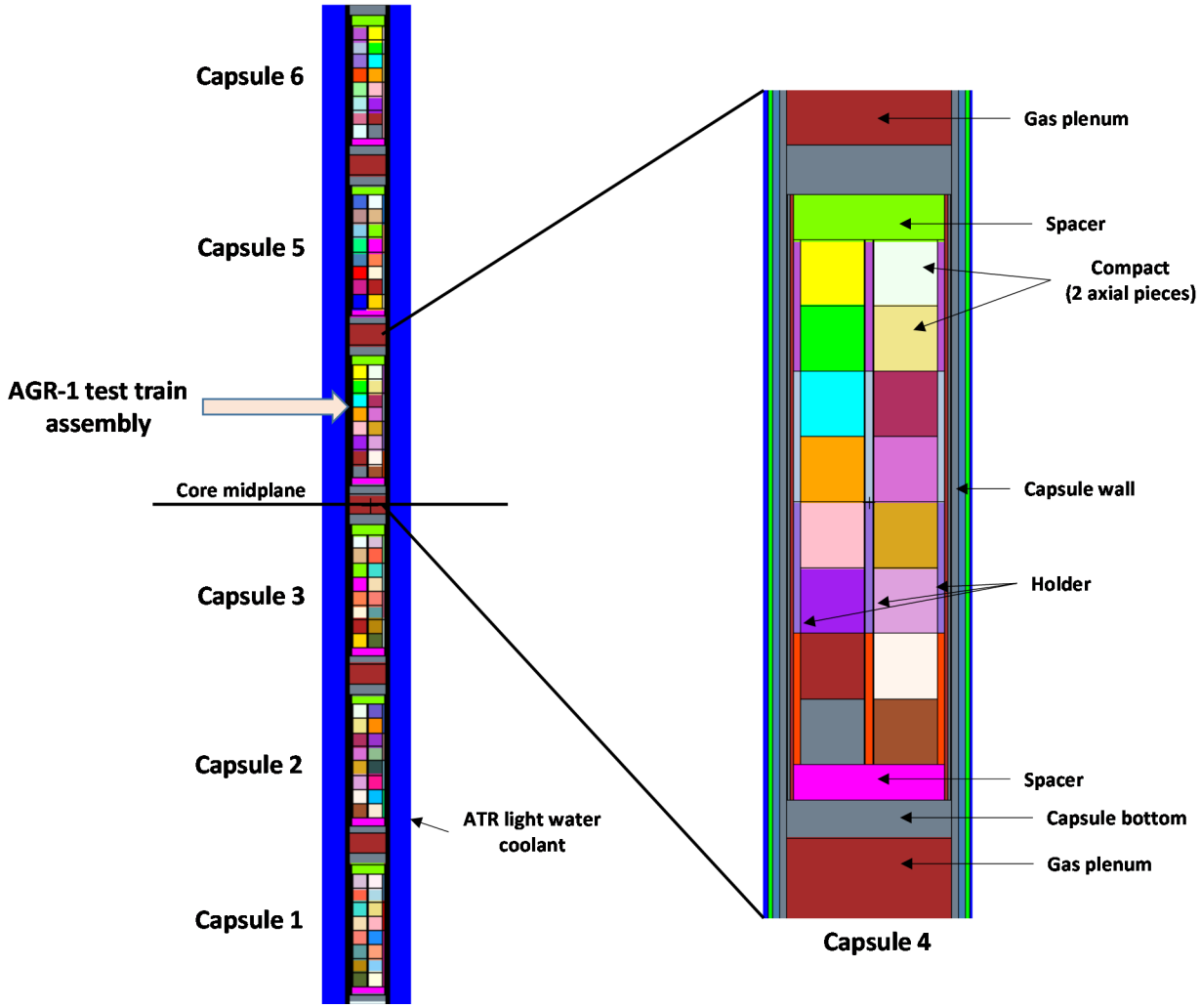

Figure 3. Axial view of the in-core section of the AGR-1 test train assembly, showing the six capsules, compacts, spacers, and gas plenums (MCNP plot).

In each capsule, there were 12 compacts. Since there were six capsules, AGR-1 contained a total of 72 fuel compacts. AGR-1 had four different types of compacts: (1) Baseline, (2) Variant 1, (3) Variant 2, and (4) Variant 3.

Differences between the baseline and variants 1, 2, and 3 were attributed primarily to the TRISO particle coatings, with relatively small differences in coating thicknesses, densities, and chemistry. Table 1 shows which capsules the four different TRISO particle types were placed. Each capsule contained only one type of particle.

Table 1. Compact variants by capsule.

Location	TRISO Particle Type
Capsule 6	Baseline
Capsule 5	Variant 1
Capsule 4	Variant 3
Capsule 3	Baseline
Capsule 2	Variant 2
Capsule 1	Variant 3

From a neutronic standpoint, these TRISO particle differences are insignificant. However, there are differences in the number of particles per compact that do need to be considered in the benchmark model. The number of particles per compact are given in Table 11 below. Each compact had a nominal average measured length of 2.54 cm and diameter of 1.27 cm.

Figure 4 shows a cross section view of Capsule 6. In this figure, the orienting vector or North direction is up or vertically up the page, or the same direction as arrow in Figure 1. The three compact stacks are labeled 1, 2, and 3. Stack 1 and Stack 3 face the ATR core center as shown. Stack 2 is behind these two stacks and partially shielded by these two stacks from the inherent fast and thermal neutron flux gradients produced by the ATR driver core (flux gradient vectors are directed radially inward toward the core center), Stack 2 compacts therefore have lower burnups relative to Stacks 1 and 3. Due to their similar positions, Stacks 1 and 3 will have comparable burnups, but with some slight differences due to rotational differences in local outer shim control cylinders (E2 and E3) next to the B-10 facility. The E2 and E3 OSCCs are on separate control banks. Note: the compact stacks and thru-tube centers (x-y coordinates) are the same for all six capsules.

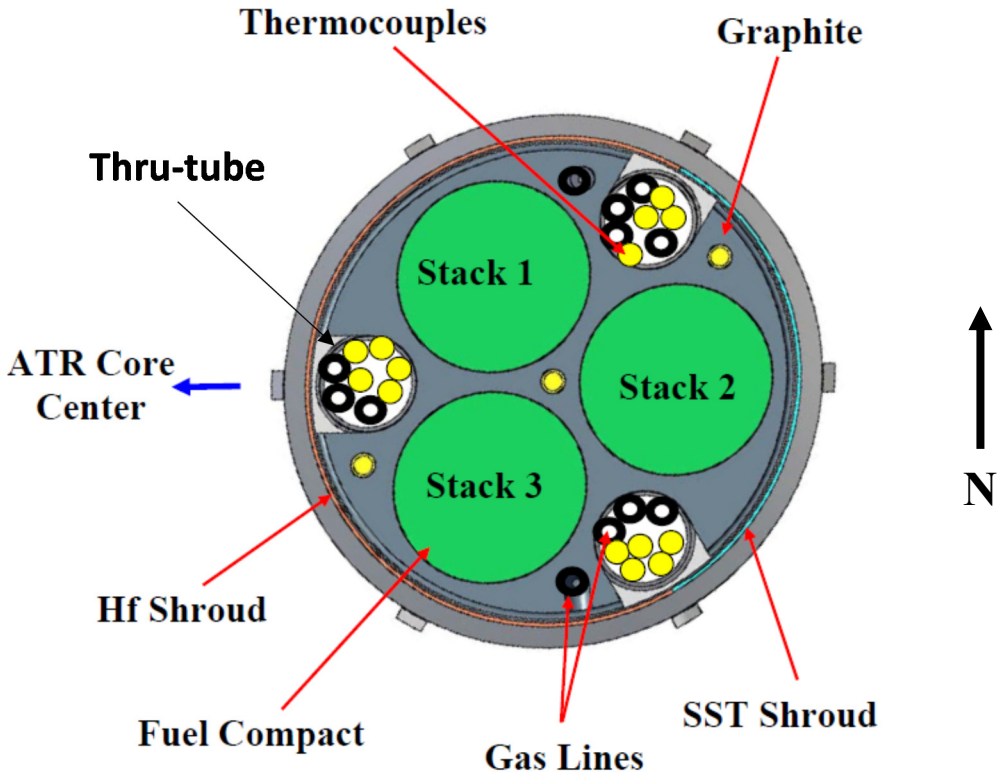

Figure 4. Cross section view of an AGR-1 capsule.

Figure 5 is a three-dimensional cutaway of a single AGR-1 capsule and Figure 6 is an axial cross section view with internal capsule components identified. Figure 7 is an isometric view of a capsule.

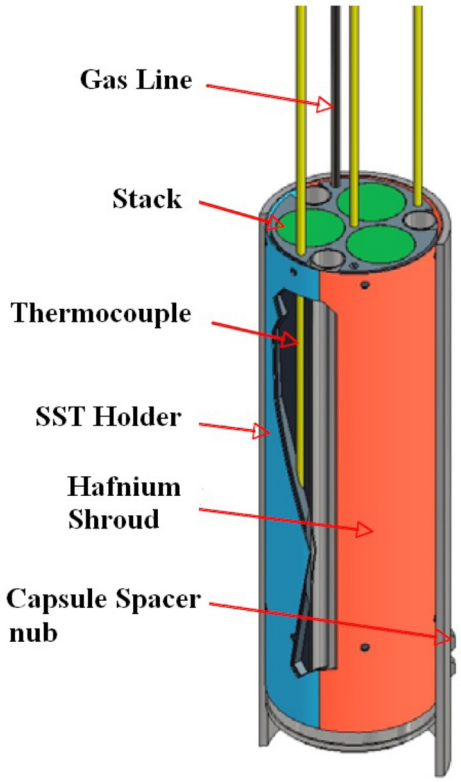

Figure 5. Three-dimensional cutaway of a single AGR-1 capsule.

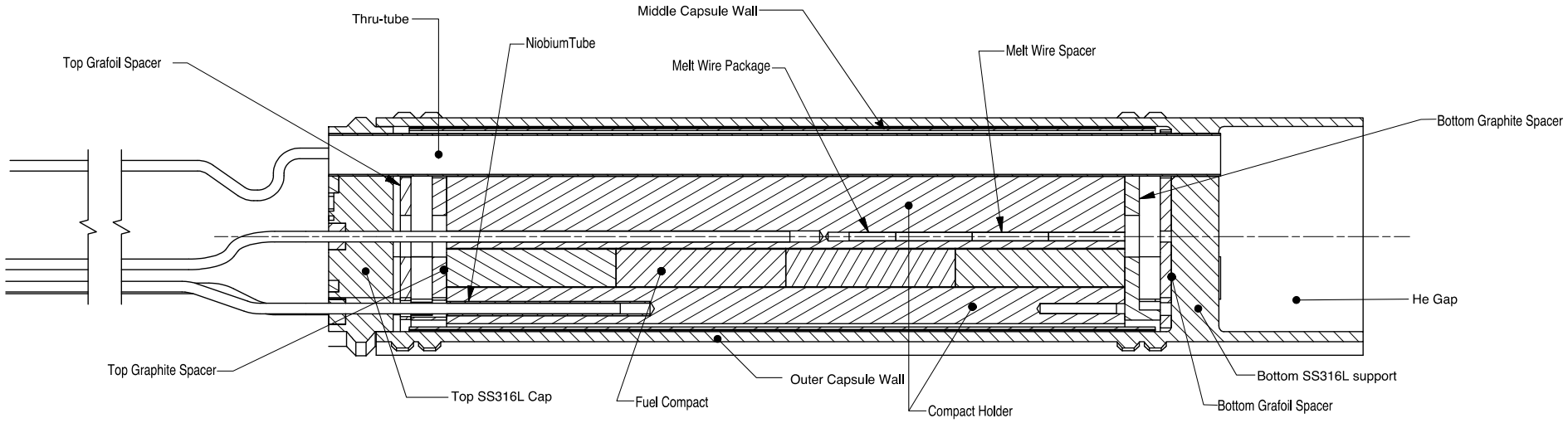

Figure 6. Axial view of capsule with internal components labeled.

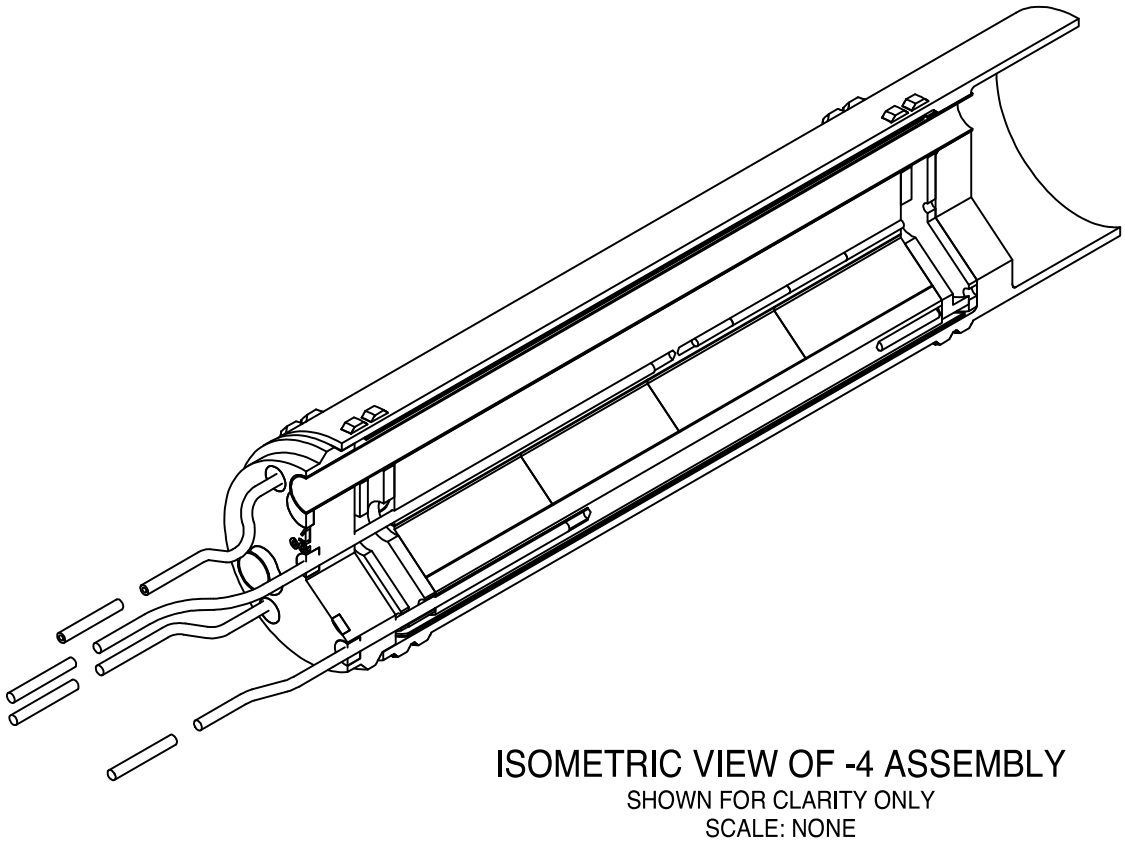

Figure 7. Isometric view of a capsule showing typical gas lines.

In addition to the fuel compacts, there are other components inside each capsule which include: (1) the borated graphite compact holders, (2) thru-tubes, (3) gas lines, (4) thermocouples (TC), (5) graphite spacers, and (6) gas plenums. The cylindrical capsule wall contained the graphite holders with a small helium-neon gas gap between them. The capsule wall was stainless steel with an embedded hafnium metal shroud. The boron in the graphite holders were designed reduce the thermal neutron flux and hence the compact fission rates, in particular for the first several ATR power cycles; the hafnium foil in the capsule wall was designed to further reduce and flatten the thermal and epithermal neutron flux gradient across the train (flux gradient existed radially outward from the core center). The 240-degree circumferential hafnium foil depleted slowly over the 13 power cycles and provided continuous flux gradient flattening.

4.1 Graphite Compact Holders

Table 2 gives material properties and dimensions for the graphite compact holders by capsule, along with internal capsule components that axially penetrate or traverse the holders. The compact holders are cylindrical rods of borated graphite, each nominally 3.03826 cm in diameter and 10.16 cm (4 in.) in length. There are six compact holders, one in each of the six capsules. Each compact holder contains three stacks of TRISO particle compacts, or 4 compacts per stack, each compact nominally 2.54 cm (1 in.) in

length. The axially drilled holes in the holders contain the compacts plus have an associated gas gap between the compact and holder with a thickness on the order of 0.00635 cm. The drilled holes for the compact stacks are equidistant from each other with a 1.405611 cm triangular pitch.

Table 2. Compact holder and embedded component materials and dimensions.

Component	Capsule	Material	Density (g/cm^3)	Total No. Density (a/b/cm)	Boron (a/o)	B-10 Enrich (a/o)	Outer Diameter (cm)	Length (cm)
Compact holders	6	borated graphite	1.7695	0.089145	4.76	19.9	3.03826	10.16
	5	borated graphite	1.7788	0.089728	6.05	19.9	3.03826	10.16
	4	borated graphite	1.7788	0.089728	6.05	19.9	3.03826	10.16
	3	borated graphite	1.7788	0.089728	6.05	19.9	3.03826	10.16
	2	borated graphite	1.7788	0.089728	6.05	19.9	3.03826	10.16
	1	borated graphite	1.7695	0.089145	4.76	19.9	3.03826	10.16
Compact gas gap	1–6	He-Ne	—	—	—	—	1.2467	10.16
Thru-tubes	2–6	Molybdenum Type 361 ASTM B387	10.1390	0.063659	—	—	0.6350 OD 0.5842 ID	Through capsules 2,3,4,5,6
Gas Lines	2–6	Niobium	8.57	0.05555	—	—	0.15875	--
TCs	1–6	Table 5	Table 5	Table 5	—	—	Table 5	Table 5

Table 3 gives the x-y coordinate centers of each stack relative to the center of the ATR core (x=0, y=0), which is also the central point of the center flux trap. Coordinates are also given for the MCNP model. Note the ATR east directional vector runs equidistant between Stacks 1 and 3 and directly through the center of Stack 2 and the B-10 irradiation facility. The x-y coordinates of the centers of the three compact stacks are the same in each capsule. Note that in the MCNP model, the x-y coordinates (cm) corresponding to the center of the B-10 test hole is (+25.337, -25.337) and in the ATR coordinate system (35.8319, 0.0) are the x-y coordinates. The original MCNP models, and all subsequent models, including the MCNP quarter-core model here, were unfortunately constructed with a 45-degree rotation relative to the actual ATR core reference north direction.

Table 3. Compact stack x-y coordinates in the graphite holders.

Stack	ATR x-coordinate (cm)	ATR y-coordinate (cm)	Pitch (cm)	MCNP model x-coordinate (cm)	MCNP model y-coordinate (cm)
1	35.426164	0.702805	1.405611	25.547039	-24.553123
2	35.426164	-0.702805	1.405611	24.553123	-25.547039
3	36.643459	0.000000	1.405611	25.910838	-25.910838
Holder Center	35.8319	0.0	Not applicable	25.337	-25.337

4.2 Thru-Tubes

Other vertically-drilled holes in the graphite holders include three locations for the thru-tubes that house the gas lines and thermocouples for each capsule. The thru-tube holes in the graphite holders are 0.6858 cm in diameter. The molybdenum thru-tubes themselves are 0.635 cm in diameter with a wall thickness of 0.0254 cm. Table 4 gives the x-y coordinates for the thru-tubes relative to the ATR core center and for the MCNP model.

Table 4. Thru-tube x-y coordinates and dimensions.

Thru-Tube Location	ATR x-coordinate (cm)	ATR y-coordinate (cm)	Tube IR/OR (cm)	MCNP model x-coordinate (cm)	MCNP model y-coordinate (cm)
West side	34.6076	0.0000	0.2921/0.3175	24.4713	-24.4713
Northeast side	36.4441	1.0603	0.2921/0.3175	26.5196	-25.0201
Southeast side	36.4441	-1.0603	0.2921/0.3175	25.0201	-26.5196

4.3 Gas Lines and Thermocouples

Inside the thru-tubes are both gas lines and thermocouples. Gas lines were located in capsules 2-6. Capsule 1 did not have thru-tubes or gas lines that penetrated axially through the holders. Each gas line had an outer diameter of 0.15875 cm (0.0625 in.), a wall thickness of 0.0254 cm (0.01 in.), and a 50% He-50% Ne gas mixture inside. Capsule 6 (top capsule) had 10 gas lines, capsule 5 had 8 gas lines, capsule 4 had 6 gas lines, capsule 3 had 4 gas lines, and capsule 2 had 2 gas lines.

Thermocouple modeling can be somewhat tedious. There were three different types of thermocouples (TC) in AGR-1. Table 5 lists the characteristics of these TCs. Figure 8 shows the TC type, position, and insertion depth in each graphite holder/capsule. Depending on the level of detail desired in the MCNP model, the TCs can either be homogenized or explicitly modelled. Note in Figure 8 that the number of gas lines and TCs in the thru-tubes appear to be the same for all capsules.

Table 5. TC characteristics.

Type	Thermo-elements	Insulation	Sheath
N (3/32)	Nisil & Nicrosil 0.0381 cm (0.015 in.) OD each	Al2O3	Molybdenum 0.023368 cm (0.092 in.) OD × 0.14224 cm (0.056 in.) ID
N (1/16)	Nisil & Nicrosil 0.0254 cm (0.010 in.) OD each	MgO	Inconel-600 0.15748 cm (0.062 in.) OD × 0.10668 cm (0.042 in.) ID
INL Type 50	Nb1Zr 0.021082 cm (0.0083 in.) OD and Mo 0.023368 cm (0.0092 in.) OD	HfO2	Nb1Zr 0.15748 cm (0.062 in.) OD × 0.105918 cm (0.0417 in.) ID

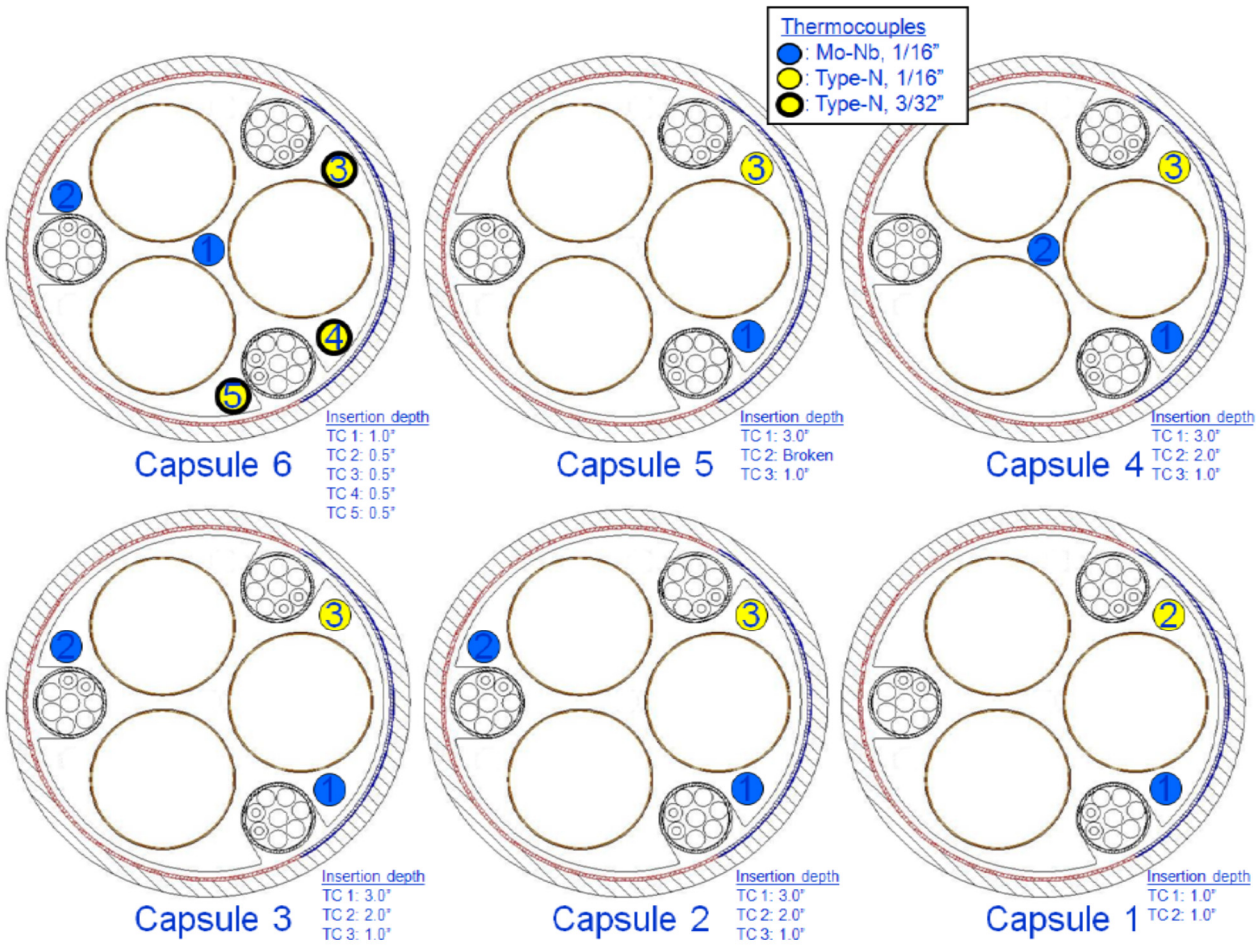

Figure 8. Cross section view of each capsule showing type, position, and insertion depth of the TCs in the graphite holders (dimensions are in inches).

4.4 Capsule

Table 6 gives the capsule wall tube dimensions and materials. The capsule wall is composed of three annular tubes pressed together. The three walls are: (1) an inner stainless steel tube, (2) a middle tube composed of hafnium and stainless steel (shroud or neutron filter), and (3) an outer stainless steel tube. The middle tube is composed of natural hafnium foil which extends 240° azimuthally around the circumference of the tube; the remaining 120-degree sector of the middle tube is stainless steel of comparable thickness to the hafnium foil. The center of the 240-degree hafnium sector is centered and pointed directly at the ATR core center. As mentioned previously, the hafnium foil absorbs and reduces the intensity of thermal and epi-thermal neutron current emanating from the direction of the core center, thus mitigating the fission density in the compacts. There are six hafnium shrouds, one shroud per capsule centered about the compact stacks. Each hafnium shroud is 11.176 cm in axial height and is axially-located between the SS316L cap and the bottom SS316L support. The outer stainless steel tube is relatively thick and is basically the main pressure-bearing wall of the capsule wall (pressure vessel). The gas in the gas gap between the borated graphite holders and the inside of the capsule wall was composed of a mixture of helium-neon, which can be assumed to have a gas composition of either 100% helium, or a more accurate 50% He and 50% Ne mixture by volume. Note a second gas gap exists between the middle and outer capsule walls as well (Table 6).

Table 6. Capsule wall tube dimensions and materials.

Component	Material	IR (cm)	OR (cm)	Length (cm)	Azimuthal Extent (degrees)	Total Number Density (a/b/cm)
Gas gap	He	1.51913	1.5875	90.0	360	1.24931E-04
Inner Capsule wall	SS316L	1.5875	1.62179	90.0	360	0.087000
Middle Capsule wall	Hf	1.62179	1.64719	90.0	240	13.36 g/cm^3
Middle Capsule wall	SS316L	1.62179	1.64719	90.0	120	0.087000
Gas gap	He	1.64719	1.64846	90.0	360	1.24931E-04
Outer Capsule wall	SS316L	1.64846	1.78562	90.0	360	0.087000
ATR light water coolant outside capsule wall	H_2O	1.78562	1.905	121.92	360	0.100127

Radially outside the capsule wall is ATR light water coolant which extends out to 1.905 cm or the inner radius of the drilled bole hole in the beryllium reflector block that is the B-10 irradiation position.

Table 7 data provides the physics analyst with axial elevations of the major components in each of the six capsules. Note that the elevations are axial heights above the bottom of the ATR active core or the bottom of the ATR fuel. The bottom of the ATR fuel is the designated reference elevation at zero centimeters (z=0.0 cm) in the MCNP model. The capsule top cap and bottom support components are solid cylindrical stainless steel pieces with a radius equal to the graphite holders (1.51913 cm). The top of the compact stack coincides with the top of the graphite holders, and above the graphite holders is an upper graphite spacer (solid graphite cylinder) with a radius equal to the graphite holder below it with a thickness of 0.86868 cm (0.342 in.) and is made of pure graphite (no boron) with a total number density of 4.76735E-02 a/b/cm (0.95 g/cm^3). Above the upper graphite spacer is a stainless steel top cap (solid cylinder) with a thickness of 0.9652 cm (0.38 in.). Above the stainless steel top cap is a helium gap separating the capsules. The helium gap has a radius equal to the capsule inner wall radius (1.5875 cm), thickness of 1.8161 cm (0.715 in), and an all-helium number density of 1.24931E-04 a/b/cm. Above the helium gap is the bottom stainless steel support piece and above this support piece is the lower graphite spacer. The top of this lower graphite spacer coincides with the bottom of the graphite holder and compact stack of the capsule above. These component pieces between capsules or between the graphite compact holders are repeated and the same for all capsules.

Table 7. Axial plane elevations for component pieces between capsules.

Capsule	Component	Elevation (cm)	Elevation (in.)
6	top SS316L cap	105.94848	41.712
6	Top of graphite spacer/bottom of SS316L cap	104.98328	41.332
6	top of compact stack	104.11460	40.990
6	midplane of compact stack	99.03460	38.990
6	Top of lower graphite spacer/bottom of compact stack	93.95460	36.990
6	top of SS316L support/bottom of lower graphite spacer	93.26118	36.717
6	Top of helium gap/bottom of SS316L support	92.53728	36.432
5	top SS316L cap	90.72118	35.717
5	Top of graphite spacer/bottom of SS316L cap	89.75598	35.337
5	top of compact stack	88.88730	34.995
5	midplane of compact stack	83.80730	32.995
5	Top of lower graphite spacer/bottom of compact stack	78.72730	30.995
5	top of SS316L support/bottom of lower graphite spacer	78.03388	30.722
5	Top of helium gap/bottom of SS316L support	77.30998	30.437

Table 7. (continued).

4	top SS316L cap	75.49388	29.722
4	Top of graphite spacer/bottom of SS316L cap	74.52868	29.342
4	top of compact stack	73.66000	29.000
4	midplane of compact stack	68.58000	27.000
4	Top of lower graphite spacer/bottom of compact stack	63.50000	25.000
4	top of SS316L support/bottom of lower graphite spacer	62.80658	24.727
4	Top of helium gap/bottom of SS316L support	62.08268	24.442
3	top SS316L cap	60.26658	23.727
3	Top of graphite spacer/bottom of SS316L cap	59.30138	23.347
3	top of compact stack	58.43270	23.005
3	midplane of compact stack	53.35270	21.005
3	Top of lower graphite spacer/bottom of compact stack	48.27270	19.005
3	top of SS316L support/bottom of lower graphite spacer	47.57928	18.732
3	Top of helium gap/bottom of SS316L support	46.85538	18.447
2	top SS316L cap	45.03928	17.732
2	Top of graphite spacer/bottom of SS316L cap	44.07408	17.352
2	top of compact stack	43.20540	17.010
2	midplane of compact stack	38.12540	15.010
2	Top of lower graphite spacer/bottom of compact stack	33.04540	13.010
2	top of SS316L support/bottom of lower graphite spacer	32.35198	12.737
2	Top of helium gap/bottom of SS316L support	31.62808	12.452
1	top SS316L cap	29.81198	11.737
1	Top of graphite spacer/bottom of SS316L cap	28.84678	11.357
1	top of compact stack	27.97810	11.015
1	midplane of compact stack	22.89810	9.015
1	Top of lower graphite spacer/bottom of compact stack	17.81810	7.015
1	top of SS316L support/bottom of lower graphite spacer	17.12468	6.742
1	bottom of SS316L support	16.40078	6.457
	graphite spacer	14.67358	5.777
	bottom of SS316L capsule support	13.65758	5.377

The length of the B-10 test volume in the quarter-core model extends from z = -2.54 cm up to z = +127.0 cm. In Table 7, the bottom elevation is z = +13.65758 cm and the top elevation is z = +105.94848 cm. For the volume above +105.84848 cm up to +127.0 cm, the capsule wall and thru-tubes can simply be extended up to +127.0 cm and the rest of the space filled with air. For the volume below +13.65758 cm down to -2.54 cm, the capsule wall can again be extended down to -2.54 cm and filled with air. One can also replace the air between -2.54 to 0.0 cm (1 in.) inside the capsule with a solid stainless steel wafer to represent the bottom dome of the test train.

4.5 Hafnium Shroud

As mentioned above, the hafnium shroud(s) are composed of natural hafnium foil which extends 240-degrees azimuthally around the circumference of the tube; the remaining 120-degree sector of the middle tube is stainless steel of comparable thickness to the hafnium foil. The center of the 240-degree hafnium sector is centered and pointed directly at the ATR core center (Figure 9). There are six hafnium shrouds, one shroud per capsule centered about the compact stacks. Each hafnium shroud is 11.176 cm in axial height and is axially-located between the SS316L cap and the bottom SS316L support. Table 6 provides addition hafnium shroud dimension and material data.

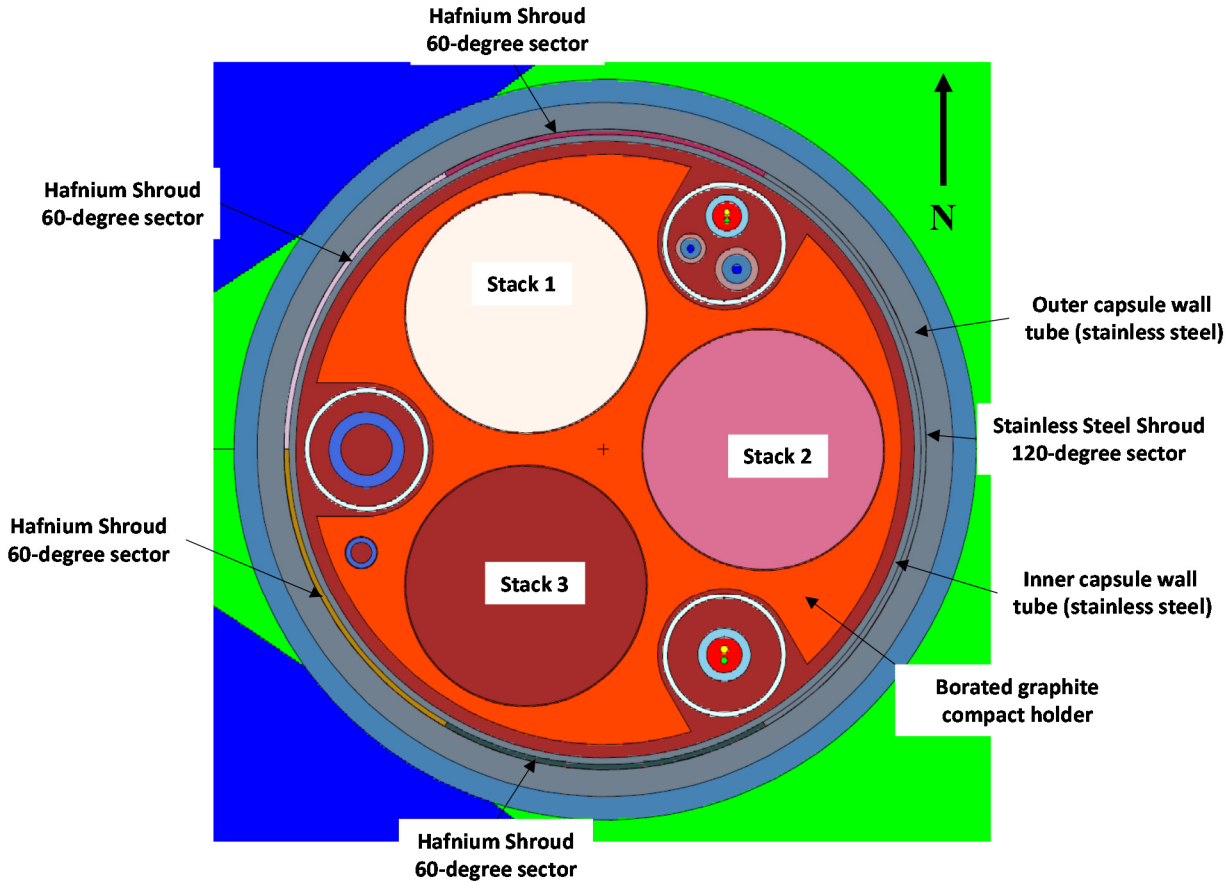

Figure 9. Four hafnium shroud azimuthal sectors for 240-degree hafnium shroud, plus 120-degree stainless steel sector.

Table 8. Hafnium shroud characteristics.

Capsule	Shroud Axial Edge	Shroud Elevation (cm)	Axial Length (cm)	Hf Foil IR (cm)	Hf Foil OR (cm)	Hf Foil Density (g/cm^3)
6	Top	104.98328	11.176	1.62179	1.64719	12.8081
6	Bottom	93.26118				
5	Top	89.75598	11.176	1.62179	1.64719	12.8081
5	Bottom	78.03388				
4	Top	74.52868	11.176	1.62179	1.64719	12.8081
4	Bottom	62.80658				
3	Top	59.30138	11.176	1.62179	1.64719	12.8081
3	Bottom	47.57928				
2	Top	44.07408	11.176	1.62179	1.64719	12.8081
2	Bottom	32.35198				
1	Top	28.84678	11.176	1.62179	1.64719	12.8081
1	Bottom	17.12468				

5. TRISO PARTICLES

The AGR-1 experiment included a baseline particle type along with three particle variants. Most of the differences associated with the four particle types involved the coating thicknesses and densities. All four particles have a spherical uranium oxy-carbide (UCO) kernel and four outer spherical coatings. The four coatings include: (1) low density graphite buffer, (2) inner pyrolithic graphite (IPyC) layer, (3) silicon carbide (SiC) layer, and (4) outer pyrolithic graphite (OPyC) layer. Table 9 (References [5] and [6]) gives the overall UCO kernel diameter, density, uranium enrichment, and carbon-to-uranium ratio and oxygen-to-uranium ratio in the uranium oxy-carbide (UCO) kernel. Table 10 gives the spherical particle coating thicknesses and densities (Reference [7]). Figure 10 shows schematically a TRISO particle with the kernel at the center of the particle and four particle coatings.

Table 9. UCO kernel characteristics.

Property	Mean Value (measured)
Diameter (μm)	349.7
Density (g/cm^3)	10.924
U-234 enrichment (wt%)	0.3294
U-235 enrichment (wt%)	19.7624
U-236 enrichment (wt%)	0.0192
U-238 enrichment (wt%)	79.8890
Carbon/uranium (atomic ratio)	0.3253
Oxygen/uranium (atomic ratio)	1.3613
Total uranium (wt%)	90.059

Table 10. Particle coating characteristics by particle type.

Property	Mean Value (measured)			
	Baseline	Variant 1	Variant 2	Variant 3
Buffer Thickness (μm)	103.5	102.5	102.9	104.2
IPyC Thickness (μm)	39.4	40.5	40.1	38.8
SiC Thickness (μm)	35.3	35.7	35.0	35.9
OPyC Thickness (μm)	41.0	41.1	39.8	39.3
Buffer Density (g/cm^3)	1.10	1.10	1.10	1.10
IPyC Density (g/cm^3)	1.904	1.853	1.912	1.904
SiC Density (g/cm^3)	3.208	3.206	3.207	3.205
OPyC Density (g/cm^3)	1.907	1.898	1.901	1.911

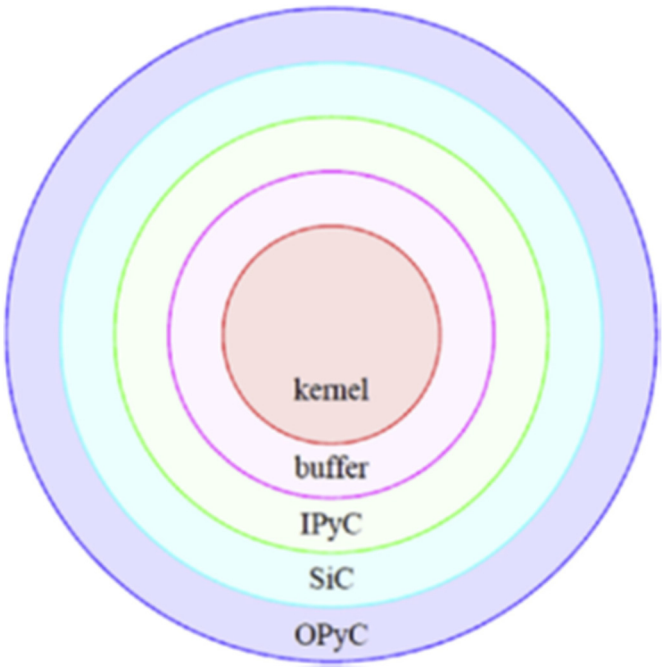

Figure 10. TRISO particle kernel and coatings.

6. FUEL COMPACTS

A typical AGR-1 compact is shown in Figure 11. The compacts were cylindrical rodlets that contained the TRISO particles. Each compact was nominally 1.27 cm (0.5 in.) in diameter and 2.54 cm (1.0 in.) in length. Specific dimensions and compact characteristics are given in Table 11 per Reference [5].

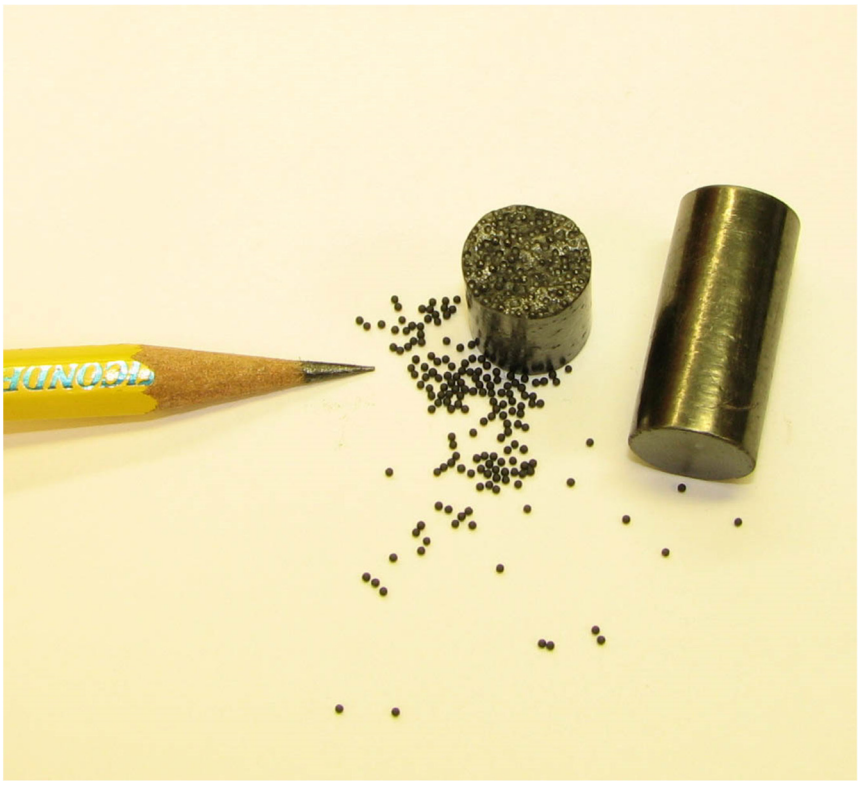

Figure 11.Typical AGR-1 compacts.

Table 11. Compact dimensions, loadings, and density characteristics for the four particle types.

Property	Mean Value			
	Baseline	Variant 1	Variant 2	Variant 3
Diameter (mm)	12.36	12.36	12.36	12.34
Length (mm)	25.066	25.123	25.077	25.227
Number of particles per compact	4154	4145	4095	4132
Average particle packing fraction (%)	36.99	37.42	36.26	36.04
Mean uranium loading (g U/compact)	0.917	0.915	0.904	0.912
Compact mass (g)	5.4789	5.3371	5.3736	5.5930
Compact matrix density (g/cm^3)	1.297	1.219	1.256	1.344
Effective overall compact density g/cm^3)	1.822	1.771	1.786	1.854

Each AGR-1 compact had protective graphite endcaps on the top and bottom (Figure 12). The top endcap was nominally 0.16 cm in axial length and the bottom endcap 0.20 cm. Both endcaps were graphite with a density equal to the compact matrix density given in Table 11. The endcaps contained no TRISO particles so the effective compact packing fraction of particles in the middle portion of the compact will be slightly larger than the Table 11 average values. These endcaps were added to protect the TRISO particles in the compact and are unique to the AGR-1 compacts.

Figure 12.Axial radiograph of a typical compact showing the TRISO particles (small dark circles) and the matrix and top and bottom graphite endcaps (gray).

7. MATERIAL COMPOSITION DATA

Tables 12 - 17 provide additional elemental and isotopic composition descriptions for materials in the AGR-1 test train and the ATR quarter-core model. These materials include: (1) stainless steel 316L, (2) the two AGR-1 borated graphite holder materials, (3) hafnium metal (used in the capsule shroud, neck shim rods, and OSCCs), (4) aluminum-6061, and (4) ATR light water coolant.

Table 12. Stainless steel 316L (SS316L) composition (8.03 g/cm^3).

Element	Weight Fraction (wt%)
C	0.030
Si	0.750
Cr	17.000
Mn	2.000
Fe	65.545
Co	0.000
Ni	12.000
Cu	0.000
N	0.100
S	0.030

Table 12. (continued).

P	0.045
Mo	2.500

Table 13. Borated graphite holder number densities (4.76 atom percent boron).

Element	No. density (a/b/cm)
C-12	8.4900E-02
B-10	8.4496E-04
B-11	3.4003E-03

Table 14. Borated graphite holder number densities (6.05 atom percent boron).

Element	No. density (a/b/cm)
C-12	8.4300E-02
B-10	1.0804E-03
B-11	4.3476E-03

Table 15. Hafnium metal number densities (beginning-of-life).

Isotope/Element	No. density (a/b/cm)
O-16	1.3500E-04
C-12	4.4300E-05
Si-nat	6.8700E-06
Zr-nat	1.9900E-03
Hf-174	6.7512E-05
Hf-176	2.1934E-03
Hf-177	7.8473E-03
Hf-178	1.1431E-02
Hf-179	5.7955E-03
Hf-180	1.4845E-02

Table 16. Aluminum metal number densities (2.7 g/cm^3).

Isotope/Element	No. density (a/b/cm)
Al-27	5.90699E-02
Cr-nat	6.25887E-05
Si-nat	3.47620E-04
Mg-nat	6.69484E-04
Cu-nat	6.40160E-05

Table 17. Light water number densities (ATR coolant).

Element	No. density (a/b/cm)
H	6.68506-2
O-16	3.34253-2

The ATR light water coolant is an average temperature of approximately 62°C (335 K) and 2.5 MPa.

8. OUTER SHIM CONTROL CYLINDER MODELING

The beryllium OSCC drums each have a hafnium plate attached to their outer surface. The hafnium plate circumferentially covers only approximately 90-degrees of the full 360-degrees of the cylinder surface. The hafnium plate can be rotated to absorb more or less neutrons and change core reactivity. The MCNP quarter-core model represents the OSCC rotation by moving a cylinder that is intersected with other cylinders to simulate rotating the hafnium metal plate on the drum. The formula for the x and y coordinates for the moving cylinders (E1, E2, E3, and E4 OSCCs) are given in Table 18. The "NE" and the "SE" variables correspond to the angles in Appendix B. These angles are put into the formulas to calculate and x and y coordinate. Note that cosine (cos) and sine (sin) arguments are in degrees. Also, in Appendix B, the "NW" and "SW" data is not used in the quarter-core model.

Table 18. Formulas for modeling OSCC hafnium plate positions or rotations.

OSCC	MCNP surface plane no.	Coordinate (cm)	Formula
E1	981	X	52.596-9.195*cos(NE-24.72)
		Y	-10.157-9.195*sin(NE-24.72)
E2	982	X	37.61-9.195*cos(NE-38.06)
		Y	-23.228-9.195*sin(NE-38.06)
E3	983	X	23.228+9.195*sin(SE-38.06)
		Y	-37.61+9.195*cos(SE-38.06)
E4	984	X	10.157+9.195*sin(SE-24.72)
		Y	-52.596+9.195*cos(SE-24.72)

Examples of the OSCC surface card descriptions using the Table 18 formulas are as follows:

		X	Y	R	
981	c/z	46.648	-17.169	9.195	$E1: NE shim position= 74.410 degrees
982	c/z	30.204	-28.678	9.195	$E2: NE shim position= 74.410 degrees
983	c/z	29.892	-31.275	9.195	$E3: SE shim position= 84.510 degrees
984	c/z	18.103	-47.969	9.195	$E4: SE shim position= 84.510 degrees

Note that the variable "R" above is the cylinder radius in centimeters.

9. CAPSULE TEMPERATURE DATA

Fuel compact temperatures in each capsule over the 13 ATR power cycles are provided in this section (Reference [8]). Table 19 compact temperatures specifically include: (1) time-average minimum temperature, (2) time-averaged, volume-averaged (TAVA) temperature, and (3) time-average maximum temperature. Other capsule component temperatures can be extracted from Reference [8], as desired.

Table 19. Fuel compact temperature data for the six AGR-1 capsules.

Capsule	Time-Average Minimum (˚C)	TAVA (˚C)	Time-Average Maximum (˚C)
Capsule 6	885	1088	1197
Capsule 5	818	1023	1144
Capsule 4	866	1070	1187
Capsule 3	828	1028	1147
Capsule 2	800	1002	1124
Capsule 1	854	1054	1167

The AGR-1 neutron spectrum is predominantly determined by the (1) ATR driver fuel, (2) volume of light water around the AGR-1 test train, (3) hafnium shroud, and (4) boron in the graphite holders. Temperature of the fuel compacts and capsule components have only a very minor impact on the local neutron spectrum and exact temperatures may not be required in the AGR-1 depletion calculation. A more complete MCNP model however can include these average temperatures for the fuel compacts for adjusting the compact and capsule cell temperatures (Free Gas Scattering Temperature card or TMP card in MCNP) and selecting appropriate S(α,β) thermal neutron scattering libraries for cells with graphite (bound carbon atoms).

10. ATR CORE POWER, OSCC, AND NECK SHIM DATA

As-run ATR measured test data for the 13 ATR power cycles (138B, 139A, 139B, 140A, 140B, 141A, 142a, 142B, 143A, 143B, 144A, 144B, and 145A) are contained in Appendices A, B, and C. These cycles were the 13 cycles AGR-1 under went irradiation in ATR. The three appendices contain the following as-run data:

Appendix A: ATR Lobe and Total Core Power History by Cycle and Timestep

Appendix B: ATR Outer Shim Control Cylinder (OSCC) Positions by Cycle and Timestep

Appendix C: ATR Neck Shim Positions by Cycle and Timestep

These as-run data are intended as input data for the MCNP quarter-core model, although not all the data is needed for the quarter-core model. For example, the northwest and southwest lobe powers are not needed as the quarter-core model does not include these ATR lobes.

Appendix A contains as-run ATR total and lobe power data for the 13 power cycles in which the AGR-1 test train was irradiated in the B-10 irradiation test facility. These data include the ATR power cycle number (138B through 145A), number of timesteps and duration of each timestep per cycle, the five ATR lobe powers by timestep, and the total ATR core power (far right column of the Appendix A table). For tally normalization, the B-10 irradiation test facility tally data is typically normalized to an “east lobe power” defined as one-third the sum of the northeast (NE), center (C), and southeast (SE) lobe powers. These same lobe powers can alternatively be weighted based on the number of nearest ATR driver elements by lobe, for example, 40% southeast, 20% center, and 40% northeast lobe power, instead of 33% southeast, center, northeast lobe power. Note: an ATR lobe contains 8 driver fuel elements.

There are a total of 662 timesteps over the 13 ATR power cycles. The majority of the timesteps are 24-hour increments. Those timesteps that are less than 24 hours are typically partial-day durations in which the reactor was either coming up in power (power-up) or going down in power (power-down). Power-ups are typically either beginning-of-cycle cold startup or mid-cycle startup after a scram. Power-

downs in mid-cycle are reactor scrams and at end-of-cycle reactor shutdown. Mid-cycle timesteps greater than 24 hours are primarily scram periods with the reactor power at zero power.

Appendix B and C contain corresponding outer shim control cylinder and neck shim position data by timestep for the 13 cycles.

Between power cycles, ATR is shutdown. The duration of these shutdown periods (decay periods) are given Table 20.

Table 20. Shutdown periods between AGR-1 power cycles.

Between Cycles		Shutdown Duration (days)
138B	139A	15
139A	139B	95
139B	140A	15
140A	140B	14
140B	141A	9
141A	142A	56
142A	142B	14
142B	143A	24
143A	143B	16
143B	144A	20
144A	144B	15
144B	145A	62
145A	EOC Nov. 6, 2009	

11. CONCLUSIONS

This document provides the necessary benchmark data needed to model the AGR-1 experiment in an MCNP quarter-core model of the ATR. The MCNP quarter-core ATR model input file listing is provided in Appendix D in this report. The AGR-1 data herein can be used to generate MCNP surface, cell, and material cards for the AGR-1 test train, capsule, fuel compacts, and TRISO particles. These MCNP cards can then be integrated into the quarter-core model. The dimension and material data provided herein is for beginning-of-life or pre-irradiation data. The model together with the ATR as-run data can then be used to perform a depletion calculation of the AGR-1 TRISO particle compacts. Calculated estimates of compact burnup (% FIMA), fast fluence (n/cm^2), and isotopic concentration inventories as a function of burnup can be compared to several other reference calculations and measured data. For example, calculated data can be compared to: (1) quarter-core model depletion calculation (Reference [1]), (2) full-core model depletion calculation (Reference [2]), and/or (3) measured data (Reference [3]). Good result comparisons can provide a verification and validation basis for computer codes and models to be used for HTGR design and analysis.

12. REFERENCES

1. J.J. Cogliati and J.W. Sterbentz, "*MCNP Results for the AGR-1 Depletion Benchmark*," INL/LTD-18-45646, Idaho National Laboratory, July 2018.
2. J.W. Sterbentz, "JMOCUP As-Run Daily Depletion Calculation for the AGR-1 Experiment in ATR B-10 Test Position," Engineering Calculations and Analysis Report, ECAR-958, Rev.3, Idaho National Laboratory, September 3, 2013.

3. J.W. Sterbentz, et al., “Validation of the Physics Analysis used to Characterize the AGR-1 TRISO Fuel Irradiation Test,” INL/CON-14-33982 and proceedings of ICAPP 2015, Nice, France, paper 15497, May 3-6, 2015.
4. “*Advanced Test Reactor National Scientific User Facility: Users’ Guide*,” Idaho National Laboratory, INL/EXT-07-13577 (2008).
5. “*AGR-1 Irradiation Experiment Test Plan*,” Idaho National Laboratory, Idaho Falls, ID, INL/EXT-05-00593, Rev. 3, October 20, 2009.
6. BWXT Nuclear Products Division G73 Lot G73D-20-69302, “Chemistry Analysis” sheets.
7. “*AGR-1 Irradiation Test Final As-Run Report*,” Blaise P. Collin, INL-EXT-10-18097 rev 3, January 2015.
8. G.L Hawkes, “*AGR-1 Daily As-run Thermal Analyses*,” INL/MIS-11-23669, Rev. 4, September 3, 2014.

Appendix A

ATR Lobe and Total Core Power History by Cycle and Timestep

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
138B	1	1	9	1.4611	1.4761	1.8833	2.0861	2.1028	9.0094
138B	2	2	24	4.3281	4.3510	5.0875	6.1204	6.2483	26.1354
138B	3	3	24	17.2033	17.1969	19.4444	21.9544	23.8315	99.6304
138B	4	4	24	17.9902	18.0056	22.1019	23.0196	25.0567	106.1740
138B	5	5	24	18.0575	18.0433	22.1181	22.9727	25.0910	106.2827
138B	6	6	24	18.0715	17.9946	21.9185	22.9433	25.1115	106.0394
138B	7	7	24	18.0627	18.0896	22.5400	23.0081	25.0560	106.7565
138B	8	8	24	18.1790	18.1825	22.5865	23.0735	25.2979	107.3194
138B	9	9	24	18.0865	18.2785	23.0002	23.0731	25.1902	107.6285
138B	10	10	24	18.1913	18.3413	23.1858	23.1723	25.1800	108.0706
138B	11	11	24	18.1504	18.1279	23.3069	23.1213	25.1781	107.8846
138B	12	12	24	18.2460	18.2440	23.5031	23.2946	25.2638	108.5515
138B	13	13	24	18.1640	18.1731	23.0742	23.1794	25.1408	107.7315
138B	14	14	24	18.3108	18.3550	23.5188	23.3733	25.3648	108.9227
138B	15	15	24	18.2871	18.3279	23.4992	23.3060	25.2477	108.6679
138B	16	16	24	18.2215	18.2733	23.4185	23.2515	25.3398	108.5046
138B	17	17	24	18.1758	18.1671	22.8590	23.2079	25.1621	107.5719
138B	18	18	24	18.1221	18.1879	22.7592	23.0750	25.0869	107.2310
138B	19	19	24	18.0960	18.0908	23.0235	23.0679	25.0729	107.3513
138B	20	20	24	18.0940	18.0446	22.9885	23.0550	25.0829	107.2650
138B	21	21	24	18.0960	18.1373	23.2446	22.9790	25.0381	107.4950
138B	22	22	24	18.1094	18.0979	22.9383	23.0263	25.0267	107.1985
138B	23	23	24	18.1775	18.2092	23.0529	23.1935	25.1019	107.7350
138B	24	24	24	18.1335	18.1646	23.2175	23.1002	25.1090	107.7248
138B	25	25	24	17.9775	18.0969	23.1796	22.9185	24.9642	107.1367
138B	26	26	24	18.0075	17.9792	23.2758	23.0152	24.9119	107.1896
138B	27	27	24	18.1098	18.1125	23.3548	23.1446	25.0744	107.7960
138B	28	28	24	18.1902	18.1765	23.3658	23.1888	25.1515	108.0727
138B	29	29	24	18.1604	18.1496	23.5248	23.1381	25.1002	108.0731
138B	30	30	24	18.1283	18.1231	24.0544	23.0796	25.0948	108.4802
138B	31	31	24	18.1319	18.1946	23.8523	23.1090	25.1190	108.4067

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
138B	32	32	24	18.1508	18.2592	23.7390	23.2388	25.2023	108.5900
138B	33	33	24	18.0558	18.1783	23.6569	23.2340	25.0938	108.2188
138B	34	34	24	18.1556	18.2013	23.8108	23.2138	25.1765	108.5579
138B	35	35	24	18.1085	18.1679	23.6260	23.1242	25.1125	108.1392
138B	36	36	24	18.1465	18.1646	23.6319	23.1365	25.0694	108.1488
138B	37	37	24	18.1523	18.2085	24.2633	23.2225	25.1881	109.0348
138B	38	38	24	18.1271	18.1377	24.4344	23.1023	25.1073	108.9088
138B	39	39	24	18.0650	18.1308	24.1665	23.0415	25.1117	108.5154
138B	40	40	24	18.1563	18.3010	24.4973	23.1204	25.2096	109.2846
138B	41	41	24	18.2523	18.3358	24.4163	23.3406	25.2525	109.5975
138B	42	42	24	18.2635	18.2756	24.6056	23.2815	25.2419	109.6681
138B	43	43	24	18.2229	18.2565	24.5585	23.2444	25.3108	109.5931
138B	44	44	24	18.4092	18.4888	24.8844	23.4742	25.4335	110.6900
138B	45	45	24	18.3998	18.4271	24.4771	23.4331	25.4525	110.1896
138B	46	46	24	18.3233	18.3400	23.8204	23.3060	25.3152	109.1050
138B	47	47	24	18.2585	18.3538	23.7048	23.3092	25.3071	108.9333
138B	48	48	24	18.2879	18.2781	23.6496	23.3098	25.3092	108.8346
138B	49	49	9	18.3189	18.3694	23.9450	23.3928	25.3933	109.4194
139A	1	50	8	5.2931	5.2006	6.9469	6.8475	7.4444	31.7325
139A	2	51	24	17.9554	17.9506	22.5175	22.8456	24.7823	106.0515
139A	3	52	24	18.3754	18.3533	23.2496	23.3375	25.3523	108.6681
139A	4	53	24	18.3458	18.3360	23.9098	23.3273	25.3154	109.2344
139A	5	54	24	18.2538	18.2658	24.1850	23.2923	25.2388	109.2356
139A	6	55	24	18.4325	18.4281	24.0956	23.4548	25.4833	109.8944
139A	7	56	24	18.2798	18.3544	23.9396	23.4002	25.3860	109.3600
139A	8	57	24	18.3854	18.4017	24.4523	23.4898	25.3644	110.0935
139A	9	58	24	18.4304	18.4415	24.2800	23.4581	25.4402	110.0502
139A	10	59	24	18.3721	18.4100	24.0260	23.3967	25.3563	109.5610
139A	11	60	24	18.4225	18.4183	23.9127	23.4188	25.4223	109.5946
139A	12	61	24	18.4060	18.4146	23.9465	23.4575	25.4521	109.6767
139A	13	62	24	18.3525	18.4129	23.9973	23.4819	25.4563	109.7008
139A	14	63	24	18.2963	18.3817	23.7613	23.3221	25.3869	109.1481
139A	15	64	24	18.3098	18.3492	24.3242	23.4163	25.3742	109.7735
139A	16	65	24	18.3119	18.3756	24.2692	23.3377	25.4508	109.7452
139A	17	66	24	18.3838	18.3167	24.1610	23.3829	25.4217	109.6660
139A	18	67	24	18.3915	18.3792	24.0321	23.4060	25.4238	109.6325

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
139A	19	68	24	18.3573	18.4571	24.2404	23.4448	25.4358	109.9354
139A	20	69	24	18.4040	18.3946	24.6627	23.4963	25.4242	110.3817
139A	21	70	24	18.4525	18.4865	24.6160	23.5494	25.4290	110.5333
139A	22	71	24	18.4363	18.5342	24.2560	23.4567	25.4927	110.1758
139A	23	72	24	6.1640	6.1769	8.0715	7.8121	8.5281	36.7525
139A	24	73	24	0.0001	0.0001	0.0001	0.0001	0.0001	0.0005
139A	25	74	24	0.0001	0.0001	0.0001	0.0001	0.0001	0.0005
139A	26	75	24	15.8846	15.8833	21.8650	20.2838	21.9600	95.8767
139A	27	76	24	18.3881	18.4083	24.2977	23.4069	25.3813	109.8823
139A	28	77	24	18.2469	18.2652	24.1023	23.2513	25.2792	109.1448
139A	29	78	24	18.3077	18.3821	24.4958	23.4150	25.2890	109.8896
139A	30	79	24	18.2383	18.3140	24.1138	23.2808	25.2821	109.2290
139A	31	80	24	18.2192	18.2644	23.9813	23.2517	25.2254	108.9419
139A	32	81	24	18.3119	18.3594	24.1031	23.2656	25.3302	109.3702
139A	33	82	24	18.4319	18.4908	24.2250	23.4069	25.4558	110.0104
139A	34	83	24	18.5442	18.6229	24.3681	23.5771	25.6425	110.7548
139A	35	84	24	18.5060	18.5596	23.9729	23.6021	25.5502	110.1908
139A	36	85	24	18.5156	18.5700	23.8919	23.6188	25.4623	110.0585
139A	37	86	24	18.4356	18.4988	23.9731	23.5583	25.4594	109.9252
139A	38	87	24	18.4575	18.5390	23.7142	23.4931	25.5000	109.7038
139A	39	88	24	18.3906	18.5252	23.9177	23.4029	25.3702	109.6067
139A	40	89	24	18.4783	18.5304	24.0100	23.6606	25.5633	110.2427
139A	41	90	24	18.3835	18.3802	23.7308	23.5360	25.3527	109.3833
139A	42	91	24	18.3392	18.3742	23.8146	23.3779	25.2656	109.1715
139A	43	92	24	18.4340	18.4377	23.6573	23.4281	25.3613	109.3183
139A	44	93	24	18.4104	18.4033	23.5433	23.4192	25.3815	109.1577
139A	45	94	24	18.3885	18.4310	23.9563	23.4213	25.3644	109.5615
139A	46	95	24	18.4013	18.4285	23.9265	23.4502	25.3371	109.5435
139A	47	96	24	18.4767	18.5117	24.4106	23.5385	25.5038	110.4413
139A	48	97	24	18.4779	18.4783	24.3356	23.5817	25.4742	110.3477
139A	49	98	24	18.4581	18.4890	24.5452	23.5529	25.4765	110.5217
139A	50	99	24	18.4698	18.6375	24.9296	23.5473	25.4479	111.0321
139A	51	100	24	18.5219	18.6910	25.1260	23.5867	25.5373	111.4629
139A	52	101	24	18.5108	18.6015	24.9300	23.6013	25.5723	111.2158
139A	53	102	24	18.4683	18.4921	24.4213	23.5273	25.4829	110.3919
139A	54	103	24	18.4819	18.5708	24.3196	23.6221	25.5025	110.4969

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
139A	55	104	24	18.4340	18.5881	24.1950	23.4573	25.4315	110.1058
139A	56	105	9	18.3589	18.4689	24.0117	23.3867	25.4078	109.6339
139B	1	106	8	5.5281	5.4563	7.2319	7.3244	7.4425	32.9831
139B	2	107	24	17.5258	17.5000	21.0285	22.4321	22.3821	100.8685
139B	3	108	24	17.7960	17.7746	22.0979	22.7873	22.6885	103.1444
139B	4	109	24	18.1858	18.2050	22.4596	23.1563	23.1477	105.1544
139B	5	110	24	18.2608	18.2758	22.4967	23.2540	23.2823	105.5696
139B	6	111	24	18.3450	18.4546	23.3006	23.3690	23.4085	106.8777
139B	7	112	24	18.2108	18.3221	23.1546	23.2846	23.2704	106.2425
139B	8	113	24	18.3071	18.3469	23.1717	23.3508	23.2738	106.4502
139B	9	114	24	18.3504	18.3600	23.2508	23.4677	23.3865	106.8154
139B	10	115	24	18.3358	18.3467	23.3092	23.3581	23.3329	106.6827
139B	11	116	24	18.2742	18.3406	23.4108	23.2373	23.3738	106.6367
139B	12	117	24	18.1971	18.1896	23.1113	23.2506	23.2063	105.9548
139B	13	118	24	18.0765	18.1502	22.7838	23.1631	23.1363	105.3098
139B	14	119	24	18.1200	18.1465	22.9606	23.1792	23.1692	105.5754
139B	15	120	24	18.2140	18.1735	23.0235	23.2510	23.2104	105.8725
139B	16	121	24	18.1621	18.1981	23.0608	23.2306	23.1652	105.8169
139B	17	122	24	18.1104	18.1746	22.9077	23.1706	23.1110	105.4744
139B	18	123	24	18.1633	18.1085	23.4867	23.1608	23.1917	106.1110
139B	19	124	24	18.1977	18.2000	23.3098	23.1373	23.2348	106.0796
139B	20	125	24	18.1819	18.1506	23.6115	23.2171	23.1675	106.3285
139B	21	126	24	18.1365	18.2265	23.6071	23.3038	23.1569	106.4306
139B	22	127	24	18.1238	18.0948	23.3519	23.1879	23.1102	105.8685
139B	23	128	24	18.3102	18.3302	23.7046	23.4415	23.5046	107.2910
139B	24	129	24	18.4152	18.4367	23.4740	23.4210	23.4254	107.1723
139B	25	130	24	18.3398	18.3990	23.8392	23.2602	23.2773	107.1154
139B	26	131	24	18.1833	18.2146	23.7763	23.1927	23.1858	106.5527
139B	27	132	24	18.2683	18.2433	23.6590	23.2708	23.2804	106.7219
139B	28	133	24	18.2438	18.2377	23.7117	23.3410	23.3073	106.8415
139B	29	134	24	18.2300	18.2379	23.7121	23.3144	23.2821	106.7765
139B	30	135	24	18.2021	18.2404	23.5800	23.2804	23.2396	106.5425
139B	31	136	24	18.2335	18.2377	23.6610	23.2294	23.1977	106.5594
139B	32	137	24	18.1802	18.2696	24.1015	23.2317	23.2027	106.9856
139B	33	138	7	18.1857	18.2536	23.9307	23.2929	23.2471	106.9100
139B	34	139	1044	0.0100	0.0100	0.0100	0.0100	0.0100	0.0500

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
139B	35	140	13	0.3108	0.2923	0.4600	0.3869	0.3808	1.8308
139B	36	141	24	15.6479	15.5990	20.9117	19.9977	20.0317	92.1879
139B	37	142	24	17.9638	18.0271	23.9738	22.9429	22.9240	105.8315
139B	38	143	24	18.0563	18.0521	24.0385	22.9883	23.0238	106.1590
139B	39	144	24	17.9113	17.8775	23.8208	22.8663	22.8610	105.3369
139B	40	145	24	17.8552	17.8160	23.7177	22.8669	22.8331	105.0890
139B	41	146	24	17.8633	17.8215	23.8483	22.8683	22.8546	105.2560
139B	42	147	24	17.9379	17.9310	24.1148	22.9333	22.9565	105.8735
139B	43	148	24	17.9781	18.0721	24.0706	23.0210	23.0098	106.1517
139B	44	149	24	18.0217	17.9081	23.8810	23.0133	23.0335	105.8577
139B	45	150	24	18.0006	17.9267	24.0652	22.9225	22.9783	105.8933
139B	46	151	24	18.0044	17.9758	24.1283	22.9690	22.9508	106.0283
139B	47	152	24	18.0765	18.0802	24.0125	23.0292	22.9983	106.1967
139B	48	153	24	18.0752	18.0540	23.8631	23.0013	23.0633	106.0569
139B	49	154	24	17.9977	17.9463	23.3710	22.9681	22.9346	105.2177
139B	50	155	24	17.9394	17.9048	22.5429	22.8635	22.9117	104.1623
139B	51	156	24	17.9483	17.9506	22.5035	23.0033	22.8965	104.3023
139B	52	157	24	18.0435	18.0165	22.4910	23.0167	23.0606	104.6283
139B	53	158	24	17.9506	17.9838	22.0596	22.9188	22.9158	103.8285
139B	54	159	24	17.9577	18.0563	22.1690	22.9271	22.9960	104.1060
139B	55	160	21	17.9257	17.9569	21.8081	23.0460	22.9098	103.6464
140A	1	161	8	4.7250	4.5281	5.6556	6.2550	6.2831	27.4469
140A	2	162	24	17.5063	17.4758	19.9173	22.3383	22.2494	99.4871
140A	3	163	24	18.9165	19.0085	22.0500	23.9619	23.8863	107.8231
140A	4	164	24	18.7071	18.8427	22.0029	23.7169	23.6563	106.9258
140A	5	165	24	18.5554	18.6590	21.9254	23.6354	23.5425	106.3177
140A	6	166	24	18.4506	18.4988	22.6792	23.5063	23.4215	106.5563
140A	7	167	24	18.3963	18.4965	22.2681	23.3667	23.3654	105.8929
140A	8	168	24	18.5054	18.6438	21.7967	23.5071	23.4685	105.9215
140A	9	169	24	18.5169	18.6110	21.7569	23.5129	23.5156	105.9133
140A	10	170	24	18.1729	18.2044	21.4483	23.2458	23.2263	104.2977
140A	11	171	24	18.0742	18.0735	21.7981	23.0954	23.1140	104.1552
140A	12	172	24	18.0902	18.0665	22.1550	23.0750	23.0833	104.4700
140A	13	173	24	18.0385	18.0685	21.9313	23.1210	23.1583	104.3177
140A	14	174	24	18.0635	18.1515	21.9571	23.0942	23.1131	104.3794
140A	15	175	24	18.2552	18.1923	22.0313	23.1256	23.2406	104.8450

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140A	16	176	24	18.1225	18.1406	21.9104	23.1940	23.1488	104.5163
140A	17	177	24	18.1238	18.1331	21.9483	23.1690	23.1863	104.5604
140A	18	178	24	18.1267	18.0752	21.7027	23.2563	23.1102	104.2710
140A	19	179	24	18.1696	18.1469	21.4873	23.1969	23.2106	104.2113
140A	20	180	24	18.0769	18.1198	21.4108	23.0921	23.1050	103.8046
140A	21	181	24	18.0971	18.1273	22.0150	23.1104	23.1040	104.4538
140A	22	182	24	18.0671	18.1027	21.6596	23.1302	23.0658	104.0254
140A	23	183	24	18.1660	18.1560	21.6933	23.1275	23.1946	104.3375
140A	24	184	24	18.1921	18.2469	21.7194	23.3181	23.2229	104.6994
140A	25	185	24	18.1354	18.1817	21.4488	23.2490	23.2358	104.2506
140A	26	186	24	18.0079	17.9700	21.5896	23.0656	22.9894	103.6225
140A	27	187	24	17.9544	17.9506	21.6560	23.0469	23.0198	103.6277
140A	28	188	24	17.9973	18.0217	21.3902	22.9698	22.9946	103.3735
140A	29	189	24	18.0227	17.9846	21.8838	23.0258	23.0544	103.9713
140A	30	190	24	17.9892	17.9794	22.0765	23.0371	23.0092	104.0913
140A	31	191	24	17.9546	17.9060	21.8927	23.0271	22.9915	103.7719
140A	32	192	24	17.9081	17.9221	21.7658	22.9552	22.9040	103.4552
140A	33	193	24	17.9979	17.9623	22.0598	22.9733	22.9390	103.9323
140A	34	194	24	18.0185	17.9504	21.9350	22.9983	23.0254	103.9277
140A	35	195	24	17.9608	17.9608	22.1731	23.0319	22.9963	104.1229
140A	36	196	24	18.0373	18.0356	22.1754	23.0302	23.0363	104.3148
140A	37	197	24	17.8940	17.8644	21.7838	22.7096	22.8275	103.0792
140A	38	198	24	17.8088	17.8335	21.8963	22.7994	22.8460	103.1840
140A	39	199	24	17.8423	17.8302	21.8235	22.8090	22.8148	103.1198
140A	40	200	24	17.8490	17.8285	22.1425	22.8446	22.8727	103.5373
140A	41	201	24	17.9265	17.9600	21.7940	22.8988	22.8654	103.4446
140A	42	202	24	17.9550	17.9975	21.9694	22.9063	22.9644	103.7925
140A	43	203	24	17.9327	17.8783	22.2044	22.9690	22.8992	103.8835
140A	44	204	24	17.9702	17.9167	21.9402	22.9415	22.9463	103.7148
140A	45	205	24	17.9771	17.9398	22.0650	22.9463	22.8621	103.7902
140A	46	206	24	17.9094	17.9079	22.0690	22.9840	22.8854	103.7556
140A	47	207	24	17.9110	17.9992	21.9740	23.0085	22.9354	103.8281
140A	48	208	11	17.9527	17.8900	21.7218	23.0305	22.9555	103.5505
140B	1	209	8	0.2650	0.2688	0.3075	0.3375	0.3650	1.5438
140B	2	210	24	12.9713	13.0158	14.1060	16.5525	16.7419	73.3875
140B	3	211	24	17.6521	17.6908	20.5602	22.5633	22.5923	101.0588

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140B	4	212	24	17.7023	17.6438	21.0492	22.6127	22.6835	101.6915
140B	5	213	24	17.6621	17.5427	20.7190	22.4998	22.5450	100.9685
140B	6	214	24	17.6488	17.5508	20.7394	22.5231	22.6100	101.0721
140B	7	215	24	17.6373	17.5560	20.5779	22.5165	22.6183	100.9060
140B	8	216	24	17.5538	17.4873	20.2498	22.5458	22.5654	100.4021
140B	9	217	24	17.5915	17.5481	20.7381	22.4500	22.5779	100.9056
140B	10	218	24	17.5963	17.5619	21.0425	22.5308	22.5550	101.2865
140B	11	219	24	17.6394	17.5771	21.1640	22.5646	22.6346	101.5796
140B	12	220	24	17.6340	17.6652	20.9381	22.5633	22.5938	101.3944
140B	13	221	24	17.5148	17.5038	20.9196	22.4825	22.5300	100.9506
140B	14	222	24	17.5721	17.5742	20.8848	22.4752	22.5446	101.0508
140B	15	223	24	17.5435	17.5373	20.8338	22.4508	22.5492	100.9146
140B	16	224	24	17.5315	17.5083	20.5821	22.4596	22.5125	100.5940
140B	17	225	24	17.5617	17.5452	20.3992	22.4563	22.5088	100.4710
140B	18	226	24	17.5527	17.5529	20.3850	22.4342	22.5873	100.5121
140B	19	227	24	17.5831	17.5133	20.6081	22.4579	22.5519	100.7144
140B	20	228	24	17.5350	17.5079	20.3835	22.4215	22.4875	100.3354
140B	21	229	24	17.5083	17.4604	20.0492	22.3348	22.4413	99.7940
140B	22	230	24	17.5204	17.5363	20.3594	22.5533	22.6002	100.5696
140B	23	231	24	17.5827	17.5544	20.1496	22.5098	22.6223	100.4188
140B	24	232	24	17.5967	17.6023	19.9940	22.4990	22.5563	100.2481
140B	25	233	24	17.5775	17.7281	19.8598	22.2981	22.5942	100.0577
140B	26	234	19	17.4903	17.4842	21.5989	22.1189	22.2716	100.9639
140B	27	235	185	0.1000	0.1000	0.1000	0.1000	0.1000	0.5000
140B	28	236	11	18.3141	18.4332	23.8514	23.3414	23.3800	107.3200
140B	29	237	24	18.2567	18.3348	23.7371	23.3204	23.2565	106.9054
140B	30	238	24	18.2775	18.3323	24.0029	23.2488	23.2985	107.1600
140B	31	239	24	18.3465	18.3421	24.0385	23.3479	23.3154	107.3904
140B	32	240	24	18.3927	18.4346	24.2806	23.3690	23.4052	107.8821
140B	33	241	24	18.4177	18.4563	24.7279	23.4727	23.4494	108.5240
140B	34	242	24	18.3629	18.4077	24.4644	23.3031	23.3788	107.9169
140B	35	243	24	18.4535	18.4858	24.4508	23.5035	23.3896	108.2833
140B	36	244	24	18.4498	18.5058	24.1715	23.4283	23.4919	108.0473
140B	37	245	13	17.0458	17.0742	22.2881	21.6938	21.7265	99.8285
141A	1	246	8	8.2213	8.2031	10.2344	10.4494	10.6113	47.7194
141A	2	247	24	18.4094	18.4373	22.4488	23.5071	23.4608	106.2633

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
141A	3	248	24	18.2981	18.2442	22.4758	23.2363	23.2029	105.4573
141A	4	249	24	18.4835	18.5283	23.6810	23.5719	23.4825	107.7473
141A	5	250	24	18.4156	18.4152	23.4517	23.5683	23.4348	107.2856
141A	6	251	24	18.3510	18.3881	23.2988	23.4440	23.3440	106.8258
141A	7	252	24	18.4721	18.5525	24.0392	23.5990	23.5058	108.1685
141A	8	253	24	18.5260	18.5610	23.9708	23.6285	23.5775	108.2640
141A	9	254	24	18.5590	18.6308	23.8900	23.6271	23.6004	108.3073
141A	10	255	24	18.5958	18.6583	23.9940	23.7138	23.6369	108.5988
141A	11	256	24	18.6465	18.6631	24.0517	23.7546	23.6756	108.7915
141A	12	257	24	18.6313	18.5954	23.9735	23.7642	23.6635	108.6279
141A	13	258	24	18.6600	18.6727	24.0800	23.7913	23.7044	108.9083
141A	14	259	24	18.5375	18.5925	22.9044	23.6271	23.6163	107.2777
141A	15	260	24	18.5790	18.8075	22.4808	22.4188	23.6200	105.9060
141A	16	261	24	18.6925	18.7021	23.7948	23.8740	23.7671	108.8304
141A	17	262	24	18.7596	18.6627	23.7788	23.8325	23.8242	108.8577
141A	18	263	24	18.7679	18.8123	23.6202	23.9048	23.8204	108.9256
141A	19	264	24	18.7319	18.7583	24.1863	23.8690	23.8171	109.3625
141A	20	265	24	18.5550	18.5652	23.9690	23.6473	23.6058	108.3423
141A	21	266	24	18.6150	18.5969	24.4221	23.7898	23.6623	109.0860
141A	22	267	24	18.6754	18.6967	24.2444	23.7419	23.7160	109.0744
141A	23	268	24	18.6419	18.7527	23.9000	23.7013	23.6629	108.6588
141A	24	269	24	18.7300	18.7998	24.2181	23.7523	23.7608	109.2610
141A	25	270	24	18.7504	18.8833	24.2040	23.7988	23.8271	109.4635
141A	26	271	24	18.7085	18.7898	23.8585	23.8050	23.7563	108.9181
141A	27	272	24	18.7718	18.7864	23.6432	23.8655	23.7623	108.8291
141A	28	273	24	18.6852	18.7140	23.8035	23.7671	23.6940	108.6638
141A	29	274	24	18.5435	18.6798	23.7590	23.6056	23.5994	108.1873
141A	30	275	24	18.6238	18.6981	24.0569	23.7669	23.6396	108.7852
141A	31	276	24	18.6321	18.6823	24.2631	23.6648	23.6873	108.9296
141A	32	277	24	18.6167	18.6360	23.9979	23.8373	23.7569	108.8448
141A	33	278	24	18.5552	18.6544	24.1940	23.6756	23.6315	108.7106
141A	34	279	7	18.5121	18.5279	24.1107	23.7057	23.5207	108.3771
142A	1	280	8	8.0300	6.3188	9.3931	8.1069	8.0456	39.8944
142A	2	281	24	23.3765	18.4021	25.2127	23.4231	23.3633	113.7777
142A	3	282	24	23.5592	18.6002	24.8750	23.6894	23.6517	114.3754
142A	4	283	24	23.3542	18.3660	24.1696	23.4321	23.3631	112.6850

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
142A	5	284	24	23.2483	18.2265	24.0923	25.0223	23.2510	113.8404
142A	6	285	24	23.2225	18.2700	24.0723	25.3063	23.2933	114.1644
142A	7	286	25	23.2079	18.2542	24.1100	25.2288	23.2731	114.0740
142A	8	287	24	23.2740	18.3440	24.1694	25.2635	23.2683	114.3192
142A	9	288	24	23.3177	18.3783	24.1421	25.2942	23.3288	114.4610
142A	10	289	24	23.4546	18.4906	24.4433	25.5215	23.4740	115.3840
142A	11	290	24	23.3442	18.3467	24.3927	25.4304	23.3600	114.8740
142A	12	291	24	23.2898	18.1952	24.2073	25.2688	23.2394	114.2004
142A	13	292	24	23.2963	18.2496	23.9527	25.2902	23.2625	114.0513
142A	14	293	24	23.2752	18.3098	23.7727	25.3323	23.3621	114.0521
142A	15	294	24	23.3748	18.3023	24.2642	25.3625	23.3238	114.6275
142A	16	295	24	23.2713	18.1948	24.0769	25.3344	23.2633	114.1406
142A	17	296	24	23.3256	18.3433	24.5965	25.2527	23.2031	114.7213
142A	18	297	24	23.2825	18.2554	24.9602	25.3421	23.3221	115.1623
142A	19	298	24	23.2285	18.2852	24.6910	25.2713	23.2375	114.7135
142A	20	299	24	23.2250	18.2329	24.4983	25.1946	23.2796	114.4304
142A	21	300	24	23.1733	18.1992	24.6388	25.2235	23.1823	114.4171
142A	22	301	24	23.2781	18.2300	24.4715	25.2227	23.1806	114.3829
142A	23	302	24	23.2252	18.2508	24.6433	25.2471	23.2279	114.5944
142A	24	303	24	23.2135	18.2790	24.9854	25.3138	23.2325	115.0242
142A	25	304	24	23.3017	18.2838	25.1585	25.3448	23.3381	115.4269
142A	26	305	24	23.4167	18.4238	25.1990	25.4744	23.4119	115.9256
142A	27	306	24	23.4796	18.3985	24.8238	25.4865	23.4767	115.6650
142A	28	307	24	23.4510	18.4473	24.6515	25.4804	23.4869	115.5171
142A	29	308	24	23.5913	18.5260	24.8352	25.6494	23.5856	116.1875
142A	30	309	24	23.4960	18.5948	25.3204	25.5748	23.5273	116.5133
142A	31	310	25	23.6460	18.7042	25.3563	25.6396	23.6529	116.9990
142A	32	311	24	23.6671	18.6669	25.5427	25.7067	23.5700	117.1533
142A	33	312	20	21.1790	16.7478	22.7615	23.0325	21.2435	104.9643
142A	34	313	17	0.1000	0.1000	0.1000	0.1000	0.1000	0.5000
142A	35	314	11	18.2895	14.3923	21.9641	19.8273	18.2845	92.7577
142A	36	315	24	23.5790	18.5848	25.5360	25.6327	23.5896	116.9221
142A	37	316	24	23.4279	18.4460	25.1846	25.4579	23.4100	115.9265
142A	38	317	24	23.4390	18.4825	25.2846	25.4717	23.4244	116.1021
142A	39	318	24	23.4913	18.5823	25.4492	25.5575	23.5729	116.6531
142A	40	319	24	23.4513	18.4875	25.3540	25.5283	23.4946	116.3156

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142A	41	320	24	23.5242	18.5265	25.6215	25.5910	23.5392	116.8023
142A	42	321	24	23.5981	18.6140	25.5206	25.5638	23.6942	116.9906
142A	43	322	24	23.4429	18.5069	25.6667	25.4938	23.5171	116.6273
142A	44	323	24	23.3921	18.4673	25.8269	25.4467	23.4290	116.5619
142A	45	324	24	23.3825	18.3588	25.7588	25.4029	23.4544	116.3573
142A	46	325	24	23.3848	18.4615	25.6881	25.4483	23.3840	116.3667
142A	47	326	24	23.5027	18.5115	25.7858	25.5133	23.5242	116.8375
142A	48	327	24	23.4456	18.5490	25.5448	25.4450	23.5225	116.5069
142A	49	328	24	23.3833	18.4033	25.6427	25.4329	23.4231	116.2854
142A	50	329	24	23.4775	18.4596	25.8615	25.4754	23.4713	116.7452
142A	51	330	15	23.5610	18.5870	26.1203	25.5057	23.5680	117.3420
142B	1	331	8	7.4138	5.8700	9.0088	8.0969	8.0331	38.4225
142B	2	332	24	21.6702	16.9098	23.1467	23.6000	21.6931	107.0198
142B	3	333	24	2.9015	2.3169	3.1106	3.1783	3.0679	14.5752
142B	4	334	45	0.0200	0.0200	0.0200	0.0200	0.0200	0.1000
142B	5	335	13	15.4000	12.1831	19.0596	16.7558	16.6312	80.0296
142B	6	336	24	23.7775	18.8117	26.0094	25.8721	25.8000	120.2706
142B	7	337	24	23.6752	18.7388	25.2963	25.7102	25.7121	119.1325
142B	8	338	24	23.5619	18.6448	24.9635	25.5535	25.6048	118.3285
142B	9	339	24	23.5329	18.5302	25.2463	25.5529	25.5667	118.4290
142B	10	340	24	23.5350	18.5490	25.0496	25.6223	25.5798	118.3356
142B	11	341	24	23.5573	18.5821	25.1104	25.6954	25.6298	118.5750
142B	12	342	24	23.6046	18.7317	25.2248	25.7702	25.6881	119.0194
142B	13	343	24	23.6706	18.7419	24.7704	25.8060	25.7183	118.7073
142B	14	344	24	23.4488	18.5946	24.5229	25.6279	25.6229	117.8171
142B	15	345	24	23.5090	18.5290	25.8588	25.6600	25.5494	119.1060
142B	16	346	24	23.6058	18.5588	26.0329	25.8679	25.7642	119.8296
142B	17	347	24	23.6288	18.7104	26.2875	25.7992	25.6858	120.1117
142B	18	348	24	23.5402	18.6275	26.0629	25.6931	25.5771	119.5008
142B	19	349	24	23.5358	18.4742	25.6215	25.6925	25.5515	118.8754
142B	20	350	24	23.4863	18.4988	25.5131	25.6852	25.5581	118.7415
142B	21	351	24	23.4892	18.5477	25.5042	25.6085	25.4971	118.6467
142B	22	352	24	23.5388	18.5348	25.4277	25.6208	25.5275	118.6496
142B	23	353	24	23.4813	18.5127	25.4831	25.6050	25.5081	118.5902
142B	24	354	24	23.6110	18.5983	25.8998	25.5365	25.6740	119.3196
142B	25	355	24	23.5521	18.5469	25.5977	25.6704	25.6171	118.9842

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142B	26	356	24	23.5171	18.5554	25.7698	25.5967	25.5558	118.9948
142B	27	357	24	23.5206	18.5871	25.5635	25.5890	25.4927	118.7529
142B	28	358	24	23.4390	18.5988	26.0238	25.5319	25.3952	118.9885
142B	29	359	24	23.4600	18.5771	25.9296	25.5408	25.5608	119.0683
142B	30	360	24	23.5140	18.5590	25.8596	25.5706	25.5200	119.0231
142B	31	361	24	23.4867	18.4758	25.4154	25.6158	25.5227	118.5165
142B	32	362	31	23.4615	18.4015	25.0632	25.5718	25.4802	117.9781
142B	33	363	46	0.0200	0.0200	0.0200	0.0200	0.0200	0.1000
142B	34	364	11	19.9091	15.6723	24.9150	21.7405	21.5914	103.8282
142B	35	365	24	23.3910	18.4044	26.5463	26.3667	25.4406	120.1490
142B	36	366	24	23.3325	18.3517	25.5365	26.2565	25.3742	118.8513
142B	37	367	24	23.2196	18.2438	25.2515	26.1583	25.3002	118.1733
142B	38	368	24	23.2006	18.2898	25.1158	26.2281	25.2506	118.0850
142B	39	369	24	23.3358	18.3758	24.9756	26.2494	25.2981	118.2348
142B	40	370	24	23.3217	18.3502	24.9127	26.3413	25.2750	118.2008
142B	41	371	24	23.3150	18.3790	25.6463	26.3913	25.3296	119.0610
142B	42	372	24	23.3433	18.4158	25.4358	26.2821	25.3727	118.8498
142B	43	373	24	23.3913	18.3404	25.0142	26.3194	25.3660	118.4313
142B	44	374	24	23.3917	18.4379	26.2844	26.3379	25.3738	119.8256
142B	45	375	24	23.3113	18.3404	26.2379	26.2913	25.3365	119.5173
142B	46	376	24	23.4677	18.4883	26.5517	26.4602	25.4950	120.4629
142B	47	377	24	23.4515	18.5042	26.2088	26.4577	25.4933	120.1154
142B	48	378	24	23.4446	18.3921	26.0260	26.4381	25.4858	119.7867
142B	49	379	24	23.4265	18.4290	25.7046	26.4146	25.5173	119.4919
142B	50	380	24	23.4790	18.5715	25.6596	26.5738	25.5246	119.8083
142B	51	381	24	23.4831	18.6404	25.7508	26.5140	25.5060	119.8944
142B	52	382	24	23.4194	18.4875	25.7127	26.4546	25.4579	119.5321
142B	53	383	24	23.4117	18.4940	26.6373	26.4496	25.4890	120.4815
142B	54	384	24	23.4527	18.6540	27.6181	26.6365	25.5381	121.8994
142B	55	385	24	23.5610	18.5815	27.4229	26.5581	25.5960	121.7196
142B	56	386	24	23.5681	18.6531	26.8021	26.4804	25.5869	121.0906
142B	57	387	21	23.6850	18.7450	26.7836	26.5638	25.6340	121.4114
143A	1	388	8	10.6913	10.5900	15.3406	14.7863	14.6944	66.1025
143A	2	389	24	18.0748	17.8308	23.4185	25.9913	25.0077	110.3231
143A	3	390	24	18.2983	18.3335	23.8910	27.2754	25.2279	113.0263
143A	4	391	24	18.3808	18.3615	24.0940	27.2708	25.3123	113.4194

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
143A	5	392	24	18.2192	18.2492	24.4560	27.2354	25.3042	113.4640
143A	6	393	24	18.2575	18.3100	24.5435	27.2677	25.3617	113.7404
143A	7	394	24	18.2342	18.2494	24.2946	27.2738	25.3196	113.3715
143A	8	395	24	18.3067	18.3283	24.1610	27.3010	25.3485	113.4456
143A	9	396	24	18.1098	18.1596	24.3538	27.0858	25.0788	112.7877
143A	10	397	24	18.1440	18.1938	24.4073	27.1413	25.1594	113.0456
143A	11	398	24	18.0750	18.0808	24.0713	27.0325	25.0396	112.2992
143A	12	399	24	18.0285	17.9844	23.9642	26.9913	25.0356	112.0040
143A	13	400	24	17.9400	18.0642	23.7113	26.8456	24.9958	111.5569
143A	14	401	24	17.9779	18.0002	23.7538	26.9708	25.0196	111.7223
143A	15	402	24	18.0394	18.1000	23.7048	27.0573	25.0856	111.9871
143A	16	403	24	18.0571	18.1106	23.5256	27.0363	25.2277	111.9573
143A	17	404	24	18.1106	18.0777	23.4475	27.0427	25.2035	111.8821
143A	18	405	24	18.0390	18.0048	23.5642	26.9660	25.1110	111.6850
143A	19	406	24	18.0504	18.0356	23.8152	27.0613	25.0663	112.0288
143A	20	407	24	18.1444	18.1104	23.6202	27.0521	25.1352	112.0623
143A	21	408	24	18.0798	18.1550	23.6875	27.1006	25.1988	112.2217
143A	22	409	24	18.1269	18.1785	23.9206	27.0794	25.1385	112.4440
143A	23	410	24	18.1098	18.1667	23.6894	27.1458	25.1463	112.2579
143A	24	411	15	18.1730	18.2337	24.1910	27.1537	25.1203	112.8717
143A	25	412	449	0.0100	0.0100	0.0100	0.0100	0.0100	0.0500
143A	26	413	24	15.2940	15.2731	21.1873	22.8210	21.1746	95.7500
143A	27	414	24	18.0948	18.0196	24.3271	27.0719	25.0252	112.5385
143A	28	415	24	18.1292	18.1308	24.4331	27.1575	25.0994	112.9500
143A	29	416	24	18.0917	18.0775	24.3683	27.1390	25.0096	112.6860
143A	30	417	24	18.1252	18.1640	24.2179	27.0925	25.0317	112.6313
143A	31	418	24	18.1296	18.2004	24.4040	27.0321	25.0742	112.8402
143A	32	419	24	18.2210	18.1731	24.4044	27.0998	25.2108	113.1092
143A	33	420	24	18.1625	18.1494	24.6785	27.0688	25.0902	113.1494
143A	34	421	24	18.2246	18.2335	24.7023	27.0802	25.2602	113.5008
143A	35	422	24	18.1215	18.1354	24.7663	27.0771	25.2029	113.3031
143A	36	423	24	18.2096	18.2040	24.7208	27.2235	25.2354	113.5933
143A	37	424	24	18.2544	18.2069	24.7421	27.2800	25.2394	113.7227
143A	38	425	24	18.2444	18.2171	24.6577	27.2067	25.2869	113.6127
143A	39	426	24	18.2110	18.2560	24.7196	27.1829	25.2573	113.6269
143A	40	427	24	18.1531	18.1448	24.6410	27.1071	25.1650	113.2110

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
143A	41	428	28	17.8218	17.8264	23.9716	26.6643	24.7614	111.0455
143A	42	429	112	0.0100	0.0100	0.0100	0.0100	0.0100	0.0500
143A	43	430	8	12.0919	12.0031	17.8688	17.4456	16.7938	76.2031
143A	44	431	24	18.2258	18.1840	25.2496	27.1952	25.3338	114.1883
143A	45	432	24	18.3352	18.3419	25.4381	27.2808	25.4223	114.8183
143A	46	433	24	18.3533	18.4565	25.3031	27.3333	25.3998	114.8460
143A	47	434	24	18.2523	18.1963	25.1079	27.1829	25.3063	114.0456
143A	48	435	24	18.1927	18.2071	24.6885	27.1840	25.2575	113.5298
143A	49	436	24	18.2250	18.2629	25.2408	27.2027	25.2588	114.1902
143A	50	437	24	18.2733	18.3142	25.0948	27.2202	25.2785	114.1810
143A	51	438	24	18.2804	18.2379	24.9383	27.1900	25.3308	113.9775
143A	52	439	24	18.2460	18.2785	25.1196	27.1113	25.2129	113.9683
143A	53	440	22	18.2718	18.2041	25.1470	27.0375	25.1252	113.7857
143B	1	441	8	0.2138	0.2188	0.2913	0.2638	0.2725	1.2600
143B	2	442	24	9.7135	9.7754	13.4425	13.3298	13.2273	59.4885
143B	3	443	24	18.5788	18.6088	24.4527	25.6669	25.6204	112.9275
143B	4	444	24	18.6935	18.7015	24.3708	25.6692	25.6513	113.0863
143B	5	445	24	18.5244	18.5635	23.9783	25.5710	25.5546	112.1919
143B	6	446	24	18.6175	18.6815	24.1533	25.7346	25.6304	112.8173
143B	7	447	24	18.6825	18.7706	24.4083	25.9183	25.7827	113.5625
143B	8	448	24	18.7417	18.8017	24.1240	25.8852	25.8260	113.3785
143B	9	449	24	18.7142	18.8219	24.6702	25.9019	25.8608	113.9690
143B	10	450	24	18.6746	18.7477	24.7213	25.8960	25.8479	113.8875
143B	11	451	24	18.6285	18.6717	24.6525	25.7796	25.7948	113.5271
143B	12	452	24	18.5394	18.6463	24.4533	25.8021	25.7406	113.1817
143B	13	453	24	18.5817	18.6288	24.1721	25.7754	25.7608	112.9188
143B	14	454	24	18.4429	18.5633	24.2817	25.6427	25.5850	112.5156
143B	15	455	24	18.4848	18.5290	24.8073	26.8304	25.6079	114.2594
143B	16	456	24	18.5198	18.5456	25.4773	28.0775	25.5835	116.2038
143B	17	457	24	18.6000	18.7406	25.5802	28.1373	25.7004	116.7585
143B	18	458	24	18.5625	18.7010	25.3333	28.3360	25.8244	116.7573
143B	19	459	24	18.5279	18.5065	25.4175	28.1169	25.6240	116.1927
143B	20	460	24	18.5960	18.6646	25.6527	28.2088	25.6773	116.7994
143B	21	461	24	18.5885	18.5308	25.3656	28.1685	25.7098	116.3633
143B	22	462	24	18.5344	18.5256	25.2196	28.2129	25.6181	116.1106
143B	23	463	24	18.5540	18.6827	25.6890	28.2515	25.6444	116.8215

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
143B	24	464	24	18.6319	18.6717	25.7150	28.3090	25.7298	117.0573
143B	25	465	24	18.6100	18.6406	25.8031	28.2654	25.6223	116.9415
143B	26	466	24	18.5515	18.5813	25.7719	28.2004	25.5692	116.6742
143B	27	467	24	18.5656	18.6692	25.8465	28.3138	25.6127	117.0077
143B	28	468	24	18.5856	18.7238	25.9054	28.2165	25.5904	117.0217
143B	29	469	53	4.0182	4.0655	5.6000	6.0443	5.4994	25.2275
143B	30	470	24	17.0663	17.1613	25.2500	25.8492	23.5446	108.8713
143B	31	471	24	18.7963	18.8727	26.0544	28.4885	25.9602	118.1721
143B	32	472	24	18.7708	18.7377	25.9152	28.3119	25.8723	117.6079
143B	33	473	24	18.6013	18.7127	25.4169	28.2779	25.7258	116.7346
143B	34	474	24	18.6050	18.7215	25.4567	28.1813	25.6923	116.6567
143B	35	475	24	18.4610	18.5092	25.4165	28.1075	25.6360	116.1302
143B	36	476	24	18.5144	18.5550	25.2546	28.1675	25.6304	116.1219
143B	37	477	24	18.5965	18.5823	25.5094	28.2221	25.6248	116.5350
143B	38	478	24	18.6117	18.6738	25.6200	28.2277	25.7019	116.8350
143B	39	479	24	18.6729	18.7606	25.7698	28.2694	25.7650	117.2377
143B	40	480	24	18.6858	18.7875	25.9981	28.2804	25.7608	117.5127
143B	41	481	24	18.6910	18.8008	26.0110	28.2648	25.7465	117.5142
143B	42	482	24	18.5900	18.6115	25.9490	28.1213	25.5729	116.8446
143B	43	483	24	18.5463	18.6129	25.5021	28.1700	25.6367	116.4679
143B	44	484	24	18.6306	18.6413	25.1292	28.2521	25.8077	116.4608
143B	45	485	24	18.6740	18.7808	24.9252	28.3396	25.7348	116.4544
143B	46	486	24	18.5154	18.6017	24.8502	28.1529	25.5223	115.6425
143B	47	487	24	18.5506	18.6092	25.1540	28.1538	25.6877	116.1552
143B	48	488	24	18.7069	18.7969	25.2198	28.2944	25.7700	116.7879
143B	49	489	24	18.6429	18.7088	25.2098	28.2288	25.7200	116.5102
143B	50	490	24	18.6840	18.7615	25.5404	28.2925	25.7656	117.0440
143B	51	491	24	18.7006	18.7860	25.2581	28.3623	25.8454	116.9525
143B	52	492	24	18.8110	18.7806	25.2738	27.6310	25.9108	116.4073
143B	53	493	24	18.6906	18.7406	25.1902	28.2944	25.8242	116.7400
143B	54	494	24	18.6254	18.7804	25.1621	28.1550	25.7669	116.4898
143B	55	495	24	18.7510	18.8290	25.5154	28.4027	25.8471	117.3452
143B	56	496	24	18.8733	18.8402	25.8383	28.4294	25.8710	117.8523
143B	57	497	24	18.8610	18.9777	25.9321	28.4665	25.8950	118.1323
143B	58	498	24	18.8967	19.0148	25.5810	28.5383	26.0106	118.0415
143B	59	499	24	18.8256	18.9171	24.9742	28.2025	25.9294	116.8488

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
143B	60	500	9	18.8839	18.8878	24.6917	27.9400	25.8506	116.2539
144A	1	501	8	1.3456	1.3350	1.8681	1.5938	1.6500	7.7925
144A	2	502	24	16.4298	16.4338	21.7763	20.9210	22.6396	98.2004
144A	3	503	24	18.3696	18.4035	23.5519	23.3248	25.2854	108.9352
144A	4	504	24	18.4452	18.3933	23.5360	23.3894	25.3875	109.1515
144A	5	505	24	18.3610	18.4252	23.3346	23.4079	25.3825	108.9113
144A	6	506	24	18.3650	18.3977	22.7419	23.4206	25.4133	108.3385
144A	7	507	24	18.4306	18.4963	23.0817	23.4700	25.5260	109.0046
144A	8	508	24	18.4177	18.4573	22.9535	23.5433	25.5077	108.8796
144A	9	509	24	18.4271	18.3950	22.9335	23.4267	25.4117	108.5940
144A	10	510	24	18.4265	18.4621	22.9721	23.3892	25.5029	108.7527
144A	11	511	24	18.4263	18.4360	22.9200	23.4783	25.5473	108.8079
144A	12	512	24	18.3546	18.3948	23.0033	23.4444	25.4198	108.6169
144A	13	513	24	18.3744	18.3844	23.0031	23.4790	25.4485	108.6894
144A	14	514	24	18.3779	18.3977	23.2669	23.3900	25.3781	108.8106
144A	15	515	24	18.3604	18.4113	23.4398	23.4852	25.4071	109.1038
144A	16	516	24	18.3954	18.4319	23.4138	23.4494	25.4598	109.1502
144A	17	517	24	18.3919	18.4704	23.3250	23.5102	25.5765	109.2740
144A	18	518	24	18.2835	18.3600	23.0902	23.3375	25.3977	108.4690
144A	19	519	24	18.3590	18.4519	23.1585	23.5394	25.4667	108.9754
144A	20	520	24	18.2833	18.2758	22.9317	23.3779	25.4238	108.2925
144A	21	521	24	18.2938	18.3548	22.9923	23.3371	25.3973	108.3752
144A	22	522	24	18.3725	18.4142	23.2131	23.3898	25.5277	108.9173
144A	23	523	24	18.3969	18.4596	23.1673	23.4998	25.5504	109.0740
144A	24	524	24	18.2952	18.2823	23.2567	23.3621	25.3438	108.5400
144A	25	525	24	18.4023	18.3579	23.2765	23.3973	25.3890	108.8229
144A	26	526	24	18.3079	18.3315	23.3673	23.3398	25.3315	108.6779
144A	27	527	24	18.3135	18.3692	23.5373	23.3483	25.3596	108.9279
144A	28	528	24	18.3683	18.3067	23.4025	23.3890	25.3506	108.8171
144A	29	529	24	18.3092	18.3435	23.3900	23.3071	25.3496	108.6994
144A	30	530	24	18.3540	18.3988	23.2615	23.3596	25.4079	108.7817
144A	31	531	24	18.3523	18.4069	23.5679	23.3883	25.4610	109.1765
144A	32	532	24	18.4013	18.4410	23.6633	23.3508	25.4100	109.2665
144A	33	533	24	17.5694	18.5890	23.6133	23.5260	25.5960	108.8938
144A	34	534	24	18.3102	18.3381	23.3548	23.3667	25.3231	108.6929
144A	35	535	24	18.2871	18.2560	23.3390	23.3188	25.2748	108.4756

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
144A	36	536	24	18.2650	18.2771	23.1413	23.3752	25.3600	108.4185
144A	37	537	24	18.4250	18.5360	23.1998	23.4521	25.5442	109.1571
144A	38	538	24	18.4073	18.4419	23.2344	23.5402	25.4060	109.0298
144A	39	539	24	18.3521	18.4165	23.7813	23.3860	25.4358	109.3717
144A	40	540	24	18.5523	18.5983	24.0538	23.5179	25.5427	110.2650
144A	41	541	24	18.5242	18.5850	23.7925	23.6092	25.5308	110.0417
144A	42	542	24	18.5850	18.6115	23.5177	23.5690	25.5254	109.8085
144A	43	543	24	18.5285	18.4594	23.3621	23.5367	25.4540	109.3406
144A	44	544	24	18.5954	18.5342	23.2660	23.5008	25.5354	109.4319
144A	45	545	18	17.5428	17.5464	21.8222	22.3025	24.1983	103.4122
144B	1	546	8	6.5194	6.5713	9.3038	8.3206	8.3038	39.0188
144B	2	547	24	18.4650	18.4729	23.5979	23.4042	23.4348	107.3748
144B	3	548	24	18.4588	18.5142	23.1083	22.8331	23.4500	106.3644
144B	4	549	24	18.4758	18.5360	23.4142	23.5471	23.5148	107.4879
144B	5	550	24	18.5244	18.5798	23.4510	23.5860	23.6171	107.7583
144B	6	551	24	18.4600	18.4252	23.0079	23.5594	23.4185	106.8710
144B	7	552	24	18.4973	18.5294	22.9081	23.5375	23.4004	106.8727
144B	8	553	24	18.5377	18.5790	22.8863	23.6450	23.5827	107.2306
144B	9	554	24	18.4856	18.5063	22.7935	23.5685	23.5252	106.8792
144B	10	555	24	18.3563	18.3538	22.8002	23.4229	23.3988	106.3319
144B	11	556	24	18.4358	18.4831	23.1610	23.4725	23.4248	106.9773
144B	12	557	24	18.3463	18.5710	23.4046	23.3777	23.3938	107.0933
144B	13	558	24	18.4638	18.6773	23.4569	23.5460	23.5298	107.6738
144B	14	559	24	18.4329	18.4721	23.0846	23.5377	23.4448	106.9721
144B	15	560	24	18.4165	18.5277	23.0467	23.5050	23.5221	107.0179
144B	16	561	24	18.3242	18.4146	22.7994	23.5044	23.3865	106.4290
144B	17	562	24	18.2348	18.3213	22.3346	23.3388	23.2473	105.4767
144B	18	563	24	18.3396	18.3779	22.7633	23.3998	23.3725	106.2531
144B	19	564	24	18.3602	18.4058	22.4754	23.4475	23.4398	106.1288
144B	20	565	24	18.4023	18.4448	22.3333	23.4890	23.3894	106.0588
144B	21	566	24	18.2742	18.4440	22.2531	23.3340	23.3375	105.6427
144B	22	567	19	18.4297	18.4550	22.4263	23.5453	23.5484	106.4047
144B	23	568	66	0.0100	0.0100	0.0100	0.0100	0.0100	0.0500
144B	24	569	19	14.9555	14.9911	19.5121	18.7800	18.9979	87.2366
144B	25	570	24	18.4873	18.5729	22.3056	23.7077	23.6588	106.7323
144B	26	571	24	18.4435	18.5419	22.0506	23.4646	23.5571	106.0577

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144B	27	572	24	18.3354	18.4013	22.3060	23.4663	23.3790	105.8879
144B	28	573	24	18.1956	18.2773	21.9121	23.5015	23.3492	105.2356
144B	29	574	24	18.3560	18.4167	21.7644	23.4552	23.3738	105.3660
144B	30	575	24	18.3033	18.4081	21.4823	23.3506	23.4042	104.9485
144B	31	576	24	18.4204	18.4969	21.8623	23.4567	23.4056	105.6419
144B	32	577	24	18.3456	18.3579	21.9435	23.4171	23.3867	105.4508
144B	33	578	24	18.2592	18.3085	21.6848	23.3440	23.3152	104.9117
144B	34	579	24	18.2683	18.3696	21.9660	23.3719	23.3098	105.2856
144B	35	580	24	18.4525	18.4783	22.0104	23.5658	23.4933	106.0004
144B	36	581	24	18.3479	18.4113	22.1294	23.3746	23.3933	105.6565
144B	37	582	24	18.4196	18.4196	22.3506	23.4742	23.4073	106.0713
144B	38	583	24	18.5544	18.5648	22.2131	23.6763	23.6725	106.6810
144B	39	584	24	18.2892	18.3060	22.5475	23.3844	23.2967	105.8238
144B	40	585	24	18.3713	18.4219	22.5485	23.4529	23.4292	106.2238
144B	41	586	24	18.3415	18.3531	22.3115	23.3790	23.2858	105.6708
144B	42	587	24	18.3242	18.3765	22.4758	23.4073	23.3808	105.9646
144B	43	588	24	18.4127	18.4448	22.5440	23.5021	23.4756	106.3792
144B	44	589	24	18.4540	18.5610	22.4258	23.5217	23.4719	106.4344
144B	45	590	24	18.3063	18.3148	22.1877	23.3544	23.3208	105.4840
144B	46	591	24	18.2702	18.3054	21.9775	23.2925	23.2410	105.0867
144B	47	592	24	18.3079	18.3731	21.9890	23.3750	23.3540	105.3990
144B	48	593	24	18.2227	18.2385	22.0342	23.2723	23.2058	104.9735
144B	49	594	24	18.1865	18.2104	22.3083	23.2727	23.1344	105.1123
144B	50	595	24	18.3152	18.3048	23.3429	23.3808	23.3092	106.6529
144B	51	596	24	18.3338	18.3608	23.2556	23.3825	23.3090	106.6417
144B	52	597	24	18.3538	18.3954	23.1198	23.4644	23.3798	106.7131
144B	53	598	24	18.3763	18.4550	23.3621	23.4035	23.4796	107.0765
144B	54	599	27	18.3665	18.4180	23.4115	23.4804	23.4254	107.1017
145A	1	600	11	8.2073	8.2059	12.2091	10.5105	11.3686	50.5014
145A	2	601	11	16.8845	16.8591	22.5741	21.4732	22.9573	100.7482
145A	3	602	24	17.3775	16.8573	21.9288	22.4356	23.8429	102.4421
145A	4	603	24	17.4738	16.8542	21.7892	22.4950	23.8156	102.4277
145A	5	604	24	17.8163	17.5242	22.5133	23.0585	24.4242	105.3365
145A	6	605	24	18.3544	18.4052	23.2869	23.3696	25.3454	108.7615
145A	7	606	24	18.3767	18.4221	23.3173	23.4750	25.4363	109.0273
145A	8	607	24	18.3196	18.2642	23.1944	23.4023	25.3681	108.5485

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
145A	9	608	24	18.2829	18.2667	23.1271	23.2800	25.2760	108.2327
145A	10	609	24	18.2096	18.2023	22.8823	23.3031	25.2690	107.8663
145A	11	610	24	18.1965	18.2144	22.7310	23.3023	25.2954	107.7396
145A	12	611	24	18.2496	18.2444	22.9583	23.3131	25.3167	108.0821
145A	13	612	24	18.3283	18.3229	23.2283	23.9271	25.3738	109.1804
145A	14	613	24	18.2396	18.2294	23.4169	24.3317	26.0244	110.2419
145A	15	614	24	18.2873	18.2456	23.6129	24.2633	26.1865	110.5956
145A	16	615	24	18.1102	18.0156	23.4831	24.1131	25.9785	109.7006
145A	17	616	24	18.2083	18.2919	23.4519	24.2888	26.3817	110.6225
145A	18	617	24	18.3263	18.2885	23.4390	24.3798	26.3029	110.7365
145A	19	618	24	18.2577	18.2527	23.3358	24.3198	26.3267	110.4927
145A	20	619	24	18.2363	18.2448	23.1856	24.3406	26.3692	110.3765
145A	21	620	24	18.2221	18.2088	23.2398	24.2575	26.3271	110.2552
145A	22	621	24	18.0890	18.1075	23.3263	24.2365	26.3144	110.0735
145A	23	622	24	18.0623	18.0602	23.5329	24.1027	26.1983	109.9565
145A	24	623	24	18.1681	18.1619	23.3946	24.2125	26.1140	110.0510
145A	25	624	24	18.1106	18.1300	23.2031	24.0381	26.1667	109.6485
145A	26	625	8	18.1925	18.1063	23.0813	24.1256	26.2394	109.7450
145A	27	626	43	0.0020	0.0020	0.0020	0.0020	0.0020	0.0100
145A	28	627	12	11.5442	11.5050	16.4392	15.3771	16.6463	71.5117
145A	29	628	10	18.2125	18.2335	24.3385	24.3300	26.3255	111.4400
145A	30	629	24	18.2808	18.2883	23.3917	24.3542	26.3654	110.6804
145A	31	630	24	18.2315	18.2435	23.1875	24.2079	26.2692	110.1396
145A	32	631	24	18.2288	18.2763	23.1708	24.1863	26.3300	110.1921
145A	33	632	24	18.2000	18.2802	23.0754	24.2913	26.2756	110.1225
145A	34	633	24	18.1367	18.1902	23.2165	24.1260	26.1856	109.8550
145A	35	634	25	18.1690	18.1780	23.0098	24.1870	26.1410	109.6848
145A	36	635	60	0.0020	0.0020	0.0020	0.0020	0.0020	0.0100
145A	37	636	11	11.7750	11.7509	16.6941	15.6864	16.7682	72.6745
145A	38	637	24	18.2290	18.2196	23.7106	24.3113	26.3056	110.7760
145A	39	638	18	18.2678	18.2944	23.3197	24.3261	26.3267	110.5347
145A	40	639	58	0.0020	0.0020	0.0020	0.0020	0.0020	0.0100
145A	41	640	8	6.2444	6.3575	9.0081	8.2100	8.8625	38.6825
145A	42	641	12	18.1792	18.2133	24.9471	24.2150	26.2325	111.7871
145A	43	642	24	18.3694	18.4017	23.5015	24.4750	26.5096	111.2571
145A	44	643	24	18.4263	18.4760	23.1971	24.5042	26.5260	111.1296

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Lobe Power (MW)	NE Lobe Power (MW)	C Lobe Power (MW)	SW Lobe Power (MW)	SE Lobe Power (MW)	Total Core Power (MW)
145A	45	644	24	18.3106	18.3417	22.8935	24.3981	26.3148	110.2588
145A	46	645	24	18.2675	18.2538	22.8154	24.2827	26.2696	109.8890
145A	47	646	24	18.2458	18.2769	22.9352	24.2242	26.3121	109.9942
145A	48	647	24	18.3015	18.2815	23.0767	24.3027	26.2706	110.2329
145A	49	648	24	18.2333	18.2725	23.2875	24.2377	26.2944	110.3254
145A	50	649	24	18.2544	18.3077	23.2142	24.3075	26.4300	110.5138
145A	51	650	24	18.2183	18.2363	23.4431	24.1825	26.2425	110.3227
145A	52	651	24	18.2531	18.2377	23.3048	24.2640	26.2698	110.3294
145A	53	652	24	18.2319	18.1958	23.3644	24.2269	26.1627	110.1817
145A	54	653	24	18.2258	18.2385	23.6521	24.2258	26.2727	110.6150
145A	55	654	24	18.2156	18.2440	23.7102	24.2792	26.3044	110.7533
145A	56	655	24	18.2463	18.2385	23.5346	24.2288	26.2531	110.5013
145A	57	656	24	18.2352	18.2371	23.7621	24.2294	26.2844	110.7481
145A	58	657	24	18.2056	18.2490	23.6085	24.2129	26.3417	110.6177
145A	59	658	24	18.0825	18.1085	23.2790	24.0456	26.1263	109.6419
145A	60	659	24	18.2313	18.2133	23.8140	24.1817	26.1538	110.5940
145A	61	660	24	18.1408	18.1413	23.7085	24.0531	26.1356	110.1794
145A	62	661	24	18.1558	18.1425	23.7458	24.0515	26.2663	110.3619
145A	63	662	29	18.2024	18.2159	23.6090	24.1162	26.2064	110.3498

Appendix B

ATR Outer Shim Control Cylinder Positions by Cycle and Timestep

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
138B	1	1	9	66.64	66.67	66.68	66.66
138B	2	2	24	86.27	85.06	86.36	85.77
138B	3	3	24	94.85	84.93	97.97	92.68
138B	4	4	24	84.08	81.44	85.13	85.01
138B	5	5	24	84.74	82.10	87.74	86.41
138B	6	6	24	84.75	81.84	88.45	86.51
138B	7	7	24	81.84	81.80	83.86	84.41
138B	8	8	24	82.84	81.90	85.30	84.64
138B	9	9	24	80.60	81.96	80.57	82.58
138B	10	10	24	81.66	83.15	80.19	82.19
138B	11	11	24	83.03	82.82	81.96	82.98
138B	12	12	24	83.68	83.42	83.34	82.92
138B	13	13	24	84.98	83.97	84.71	84.06
138B	14	14	24	82.64	83.87	82.73	83.96
138B	15	15	24	81.86	83.85	83.84	83.95
138B	16	16	24	81.98	84.01	85.73	84.60
138B	17	17	24	83.44	85.22	85.50	85.09
138B	18	18	24	84.74	85.78	85.46	85.80
138B	19	19	24	83.44	82.46	85.13	84.54
138B	20	20	24	83.77	81.51	84.65	84.77
138B	21	21	24	84.26	82.40	85.85	85.52
138B	22	22	24	85.86	83.09	87.09	85.30
138B	23	23	24	86.62	83.69	88.65	85.93
138B	24	24	24	83.07	82.78	86.65	86.28
138B	25	25	24	83.53	82.69	83.45	83.98
138B	26	26	24	83.83	83.09	83.32	83.62
138B	27	27	24	84.94	83.61	85.12	84.24
138B	28	28	24	86.35	85.26	85.58	85.52
138B	29	29	24	84.09	83.77	84.11	83.70
138B	30	30	24	80.79	82.18	80.47	81.34
138B	31	31	24	81.88	83.57	81.83	82.53

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
138B	32	32	24	83.52	85.09	82.80	83.19
138B	33	33	24	84.44	85.96	83.61	83.99
138B	34	34	24	84.35	84.16	83.99	84.75
138B	35	35	24	85.19	83.62	84.39	85.41
138B	36	36	24	86.78	84.53	85.41	85.88
138B	37	37	24	82.86	83.23	82.77	85.00
138B	38	38	24	81.96	82.38	81.07	82.87
138B	39	39	24	83.44	83.91	83.31	84.54
138B	40	40	24	85.04	85.25	84.31	85.30
138B	41	41	24	86.73	86.84	84.49	86.60
138B	42	42	24	86.10	84.58	82.98	86.44
138B	43	43	24	87.21	86.58	84.83	87.84
138B	44	44	24	89.83	88.20	88.45	88.60
138B	45	45	24	90.96	89.57	89.44	89.72
138B	46	46	24	93.67	91.11	92.47	92.32
138B	47	47	24	95.46	92.41	94.21	94.42
138B	48	48	24	97.77	94.33	96.37	95.80
138B	49	49	9	99.03	95.53	98.19	96.94
139A	1	50	8	64.73	64.01	65.53	64.14
139A	2	51	24	81.48	83.14	86.35	80.91
139A	3	52	24	85.42	88.01	88.58	88.73
139A	4	53	24	81.51	85.98	83.30	84.19
139A	5	54	24	80.06	85.47	81.44	82.35
139A	6	55	24	80.67	86.06	82.04	83.17
139A	7	56	24	80.71	87.24	83.47	83.63
139A	8	57	24	79.14	83.92	82.95	81.48
139A	9	58	24	80.41	83.35	84.74	82.05
139A	10	59	24	81.75	84.15	84.89	82.84
139A	11	60	24	82.90	85.23	85.05	83.20
139A	12	61	24	83.23	86.37	85.00	83.52
139A	13	62	24	83.51	86.65	85.55	83.70
139A	14	63	24	84.62	87.24	85.89	84.02
139A	15	64	24	82.68	82.87	84.60	82.44
139A	16	65	24	83.06	82.51	85.00	82.50
139A	17	66	24	83.88	82.51	85.84	82.50
139A	18	67	24	84.90	83.10	87.50	82.60
139A	19	68	24	84.52	83.24	84.37	81.61

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
139A	20	69	24	83.89	82.82	81.66	80.45
139A	21	70	24	85.26	83.54	84.06	81.00
139A	22	71	24	86.42	84.31	85.32	82.02
139A	23	72	24	29.00	28.45	28.69	27.78
139A	24	73	24	29.00	28.45	28.69	27.78
139A	25	74	24	29.00	28.45	28.69	27.78
139A	26	75	24	71.67	68.81	71.41	69.62
139A	27	76	24	85.48	83.89	85.15	82.91
139A	28	77	24	81.62	83.89	83.59	82.55
139A	29	78	24	80.10	83.25	83.50	82.15
139A	30	79	24	81.14	83.48	83.73	82.80
139A	31	80	24	82.32	84.59	84.41	83.73
139A	32	81	24	83.28	84.39	87.80	84.43
139A	33	82	24	84.38	83.85	93.55	84.98
139A	34	83	24	86.52	84.91	95.30	86.25
139A	35	84	24	88.16	86.49	96.29	87.00
139A	36	85	24	87.87	86.95	98.04	87.37
139A	37	86	24	85.63	86.53	96.77	88.05
139A	38	87	24	87.67	87.85	97.62	88.53
139A	39	88	24	87.11	87.43	95.00	83.69
139A	40	89	24	88.02	88.48	98.94	85.35
139A	41	90	24	88.00	88.50	105.00	86.60
139A	42	91	24	86.41	88.35	102.63	87.24
139A	43	92	24	86.31	88.54	101.50	88.24
139A	44	93	24	87.92	89.95	103.68	89.43
139A	45	94	24	87.24	89.38	102.08	86.09
139A	46	95	24	88.73	90.90	103.72	87.10
139A	47	96	24	87.93	89.94	101.19	84.55
139A	48	97	24	89.10	91.14	102.05	85.07
139A	49	98	24	87.57	90.29	102.57	85.58
139A	50	99	24	86.10	88.92	101.53	84.42
139A	51	100	24	86.34	90.10	100.11	83.87
139A	52	101	24	88.75	92.11	101.23	85.30
139A	53	102	24	91.44	95.02	103.24	86.82
139A	54	103	24	91.71	95.54	103.03	87.60
139A	55	104	24	92.57	96.58	100.04	88.21
139A	56	105	9	93.22	97.51	100.41	89.27

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
139B	1	106	8	68.38	64.22	69.70	62.53
139B	2	107	24	91.03	83.89	94.36	76.57
139B	3	108	24	90.02	90.78	88.38	79.68
139B	4	109	24	89.36	90.12	87.60	80.32
139B	5	110	24	88.36	91.49	92.09	80.95
139B	6	111	24	82.01	87.80	89.39	78.93
139B	7	112	24	81.19	85.82	89.81	78.93
139B	8	113	24	82.35	86.74	90.69	79.73
139B	9	114	24	82.61	86.54	92.42	80.61
139B	10	115	24	84.11	85.46	93.79	81.16
139B	11	116	24	83.18	82.85	91.93	80.25
139B	12	117	24	84.42	83.93	92.15	81.12
139B	13	118	24	85.58	84.21	92.97	81.70
139B	14	119	24	86.71	84.63	93.78	82.46
139B	15	120	24	87.93	86.05	95.13	83.14
139B	16	121	24	84.65	85.12	93.59	83.12
139B	17	122	24	84.53	85.80	94.05	83.12
139B	18	123	24	82.81	81.62	93.85	81.73
139B	19	124	24	83.08	82.21	94.17	83.03
139B	20	125	24	80.10	81.64	93.00	82.68
139B	21	126	24	80.55	81.85	93.28	83.15
139B	22	127	24	82.16	82.13	93.98	82.86
139B	23	128	24	82.31	82.03	93.56	79.87
139B	24	129	24	84.28	83.15	95.46	80.67
139B	25	130	24	82.39	82.59	94.14	80.75
139B	26	131	24	81.04	82.54	92.33	81.02
139B	27	132	24	82.58	84.26	92.04	82.53
139B	28	133	24	83.57	85.62	93.22	83.46
139B	29	134	24	84.14	86.04	94.23	83.53
139B	30	135	24	84.27	84.73	93.50	79.68
139B	31	136	24	84.47	84.07	94.00	80.03
139B	32	137	24	82.66	82.02	92.93	79.12
139B	33	138	7	84.00	83.10	93.50	80.10
139B	34	139	1044	84.00	83.10	93.50	80.10
139B	35	140	13	54.90	54.94	54.74	54.48
139B	36	141	24	73.21	74.05	80.08	73.27
139B	37	142	24	81.31	82.69	94.35	82.94

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
139B	38	143	24	81.48	82.38	94.79	83.40
139B	39	144	24	82.00	82.73	94.50	83.97
139B	40	145	24	82.35	82.53	93.04	82.45
139B	41	146	24	83.03	83.45	94.17	82.23
139B	42	147	24	83.84	83.53	95.40	82.23
139B	43	148	24	84.35	84.18	94.53	81.43
139B	44	149	24	87.01	85.91	95.50	83.33
139B	45	150	24	86.57	85.23	96.59	82.00
139B	46	151	24	87.85	85.76	96.01	81.59
139B	47	152	24	90.29	87.78	97.85	83.76
139B	48	153	24	91.95	89.55	98.93	85.64
139B	49	154	24	94.64	93.39	102.53	88.31
139B	50	155	24	100.61	99.47	111.07	94.88
139B	51	156	24	102.08	101.64	113.07	96.22
139B	52	157	24	104.26	104.04	116.15	98.13
139B	53	158	24	106.94	106.53	117.93	100.48
139B	54	159	24	108.13	107.35	124.06	102.19
139B	55	160	21	110.80	110.72	124.60	104.17
140A	1	161	8	70.10	69.58	71.02	69.47
140A	2	162	24	84.75	86.89	93.16	83.09
140A	3	163	24	86.06	91.72	91.23	86.81
140A	4	164	24	85.52	93.08	91.86	88.47
140A	5	165	24	85.88	93.30	91.87	89.20
140A	6	166	24	82.93	89.81	88.44	88.95
140A	7	167	24	83.48	89.53	88.93	89.96
140A	8	168	24	84.32	92.04	87.56	91.58
140A	9	169	24	84.38	92.43	87.51	92.88
140A	10	170	24	85.97	93.08	88.52	93.63
140A	11	171	24	85.36	90.90	88.81	89.78
140A	12	172	24	84.22	88.20	87.40	86.11
140A	13	173	24	85.50	88.57	89.07	86.79
140A	14	174	24	87.20	88.96	89.89	87.24
140A	15	175	24	88.00	89.42	90.35	87.80
140A	16	176	24	88.61	90.76	90.70	88.06
140A	17	177	24	90.96	90.47	92.15	89.15
140A	18	178	24	92.00	91.20	93.36	89.50
140A	19	179	24	92.88	92.00	94.24	90.03

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
140A	20	180	24	90.89	90.56	93.34	89.31
140A	21	181	24	86.28	86.80	90.43	87.56
140A	22	182	24	87.48	88.73	91.34	89.03
140A	23	183	24	88.72	89.58	91.96	89.59
140A	24	184	24	89.55	90.07	92.71	90.17
140A	25	185	24	90.93	90.67	93.83	91.07
140A	26	186	24	89.57	89.55	92.16	84.96
140A	27	187	24	90.34	90.07	93.38	85.94
140A	28	188	24	92.50	91.62	94.83	87.09
140A	29	189	24	89.24	89.99	93.18	85.63
140A	30	190	24	87.12	88.19	92.20	84.81
140A	31	191	24	88.45	88.88	93.55	86.50
140A	32	192	24	88.91	89.22	94.46	86.75
140A	33	193	24	86.32	89.60	92.30	86.87
140A	34	194	24	87.34	90.16	93.29	87.86
140A	35	195	24	87.40	90.40	92.66	85.46
140A	36	196	24	88.90	91.39	93.38	85.09
140A	37	197	24	89.29	92.58	93.89	86.64
140A	38	198	24	86.73	93.43	91.56	87.08
140A	39	199	24	86.70	93.61	91.74	86.58
140A	40	200	24	86.31	93.19	88.50	84.11
140A	41	201	24	88.83	93.81	92.07	85.63
140A	42	202	24	88.74	95.50	92.43	86.14
140A	43	203	24	87.00	95.54	90.08	86.75
140A	44	204	24	89.65	97.62	92.42	88.27
140A	45	205	24	89.44	98.77	92.26	86.83
140A	46	206	24	89.12	98.74	91.63	86.10
140A	47	207	24	90.73	100.70	93.08	87.64
140A	48	208	11	92.13	102.31	93.87	88.96
140B	1	209	8	79.11	79.13	79.14	79.14
140B	2	210	24	93.10	95.13	90.85	89.07
140B	3	211	24	90.93	93.68	89.14	90.28
140B	4	212	24	88.99	93.80	83.26	88.08
140B	5	213	24	89.28	95.30	83.54	88.74
140B	6	214	24	89.39	96.14	84.35	89.53
140B	7	215	24	90.99	97.04	86.49	91.23
140B	8	216	24	92.17	98.93	88.22	92.26

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
140B	9	217	24	89.02	97.26	85.58	87.34
140B	10	218	24	83.00	95.84	82.58	85.89
140B	11	219	24	82.69	96.50	81.58	86.88
140B	12	220	24	84.13	98.53	83.15	87.72
140B	13	221	24	84.13	98.40	81.64	85.35
140B	14	222	24	85.21	99.26	81.11	84.75
140B	15	223	24	86.17	100.28	81.86	85.55
140B	16	224	24	87.18	101.56	83.51	86.88
140B	17	225	24	88.68	103.12	85.50	87.71
140B	18	226	24	89.73	104.29	85.74	88.73
140B	19	227	24	85.77	102.62	82.90	88.46
140B	20	228	24	87.11	104.64	84.12	89.11
140B	21	229	24	88.30	106.28	85.48	90.72
140B	22	230	24	89.57	108.11	86.79	92.06
140B	23	231	24	92.62	109.54	87.76	92.68
140B	24	232	24	93.30	112.56	89.05	94.07
140B	25	233	24	93.70	113.81	89.47	94.09
140B	26	234	19	93.39	109.03	95.22	94.21
140B	27	235	185	93.39	109.03	95.22	94.21
140B	28	236	11	93.31	109.36	94.80	94.32
140B	29	237	24	93.42	108.95	94.32	93.41
140B	30	238	24	92.62	107.28	92.91	90.71
140B	31	239	24	94.35	110.73	94.16	91.57
140B	32	240	24	92.83	111.72	95.09	92.67
140B	33	241	24	90.54	109.75	93.57	92.50
140B	34	242	24	90.79	110.89	91.78	90.43
140B	35	243	24	93.26	114.59	93.77	93.12
140B	36	244	24	95.00	117.35	94.87	94.89
140B	37	245	13	96.56	120.37	97.30	96.48
141A	1	246	8	75.64	75.84	76.34	71.63
141A	2	247	24	87.58	89.87	89.99	85.06
141A	3	248	24	88.79	93.75	92.25	87.89
141A	4	249	24	84.76	88.26	84.41	82.53
141A	5	250	24	86.93	90.80	87.51	84.84
141A	6	251	24	86.97	90.12	88.69	84.96
141A	7	252	24	85.21	88.84	87.80	84.53
141A	8	253	24	86.57	88.81	89.81	85.18

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
141A	9	254	24	87.93	89.90	92.03	86.50
141A	10	255	24	89.58	90.81	92.82	87.30
141A	11	256	24	91.13	92.64	95.04	88.14
141A	12	257	24	91.37	93.30	95.81	88.58
141A	13	258	24	92.61	93.64	97.80	89.53
141A	14	259	24	94.05	94.56	99.84	90.01
141A	15	260	24	95.66	95.58	100.94	91.09
141A	16	261	24	96.13	94.18	100.27	87.18
141A	17	262	24	96.60	94.48	100.54	86.18
141A	18	263	24	98.18	95.63	101.20	86.93
141A	19	264	24	93.48	93.86	95.60	85.62
141A	20	265	24	87.03	93.35	90.86	84.04
141A	21	266	24	87.53	93.18	93.79	84.17
141A	22	267	24	88.74	93.59	96.22	85.47
141A	23	268	24	90.44	95.65	97.76	86.82
141A	24	269	24	91.60	97.26	98.38	87.76
141A	25	270	24	93.71	99.46	99.86	89.05
141A	26	271	24	95.05	99.99	100.76	89.93
141A	27	272	24	96.67	100.67	103.65	90.98
141A	28	273	24	92.05	100.27	102.13	90.13
141A	29	274	24	88.15	99.78	100.18	89.46
141A	30	275	24	88.83	100.59	100.67	91.10
141A	31	276	24	86.20	101.05	97.82	90.98
141A	32	277	24	88.21	103.72	97.65	92.56
141A	33	278	24	87.26	102.43	97.25	88.59
141A	34	279	7	88.49	102.80	98.39	89.85
142A	1	280	8	59.06	55.83	58.50	58.13
142A	2	281	24	78.21	75.49	76.81	75.08
142A	3	282	24	85.73	84.98	85.69	83.76
142A	4	283	24	88.19	87.24	91.30	85.48
142A	5	284	24	86.01	94.98	91.06	83.29
142A	6	285	24	87.47	97.21	94.21	83.96
142A	7	286	25	87.60	94.79	94.85	83.83
142A	8	287	24	87.90	92.71	95.54	83.53
142A	9	288	24	89.06	94.34	96.52	84.54
142A	10	289	24	89.81	96.28	96.88	85.25
142A	11	290	24	90.06	96.85	94.74	85.34

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
142A	12	291	24	90.63	97.25	93.05	85.37
142A	13	292	24	91.40	98.21	94.97	86.15
142A	14	293	24	91.96	99.38	96.65	87.50
142A	15	294	24	90.83	94.29	96.15	86.27
142A	16	295	24	90.84	93.28	96.66	86.36
142A	17	296	24	89.84	92.90	90.71	85.29
142A	18	297	24	87.77	88.78	88.39	84.78
142A	19	298	24	88.85	90.35	91.29	86.35
142A	20	299	24	88.97	91.09	89.23	85.80
142A	21	300	24	88.45	91.96	86.99	85.48
142A	22	301	24	89.83	93.06	87.48	87.00
142A	23	302	24	89.36	92.90	87.98	86.70
142A	24	303	24	88.91	90.54	87.18	86.17
142A	25	304	24	88.58	89.33	88.17	85.90
142A	26	305	24	88.48	88.55	88.69	85.73
142A	27	306	24	90.27	90.18	90.04	87.31
142A	28	307	24	91.30	92.02	91.74	88.60
142A	29	308	24	92.48	94.03	93.15	90.03
142A	30	309	24	91.15	94.36	90.91	89.25
142A	31	310	25	91.60	95.48	90.26	89.77
142A	32	311	24	88.61	95.44	88.84	89.38
142A	33	312	20	85.20	92.27	85.29	86.90
142A	34	313	17	85.20	92.27	85.29	86.90
142A	35	314	11	67.54	72.35	64.30	68.35
142A	36	315	24	87.00	94.59	86.70	88.97
142A	37	316	24	91.87	99.58	90.06	89.21
142A	38	317	24	92.73	101.03	92.58	90.75
142A	39	318	24	90.61	101.90	91.04	91.03
142A	40	319	24	90.65	103.61	91.00	92.11
142A	41	320	24	91.37	103.09	91.34	90.34
142A	42	321	24	93.05	104.94	93.04	92.01
142A	43	322	24	89.06	105.04	89.71	90.53
142A	44	323	24	88.81	106.06	85.87	90.00
142A	45	324	24	90.19	107.88	85.77	90.05
142A	46	325	24	90.68	109.65	85.63	88.87
142A	47	326	24	92.85	113.58	87.46	92.24
142A	48	327	24	93.49	116.18	88.19	93.25

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
142A	49	328	24	92.44	116.42	87.09	93.76
142A	50	329	24	92.87	118.80	88.94	93.81
142A	51	330	15	92.90	119.34	88.49	92.40
142B	1	331	8	57.44	56.56	55.38	57.04
142B	2	332	24	82.04	81.50	81.40	76.59
142B	3	333	24	88.23	87.90	86.70	88.77
142B	4	334	45	88.23	87.90	86.70	88.77
142B	5	335	13	58.05	55.90	52.08	59.13
142B	6	336	24	83.24	81.84	80.61	86.68
142B	7	337	24	89.90	88.12	87.49	91.22
142B	8	338	24	90.44	89.44	88.42	93.08
142B	9	339	24	90.54	88.00	85.14	88.74
142B	10	340	24	91.29	88.98	85.97	89.06
142B	11	341	24	92.05	89.82	88.39	89.69
142B	12	342	24	92.85	89.98	90.38	90.49
142B	13	343	24	93.82	90.91	91.43	90.48
142B	14	344	24	94.59	92.06	91.60	90.16
142B	15	345	24	86.46	82.60	83.06	82.45
142B	16	346	24	86.87	83.07	84.00	83.10
142B	17	347	24	82.88	81.67	82.65	81.53
142B	18	348	24	84.11	82.96	83.81	82.60
142B	19	349	24	84.91	82.66	84.80	83.39
142B	20	350	24	85.23	83.46	86.39	83.54
142B	21	351	24	85.85	84.16	86.33	84.19
142B	22	352	24	87.12	84.74	87.08	84.95
142B	23	353	24	86.84	84.05	85.95	84.74
142B	24	354	24	86.63	84.18	84.25	84.32
142B	25	355	24	86.29	85.28	85.05	84.40
142B	26	356	24	83.78	84.46	83.59	84.08
142B	27	357	24	84.26	85.16	83.28	84.13
142B	28	358	24	83.14	84.90	80.12	83.11
142B	29	359	24	84.21	85.89	80.89	84.18
142B	30	360	24	85.34	87.47	81.52	84.92
142B	31	361	24	86.79	88.21	82.50	86.71
142B	32	362	31	87.80	88.73	84.06	88.08
142B	33	363	46	77.85	77.95	77.75	77.50
142B	34	364	11	60.56	61.17	55.25	62.17

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
142B	35	365	24	77.16	82.58	73.84	80.10
142B	36	366	24	82.88	88.05	80.44	85.66
142B	37	367	24	83.78	89.54	82.14	86.69
142B	38	368	24	84.70	91.24	83.78	87.25
142B	39	369	24	85.99	92.76	86.34	88.57
142B	40	370	24	87.28	93.60	87.84	89.92
142B	41	371	24	85.73	90.50	86.88	88.44
142B	42	372	24	87.57	92.61	88.30	90.33
142B	43	373	24	89.50	94.23	90.84	92.00
142B	44	374	24	86.25	88.62	85.41	85.75
142B	45	375	24	84.90	87.02	83.43	83.97
142B	46	376	24	86.70	89.73	85.43	85.50
142B	47	377	24	88.48	91.58	86.89	86.95
142B	48	378	24	90.46	92.66	90.37	89.16
142B	49	379	24	92.15	94.89	93.51	90.66
142B	50	380	24	93.87	98.11	96.17	92.45
142B	51	381	24	94.44	99.91	94.23	93.39
142B	52	382	24	93.22	100.60	89.15	93.08
142B	53	383	24	87.81	98.75	84.98	91.82
142B	54	384	24	84.46	97.94	80.78	89.41
142B	55	385	24	87.88	99.09	83.99	92.06
142B	56	386	24	90.06	101.58	86.39	94.38
142B	57	387	21	91.68	105.03	87.75	96.45
143A	1	388	8	51.14	54.52	63.33	56.68
143A	2	389	24	71.69	81.65	93.09	79.86
143A	3	390	24	72.63	93.17	92.01	84.21
143A	4	391	24	72.59	92.12	90.28	85.26
143A	5	392	24	70.91	89.43	89.66	84.44
143A	6	393	24	71.06	89.92	91.50	85.35
143A	7	394	24	71.83	91.42	93.04	85.85
143A	8	395	24	72.30	91.65	94.21	86.02
143A	9	396	24	71.53	91.66	89.95	84.70
143A	10	397	24	72.40	91.70	90.47	85.45
143A	11	398	24	72.90	92.26	91.24	86.08
143A	12	399	24	73.65	93.10	92.33	86.18
143A	13	400	24	75.25	93.72	93.58	86.68
143A	14	401	24	75.53	94.18	93.93	86.95

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
143A	15	402	24	76.16	94.00	95.55	87.79
143A	16	403	24	77.70	94.33	96.25	88.05
143A	17	404	24	79.15	95.38	97.38	88.55
143A	18	405	24	78.52	95.49	95.16	87.81
143A	19	406	24	77.53	95.48	92.77	86.51
143A	20	407	24	78.76	95.93	94.48	87.80
143A	21	408	24	79.99	96.66	96.43	88.88
143A	22	409	24	81.42	97.27	98.36	89.43
143A	23	410	24	82.41	98.79	100.31	89.00
143A	24	411	15	80.60	98.18	93.97	86.67
143A	25	412	449	80.60	98.18	93.97	86.67
143A	26	413	24	69.04	84.24	77.36	76.38
143A	27	414	24	80.60	96.08	96.01	89.77
143A	28	415	24	80.92	94.83	97.53	89.80
143A	29	416	24	81.49	95.21	99.31	89.35
143A	30	417	24	82.40	96.51	101.61	90.06
143A	31	418	24	81.11	93.08	100.28	90.33
143A	32	419	24	81.89	94.49	101.08	90.85
143A	33	420	24	80.74	92.35	101.27	89.98
143A	34	421	24	81.80	91.85	101.81	90.73
143A	35	422	24	80.97	92.07	100.66	86.19
143A	36	423	24	82.53	93.84	103.16	87.29
143A	37	424	24	81.59	92.16	103.94	86.73
143A	38	425	24	82.00	92.44	105.31	87.73
143A	39	426	24	82.93	92.99	105.88	86.21
143A	40	427	24	83.44	93.29	105.43	84.86
143A	41	428	28	85.37	95.01	107.38	86.18
143A	42	429	112	85.37	95.01	107.38	86.18
143A	43	430	8	60.72	66.22	68.05	64.24
143A	44	431	24	80.94	92.68	99.98	82.30
143A	45	432	24	82.95	97.06	106.95	85.76
143A	46	433	24	84.27	98.08	107.92	86.21
143A	47	434	24	83.52	97.41	105.52	84.00
143A	48	435	24	84.72	99.66	108.09	85.56
143A	49	436	24	84.20	100.05	106.37	84.02
143A	50	437	24	86.08	104.03	107.61	84.50
143A	51	438	24	87.05	107.70	108.62	85.68

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
143A	52	439	24	82.79	108.16	107.68	86.42
143A	53	440	22	81.10	109.22	106.65	87.71
143B	1	441	8	53.76	53.78	53.74	53.66
143B	2	442	24	65.89	67.58	65.23	68.38
143B	3	443	24	84.94	89.17	82.98	87.21
143B	4	444	24	87.78	94.49	86.40	90.55
143B	5	445	24	87.29	95.66	86.72	91.69
143B	6	446	24	87.16	95.31	87.42	92.15
143B	7	447	24	85.35	90.69	88.41	90.57
143B	8	448	24	86.59	91.68	89.58	91.00
143B	9	449	24	84.29	86.29	88.88	89.27
143B	10	450	24	85.26	86.62	89.32	89.64
143B	11	451	24	86.50	86.87	90.91	90.50
143B	12	452	24	87.61	87.00	91.80	90.80
143B	13	453	24	88.84	87.35	93.29	91.28
143B	14	454	24	89.00	87.27	92.08	91.00
143B	15	455	24	86.63	89.75	88.48	88.46
143B	16	456	24	81.79	90.62	86.05	84.73
143B	17	457	24	81.60	91.50	86.00	85.50
143B	18	458	24	82.58	91.88	86.67	85.83
143B	19	459	24	81.15	87.28	86.02	83.22
143B	20	460	24	82.07	87.85	86.18	83.53
143B	21	461	24	82.81	88.51	87.24	84.15
143B	22	462	24	83.48	89.10	87.39	84.40
143B	23	463	24	82.85	89.22	85.10	83.86
143B	24	464	24	84.58	90.43	86.77	84.76
143B	25	465	24	84.02	88.57	86.99	84.13
143B	26	466	24	83.43	87.21	87.35	83.50
143B	27	467	24	85.18	88.03	88.64	84.14
143B	28	468	24	84.48	88.38	86.10	83.73
143B	29	469	53	84.00	88.50	90.03	83.50
143B	30	470	24	72.63	77.84	72.85	74.34
143B	31	471	24	86.00	89.90	86.09	85.88
143B	32	472	24	83.93	90.59	85.65	86.42
143B	33	473	24	84.25	92.36	86.71	86.73
143B	34	474	24	85.20	93.93	88.33	87.87
143B	35	475	24	84.05	94.36	83.56	87.33

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
143B	36	476	24	86.40	95.78	85.24	88.54
143B	37	477	24	87.32	96.13	86.51	88.18
143B	38	478	24	87.12	96.69	87.13	87.00
143B	39	479	24	86.59	97.64	87.26	87.64
143B	40	480	24	84.53	97.19	86.08	86.78
143B	41	481	24	85.02	98.21	84.80	86.12
143B	42	482	24	84.98	98.64	83.45	84.06
143B	43	483	24	85.53	99.71	91.91	87.88
143B	44	484	24	88.83	101.92	97.30	90.65
143B	45	485	24	90.45	104.14	98.42	90.84
143B	46	486	24	89.53	105.05	94.78	91.07
143B	47	487	24	86.45	105.66	94.59	91.82
143B	48	488	24	89.05	108.54	95.90	93.03
143B	49	489	24	87.51	108.89	96.14	92.99
143B	50	490	24	86.45	109.74	93.52	93.63
143B	51	491	24	87.20	112.11	92.21	94.72
143B	52	492	24	89.58	115.06	94.58	96.54
143B	53	493	24	88.66	116.43	94.17	97.60
143B	54	494	24	87.64	118.22	92.92	97.84
143B	55	495	24	87.89	121.89	90.23	98.10
143B	56	496	24	88.66	124.11	89.21	98.60
143B	57	497	24	88.61	126.58	88.63	99.06
143B	58	498	24	90.80	133.94	90.30	101.57
143B	59	499	24	94.91	145.89	93.24	103.65
143B	60	500	9	97.50	150.00	94.80	105.80
144A	1	501	8	58.55	58.63	58.62	58.58
144A	2	502	24	72.98	82.45	78.94	86.51
144A	3	503	24	84.31	93.12	91.71	96.79
144A	4	504	24	84.67	94.38	92.35	97.20
144A	5	505	24	85.00	94.88	93.30	98.03
144A	6	506	24	85.99	96.89	95.37	99.82
144A	7	507	24	85.34	96.57	92.66	97.69
144A	8	508	24	86.15	97.45	92.36	97.56
144A	9	509	24	87.12	96.36	95.00	98.00
144A	10	510	24	87.39	96.85	95.91	98.20
144A	11	511	24	87.49	96.33	96.41	97.85
144A	12	512	24	85.88	91.56	95.99	96.43

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
144A	13	513	24	86.01	92.03	93.88	95.20
144A	14	514	24	86.00	92.23	93.00	94.46
144A	15	515	24	85.50	92.20	91.30	94.00
144A	16	516	24	86.23	93.07	91.72	94.67
144A	17	517	24	86.81	93.69	91.70	95.00
144A	18	518	24	87.66	94.13	94.17	96.12
144A	19	519	24	88.28	95.36	94.53	96.54
144A	20	520	24	89.60	95.96	95.94	97.50
144A	21	521	24	89.70	96.53	96.44	97.22
144A	22	522	24	89.17	96.86	92.99	96.40
144A	23	523	24	90.40	98.02	93.88	96.25
144A	24	524	24	89.19	94.09	93.08	94.73
144A	25	525	24	91.10	95.07	95.04	96.10
144A	26	526	24	90.99	94.28	95.08	94.45
144A	27	527	24	91.70	93.97	94.82	93.38
144A	28	528	24	92.75	95.29	96.18	94.38
144A	29	529	24	93.89	96.64	98.76	95.42
144A	30	530	24	95.09	98.09	100.24	96.51
144A	31	531	24	94.04	96.05	99.43	95.83
144A	32	532	24	94.67	95.23	101.15	96.17
144A	33	533	24	96.00	96.31	102.00	97.45
144A	34	534	24	100.15	97.13	99.37	96.99
144A	35	535	24	100.55	98.19	97.05	98.25
144A	36	536	24	101.23	99.30	98.36	99.48
144A	37	537	24	103.85	101.65	101.17	100.08
144A	38	538	24	102.87	102.85	100.84	101.38
144A	39	539	24	94.06	100.31	99.38	100.98
144A	40	540	24	93.99	98.20	99.94	99.55
144A	41	541	24	96.09	100.56	102.35	101.32
144A	42	542	24	97.36	103.19	103.73	103.31
144A	43	543	24	99.13	105.44	107.10	105.60
144A	44	544	24	100.45	107.18	108.46	108.06
144A	45	545	18	101.07	108.25	112.71	110.04
144B	1	546	8	61.05	60.14	60.31	60.65
144B	2	547	24	88.43	86.07	87.46	86.73
144B	3	548	24	94.52	94.82	95.09	98.15
144B	4	549	24	91.51	94.75	95.09	97.51

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
144B	5	550	24	90.89	93.67	94.34	98.12
144B	6	551	24	92.16	94.68	95.90	99.16
144B	7	552	24	93.40	95.76	97.80	99.83
144B	8	553	24	94.80	97.19	99.33	100.68
144B	9	554	24	96.18	98.02	101.07	101.22
144B	10	555	24	95.83	96.60	99.25	97.00
144B	11	556	24	97.42	95.70	102.70	98.62
144B	12	557	24	92.35	95.26	90.00	94.91
144B	13	558	24	93.82	96.82	89.81	95.18
144B	14	559	24	95.52	97.33	90.63	96.76
144B	15	560	24	96.16	98.40	91.10	97.50
144B	16	561	24	97.79	99.29	92.85	97.95
144B	17	562	24	99.41	99.29	93.88	99.38
144B	18	563	24	100.52	100.53	95.04	99.91
144B	19	564	24	101.54	101.47	96.39	100.78
144B	20	565	24	103.13	102.49	97.95	101.81
144B	21	566	24	104.65	102.38	101.00	103.50
144B	22	567	19	106.77	103.41	101.71	104.21
144B	23	568	66	106.77	103.41	101.71	104.21
144B	24	569	19	80.82	80.63	77.20	80.90
144B	25	570	24	106.89	103.67	102.26	104.81
144B	26	571	24	110.71	107.11	105.40	107.82
144B	27	572	24	105.07	106.09	103.89	106.99
144B	28	573	24	106.01	106.90	105.13	107.86
144B	29	574	24	108.35	107.94	106.60	109.50
144B	30	575	24	110.03	109.56	109.05	111.35
144B	31	576	24	110.80	110.10	108.93	109.93
144B	32	577	24	110.63	110.23	106.89	107.21
144B	33	578	24	111.69	111.68	108.83	108.68
144B	34	579	24	107.58	111.49	108.67	108.88
144B	35	580	24	110.85	113.67	108.75	110.80
144B	36	581	24	109.43	105.88	108.98	108.68
144B	37	582	24	109.23	104.75	108.70	106.04
144B	38	583	24	110.97	107.67	110.55	106.82
144B	39	584	24	109.94	108.28	104.76	106.43
144B	40	585	24	112.39	109.49	107.02	108.84
144B	41	586	24	110.61	109.08	107.63	110.39

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
144B	42	587	24	109.83	110.48	108.66	111.58
144B	43	588	24	112.06	112.75	111.06	114.09
144B	44	589	24	114.68	115.18	113.29	116.23
144B	45	590	24	114.80	115.28	111.14	114.03
144B	46	591	24	116.45	116.69	112.86	115.12
144B	47	592	24	118.52	119.89	114.96	118.62
144B	48	593	24	118.34	116.07	116.23	118.10
144B	49	594	24	113.18	114.22	114.49	118.93
144B	50	595	24	109.58	111.55	105.46	112.62
144B	51	596	24	110.78	114.19	106.67	113.85
144B	52	597	24	113.70	117.18	109.88	117.86
144B	53	598	24	115.38	116.43	112.25	119.82
144B	54	599	27	115.82	114.82	112.39	120.66
145A	1	600	11	53.15	50.94	53.12	56.04
145A	2	601	11	76.14	69.63	79.12	76.45
145A	3	602	24	88.60	83.43	89.86	92.21
145A	4	603	24	91.16	86.21	93.53	95.95
145A	5	604	24	89.47	85.79	95.98	96.49
145A	6	605	24	88.98	84.48	97.23	97.77
145A	7	606	24	89.24	85.28	96.66	98.80
145A	8	607	24	90.09	86.13	97.69	99.68
145A	9	608	24	91.66	86.01	100.11	100.50
145A	10	609	24	91.81	87.33	102.33	101.00
145A	11	610	24	92.66	87.87	103.67	101.33
145A	12	611	24	92.61	87.73	100.79	100.53
145A	13	612	24	91.96	89.69	97.45	98.75
145A	14	613	24	90.42	91.61	95.66	100.42
145A	15	614	24	90.43	89.80	92.96	95.33
145A	16	615	24	91.60	90.31	93.52	95.71
145A	17	616	24	92.60	90.83	94.48	96.37
145A	18	617	24	94.08	92.06	96.30	96.83
145A	19	618	24	94.45	92.71	97.21	97.31
145A	20	619	24	95.94	93.50	98.66	98.00
145A	21	620	24	95.76	94.10	96.67	97.35
145A	22	621	24	94.32	93.79	93.00	95.15
145A	23	622	24	94.09	92.91	91.53	91.10
145A	24	623	24	95.93	94.13	93.58	91.98

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
145A	25	624	24	97.88	94.25	94.85	93.25
145A	26	625	8	98.14	95.43	95.91	93.91
145A	27	626	43	98.14	95.43	95.91	93.91
145A	28	627	12	75.81	77.28	72.68	76.04
145A	29	628	10	85.64	85.41	83.44	83.03
145A	30	629	24	98.55	95.80	96.22	93.12
145A	31	630	24	98.04	96.87	98.45	94.63
145A	32	631	24	97.90	97.47	98.80	95.30
145A	33	632	24	99.15	99.10	100.67	95.97
145A	34	633	24	97.67	93.67	101.04	95.33
145A	35	634	25	99.39	95.34	102.95	96.50
145A	36	635	60	99.39	95.34	102.95	96.50
145A	37	636	11	69.07	70.00	68.36	69.72
145A	38	637	24	92.92	91.23	93.24	91.65
145A	39	638	18	100.19	97.37	99.78	97.30
145A	40	639	58	100.19	97.37	99.78	97.30
145A	41	640	8	66.89	67.56	65.99	67.28
145A	42	641	12	79.95	80.01	78.40	79.49
145A	43	642	24	99.20	97.17	99.12	95.79
145A	44	643	24	104.41	101.39	104.28	99.19
145A	45	644	24	106.61	103.06	105.82	100.94
145A	46	645	24	105.18	103.49	106.32	102.25
145A	47	646	24	102.75	104.34	104.75	102.46
145A	48	647	24	102.42	106.42	102.02	103.10
145A	49	648	24	100.72	101.33	102.90	103.49
145A	50	649	24	102.55	102.68	104.50	104.61
145A	51	650	24	101.90	103.48	100.19	103.33
145A	52	651	24	104.10	105.84	102.05	105.34
145A	53	652	24	104.80	105.42	102.87	106.60
145A	54	653	24	103.80	102.89	102.20	105.46
145A	55	654	24	104.39	104.02	102.51	104.92
145A	56	655	24	106.80	106.39	104.81	106.83
145A	57	656	24	106.23	105.66	103.84	105.48
145A	58	657	24	108.69	108.25	105.94	106.74
145A	59	658	24	111.18	110.81	108.58	108.68
145A	60	659	24	110.07	107.30	109.02	108.09
145A	61	660	24	109.40	108.26	110.78	109.94

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW OSCC (degrees)	SW OSCC (degrees)	NE OSCC (degrees)	SE OSCC (degrees)
145A	62	661	24	108.68	109.64	112.41	112.99
145A	63	662	29	110.66	112.77	115.78	114.42

Appendix C

ATR Neck Shim Positions by Cycle and Timestep

Note: "1" indicates the neck shim rod is fully inserted into the ATR core (aluminum neck shim housing) and "0" indicates the neck shim rod is fully withdrawn (replaced with an aluminum rod follower section).

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
138B	1	1	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
138B	2	2	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
138B	3	3	24	1	1	1	1	0	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	4	4	24	1	1	1	1	0	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	5	5	24	1	1	1	1	0	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	6	6	24	1	1	1	1	0	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	7	7	24	1	1	1	1	0	0	1	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	8	8	24	1	1	1	1	0	0	1	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	9	9	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	10	10	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	11	11	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	12	12	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	13	13	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	14	14	24	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	15	15	24	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	16	16	24	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	17	17	24	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	18	18	24	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
138B	19	19	24	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	0	0
138B	20	20	24	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	0	0
138B	21	21	24	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	0	0
138B	22	22	24	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	0	0
138B	23	23	24	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	0	0
138B	24	24	24	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	0	0
138B	25	25	24	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
138B	26	26	24	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
138B	27	27	24	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
138B	28	28	24	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
138B	29	29	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	1	0	0
138B	30	30	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	1	0	0
138B	31	31	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	1	0	0
138B	32	32	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	1	0	0
138B	33	33	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	0	0	1	0	0
138B	34	34	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
138B	35	35	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
138B	36	36	24	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
138B	37	37	24	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
138B	38	38	24	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0
138B	39	39	24	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0
138B	40	40	24	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0
138B	41	41	24	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0
138B	42	42	24	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0
138B	43	43	24	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0
138B	44	44	24	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0
138B	45	45	24	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0
138B	46	46	24	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0
138B	47	47	24	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0
138B	48	48	24	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0
138B	49	49	9	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0
139A	1	50	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
139A	2	51	24	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
139A	3	52	24	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
139A	4	53	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	0
139A	5	54	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	0
139A	6	55	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	0
139A	7	56	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	0
139A	8	57	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139A	9	58	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139A	10	59	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139A	11	60	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139A	12	61	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139A	13	62	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139A	14	63	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139A	15	64	24	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	16	65	24	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	17	66	24	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	18	67	24	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	19	68	24	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	20	69	24	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	21	70	24	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	22	71	24	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	23	72	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
139A	24	73	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
139A	25	74	24	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	26	75	24	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	27	76	24	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	28	77	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	29	78	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	30	79	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	31	80	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
139A	32	81	24	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1	1	1	1	0
139A	33	82	24	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1	1	1	1	0

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
139A	34	83	24	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1	1	1	1	0
139A	35	84	24	1	1	1	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1	1	1	1	0
139A	36	85	24	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1	1	1	1	0
139A	37	86	24	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1	1	1	1	0
139A	38	87	24	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1	1	1	0	0
139A	39	88	24	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1	1	1	0	0
139A	40	89	24	1	1	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	1	1	1	0	0
139A	41	90	24	1	1	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	1	1	1	0	0
139A	42	91	24	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	1	1	1	0	0
139A	43	92	24	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	1	1	1	0	0
139A	44	93	24	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	1	1	1	0	0
139A	45	94	24	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	1	0	1	0	0
139A	46	95	24	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	1	0	1	0	0
139A	47	96	24	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	0	0	1	0	0
139A	48	97	24	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	0	0	1	0	0
139A	49	98	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139A	50	99	24	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	1	0	0
139A	51	100	24	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	1	0	0
139A	52	101	24	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	1	0	0
139A	53	102	24	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	1	0	0
139A	54	103	24	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139A	55	104	24	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139A	56	105	9	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139B	1	106	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
139B	2	107	24	1	1	1	1	1	0	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
139B	3	108	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
139B	4	109	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
139B	5	110	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
139B	6	111	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
139B	7	112	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
139B	8	113	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
139B	9	114	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
139B	10	115	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
139B	11	116	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
139B	12	117	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
139B	13	118	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
139B	14	119	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
139B	15	120	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
139B	16	121	24	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
139B	17	122	24	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
139B	18	123	24	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	1
139B	19	124	24	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	1
139B	20	125	24	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	1
139B	21	126	24	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	1
139B	22	127	24	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
139B	23	128	24	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139B	24	129	24	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139B	25	130	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139B	26	131	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139B	27	132	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139B	28	133	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
139B	29	134	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	0	0
139B	30	135	24	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	0	0
139B	31	136	24	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	0	0
139B	32	137	24	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	0	0
139B	33	138	7	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	0	0
139B	34	139	1044	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	0	0
139B	35	140	13	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	0	0
139B	36	141	24	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	0	0
139B	37	142	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
139B	38	143	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
139B	39	144	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
139B	40	145	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
139B	41	146	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
139B	42	147	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
139B	43	148	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
139B	44	149	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
139B	45	150	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139B	46	151	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139B	47	152	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139B	48	153	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139B	49	154	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139B	50	155	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139B	51	156	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139B	52	157	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139B	53	158	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139B	54	159	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
139B	55	160	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
140A	1	161	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
140A	2	162	24	1	1	1	1	1	0	0	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
140A	3	163	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
140A	4	164	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
140A	5	165	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
140A	6	166	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
140A	7	167	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
140A	8	168	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
140A	9	169	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
140A	10	170	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
140A	11	171	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
140A	12	172	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
140A	13	173	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
140A	14	174	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
140A	15	175	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
140A	16	176	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
140A	17	177	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
140A	18	178	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
140A	19	179	24	1	1	1	1	1	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
140A	20	180	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
140A	21	181	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
140A	22	182	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
140A	23	183	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
140A	24	184	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
140A	25	185	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
140A	26	186	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	0	0
140A	27	187	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	0	0
140A	28	188	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	0	0
140A	29	189	24	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
140A	30	190	24	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
140A	31	191	24	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
140A	32	192	24	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
140A	33	193	24	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
140A	34	194	24	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
140A	35	195	24	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140A	36	196	24	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140A	37	197	24	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140A	38	198	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140A	39	199	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
140A	40	200	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
140A	41	201	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
140A	42	202	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
140A	43	203	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
140A	44	204	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
140A	45	205	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
140A	46	206	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
140A	47	207	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
140A	48	208	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
140B	1	209	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
140B	2	210	24	0	1	1	1	1	0	1	1	1	1	1	0	1	0	0	1	0	0	1	1	1	1	1	1
140B	3	211	24	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
140B	4	212	24	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
140B	5	213	24	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
140B	6	214	24	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
140B	7	215	24	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
140B	8	216	24	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
140B	9	217	24	0	1	1	1	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
140B	10	218	24	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
140B	11	219	24	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
140B	12	220	24	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
140B	13	221	24	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	14	222	24	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	15	223	24	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	16	224	24	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	17	225	24	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	18	226	24	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	19	227	24	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	20	228	24	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	21	229	24	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	22	230	24	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	23	231	24	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	24	232	24	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	25	233	24	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	26	234	19	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	27	235	185	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	28	236	11	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
140B	29	237	24	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
140B	30	238	24	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
140B	31	239	24	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
140B	32	240	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
140B	33	241	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
140B	34	242	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
140B	35	243	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
140B	36	244	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
140B	37	245	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
141A	1	246	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
141A	2	247	24	1	1	1	1	1	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
141A	3	248	24	1	1	1	1	1	0	1	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
141A	4	249	24	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
141A	5	250	24	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
141A	6	251	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
141A	7	252	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
141A	8	253	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
141A	9	254	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
141A	10	255	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
141A	11	256	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
141A	12	257	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
141A	13	258	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
141A	14	259	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
141A	15	260	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
141A	16	261	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	17	262	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
141A	18	263	24	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	19	264	24	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	20	265	24	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	21	266	24	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	22	267	24	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	23	268	24	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	24	269	24	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	25	270	24	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	26	271	24	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	27	272	24	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	28	273	24	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	29	274	24	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	30	275	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	31	276	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
141A	32	277	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
141A	33	278	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
141A	34	279	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
142A	1	280	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
142A	2	281	24	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0
142A	3	282	24	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0
142A	4	283	24	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0
142A	5	284	24	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0
142A	6	285	24	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0
142A	7	286	25	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0
142A	8	287	24	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0
142A	9	288	24	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0
142A	10	289	24	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0
142A	11	290	24	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	0
142A	12	291	24	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	0
142A	13	292	24	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	0
142A	14	293	24	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	0
142A	15	294	24	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	0
142A	16	295	24	1	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1	0	0	1	1	1	1	1	0
142A	17	296	24	1	1	1	1	0	0	1	1	1	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
142A	18	297	24	1	1	1	1	0	0	1	1	1	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
142A	19	298	24	1	1	1	1	0	0	1	1	1	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
142A	20	299	24	1	1	1	1	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
142A	21	300	24	1	1	1	1	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
142A	22	301	24	1	1	1	1	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	0
142A	23	302	24	1	1	1	1	0	0	1	1	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
142A	24	303	24	1	1	1	1	0	0	1	1	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
142A	25	304	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
142A	26	305	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
142A	27	306	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
142A	28	307	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
142A	29	308	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
142A	30	309	24	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
142A	31	310	25	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
142A	32	311	24	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
142A	33	312	20	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
142A	34	313	17	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
142A	35	314	11	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
142A	36	315	24	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
142A	37	316	24	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
142A	38	317	24	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
142A	39	318	24	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
142A	40	319	24	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
142A	41	320	24	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
142A	42	321	24	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
142A	43	322	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
142A	44	323	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
142A	45	324	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
142A	46	325	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
142A	47	326	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
142A	48	327	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
142A	49	328	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
142A	50	329	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142A	51	330	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	1	331	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
142B	2	332	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1
142B	3	333	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1
142B	4	334	45	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1
142B	5	335	13	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	1
142B	6	336	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	0
142B	7	337	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	0
142B	8	338	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	0
142B	9	339	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	0
142B	10	340	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	0
142B	11	341	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	0
142B	12	342	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	0
142B	13	343	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	0
142B	14	344	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	0
142B	15	345	24	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	16	346	24	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	17	347	24	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	18	348	24	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	19	349	24	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	20	350	24	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	21	351	24	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	22	352	24	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
142B	23	353	24	1	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	24	354	24	1	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	25	355	24	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	26	356	24	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	27	357	24	1	1	1	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	28	358	24	1	1	1	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	29	359	24	1	1	1	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	30	360	24	1	1	1	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	31	361	24	1	1	1	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
142B	32	362	31	1	1	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
142B	33	363	46	1	1	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
142B	34	364	11	1	1	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
142B	35	365	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
142B	36	366	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
142B	37	367	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
142B	38	368	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
142B	39	369	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
142B	40	370	24	1	1	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	1	0	0
142B	41	371	24	1	1	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	1	0	0
142B	42	372	24	1	1	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	1	0	0
142B	43	373	24	1	1	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	1	0	0
142B	44	374	24	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	45	375	24	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	46	376	24	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	47	377	24	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	48	378	24	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	49	379	24	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	50	380	24	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	51	381	24	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	52	382	24	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	53	383	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	54	384	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	55	385	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	56	386	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
142B	57	387	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143A	1	388	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
143A	2	389	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
143A	3	390	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
143A	4	391	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	5	392	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	6	393	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	7	394	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	8	395	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	9	396	24	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	10	397	24	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
143A	11	398	24	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	12	399	24	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	13	400	24	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	14	401	24	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	15	402	24	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	16	403	24	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	17	404	24	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	18	405	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	19	406	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	20	407	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	21	408	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	22	409	24	1	1	1	1	1	1	1	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	23	410	24	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	24	411	15	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	25	412	449	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	26	413	24	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1
143A	27	414	24	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
143A	28	415	24	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
143A	29	416	24	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
143A	30	417	24	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
143A	31	418	24	1	1	1	1	1	1	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	1
143A	32	419	24	1	1	1	1	1	1	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	1
143A	33	420	24	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	1
143A	34	421	24	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
143A	35	422	24	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
143A	36	423	24	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	1	0
143A	37	424	24	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
143A	38	425	24	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	0
143A	39	426	24	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143A	40	427	24	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143A	41	428	28	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143A	42	429	112	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143A	43	430	8	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143A	44	431	24	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
143A	45	432	24	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
143A	46	433	24	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
143A	47	434	24	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
143A	48	435	24	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
143A	49	436	24	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143A	50	437	24	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143A	51	438	24	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143A	52	439	24	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143A	53	440	22	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	1	441	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
143B	2	442	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
143B	3	443	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
143B	4	444	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
143B	5	445	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
143B	6	446	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0
143B	7	447	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0
143B	8	448	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0
143B	9	449	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	0
143B	10	450	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	0
143B	11	451	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	0
143B	12	452	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	0
143B	13	453	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	0
143B	14	454	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0	0
143B	15	455	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	0	0
143B	16	456	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	0	0	1	1	1	1	0	0
143B	17	457	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	0	0	1	1	1	1	0	0
143B	18	458	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	0	0	1	1	1	1	0	0
143B	19	459	24	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	0	0	1	1	1	1	0	0
143B	20	460	24	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	0	0	1	1	1	1	0	0
143B	21	461	24	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	0	0	1	1	1	1	0	0
143B	22	462	24	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	1	0	0	1	1	1	1	0	0
143B	23	463	24	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	1	0	0	1	1	1	1	0	0
143B	24	464	24	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	1	0	0	1	1	1	1	0	0
143B	25	465	24	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143B	26	466	24	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143B	27	467	24	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143B	28	468	24	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143B	29	469	53	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143B	30	470	24	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143B	31	471	24	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143B	32	472	24	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143B	33	473	24	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143B	34	474	24	1	1	1	1	1	0	1	1	1	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143B	35	475	24	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143B	36	476	24	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	1	1	0	0
143B	37	477	24	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
143B	38	478	24	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
143B	39	479	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	0
143B	40	480	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
143B	41	481	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	42	482	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	43	483	24	1	1	1	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	44	484	24	1	1	1	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	45	485	24	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	46	486	24	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	47	487	24	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
143B	48	488	24	1	1	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	49	489	24	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	50	490	24	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	51	491	24	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	52	492	24	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	53	493	24	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	54	494	24	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	55	495	24	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	56	496	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	57	497	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	58	498	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	59	499	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
143B	60	500	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
144A	1	501	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
144A	2	502	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0
144A	3	503	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0
144A	4	504	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0
144A	5	505	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0
144A	6	506	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0
144A	7	507	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	0	0
144A	8	508	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	0	0
144A	9	509	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	0	0
144A	10	510	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	0	0
144A	11	511	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	0	0
144A	12	512	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	0	1	0	0
144A	13	513	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	0	1	1	0	1	0	0
144A	14	514	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144A	15	515	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144A	16	516	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144A	17	517	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144A	18	518	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144A	19	519	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144A	20	520	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144A	21	521	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144A	22	522	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144A	23	523	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
144A	24	524	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
144A	25	525	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
144A	26	526	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
144A	27	527	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
144A	28	528	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
144A	29	529	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
144A	30	530	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
144A	31	531	24	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0
144A	32	532	24	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
144A	33	533	24	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0
144A	34	534	24	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0
144A	35	535	24	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0
144A	36	536	24	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0
144A	37	537	24	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0
144A	38	538	24	1	1	1	1	0	0	1	1	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0
144A	39	539	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
144A	40	540	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
144A	41	541	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
144A	42	542	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
144A	43	543	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
144A	44	544	24	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
144A	45	545	18	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
144B	1	546	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
144B	2	547	24	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
144B	3	548	24	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
144B	4	549	24	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1
144B	5	550	24	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1
144B	6	551	24	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1
144B	7	552	24	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1
144B	8	553	24	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1
144B	9	554	24	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	10	555	24	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	11	556	24	1	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	12	557	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	13	558	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	14	559	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	15	560	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	16	561	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	17	562	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	18	563	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	19	564	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	20	565	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	21	566	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	22	567	19	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	23	568	66	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	24	569	19	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	25	570	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	26	571	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	27	572	24	1	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	28	573	24	1	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	29	574	24	1	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	30	575	24	1	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0
144B	31	576	24	1	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
144B	32	577	24	1	1	1	1	0	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
144B	33	578	24	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
144B	34	579	24	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
144B	35	580	24	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
144B	36	581	24	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144B	37	582	24	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144B	38	583	24	1	1	1	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144B	39	584	24	1	1	1	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144B	40	585	24	1	1	1	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144B	41	586	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144B	42	587	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144B	43	588	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144B	44	589	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	0	0
144B	45	590	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	0	0	1	0	0
144B	46	591	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	0	0	1	0	0
144B	47	592	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	1	0	0	1	0	0
144B	48	593	24	1	1	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
144B	49	594	24	1	0	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
144B	50	595	24	1	0	0	0	0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0
144B	51	596	24	1	0	0	0	0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0
144B	52	597	24	1	0	0	0	0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0
144B	53	598	24	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0
144B	54	599	27	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0
145A	1	600	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
145A	2	601	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
145A	3	602	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
145A	4	603	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
145A	5	604	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
145A	6	605	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
145A	7	606	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
145A	8	607	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
145A	9	608	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
145A	10	609	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
145A	11	610	24	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
145A	12	611	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1
145A	13	612	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1
145A	14	613	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1
145A	15	614	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0
145A	16	615	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0
145A	17	616	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0
145A	18	617	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0
145A	19	618	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0
145A	20	619	24	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0
145A	21	620	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0
145A	22	621	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
145A	23	622	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0

Cycle	Timestep	Cumulative Timestep	Time Interval (hrs)	NW Neck Shims						NE Neck Shims						SW Neck Shims						SE Neck Shims					
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
145A	24	623	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
145A	25	624	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
145A	26	625	8	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
145A	27	626	43	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
145A	28	627	12	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
145A	29	628	10	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
145A	30	629	24	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
145A	31	630	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
145A	32	631	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
145A	33	632	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
145A	34	633	24	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	35	634	25	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	36	635	60	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	37	636	11	1	1	1	1	1	0	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	38	637	24	1	1	1	1	1	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	39	638	18	1	1	1	1	1	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	40	639	58	1	1	1	1	1	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	41	640	8	1	1	1	1	1	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	42	641	12	1	1	1	1	1	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	43	642	24	1	1	1	1	1	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	44	643	24	1	1	1	1	1	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	45	644	24	1	1	1	1	1	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	46	645	24	1	1	1	1	0	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	47	646	24	1	1	1	1	0	0	1	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	48	647	24	1	1	1	1	0	0	1	0	0	0	0	0	1	1	1	1	1	0	1	1	1	1	0	0
145A	49	648	24	1	1	1	1	0	0	1	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	0	0
145A	50	649	24	1	1	1	1	0	0	1	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	0	0
145A	51	650	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	0	0
145A	52	651	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	1	1	0	0
145A	53	652	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	1	1	0	0
145A	54	653	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
145A	55	654	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
145A	56	655	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	0
145A	57	656	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
145A	58	657	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
145A	59	658	24	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	1	0	0
145A	60	659	24	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0
145A	61	660	24	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0
145A	62	661	24	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	1	0	0
145A	63	662	29	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0

0 = neck shim withdrawn
1 = neck shim inserted

Appendix D

MCNP Quarter-Core ATR Model Input File Listing

```
MCNP quarter-core model
c     ------------------------------------------------------------------------
c
c     Case:  bench.1
c            cp /ANDROMEDA/ATR/MODELS/quarter/jhu  bench.1
c               (1) BOC 145A ATR fuel elements 6,7,8,9,10,11,12,13,14,15
c                           cells 60106-60315
c               (2) BOC 145A ATR fuel elements materials (m2106-m2315)
c
c
c
c     BOC 145A ATR FUEL IN ELEMENTS 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
c     THREE RADIAL REGIONS AND SEVEN AXIAL REGIONS
c     HOMOGENIZED FUEL ZONES FOR PLATES 1 - 4, 5 - 15, & 16 - 19
c
c     NE Flux Trap
c
c     C Flux Trap WITH ITV AND DUMMY TEST TRAINS
c
c     E Flux Trap - FOUR HSA CO/CO/CO TARGETS IN SEVEN POSITION ARRAY
c     SE Flux Trap - FLOW TUBE + PRESSURE TUBE + INSULATION TUBE
c
c     INNER A HOLES WITH HSA CO/CO/CO TARGETS
c
c     OUTER A HOLES WITH HSA CO/CO/CO TARGETS
c
c     SMALL B HOLES WITH HSA CO/CPO/CO TARGETS
c
c     LARGE B10 :  VOIDED for AGR-1 benchmark input
c
c     LARGE I6 WITH BE FILLER
c
c     MEDIUM I HOLES WITH BE FILLERS
c
c     SMALL I HOLES WITH ALUMINUM FILLERS
c
c     CENTER H HOLES
c        HSA CO/CO/CO IN 4, 5, 6, AND 7
c        EXCEPT FLUX WIRE HOLDER IN 3 (N16 MONITOR)
c
c     NOMINAL BEGINNING OF CYCLE CONTROL
c
c     DRUM SET E1 & E2 AT 50.0 DEGREES
c     DRUM SET E3 & E4 AT 50.0 DEGREES
c
c     NE NECK SHIMS 1, 2, 3, 4, 5 & 6 INSERTED
c     SE NECK SHIMS 1, 2, 3, 5 & 6 INSERTED
c     SE REG ROD 50% INSERTED
c
c
c     ************************************************************************
c
c  ATR Fuel Element Cells (Northeast Lobe)
c        (210 total: 10 elements--3 radial zones--7 axial zones)
c        (atr fuel elements:  6, 7, 7, 8, 9, 10, 11, 12, 13, 14, 15)
c
60106 2106 7.969921E-02  1111  -1118   74  -29   53  100 -110 $Elem  6 RZ 1 AZ 1
60107 2107 7.967400E-02  1111  -1118   74  -29   53  110 -120 $Elem  6 RZ 1 AZ 2
60108 2108 7.965632E-02  1111  -1118   74  -29   53  120 -130 $Elem  6 RZ 1 AZ 3
60109 2109 7.964923E-02  1111  -1118   74  -29   53  130 -160 $Elem  6 RZ 1 AZ 4
60110 2110 7.965902E-02  1111  -1118   74  -29   53  160 -170 $Elem  6 RZ 1 AZ 5
```

```
60111 2111 7.967913E-02  1111  -1118   74  -29   53  170 -180 $Elem  6 RZ 1 AZ 6
60112 2112 7.971317E-02  1111  -1118   74  -29   53  180 -200 $Elem  6 RZ 1 AZ 7
60113 2113 8.290653E-02  1119  -1120   74  -29   53  100 -110 $Elem  6 RZ 2 AZ 1
60114 2114 8.288057E-02  1119  -1120   74  -29   53  110 -120 $Elem  6 RZ 2 AZ 2
60115 2115 8.286028E-02  1119  -1120   74  -29   53  120 -130 $Elem  6 RZ 2 AZ 3
60116 2116 8.285143E-02  1119  -1120   74  -29   53  130 -160 $Elem  6 RZ 2 AZ 4
60117 2117 8.286359E-02  1119  -1120   74  -29   53  160 -170 $Elem  6 RZ 2 AZ 5
60118 2118 8.288571E-02  1119  -1120   74  -29   53  170 -180 $Elem  6 RZ 2 AZ 6
60119 2119 8.291521E-02  1119  -1120   74  -29   53  180 -200 $Elem  6 RZ 2 AZ 7
60120 2120 7.864934E-02  1121  -1128   74  -29   53  100 -110 $Elem  6 RZ 3 AZ 1
60121 2121 7.862680E-02  1121  -1128   74  -29   53  110 -120 $Elem  6 RZ 3 AZ 2
60122 2122 7.861021E-02  1121  -1128   74  -29   53  120 -130 $Elem  6 RZ 3 AZ 3
60123 2123 7.860361E-02  1121  -1128   74  -29   53  130 -160 $Elem  6 RZ 3 AZ 4
60124 2124 7.861274E-02  1121  -1128   74  -29   53  160 -170 $Elem  6 RZ 3 AZ 5
60125 2125 7.863101E-02  1121  -1128   74  -29   53  170 -180 $Elem  6 RZ 3 AZ 6
60126 2126 7.865541E-02  1121  -1128   74  -29   53  180 -200 $Elem  6 RZ 3 AZ 7
60127 2127 7.975810E-02  1111  -1118   17  -72  -30  100 -110 $Elem  7 RZ 1 AZ 1
60128 2128 7.975810E-02  1111  -1118   17  -72  -30  110 -120 $Elem  7 RZ 1 AZ 2
60129 2129 7.975810E-02  1111  -1118   17  -72  -30  120 -130 $Elem  7 RZ 1 AZ 3
60130 2130 7.975810E-02  1111  -1118   17  -72  -30  130 -160 $Elem  7 RZ 1 AZ 4
60131 2131 7.975810E-02  1111  -1118   17  -72  -30  160 -170 $Elem  7 RZ 1 AZ 5
60132 2132 7.975810E-02  1111  -1118   17  -72  -30  170 -180 $Elem  7 RZ 1 AZ 6
60133 2133 7.975810E-02  1111  -1118   17  -72  -30  180 -200 $Elem  7 RZ 1 AZ 7
60134 2134 8.294907E-02  1119  -1120   17  -72  -30  100 -110 $Elem  7 RZ 2 AZ 1
60135 2135 8.294907E-02  1119  -1120   17  -72  -30  110 -120 $Elem  7 RZ 2 AZ 2
60136 2136 8.294907E-02  1119  -1120   17  -72  -30  120 -130 $Elem  7 RZ 2 AZ 3
60137 2137 8.294907E-02  1119  -1120   17  -72  -30  130 -160 $Elem  7 RZ 2 AZ 4
60138 2138 8.294907E-02  1119  -1120   17  -72  -30  160 -170 $Elem  7 RZ 2 AZ 5
60139 2139 8.294907E-02  1119  -1120   17  -72  -30  170 -180 $Elem  7 RZ 2 AZ 6
60140 2140 8.294907E-02  1119  -1120   17  -72  -30  180 -200 $Elem  7 RZ 2 AZ 7
60141 2141 7.858601E-02  1121  -1128   17  -72  -30  100 -110 $Elem  7 RZ 3 AZ 1
60142 2142 7.858601E-02  1121  -1128   17  -72  -30  110 -120 $Elem  7 RZ 3 AZ 2
60143 2143 7.858601E-02  1121  -1128   17  -72  -30  120 -130 $Elem  7 RZ 3 AZ 3
60144 2144 7.858601E-02  1121  -1128   17  -72  -30  130 -160 $Elem  7 RZ 3 AZ 4
60145 2145 7.858601E-02  1121  -1128   17  -72  -30  160 -170 $Elem  7 RZ 3 AZ 5
60146 2146 7.858601E-02  1121  -1128   17  -72  -30  170 -180 $Elem  7 RZ 3 AZ 6
60147 2147 7.858601E-02  1121  -1128   17  -72  -30  180 -200 $Elem  7 RZ 3 AZ 7
60148 2148 7.973803E-02  1111  -1118   54  -15  -73  100 -110 $Elem  8 RZ 1 AZ 1
60149 2149 7.973803E-02  1111  -1118   54  -15  -73  110 -120 $Elem  8 RZ 1 AZ 2
60150 2150 7.973803E-02  1111  -1118   54  -15  -73  120 -130 $Elem  8 RZ 1 AZ 3
60151 2151 7.973803E-02  1111  -1118   54  -15  -73  130 -160 $Elem  8 RZ 1 AZ 4
60152 2152 7.973803E-02  1111  -1118   54  -15  -73  160 -170 $Elem  8 RZ 1 AZ 5
60153 2153 7.973803E-02  1111  -1118   54  -15  -73  170 -180 $Elem  8 RZ 1 AZ 6
60154 2154 7.973803E-02  1111  -1118   54  -15  -73  180 -200 $Elem  8 RZ 1 AZ 7
60155 2155 8.294866E-02  1119  -1120   54  -15  -73  100 -110 $Elem  8 RZ 2 AZ 1
60156 2156 8.294866E-02  1119  -1120   54  -15  -73  110 -120 $Elem  8 RZ 2 AZ 2
60157 2157 8.294866E-02  1119  -1120   54  -15  -73  120 -130 $Elem  8 RZ 2 AZ 3
60158 2158 8.294866E-02  1119  -1120   54  -15  -73  130 -160 $Elem  8 RZ 2 AZ 4
60159 2159 8.294866E-02  1119  -1120   54  -15  -73  160 -170 $Elem  8 RZ 2 AZ 5
60160 2160 8.294866E-02  1119  -1120   54  -15  -73  170 -180 $Elem  8 RZ 2 AZ 6
60161 2161 8.294866E-02  1119  -1120   54  -15  -73  180 -200 $Elem  8 RZ 2 AZ 7
60162 2162 7.868379E-02  1121  -1128   54  -15  -73  100 -110 $Elem  8 RZ 3 AZ 1
60163 2163 7.868379E-02  1121  -1128   54  -15  -73  110 -120 $Elem  8 RZ 3 AZ 2
60164 2164 7.868379E-02  1121  -1128   54  -15  -73  120 -130 $Elem  8 RZ 3 AZ 3
60165 2165 7.868379E-02  1121  -1128   54  -15  -73  130 -160 $Elem  8 RZ 3 AZ 4
60166 2166 7.868379E-02  1121  -1128   54  -15  -73  160 -170 $Elem  8 RZ 3 AZ 5
60167 2167 7.868379E-02  1121  -1128   54  -15  -73  170 -180 $Elem  8 RZ 3 AZ 6
60168 2168 7.868379E-02  1121  -1128   54  -15  -73  180 -200 $Elem  8 RZ 3 AZ 7
60169 2169 7.973803E-02  1821  -1828   14  -52   27  100 -110 $Elem  9 RZ 1 AZ 1
60170 2170 7.973803E-02  1821  -1828   14  -52   27  110 -120 $Elem  9 RZ 1 AZ 2
60171 2171 7.973803E-02  1821  -1828   14  -52   27  120 -130 $Elem  9 RZ 1 AZ 3
60172 2172 7.973803E-02  1821  -1828   14  -52   27  130 -160 $Elem  9 RZ 1 AZ 4
60173 2173 7.973803E-02  1821  -1828   14  -52   27  160 -170 $Elem  9 RZ 1 AZ 5
60174 2174 7.973803E-02  1821  -1828   14  -52   27  170 -180 $Elem  9 RZ 1 AZ 6
60175 2175 7.973803E-02  1821  -1828   14  -52   27  180 -200 $Elem  9 RZ 1 AZ 7
60176 2176 8.294866E-02  1829  -1830   14  -52   27  100 -110 $Elem  9 RZ 2 AZ 1
60177 2177 8.294866E-02  1829  -1830   14  -52   27  110 -120 $Elem  9 RZ 2 AZ 2
60178 2178 8.294866E-02  1829  -1830   14  -52   27  120 -130 $Elem  9 RZ 2 AZ 3
60179 2179 8.294866E-02  1829  -1830   14  -52   27  130 -160 $Elem  9 RZ 2 AZ 4
60180 2180 8.294866E-02  1829  -1830   14  -52   27  160 -170 $Elem  9 RZ 2 AZ 5
60181 2181 8.294866E-02  1829  -1830   14  -52   27  170 -180 $Elem  9 RZ 2 AZ 6
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60182 2182 8.294866E-02  1829  -1830   14  -52   27  180 -200 $Elem  9 RZ 2 AZ 7
60183 2183 7.868379E-02  1831  -1838   14  -52   27  100 -110 $Elem  9 RZ 3 AZ 1
60184 2184 7.868379E-02  1831  -1838   14  -52   27  110 -120 $Elem  9 RZ 3 AZ 2
60185 2185 7.868379E-02  1831  -1838   14  -52   27  120 -130 $Elem  9 RZ 3 AZ 3
60186 2186 7.868379E-02  1831  -1838   14  -52   27  130 -160 $Elem  9 RZ 3 AZ 4
60187 2187 7.868379E-02  1831  -1838   14  -52   27  160 -170 $Elem  9 RZ 3 AZ 5
60188 2188 7.868379E-02  1831  -1838   14  -52   27  170 -180 $Elem  9 RZ 3 AZ 6
60189 2189 7.868379E-02  1831  -1838   14  -52   27  180 -200 $Elem  9 RZ 3 AZ 7
60190 2190 7.967879E-02  1821  -1828   71  -12  -53  100 -110 $Elem 10 RZ 1 AZ 1
60191 2191 7.964312E-02  1821  -1828   71  -12  -53  110 -120 $Elem 10 RZ 1 AZ 2
60192 2192 7.961814E-02  1821  -1828   71  -12  -53  120 -130 $Elem 10 RZ 1 AZ 3
60193 2193 7.960810E-02  1821  -1828   71  -12  -53  130 -160 $Elem 10 RZ 1 AZ 4
60194 2194 7.962194E-02  1821  -1828   71  -12  -53  160 -170 $Elem 10 RZ 1 AZ 5
60195 2195 7.965042E-02  1821  -1828   71  -12  -53  170 -180 $Elem 10 RZ 1 AZ 6
60196 2196 7.969851E-02  1821  -1828   71  -12  -53  180 -200 $Elem 10 RZ 1 AZ 7
60197 2197 8.288951E-02  1829  -1830   71  -12  -53  100 -110 $Elem 10 RZ 2 AZ 1
60198 2198 8.285274E-02  1829  -1830   71  -12  -53  110 -120 $Elem 10 RZ 2 AZ 2
60199 2199 8.282410E-02  1829  -1830   71  -12  -53  120 -130 $Elem 10 RZ 2 AZ 3
60200 2200 8.281159E-02  1829  -1830   71  -12  -53  130 -160 $Elem 10 RZ 2 AZ 4
60201 2201 8.282881E-02  1829  -1830   71  -12  -53  160 -170 $Elem 10 RZ 2 AZ 5
60202 2202 8.286008E-02  1829  -1830   71  -12  -53  170 -180 $Elem 10 RZ 2 AZ 6
60203 2203 8.290178E-02  1829  -1830   71  -12  -53  180 -200 $Elem 10 RZ 2 AZ 7
60204 2204 7.851893E-02  1831  -1838   71  -12  -53  100 -110 $Elem 10 RZ 3 AZ 1
60205 2205 7.848707E-02  1831  -1838   71  -12  -53  110 -120 $Elem 10 RZ 3 AZ 2
60206 2206 7.846358E-02  1831  -1838   71  -12  -53  120 -130 $Elem 10 RZ 3 AZ 3
60207 2207 7.845429E-02  1831  -1838   71  -12  -53  130 -160 $Elem 10 RZ 3 AZ 4
60208 2208 7.846721E-02  1831  -1838   71  -12  -53  160 -170 $Elem 10 RZ 3 AZ 5
60209 2209 7.849300E-02  1831  -1838   71  -12  -53  170 -180 $Elem 10 RZ 3 AZ 6
60210 2210 7.852753E-02  1831  -1838   71  -12  -53  180 -200 $Elem 10 RZ 3 AZ 7
60211 2211 7.969562E-02  1821  -1828   28  -69  -13  100 -110 $Elem 11 RZ 1 AZ 1
60212 2212 7.966863E-02  1821  -1828   28  -69  -13  110 -120 $Elem 11 RZ 1 AZ 2
60213 2213 7.964972E-02  1821  -1828   28  -69  -13  120 -130 $Elem 11 RZ 1 AZ 3
60214 2214 7.964210E-02  1821  -1828   28  -69  -13  130 -160 $Elem 11 RZ 1 AZ 4
60215 2215 7.965256E-02  1821  -1828   28  -69  -13  160 -170 $Elem 11 RZ 1 AZ 5
60216 2216 7.967413E-02  1821  -1828   28  -69  -13  170 -180 $Elem 11 RZ 1 AZ 6
60217 2217 7.971054E-02  1821  -1828   28  -69  -13  180 -200 $Elem 11 RZ 1 AZ 7
60218 2218 8.290397E-02  1829  -1830   28  -69  -13  100 -110 $Elem 11 RZ 2 AZ 1
60219 2219 8.287613E-02  1829  -1830   28  -69  -13  110 -120 $Elem 11 RZ 2 AZ 2
60220 2220 8.285446E-02  1829  -1830   28  -69  -13  120 -130 $Elem 11 RZ 2 AZ 3
60221 2221 8.284497E-02  1829  -1830   28  -69  -13  130 -160 $Elem 11 RZ 2 AZ 4
60222 2222 8.285798E-02  1829  -1830   28  -69  -13  160 -170 $Elem 11 RZ 2 AZ 5
60223 2223 8.288167E-02  1829  -1830   28  -69  -13  170 -180 $Elem 11 RZ 2 AZ 6
60224 2224 8.291324E-02  1829  -1830   28  -69  -13  180 -200 $Elem 11 RZ 2 AZ 7
60225 2225 7.853364E-02  1831  -1838   28  -69  -13  100 -110 $Elem 11 RZ 3 AZ 1
60226 2226 7.850948E-02  1831  -1838   28  -69  -13  110 -120 $Elem 11 RZ 3 AZ 2
60227 2227 7.849169E-02  1831  -1838   28  -69  -13  120 -130 $Elem 11 RZ 3 AZ 3
60228 2228 7.848465E-02  1831  -1838   28  -69  -13  130 -160 $Elem 11 RZ 3 AZ 4
60229 2229 7.849444E-02  1831  -1838   28  -69  -13  160 -170 $Elem 11 RZ 3 AZ 5
60230 2230 7.851395E-02  1831  -1838   28  -69  -13  170 -180 $Elem 11 RZ 3 AZ 6
60231 2231 7.854009E-02  1831  -1838   28  -69  -13  180 -200 $Elem 11 RZ 3 AZ 7
60232 2232 7.975780E-02  1821  -1828  -52  -26  -70  100 -110 $Elem 12 RZ 1 AZ 1
60233 2233 7.975780E-02  1821  -1828  -52  -26  -70  110 -120 $Elem 12 RZ 1 AZ 2
60234 2234 7.975780E-02  1821  -1828  -52  -26  -70  120 -130 $Elem 12 RZ 1 AZ 3
60235 2235 7.975780E-02  1821  -1828  -52  -26  -70  130 -160 $Elem 12 RZ 1 AZ 4
60236 2236 7.975780E-02  1821  -1828  -52  -26  -70  160 -170 $Elem 12 RZ 1 AZ 5
60237 2237 7.975780E-02  1821  -1828  -52  -26  -70  170 -180 $Elem 12 RZ 1 AZ 6
60238 2238 7.975780E-02  1821  -1828  -52  -26  -70  180 -200 $Elem 12 RZ 1 AZ 7
60239 2239 8.294866E-02  1829  -1830  -52  -26  -70  100 -110 $Elem 12 RZ 2 AZ 1
60240 2240 8.294866E-02  1829  -1830  -52  -26  -70  110 -120 $Elem 12 RZ 2 AZ 2
60241 2241 8.294866E-02  1829  -1830  -52  -26  -70  120 -130 $Elem 12 RZ 2 AZ 3
60242 2242 8.294866E-02  1829  -1830  -52  -26  -70  130 -160 $Elem 12 RZ 2 AZ 4
60243 2243 8.294866E-02  1829  -1830  -52  -26  -70  160 -170 $Elem 12 RZ 2 AZ 5
60244 2244 8.294866E-02  1829  -1830  -52  -26  -70  170 -180 $Elem 12 RZ 2 AZ 6
60245 2245 8.294866E-02  1829  -1830  -52  -26  -70  180 -200 $Elem 12 RZ 2 AZ 7
60246 2246 7.870346E-02  1831  -1838  -52  -26  -70  100 -110 $Elem 12 RZ 3 AZ 1
60247 2247 7.870346E-02  1831  -1838  -52  -26  -70  110 -120 $Elem 12 RZ 3 AZ 2
60248 2248 7.870346E-02  1831  -1838  -52  -26  -70  120 -130 $Elem 12 RZ 3 AZ 3
60249 2249 7.870346E-02  1831  -1838  -52  -26  -70  130 -160 $Elem 12 RZ 3 AZ 4
60250 2250 7.870346E-02  1831  -1838  -52  -26  -70  160 -170 $Elem 12 RZ 3 AZ 5
60251 2251 7.870346E-02  1831  -1838  -52  -26  -70  170 -180 $Elem 12 RZ 3 AZ 6
60252 2252 7.870346E-02  1831  -1838  -52  -26  -70  180 -200 $Elem 12 RZ 3 AZ 7
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60253 2253 7.975780E-02  1721  -1728   25   54   10  100 -110 $Elem 13 RZ 1 AZ 1
60254 2254 7.975780E-02  1721  -1728   25   54   10  110 -120 $Elem 13 RZ 1 AZ 2
60255 2255 7.975780E-02  1721  -1728   25   54   10  120 -130 $Elem 13 RZ 1 AZ 3
60256 2256 7.975780E-02  1721  -1728   25   54   10  130 -160 $Elem 13 RZ 1 AZ 4
60257 2257 7.975780E-02  1721  -1728   25   54   10  160 -170 $Elem 13 RZ 1 AZ 5
60258 2258 7.975780E-02  1721  -1728   25   54   10  170 -180 $Elem 13 RZ 1 AZ 6
60259 2259 7.975780E-02  1721  -1728   25   54   10  180 -200 $Elem 13 RZ 1 AZ 7
60260 2260 8.294866E-02  1729  -1730   25   54   10  100 -110 $Elem 13 RZ 2 AZ 1
60261 2261 8.294866E-02  1729  -1730   25   54   10  110 -120 $Elem 13 RZ 2 AZ 2
60262 2262 8.294866E-02  1729  -1730   25   54   10  120 -130 $Elem 13 RZ 2 AZ 3
60263 2263 8.294866E-02  1729  -1730   25   54   10  130 -160 $Elem 13 RZ 2 AZ 4
60264 2264 8.294866E-02  1729  -1730   25   54   10  160 -170 $Elem 13 RZ 2 AZ 5
60265 2265 8.294866E-02  1729  -1730   25   54   10  170 -180 $Elem 13 RZ 2 AZ 6
60266 2266 8.294866E-02  1729  -1730   25   54   10  180 -200 $Elem 13 RZ 2 AZ 7
60267 2267 7.870346E-02  1731  -1738   25   54   10  100 -110 $Elem 13 RZ 3 AZ 1
60268 2268 7.870346E-02  1731  -1738   25   54   10  110 -120 $Elem 13 RZ 3 AZ 2
60269 2269 7.870346E-02  1731  -1738   25   54   10  120 -130 $Elem 13 RZ 3 AZ 3
60270 2270 7.870346E-02  1731  -1738   25   54   10  130 -160 $Elem 13 RZ 3 AZ 4
60271 2271 7.870346E-02  1731  -1738   25   54   10  160 -170 $Elem 13 RZ 3 AZ 5
60272 2272 7.870346E-02  1731  -1738   25   54   10  170 -180 $Elem 13 RZ 3 AZ 6
60273 2273 7.870346E-02  1731  -1738   25   54   10  180 -200 $Elem 13 RZ 3 AZ 7
60274 2274 7.975780E-02  1721  -1728   68  -23   53  100 -110 $Elem 14 RZ 1 AZ 1
60275 2275 7.975780E-02  1721  -1728   68  -23   53  110 -120 $Elem 14 RZ 1 AZ 2
60276 2276 7.975780E-02  1721  -1728   68  -23   53  120 -130 $Elem 14 RZ 1 AZ 3
60277 2277 7.975780E-02  1721  -1728   68  -23   53  130 -160 $Elem 14 RZ 1 AZ 4
60278 2278 7.975780E-02  1721  -1728   68  -23   53  160 -170 $Elem 14 RZ 1 AZ 5
60279 2279 7.975780E-02  1721  -1728   68  -23   53  170 -180 $Elem 14 RZ 1 AZ 6
60280 2280 7.975780E-02  1721  -1728   68  -23   53  180 -200 $Elem 14 RZ 1 AZ 7
60281 2281 8.294866E-02  1729  -1730   68  -23   53  100 -110 $Elem 14 RZ 2 AZ 1
60282 2282 8.294866E-02  1729  -1730   68  -23   53  110 -120 $Elem 14 RZ 2 AZ 2
60283 2283 8.294866E-02  1729  -1730   68  -23   53  120 -130 $Elem 14 RZ 2 AZ 3
60284 2284 8.294866E-02  1729  -1730   68  -23   53  130 -160 $Elem 14 RZ 2 AZ 4
60285 2285 8.294866E-02  1729  -1730   68  -23   53  160 -170 $Elem 14 RZ 2 AZ 5
60286 2286 8.294866E-02  1729  -1730   68  -23   53  170 -180 $Elem 14 RZ 2 AZ 6
60287 2287 8.294866E-02  1729  -1730   68  -23   53  180 -200 $Elem 14 RZ 2 AZ 7
60288 2288 7.870346E-02  1731  -1738   68  -23   53  100 -110 $Elem 14 RZ 3 AZ 1
60289 2289 7.870346E-02  1731  -1738   68  -23   53  110 -120 $Elem 14 RZ 3 AZ 2
60290 2290 7.870346E-02  1731  -1738   68  -23   53  120 -130 $Elem 14 RZ 3 AZ 3
60291 2291 7.870346E-02  1731  -1738   68  -23   53  130 -160 $Elem 14 RZ 3 AZ 4
60292 2292 7.870346E-02  1731  -1738   68  -23   53  160 -170 $Elem 14 RZ 3 AZ 5
60293 2293 7.870346E-02  1731  -1738   68  -23   53  170 -180 $Elem 14 RZ 3 AZ 6
60294 2294 7.870346E-02  1731  -1738   68  -23   53  180 -200 $Elem 14 RZ 3 AZ 7
60295 2295 7.975780E-02  1721  -1728   11  -66  -24  100 -110 $Elem 15 RZ 1 AZ 1
60296 2296 7.975780E-02  1721  -1728   11  -66  -24  110 -120 $Elem 15 RZ 1 AZ 2
60297 2297 7.975780E-02  1721  -1728   11  -66  -24  120 -130 $Elem 15 RZ 1 AZ 3
60298 2298 7.975780E-02  1721  -1728   11  -66  -24  130 -160 $Elem 15 RZ 1 AZ 4
60299 2299 7.975780E-02  1721  -1728   11  -66  -24  160 -170 $Elem 15 RZ 1 AZ 5
60300 2300 7.975780E-02  1721  -1728   11  -66  -24  170 -180 $Elem 15 RZ 1 AZ 6
60301 2301 7.975780E-02  1721  -1728   11  -66  -24  180 -200 $Elem 15 RZ 1 AZ 7
60302 2302 8.294866E-02  1729  -1730   11  -66  -24  100 -110 $Elem 15 RZ 2 AZ 1
60303 2303 8.294866E-02  1729  -1730   11  -66  -24  110 -120 $Elem 15 RZ 2 AZ 2
60304 2304 8.294866E-02  1729  -1730   11  -66  -24  120 -130 $Elem 15 RZ 2 AZ 3
60305 2305 8.294866E-02  1729  -1730   11  -66  -24  130 -160 $Elem 15 RZ 2 AZ 4
60306 2306 8.294866E-02  1729  -1730   11  -66  -24  160 -170 $Elem 15 RZ 2 AZ 5
60307 2307 8.294866E-02  1729  -1730   11  -66  -24  170 -180 $Elem 15 RZ 2 AZ 6
60308 2308 8.294866E-02  1729  -1730   11  -66  -24  180 -200 $Elem 15 RZ 2 AZ 7
60309 2309 7.870346E-02  1731  -1738   11  -66  -24  100 -110 $Elem 15 RZ 3 AZ 1
60310 2310 7.870346E-02  1731  -1738   11  -66  -24  110 -120 $Elem 15 RZ 3 AZ 2
60311 2311 7.870346E-02  1731  -1738   11  -66  -24  120 -130 $Elem 15 RZ 3 AZ 3
60312 2312 7.870346E-02  1731  -1738   11  -66  -24  130 -160 $Elem 15 RZ 3 AZ 4
60313 2313 7.870346E-02  1731  -1738   11  -66  -24  160 -170 $Elem 15 RZ 3 AZ 5
60314 2314 7.870346E-02  1731  -1738   11  -66  -24  170 -180 $Elem 15 RZ 3 AZ 6
60315 2315 7.870346E-02  1731  -1738   11  -66  -24  180 -200 $Elem 15 RZ 3 AZ 7
c
c
c      NE LOBE
c
60901    029 7.21241-2   1111  -1128   53  -54  -73  100 -200 $ #8 side plate
60902    010 1.00276-1   1118  -1119   54  -15  -73  100 -200 $ #8 H2O 4 & 5
60903    010 1.00276-1   1120  -1121   54  -15  -73  100 -200 $ #8 H2O 15 & 16
60904    029 7.21241-2   1111  -1128   15  -17  -30  100 -200 $ #8,7 side plate
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60905    010 1.00276-1   1118  -1119   17  -72  -30  100 -200 $ #7 H2O 4 & 5
60906    010 1.00276-1   1120  -1121   17  -72  -30  100 -200 $ #7 H2O 15 & 16
60907    029 7.21241-2   1111  -1128   72  -74   53  100 -200 $ #6,7 side plate
60908    010 1.00276-1   1118  -1119   74  -29   53  100 -200 $ #6 H2O 4 & 5
60909    010 1.00276-1   1120  -1121   74  -29   53  100 -200 $ #6 H2O 15 & 16
60910    029 7.21241-2   1111  -1128   29  -30   16  100 -200 $ #6,5 side plate
60920    029 7.21241-2   1821  -1838  -53   52  -70  100 -200 $ #12 side plate
60921    010 1.00276-1   1828  -1829  -52  -26  -70  100 -200 $ #12 H2O 4 & 5
60922    010 1.00276-1   1830  -1831  -52  -26  -70  100 -200 $ #12 H2O 15 & 16
60923    029 7.21241-2   1821  -1838   26  -28  -13  100 -200 $ #12,11 side plat
60924    010 1.00276-1   1828  -1829   28  -69  -13  100 -200 $ #11 H2O 4 & 5
60925    010 1.00276-1   1830  -1831   28  -69  -13  100 -200 $ #11 H2O 15 & 16
60926    029 7.21241-2   1821  -1838   69  -71  -53  100 -200 $ #10,11 side plat
60927    010 1.00276-1   1828  -1829   71  -12  -53  100 -200 $ #10 H2O 4 & 5
60928    010 1.00276-1   1830  -1831   71  -12  -53  100 -200 $ #10 H2O 15 & 16
60929    029 7.21241-2   1821  -1838   12  -14   27  100 -200 $ #10,9 side plate
60930    010 1.00276-1   1828  -1829   14  -52   27  100 -200 $ #9 H2O 4 & 5
60931    010 1.00276-1   1830  -1831   14  -52   27  100 -200 $ #9 H2O 15 & 16
60932    029 7.21241-2   1821  -1838   52  -53   70  100 -200 $ #9 side plate
c    60941    010 1.00276-1   1730  -1731   54   -9  -66  100 -200 $ #16 H2O 15 & 16
60942    029 7.21241-2   1721  -1738   10  -11  -24  100 -200 $ #16,15 side plat
60943    010 1.00276-1   1728  -1729   11  -66  -24  100 -200 $ #15 H2O 4 & 5
60944    010 1.00276-1   1730  -1731   11  -66  -24  100 -200 $ #15 H2O 15 & 16
60945    029 7.21241-2   1721  -1738   66  -68   53  100 -200 $ #15,14 side plat
60946    010 1.00276-1   1728  -1729   68  -23   53  100 -200 $ #14 H2O 4 & 5
60947    010 1.00276-1   1730  -1731   68  -23   53  100 -200 $ #14 H2O 15 & 16
60948    029 7.21241-2   1721  -1738   23  -25   10  100 -200 $ #14,13 side plat
60949    010 1.00276-1   1728  -1729   25   54   10  100 -200 $ #13 H2O 4 & 5
60950    010 1.00276-1   1730  -1731   25   54   10  100 -200 $ #13 H2O 15 & 16
60951    029 7.21241-2   1721  -1738  -54   53   67  100 -200 $ #13 side plate
c
c     ***************************************************************************
c
c
c
c   ---------------------------------------------------------------------------
c      ALUMINUM HOUSING AROUND CENTER LOBE
c
   24  030 6.02136-2    310  -311          10   -30    $ Al housing E section
                      90719 90619 90519 90419 90319    $ Al housing E section
                                          96  -204    $ Al housing E section
c
c   ---------------------------------------------------------------------------
c       ALUMINUM HOUSING AROUND NECK SHIM RODS AND A HOLES
c
   34  030 6.02136-2    311    10   -30   -53          $ E neck shim housing
                       1721  1900  1111    96  -204    $ E neck shim housing
                      23019 22019 32019 39001          $ E neck shim housing
                        703   708   713   718          $ E neck shim housing
                        723   728   793   798          $ E neck shim housing
                        803   808   813   818          $ E neck shim housing
c
c   ---------------------------------------------------------------------------
c        BERYLLIUM REFLECTOR
c
c        INNER REGION INCLUDES 1.53% WATER FOR SOCKETS
c        OUTER REGION IS FULL DENSITY BERYLLIUM
c
c        East-lower  half inner Be reflector with sockets
c
   71  016  1.23264-1                                    -1795
                       53  -321  1800  1821  1200   -30    10
                      920   915   910   905 43009 52009 42009
                    68009 67009 66009 65009 64009 82009 81009
                      625   626   627   628   629   630   631
                      632   670   690   655    98  -202   -70
c
c        East-lower  half outer - 100% Be
c
   72  018 1.23621-1                                     1795
                       53  -321  1800  1821  1200   -30    10
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                    920   915   910   905 43009 52009 42009
                  68009 67009 66009 65009 64009 82009 81009
                    625   626   627   628   629   630   631
                    632   670   690   655    98  -202   -70
c
c       East-upper  half inner Be reflector with sockets
c
   73  016  1.23264-1                                    -1196
                     53  -321  1800  1821  1200   -30    10
                    920   915   910   905 43009 52009 42009
                  68009 67009 66009 65009 64009 82009 81009
                    625   626   627   628   629   630   631
                    632   670   690   655    98  -202    70
c
c       East-upper  half outer - 100% Be
c
   74  018 1.23621-1                                     1196
                     53  -321  1800  1821  1200   -30    10
                    920   915   910   905 43009 52009 42009
                  68009 67009 66009 65009 64009 82009 81009
                    625   626   627   628   629   630   631
                    632   670   690   655    98  -202    70
c
c   ------------------------------------------------------------------------
c       REGIONS OUTSIDE BE REFLECTOR
c
   81  030 6.02136-2  321 -322          95 -205        $ Al reflector tank
                                      -30    10        $ East Quadrant
   82  010 1.00276-1  322 -331 -45      95 -205        $ H2O reflector
                                      -30    10        $ East Quadrant
   83  010 1.00276-1  322 -331  55      95 -205        $ H2O reflector
                                      -30    10        $ East Quadrant
   84  010 1.00276-1  322 -331  45 -55  95  -98        $ Below Al-Outer facility
                                      -30    10        $ East Quadrant
   85  030 6.02136-2  322 -331  45 -55  98 -202        $ Al-Outer facility
                                      -30    10        $ East Quadrant
   86  010 1.00276-1  322 -331  45 -55 202 -205        $ Above Al-Outer facility
                                      -30    10        $ East Quadrant
c
c   ------------------------------------------------------------------------
c      WATER AND ALUMINUM BELOW FUEL MEAT  (1.905 CM)
c
  101  031 8.4631-2    1111  -1200   53       1821   99 -100  $ Elem 8,7,6,5
                                             -30    10        $ East Quadrant
  114  031 8.4631-2    1721  -1800   53       1821   99 -100  $ Elem 16,15,14,13
                                             -30    10        $ East Quadrant
  115  031 8.4631-2    1821  -1900  -53  -70  1721   99 -100  $ Elem 12,11
  116  031 8.4631-2    1821  -1900  -53   70  1111   99 -100  $ Elem 10,9
c
c   ------------------------------------------------------------------------
c      WATER AND ALUMINUM BELOW FUEL PLATES
c
  121  033 9.3665-2    1111  -1200   53       1821   97  -99  $ Elem 8,7,6,5
                                             -30    10        $ East Quadrant
  134  033 9.3665-2    1721  -1800   53       1821   97  -99  $ Elem 16,15,14,13
                                             -30    10        $ East Quadrant
  135  033 9.3665-2    1821  -1900  -53  -70  1721   97  -99  $ Elem 12,11
  136  033 9.3665-2    1821  -1900  -53   70  1111   97  -99  $ Elem 10,9
c
c   ------------------------------------------------------------------------
c      WATER BELOW FUEL ELEMENT
c
  141  010 1.00276-1   1111  -1200   53       1821   95  -97  $ Elem 8,7,6,5
                                             -30    10        $ East Quadrant
  154  010 1.00276-1   1721  -1800   53       1821   95  -97  $ Elem 16,15,14,13
                                             -30    10        $ East Quadrant
  155  010 1.00276-1   1821  -1900  -53  -70  1721   95  -97  $ Elem 12,11
  156  010 1.00276-1   1821  -1900  -53   70  1111   95  -97  $ Elem 10,9
c
c   ------------------------------------------------------------------------
c     BERYLLIUM AND WATER BELOW CONTROL DRUM HAFNIUM MEAT (13/16")
```

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c
  173  19 1.21987-1    -920           102 -101              $ E4
  174  19 1.21987-1    -915           102 -101              $ E3
  175  19 1.21987-1    -910           102 -101              $ E2
  176  19 1.21987-1    -905           102 -101              $ E1
c
c   ---------------------------------------------------------------------------
c      STAINLESS STEEL, ALUMINUM AND WATER BELOW BERYLLIUM DRUMS (2")
c
  193  22 8.7091-2     -920            98 -102              $ E4
  194  22 8.7091-2     -915            98 -102              $ E3
  195  22 8.7091-2     -910            98 -102              $ E2
  196  22 8.7091-2     -905            98 -102              $ E1
c
c   ---------------------------------------------------------------------------
c      WATER AND ALUMINUM ABOVE FUEL MEAT
c
  201  031 8.4631-2    1111  -1200   53       1821  200 -201  $ Elem 8,7,6,5
                                              -30    10        $ East Quadrant
  214  031 8.4631-2    1721  -1800   53       1821  200 -201  $ Elem 16,15,14,13
                                              -30    10        $ East Quadrant
  215  031 8.4631-2    1821  -1900  -53  -70  1721  200 -201  $ Elem 12,11
  216  031 8.4631-2    1821  -1900  -53   70  1111  200 -201  $ Elem 10,9
c
c   ---------------------------------------------------------------------------
c      WATER AND ALUMINUM ABOVE FUEL PLATES
c
  221  032 9.2652-2    1111  -1200   53       1821  201 -203  $ Elem 8,7,6,5
                                              -30    10        $ East Quadrant
  234  032 9.2652-2    1721  -1800   53       1821  201 -203  $ Elem 16,15,14,13
                                              -30    10        $ East Quadrant
  235  032 9.2652-2    1821  -1900  -53  -70  1721  201 -203  $ Elem 12,11
  236  032 9.2652-2    1821  -1900  -53   70  1111  201 -203  $ Elem 10,9
c
c   ---------------------------------------------------------------------------
c      WATER ABOVE FUEL ELEMENT
c
  241  010 1.00276-1   1111  -1200   53       1821  203 -205  $ Elem 8,7,6,5
                                              -30    10        $ East Quadrant
  254  010 1.00276-1   1721  -1800   53       1821  203 -205  $ Elem 16,15,14,13
                                              -30    10        $ East Quadrant
  255  010 1.00276-1   1821  -1900  -53  -70  1721  203 -205  $ Elem 12,11
  256  010 1.00276-1   1821  -1900  -53   70  1111  203 -205  $ Elem 10,9
c
c   ---------------------------------------------------------------------------
c      SS AND WATER ABOVE CONTROL DRUMS (2")
c
  273  21  9.46985-2   -920           200 -202              $ E4
  274  21  9.46985-2   -915           200 -202              $ E3
  275  21  9.46985-2   -910           200 -202              $ E2
  276  21  9.46985-2   -905           200 -202              $ E1
c
c   ---------------------------------------------------------------------------
c      SS, AL AND WATER ABOVE CONTROL DRUMS
c
  293  23 7.6442-2     -920   -67     202 -208              $ E4
  294  23 7.6442-2     -915           202 -208              $ E3
  295  23 7.6442-2     -910           202 -208              $ E2
  296  23 7.6442-2     -905    73     202 -208              $ E1
c
c   ---------------------------------------------------------------------------
c     STAINLESS STEEL, ALUMINUM, AND WATER BELOW CONTROL DRUMS
c
  313  24 9.5636-2     -920   -67      95  -98              $ E4
  314  24 9.5636-2     -915           95  -98              $ E3
  315  24 9.5636-2     -910           95  -98              $ E2
  316  24 9.5636-2     -905    73     95  -98              $ E1
c
c   ---------------------------------------------------------------------------
c      ALUMINUM AND WATER BELOW BERYLLIUM REFLECTOR
c
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  321  26 9.627-2     1200             73           -321   95  -98 $ N
                                          -30    10        $ East Quadrant
                     905
  323  26 9.627-2               1800            -67 -321   95  -98 $ S
                                          -30    10        $ East Quadrant
                                     920
  324  26 9.627-2     1800 1821 1200  -73  053   67 -321   95  -98 $ E
                     915 910
c
c   ---------------------------------------------------------------------------
c      H2O REFLECTOR BELOW LOBES
c
  331  010 1.00276-1   -1111            95  -96    $ NE
                                  -30    10        $ East Quadrant
c        332  010 1.00276-1                   95  -96    $ N
c        336  010 1.00276-1                   95  -96    $ S
  337  010 1.00276-1   -1721            95  -96    $ SE
                                  -30    10        $ East Quadrant
  338  010 1.00276-1   -1821            95  -96    $ E
c
c   ---------------------------------------------------------------------------
c      H2O REFLECTOR BELOW NECK SHIM HOUSING
c
  344  010 1.00276-1  10 -30 -53 1721 1900 1111   95  -96       $ E
c
c   ---------------------------------------------------------------------------
c      WATER ABOVE CONTROL DRUMS
c
  413  10 1.00276-1    -920   -67     208 -205              $ E4
  414  10 1.00276-1    -915           208 -205              $ E3
  415  10 1.00276-1    -910           208 -205              $ E2
  416  10 1.00276-1    -905    73     208 -205              $ E1
c
c   ---------------------------------------------------------------------------
c      WATER AND ALUMINUM ABOVE BERYLLIUM REFLECTOR
c
  421  25 9.8273-2    1200             73           -321  202 -205 $ N
                                  -30    10        $ East Quadrant
                     905
  423  25 9.8273-2               1800            -67 -321  202 -205 $ S
                                    -30    10        $ East Quadrant
                                     920
  424  25 9.8273-2    1800 1821 1200  -73  053   67 -321  202 -205 $ E
                     915 910
c
c   ---------------------------------------------------------------------------
c      WATER REFLECTOR ABOVE LOBES
c
  431  010 1.00276-1   -1111           204 -205    $ NE
                                  -30    10        $ East Quadrant
c        432  010 1.00276-1                 204 -205    $ N
c        436  010 1.00276-1                 204 -205    $ S
  437  010 1.00276-1   -1721           204 -205    $ SE
                                  -30    10        $ East Quadrant
  438  010 1.00276-1   -1821           204 -205    $ E
c
c   ---------------------------------------------------------------------------
c      WATER ABOVE NECK SHIM HOUSING
c
  441  010 1.00276-1  10  30 -73 1111            204 -205       $ N
                                  -30    10        $ East Quadrant
  443  010 1.00276-1 -10 -30  67           1721  204 -205       $ S
                                  -30    10        $ East Quadrant
  444  010 1.00276-1  10 -30 -53 1721 1900 1111  204 -205       $ E
c
c   ---------------------------------------------------------------------------
c      WATER GAP BETWEEN FUEL AND LOOP
c
  501  010 1.00276-1  1128 -1200  54 -74     1821 100 -200    $ Elem 7,8
  502  010 1.00276-1  1128 -1200  74              100 -200    $ Elem 6,5,4,3
                                  -30    10        $ East Quadrant
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  525  010 1.00276-1  1738 -1800 -66              100 -200    $ Elem 15,16,17,18
                                -30    10         $ East Quadrant
  526  010 1.00276-1  1738 -1800  66  54     1821 100 -200    $ Elem 13,14
  527  010 1.00276-1  1738 -1800 -54  53  67 1821 100 -200    $ #13 side plate
  528  010 1.00276-1  1838 -1900  52 -53 -70 1721 100 -200    $ #12 side plate
  529  010 1.00276-1  1838 -1900 -52 -70     1721 100 -200    $ Elem 11,12
  530  010 1.00276-1  1838 -1900 -52  70     1111 100 -200    $ Elem 10,9
  531  010 1.00276-1  1838 -1900  52 -53  70 1111 100 -200    $ #9 side plate
  532  010 1.00276-1  1128 -1200  53 -54 -73 1821 100 -200    $ #8 side plate
c
c   ---------------------------------------------------------------------------
c      WATER HOLES IN BE REFLECTOR
c
  625  010 1.00276-1   -625          98 -202        $ H2O water hole next to E2
  626  010 1.00276-1   -626          98 -202        $ H2O water hole next to E2
  627  010 1.00276-1   -627          98 -202        $ H2O water hole next to E2
  628  010 1.00276-1   -628          98 -202        $ H2O water hole next to E2
  629  010 1.00276-1   -629          98 -202        $ H2O water hole next to E3
  630  010 1.00276-1   -630          98 -202        $ H2O water hole next to E3
  631  010 1.00276-1   -631          98 -202        $ H2O water hole next to E3
  632  010 1.00276-1   -632          98 -202        $ H2O water hole next to E3
c
c   ---------------------------------------------------------------------------
c      FOUR N-16 MONITORS IN SQUARE HOLES NEXT TO FUEL
c      (SQUARE HOLES CONVERTED TO EQUIVALENT CIRCULAR HOLES)
c
  651  010 1.00276-1          -651   98  -202          $ NE
                                     -30    10        $ East Quadrant
  652  030 6.02136-2    651   -652   98  -202
                                     -30    10        $ East Quadrant
  653  010 1.00276-1    652   -653   98  -202
                                     -30    10        $ East Quadrant
  654  030 6.02136-2    653   -654   98  -202
                                     -30    10        $ East Quadrant
  655  010 1.00276-1    654   -655   98  -202
                                     -30    10        $ East Quadrant
  666  010 1.00276-1          -666   98  -202          $ SE
                                     -30    10        $ East Quadrant
  667  030 6.02136-2    666   -667   98  -202
                                     -30    10        $ East Quadrant
  668  010 1.00276-1    667   -668   98  -202
                                     -30    10        $ East Quadrant
  669  030 6.02136-2    668   -669   98  -202
                                     -30    10        $ East Quadrant
  670  010 1.00276-1    669   -670   98  -202
                                     -30    10        $ East Quadrant
c
c   ---------------------------------------------------------------------------
c      FOUR N-16 MONITORS IN ROUND HOLES OUTSIDE CONTROL DRUMS
c
  686  010 1.00276-1          -686   98  -202           $ E
  687  030 6.02136-2    686   -687   98  -202
  688  010 1.00276-1    687   -688   98  -202
  689  030 6.02136-2    688   -689   98  -202
  690  010 1.00276-1    689   -690   98  -202
c
c   ---------------------------------------------------------------------------
c      NE NECK SHIMS
c
  701  010 1.00276-1          -701  100  -200        $ NE 1 water inside shim
                                    -30    10        $ East Quadrant
  702   71 4.55926-2    701   -702  100  -200        $ NE 1 Hf neck shim
                                    -30    10        $ East Quadrant
  703  010 1.00276-1    702   -703  100  -200        $ NE 1 water outside shim
                                    -30    10        $ East Quadrant
  704  010 1.00276-1          -703   96  -100        $ NE 1 water below shim
                                    -30    10        $ East Quadrant
  705  010 1.00276-1          -703  200  -204        $ NE 1 water above shim
                                    -30    10        $ East Quadrant
  706  010 1.00276-1          -706  100  -200        $ NE 2 water inside shim
                                    -30    10        $ East Quadrant
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  707   71 4.55926-2    706   -707  100  -200        $ NE 2 Hf neck shim
                                    -30    10        $ East Quadrant
  708  010 1.00276-1    707   -708  100  -200        $ NE 2 water outside shim
                                    -30    10        $ East Quadrant
  709  010 1.00276-1          -708   96  -100        $ NE 2 water below shim
                                    -30    10        $ East Quadrant
  710  010 1.00276-1          -708  200  -204        $ NE 2 water above shim
                                    -30    10        $ East Quadrant
  711  010 1.00276-1          -711  100  -200        $ NE 3 water inside shim
                                    -30    10        $ East Quadrant
  712   71 4.55926-2    711   -712  100  -200        $ NE 3 Hf neck shim
                                    -30    10        $ East Quadrant
  713  010 1.00276-1    712   -713  100  -200        $ NE 3 water outside shim
                                    -30    10        $ East Quadrant
  714  010 1.00276-1          -713   96  -100        $ NE 3 water below shim
                                    -30    10        $ East Quadrant
  715  010 1.00276-1          -713  200  -204        $ NE 3 water above shim
                                    -30    10        $ East Quadrant
  716  010 1.00276-1          -716  100  -200        $ NE 4 water inside shim
                                    -30    10        $ East Quadrant
  717   71 4.55926-2    716   -717  100  -200        $ NE 4 Hf neck shim
                                    -30    10        $ East Quadrant
  718  010 1.00276-1    717   -718  100  -200        $ NE 4 water outside shim
                                    -30    10        $ East Quadrant
  719  010 1.00276-1          -718   96  -100        $ NE 4 water below shim
                                    -30    10        $ East Quadrant
  720  010 1.00276-1          -718  200  -204        $ NE 4 water above shim
                                    -30    10        $ East Quadrant
  721  010 1.00276-1          -721  100  -200        $ NE 5 water inside shim
                                    -30    10        $ East Quadrant
  722   71 4.55926-2    721   -722  100  -200        $ NE 5 Hf neck shim
                                    -30    10        $ East Quadrant
  723  010 1.00276-1    722   -723  100  -200        $ NE 5 water outside shim
                                    -30    10        $ East Quadrant
  724  010 1.00276-1          -723   96  -100        $ NE 5 water below shim
                                    -30    10        $ East Quadrant
  725  010 1.00276-1          -723  200  -204        $ NE 5 water above shim
                                    -30    10        $ East Quadrant
  726  010 1.00276-1          -726  100  -200        $ NE 6 water inside shim
                                    -30    10        $ East Quadrant
  727   71 4.55926-2    726   -727  100  -200        $ NE 6 Hf neck shim
                                    -30    10        $ East Quadrant
  728  010 1.00276-1    727   -728  100  -200        $ NE 6 water outside shim
                                    -30    10        $ East Quadrant
  729  010 1.00276-1          -728   96  -100        $ NE 6 water below shim
                                    -30    10        $ East Quadrant
  730  010 1.00276-1          -728  200  -204        $ NE 6 water above shim
                                    -30    10        $ East Quadrant
c
c   ---------------------------------------------------------------------------
c      SE NECK SHIMS
c
  791  010 1.00276-1          -791  100  -200       $ SE 1 water inside shim
                                   -30    10        $ East Quadrant
  792   71 4.55926-2    791   -792  100  -200       $ SE 1 Hf neck shim
                                   -30    10        $ East Quadrant
  793  010 1.00276-1    792   -793  100  -200       $ SE 1 water outside shim
                                   -30    10        $ East Quadrant
  794  010 1.00276-1          -793   96  -100       $ SE 1 water below shim
                                   -30    10        $ East Quadrant
  795  010 1.00276-1          -793  200  -204       $ SE 1 water above shim
                                   -30    10        $ East Quadrant
  796  010 1.00276-1          -796  100  -200       $ SE 2 water inside shim
                                   -30    10        $ East Quadrant
  797   71 4.55926-2    796   -797  100  -200       $ SE 2 Hf neck shim
                                   -30    10        $ East Quadrant
  798  010 1.00276-1    797   -798  100  -200       $ SE 2 water outside shim
                                   -30    10        $ East Quadrant
  799  010 1.00276-1          -798   96  -100       $ SE 2 water below shim
                                   -30    10        $ East Quadrant
  800  010 1.00276-1          -798  200  -204       $ SE 2 water above shim
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                                    -30    10        $ East Quadrant
  801  010 1.00276-1          -801  100  -200       $ SE 3 water inside shim
                                    -30    10        $ East Quadrant
  802   71 4.55926-2    801   -802  100  -200       $ SE 3 Hf neck shim
                                    -30    10        $ East Quadrant
  803  010 1.00276-1    802   -803  100  -200       $ SE 3 water outside shim
                                    -30    10        $ East Quadrant
  804  010 1.00276-1          -803   96  -100       $ SE 3 water below shim
                                    -30    10        $ East Quadrant
  805  010 1.00276-1          -803  200  -204       $ SE 3 water above shim
                                    -30    10        $ East Quadrant
  806  010 1.00276-1          -806  100  -200       $ SE 4 water inside shim
                                    -30    10        $ East Quadrant
  807   71 4.55926-2    806   -807  150  -200       $ SE 4 Hf neck shim
                                     -30    10       $ East Quadrant
  889  010 1.00276-1    806   -807  100  -150       $ SE 4 water filler
                                    -30    10        $ East Quadrant
  808  010 1.00276-1    807   -808  100  -200       $ SE 4 water outside shim
                                    -30    10        $ East Quadrant
  809  010 1.00276-1          -808   96  -100       $ SE 4 water below shim
                                    -30    10        $ East Quadrant
  810  010 1.00276-1          -808  200  -204       $ SE 4 water above shim
                                    -30    10        $ East Quadrant
  811  010 1.00276-1          -811  100  -200       $ SE 5 water inside shim
                                    -30    10        $ East Quadrant
  812   71 4.55926-2    811   -812  100  -200       $ SE 5 Hf neck shim
                                    -30    10        $ East Quadrant
  813  010 1.00276-1    812   -813  100  -200       $ SE 5 water outside shim
                                    -30    10        $ East Quadrant
  814  010 1.00276-1          -813   96  -100       $ SE 5 water below shim
                                    -30    10        $ East Quadrant
  815  010 1.00276-1          -813  200  -204       $ SE 5 water above shim
                                    -30    10        $ East Quadrant
  816  010 1.00276-1          -816  100  -200       $ SE 6 water inside shim
                                    -30    10        $ East Quadrant
  817   71 4.55926-2    816   -817  100  -200       $ SE 6 Hf neck shim
                                    -30    10        $ East Quadrant
  818  010 1.00276-1    817   -818  100  -200       $ SE 6 water outside shim
                                    -30    10        $ East Quadrant
  819  010 1.00276-1          -818   96  -100       $ SE 6 water below shim
                                    -30    10        $ East Quadrant
  820  010 1.00276-1          -818  200  -204       $ SE 6 water above shim
                                    -30    10        $ East Quadrant
c
c   ---------------------------------------------------------------------------
c       CONTROL DRUMS
c
c       FOUR OUTER SHIM CYLINDERS/CONTROL DRUMS
c       WATER HOLE + BE AND WATER + BE + HAFNIUM + WATER GAP
c
  901  010 1.00276-1           -901        101 -200     $ E1
  902  020 1.21933-1      901  -902        101 -200     $ E1
  903  018 1.23621-1      902  -904   981  101 -200     $ E1
  904   71 4.55926-2      902  -904  -981  101 -200     $ E1
  905  010 1.00276-1      904  -905        101 -200     $ E1
c
  906  010 1.00276-1           -906        101 -200     $ E2
  907  020 1.21933-1      906  -907        101 -200     $ E2
  908  018 1.23621-1      907  -909   982  101 -200     $ E2
  909   71 4.55926-2      907  -909  -982  101 -200     $ E2
  910  010 1.00276-1      909  -910        101 -200     $ E2
c
  911  010 1.00276-1           -911        101 -200     $ E3
  912  020 1.21933-1      911  -912        101 -200     $ E3
  913  018 1.23621-1      912  -914   983  101 -200     $ E3
  914   71 4.55926-2      912  -914  -983  101 -200     $ E3
  915  010 1.00276-1      914  -915        101 -200     $ E3
c
  916  010 1.00276-1           -916        101 -200     $ E4
  917  020 1.21933-1      916  -917        101 -200     $ E4
  918  018 1.23621-1      917  -919   984  101 -200     $ E4
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  919   71 4.55926-2      917   -919  -984  101 -200     $ E4
  920  010 1.00276-1      919   -920        101 -200     $ E4
c
c
c   --------------------------------------------------------------------------
c      C Flux Trap WITH ITV AND THREE DUMMY TEST TRAINS
c
11001   10 1.00276-1   11008   -310   100  -200   $ Outer water annulus
                               -30    10         $ East Quadrant
11002   30 6.02136-2   11007 -11008   100  -200   $ Al filter
                               -30    10         $ East Quadrant
11003   10 1.00276-1   11006 -11007   100  -200   $ Inner water annulus
                       11190  11290               $ Exclude tests
                               -30    10         $ East Quadrant
11004   30 6.02136-2         -11006   100  -200   $ Al filler
                       11190  11290               $ Exclude tests
                       11790                      $ Exclude FMs
                               -30    10         $ East Quadrant
c
11011   10 1.00276-1   11008   -310    96  -100   $ Lower outer water
                               -30    10         $ East Quadrant
11012   30 6.02136-2   11007 -11008    96  -100   $ Lower Al filter
                               -30    10         $ East Quadrant
11013   10 1.00276-1   11006 -11007    96  -100   $ Inner water annulus
                       11190  11290               $ Exclude tests
                               -30    10         $ East Quadrant
11014   30 6.02136-2         -11006    96  -100   $ Lower Al filler
                       11190  11290               $ Exclude tests
                       11790                      $ Exclude FMs
                               -30    10         $ East Quadrant
c
11021   10 1.00276-1   11008   -310   200  -204   $ Upper outer water
                               -30    10         $ East Quadrant
11022   30 6.02136-2   11007 -11008   200  -204   $ Upper Al filter
                               -30    10         $ East Quadrant
11023   10 1.00276-1   11006 -11007   200  -204   $ Inner water annulus
                       11190  11290               $ Exclude tests
                               -30    10         $ East Quadrant
11024   30 6.02136-2         -11006   200  -204   $ Upper Al filler
                       11190  11290               $ Exclude tests
                       11790                      $ Exclude FMs
                               -30    10         $ East Quadrant
c
11111   17 1.00000-4         -11130   100  -200   $ ITV NE interior
                               -30    10         $ East Quadrant
11112  714 8.85285-2   11130 -11140   100  -200   $ ITV NE inner sleeve
                               -30    10         $ East Quadrant
11113  714 8.85285-2   11140 -11150   100  -200   $ ITV NE seal ring
                               -30    10         $ East Quadrant
11114   17 1.00000-4   11150 -11160   100  -200   $ ITV NE gas channel
                               -30    10         $ East Quadrant
11115  714 8.85285-2   11160 -11170   100  -200   $ ITV NE gas tube
                               -30    10         $ East Quadrant
11116  714 8.85285-2   11170 -11180   100  -200   $ ITV NE pressure tube
                               -30    10         $ East Quadrant
11117   10 1.00276-1   11180 -11190   100  -200   $ ITV NE inner sleeve
                               -30    10         $ East Quadrant
11121   17 1.00000-4         -11230   100  -200   $ ITV SE interior
                               -30    10         $ East Quadrant
11122  714 8.85285-2   11230 -11240   100  -200   $ ITV SE inner sleeve
                               -30    10         $ East Quadrant
11123  714 8.85285-2   11240 -11250   100  -200   $ ITV SE seal ring
                               -30    10         $ East Quadrant
11124   17 1.00000-4   11250 -11260   100  -200   $ ITV SE gas channel
                               -30    10         $ East Quadrant
11125  714 8.85285-2   11260 -11270   100  -200   $ ITV SE gas tube
                               -30    10         $ East Quadrant
11126  714 8.85285-2   11270 -11280   100  -200   $ ITV SE pressure tube
                               -30    10         $ East Quadrant
11127   10 1.00276-1   11280 -11290   100  -200   $ ITV SE inner sleeve
                               -30    10         $ East Quadrant
```

```
11177   10 1.00276-1         -11770   100  -200   $ ITV E FM interior
11178   30 6.02136-2   11770 -11780   100  -200   $ ITV E FM holder
11179   10 1.00276-1   11780 -11790   100  -200   $ ITV E FM water
c
11211   17 1.00000-4         -11130    96  -100   $ ITV NE interior
                                -30    10         $ East Quadrant
11212  714 8.85285-2   11130 -11140    96  -100   $ ITV NE inner sleeve
                                -30    10         $ East Quadrant
11213  714 8.85285-2   11140 -11150    96  -100   $ ITV NE seal ring
                                -30    10         $ East Quadrant
11214   17 1.00000-4   11150 -11160    96  -100   $ ITV NE gas channel
                                -30    10         $ East Quadrant
11215  714 8.85285-2   11160 -11170    96  -100   $ ITV NE gas tube
                                -30    10         $ East Quadrant
11216  714 8.85285-2   11170 -11180    96  -100   $ ITV NE pressure tube
                                -30    10         $ East Quadrant
11217   10 1.00276-1   11180 -11190    96  -100   $ ITV NE inner sleeve
                                -30    10         $ East Quadrant
11221   17 1.00000-4         -11230    96  -100   $ ITV SE interior
                                -30    10         $ East Quadrant
11222  714 8.85285-2   11230 -11240    96  -100   $ ITV SE inner sleeve
                                -30    10         $ East Quadrant
11223  714 8.85285-2   11240 -11250    96  -100   $ ITV SE seal ring
                                -30    10         $ East Quadrant
11224   17 1.00000-4   11250 -11260    96  -100   $ ITV SE gas channel
                                -30    10         $ East Quadrant
11225  714 8.85285-2   11260 -11270    96  -100   $ ITV SE gas tube
                                -30    10         $ East Quadrant
11226  714 8.85285-2   11270 -11280    96  -100   $ ITV SE pressure tube
                                -30    10         $ East Quadrant
11227   10 1.00276-1   11280 -11290    96  -100   $ ITV SE inner sleeve
                                -30    10         $ East Quadrant
11277   10 1.00276-1         -11770    96  -100   $ ITV E FM interior
11278   30 6.02136-2   11770 -11780    96  -100   $ ITV E FM holder
11279   10 1.00276-1   11780 -11790    96  -100   $ ITV E FM water
c
11311   17 1.00000-4         -11130   200  -204   $ ITV NE interior
                                -30    10         $ East Quadrant
11312  714 8.85285-2   11130 -11140   200  -204   $ ITV NE inner sleeve
                                -30    10         $ East Quadrant
11313  714 8.85285-2   11140 -11150   200  -204   $ ITV NE seal ring
                                -30    10         $ East Quadrant
11314   17 1.00000-4   11150 -11160   200  -204   $ ITV NE gas channel
                                -30    10         $ East Quadrant
11315  714 8.85285-2   11160 -11170   200  -204   $ ITV NE gas tube
                                -30    10         $ East Quadrant
11316  714 8.85285-2   11170 -11180   200  -204   $ ITV NE pressure tube
                                -30    10         $ East Quadrant
11317   10 1.00276-1   11180 -11190   200  -204   $ ITV NE inner sleeve
                                -30    10         $ East Quadrant
11321   17 1.00000-4         -11230   200  -204   $ ITV SE interior
                                -30    10         $ East Quadrant
11322  714 8.85285-2   11230 -11240   200  -204   $ ITV SE inner sleeve
                                -30    10         $ East Quadrant
11323  714 8.85285-2   11240 -11250   200  -204   $ ITV SE seal ring
                                -30    10         $ East Quadrant
11324   17 1.00000-4   11250 -11260   200  -204   $ ITV SE gas channel
                                -30    10         $ East Quadrant
11325  714 8.85285-2   11260 -11270   200  -204   $ ITV SE gas tube
                                -30    10         $ East Quadrant
11326  714 8.85285-2   11270 -11280   200  -204   $ ITV SE pressure tube
                                -30    10         $ East Quadrant
11327   10 1.00276-1   11280 -11290   200  -204   $ ITV SE inner sleeve
                                -30    10         $ East Quadrant
11377   10 1.00276-1         -11770   200  -204   $ ITV E FM interior
11378   30 6.02136-2   11770 -11780   200  -204   $ ITV E FM holder
11379   10 1.00276-1   11780 -11790   200  -204   $ ITV E FM water
c
c   ---------------------------------------------------------------------------
c
c
```

```
c   ********************************************************************************
c     NE Flux Trap                                    (beginning)
c   ********************************************************************************
c
c    12001    0             -1111     -30   96  -204   $northeast flux trap void
c
12000  711 1.00276-1          -1241  12497 -204    $ Interior upper H2O
                          1279        1244  1246    $ Exclude positions
                               1252  1255   -30    $ Exclude flux monitors
12010  711 1.00276-1    1105  -1111    96  -100 -30   $ Outer lower water annulus
c    12011  711 1.00276-1    1105  -1111   100  -200    $ Outer water annular zone 1
c                                        891    30
12012  711 1.00276-1    1105  -1111   100  -200    $ Outer water annular zone 2
                                      -30   893
12013  711 1.00276-1    1105  -1111   100  -200 -30   $ Outer water annular zone 3
                                     -893   894
12014  711 1.00276-1    1105  -1111   100  -200 -30   $ Outer water annular zone 4
                                     -894   891
12015  711 1.00276-1    1105  -1111   100  -200 -30   $ Outer water annular zone 5
                                     -891
c    12016  711 1.00276-1    1105  -1111   100  -200    $ Outer water annular zone 6
c                                         30  -893
12017  711 1.00276-1    1105  -1111   100  -200 -30   $ Outer water annular zone 7
                                      893  -894
12018  711 1.00276-1    1105  -1111   100  -200 -30   $ Outer water annular zone 8
                                      894  -891
12019  711 1.00276-1    1105  -1111   200  -204 -30   $ Outer upper water annulus
12020  712 5.98442-2    1104  -1105    96  -100 -30   $ Lower Al baffle
12021  712 5.98442-2    1104  -1105   100  -200 -30   $ Al baffle
12029  712 5.98442-2    1104  -1105   200  -204 -30   $ Upper Al baffle
12030  711 1.00276-1    1242  -1104    96  -100 -30   $ Lower inner water annulus
12031  711 1.00276-1    1242  -1104   100  -200 -30   $ Inner water annulus
12039  711 1.00276-1    1242  -1104   200  -204 -30   $ Upper inner water annulus
12042  711 1.00276-1          -1242    96 -12005 -30  $ NE facility lower water
12044  712 5.98442-2          -1242 12005 -12007 -30  $ NE facility bottom plate
12046  711 1.00276-1    1241  -1242 12007 -12031 -30  $ Water below SS sleeve
12050  714 8.85285-2    1241  -1242 12031  -100  -30  $ Lower SS Sleeve
12051  714 8.85285-2    1241  -1242   100  -200  -30   $ SS Sleeve
12059  714 8.85285-2    1241  -1242   200 -12478 -30  $ Upper SS Sleeve
12065  711 1.00276-1    1241  -1242 12478   -204 -30  $ Water above SS sleeve
c   12066  712 5.98442-2          -1241 12007  -100    $ N lower filler piece
c                            1244   1279               $ Exclusions
c                                        30   894
c   12111  712 5.98442-2          -1241   100  -200    $ N filler piece
c                            1244   1279               $ Exclusions
c                                        30   894
c   12119  712 5.98442-2          -1241   200 -12497   $ N upper filler piece
c                            1244   1279               $ Exclusions
c                                        30   894
12120  712 5.98442-2          -1241 12007  -100    $ E lower filler piece
                          1244   1279        1252    $ Exclusions
                                      -30   894
12121  712 5.98442-2          -1241   100  -200    $ E filler piece
                          1244   1279        1252    $ Exclusions
                                      -30   894
12129  712 5.98442-2          -1241   200 -12497   $ E upper filler piece
                          1244   1279        1252    $ Exclusions
                                      -30   894
12130  712 5.98442-2          -1241 12007  -100    $ S lower filler piece
                          1279   1246        1255    $ Exclusions
                                      -30  -894
12131  712 5.98442-2          -1241   100  -200    $ S filler piece
                          1279   1246        1255    $ Exclusions
                                      -30  -894
12139  712 5.98442-2          -1241   200 -12497   $ S upper filler piece
                          1279   1246        1255    $ Exclusions
                                      -30  -894
c    12140  712 5.98442-2          -1241 12007  -100    $ W lower filler piece
c                             1279   1246               $ Exclusions
c                                         30  -894
c    12141  712 5.98442-2          -1241   100  -200    $ W filler piece
```

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c                              1279   1246                 $ Exclusions
c                                                  30  -894
c    12149  712 5.98442-2                -1241   200 -12497   $ W upper filler piece
c                              1279   1246                 $ Exclusions
c                                                  30  -894
c    12270  711 1.00276-1                -1247 12007  -100    $  lower Interior
c    12271  711 1.00276-1                -1247   100  -200    $  Tube Interior
c    12279  711 1.00276-1                -1247   200  -204    $  upper Interior
c    12280  712 5.98442-2    1247        -1248 12007  -100    $  lower Guide Tube
c    12281  712 5.98442-2    1247        -1248   100  -200    $  Guide Tube
c    12289  712 5.98442-2    1247        -1248   200  -204    $  upper Guide Tube
c    12290  711 1.00276-1    1248        -1249 12007  -100    $  lower Outer H2O
c    12291  711 1.00276-1    1248        -1249   100  -200    $  Tube Outer H2O
c    12299  711 1.00276-1    1248        -1249   200  -204    $  upper Outer H2O
12370  711 1.00276-1          -1250 12007  -100    $  lower Interior
12371  711 1.00276-1          -1250   100  -200    $  Tube Interior
12379  711 1.00276-1          -1250   200  -204    $  upper Interior
12380  712 5.98442-2    1250  -1251 12007  -100    $  lower Guide Tube
12381  712 5.98442-2    1250  -1251   100  -200    $  Guide Tube
12389  712 5.98442-2    1250  -1251   200  -204    $  upper Guide Tube
12390  711 1.00276-1    1251  -1252 12007  -100    $  lower Outer H2O
12391  711 1.00276-1    1251  -1252   100  -200    $  Tube Outer H2O
12399  711 1.00276-1    1251  -1252   200  -204    $  upper Outer H2O
12470  711 1.00276-1          -1253 12007  -100    $  lower  Interior
12471  711 1.00276-1          -1253   100  -200    $  Tube Interior
12479  711 1.00276-1          -1253   200  -204    $  upper Interior
12480  712 5.98442-2    1253  -1254 12007  -100    $  lower Guide Tube
12481  712 5.98442-2    1253  -1254   100  -200    $  Guide Tube
12489  712 5.98442-2    1253  -1254   200  -204    $  upper Guide Tube
12490  711 1.00276-1    1254  -1255 12007  -100    $  lower Outer H2O
12491  711 1.00276-1    1254  -1255   100  -200    $  Tube Outer H2O
12499  711 1.00276-1    1254  -1255   200  -204    $  upper Outer H2O
c    12570  711 1.00276-1          -1256 12007  -100    $  lower Interior
c    12571  711 1.00276-1          -1256   100  -200    $  Tube Interior
c    12579  711 1.00276-1          -1256   200  -204    $  upper Interior
c    12580  712 5.98442-2    1256  -1257 12007  -100    $  lower Guide Tube
c    12581  712 5.98442-2    1256  -1257   100  -200    $  Guide Tube
c    12589  712 5.98442-2    1256  -1257   200  -204    $  upper Guide Tube
c    12590  711 1.00276-1    1257  -1258 12007  -100    $  lower Outer H2O
c    12591  711 1.00276-1    1257  -1258   100  -200    $  Tube Outer H2O
c    12599  711 1.00276-1    1257  -1258   200  -204    $  upper Outer H2O
c
c     ================================================================================
c     ================================================================================
c
c     NE Test Position
c
12610  714 8.85285-2         -1131 12007 -12101 -30   $ lower SS nose piece
12620  711 1.00276-1         -1131 12106   -204 -30   $ upper water
12630  714 8.85285-2    1131 -1133 12007   -204 -30   $ SS basket
12670  711 1.00276-1    1133 -1244 12007   -100 -30   $ lower H2O
12680  711 1.00276-1    1133 -1244    100  -200 -30   $ H2O Annulus
12690  711 1.00276-1    1133 -1244    200  -204 -30   $ upper H2O
c
c      ================================================================================
c      ================================================================================
c
c     SE Test Position
c
12709  711 1.00276-1          -1277 12494  -204    $ SE Position Upper Water
12740  714 8.85285-2    1277  -1278  12008 -12029  $ SE lower SS Shroud
12750   71 4.55926-2    1277  -1278  12029 -100    $ SE lower Hf Shroud
12751   71 4.55926-2    1277  -1278   100  -200    $ SE Position Hf Shroud
12759   71 4.55926-2    1277  -1278   200  -12492  $ SE upper Hf Shroud
12760  714 8.85285-2    1277  -1278  12492 -204    $ SE upper SS Shroud
12770  714 8.85285-2          -1278  12007 -12008  $ SE position nosepiece flat
12780  711 1.00276-1    1278  -1279  12007 -12008  $ SE bottom Water Annulus
                                      -30          $ Exclusion
12790  711 1.00276-1    1278  -1279  12008 -100    $ SE lower Water Annulus
                                      -30          $ Exclusion
12791  711 1.00276-1    1278  -1279   100  -200    $ SE Position Water Annulus
```

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                                    -30          $ Exclusion
12799  711 1.00276-1    1278  -1279   200  -204    $ SE upper Water Annulus
                                    -30          $ Exclusion
c
c      ========================================================================
c      ========================================================================
c
c     SW Test Position
c
12810  714 8.85285-2         -1135 12007 -12101 -30   $ NW SW lower SS nose piece
12820  711 1.00276-1         -1135 12106   -204 -30   $ NW SW upper water
12830  714 8.85285-2    1135 -1137 12007   -204 -30   $ NW SW SS basket
12870  711 1.00276-1    1137 -1246 12007   -100 -30   $ NW SW lower H2O
12880  711 1.00276-1    1137 -1246    100  -200 -30   $ NW SW H2O Annulus
12890  711 1.00276-1    1137 -1246    200  -204 -30   $ NW SW upper H2O
c
c      ========================================================================
c      ========================================================================
c
c     NW Test Position
c
c    12909  711 1.00276-1          -1297 12994  -204    $ NW Position Upper Water
c    12960  714 8.85285-2    1297  -1298  12994 -204    $ NW upper SS Shroud
c    12970  714 8.85285-2          -1298  12007 -12008  $ NW position nosepiece flat
c    12980  711 1.00276-1    1298  -1299  12007 -12008  $ NW bottom Water Annulus
c                                       30          $ Exclusion
c    12999  711 1.00276-1    1298  -1299  12994 -204    $ NW upper Water Annulus
c                                    30          $ Exclusion
c
c      ========================================================================
c      ========================================================================
c
c      SE Test Position
c
12001  714 8.85285-2          -1277 12008  -2211   $ SE Position lower steel
12002  711 1.00276-1          -1277  2221 -12494   $ SE Position upper water
12101  732 7.48430-2          -1277  2211  -2212   $ SE Test Level 1
12102  732 7.98326-2          -1277  2212  -2213   $ SE Test Level 2
12103  732 7.48430-2          -1277  2213  -2214   $ SE Test Level 3
12104  732 7.48430-2          -1277  2214  -2215   $ SE Test Level 4
12105  732 7.48430-2          -1277  2215  -2216   $ SE Test Level 5
12106  732 7.48430-2          -1277  2216  -2217   $ SE Test Level 6
12107  732 7.48430-2          -1277  2217  -2218   $ SE Test Level 7
12108  732 7.48430-2          -1277  2218  -2219   $ SE Test Level 8
12109  732 7.48430-2          -1277  2219  -2220   $ SE Test Level 9
12110  732 7.48430-2          -1277  2220  -2221   $ SE Test Level 10
c
c      ========================================================================
c      ========================================================================
c
c     NW Test Position
c
c    12501  714 8.85285-2          -1299 12008  -2251   $ NW Position lower steel
c                                       30          $ Exclusion
c    12502  711 1.00276-1          -1299  2252 -12994   $ NW Position upper water
c                                       30          $ Exclusion
c    12510  732 7.48430-2          -1299  2251  -2252   $ NW LRW Backup Test
c                                       30          $ Exclusion
c
c      ========================================================================
c      ========================================================================
c
c     NE Test Position
c
12601  7410 7.21199-2          -1131 12101 -12102 -30  $ NE Test Tier 1
12602  7410 7.21199-2          -1131 12102 -12103 -30  $ NE Test Tier 2
12603  7410 7.21199-2          -1131 12103 -12104 -30  $ NE Test Tier 3
12604  7410 7.21199-2          -1131 12104 -12105 -30  $ NE Test Tier 4
12605  7410 7.21199-2          -1131 12105 -12106 -30  $ NE Test Tier 5
c
c      ========================================================================
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c      ===========================================================================
c
c     SW Test Position
c
12801  7510 7.32218-2          -1135 12101 -12102 -30  $ SW Test Tier 1
12802  7510 7.32218-2          -1135 12102 -12103 -30  $ SW Test Tier 2
12803  7510 7.32218-2          -1135 12103 -12104 -30  $ SW Test Tier 3
12804  7510 7.32218-2          -1135 12104 -12105 -30  $ SW Test Tier 4
12805  7510 7.32218-2          -1135 12105 -12106 -30  $ SW Test Tier 5
c
c   ************************************************schnitzler********
c     NE Flux Trap                          (end)
c   ************************************************schnitzler********
c
c
c
c
c   ---------------------------------------------------------------------------
c      E Flux Trap WITH SEVEN POSITION TARGET ARRAY
c          Four HSA CO/CO/CO Targets In Positions 2, 4, 6, and 7
c          Three Aluminum Fillers In Positions 1, 3, and 5
c
13050   10 1.00276-1          -1881    96  -204    $ E Interior water
                     13109  13209 13309           $ E interior water
                     13409  13509 13609           $ E Interior water
                     13709                        $ E Interior water
13051   30 6.02136-2    1881  -1882    96  -204    $ E Housing
13052   10 1.00276-1    1882  -1883    96  -204    $ E Water
13053   30 6.02136-2    1883  -1884    96  -204    $ E Envelope Tube
13054   10 1.00276-1    1884  -1807    96  -204    $ E Water
13055   30 6.02136-2    1807  -1808    96  -204    $ E Al SR guide tube
13056   10 1.00276-1    1808  -1809    96  -204    $ E Water
13057   30 6.02136-2    1809  -1811    96  -185    $ E Al SR follower
13058   10 1.00276-1    1811  -1812    96  -204    $ E Water
13059   30 6.02136-2    1812  -1813    96  -204    $ E Al baffle
13060   10 1.00276-1    1813  -1821    96  -204    $ E Water
13061   30 6.02136-2    1809  -1810   185  -204    $ E Al
13062   71 4.55926-2    1810  -1811   185  -204    $ E Hf safety rod
c
13101   10 1.00276-1         -13104    96  -401    $ E1 lower water
13102   10 1.00276-1         -13104   416  -204    $ E1 upper water
13104   30 6.02136-2         -13104   401  -416    $ E1 Al filler
13105   10 1.00276-1   13104 -13105    96  -204    $ E1 H2O annulus
c
13194   30 6.02136-2   13105 -13106    96  -204    $ E1 Al basket
13196   10 1.00276-1   13106 -13108    96  -204    $ E1 H2O annulus
13198   30 6.02136-2   13108 -13109    96  -204    $ E1 Al guide tube
c
13251   10 1.00276-1         -13246    96  -100    $ E2 lower water
13252   10 1.00276-1         -13246   200  -204    $ E2 upper water
13253   10 1.00276-1         -13241   100  -200    $ E2 interior water
13254   30 6.02136-2  (13242 -13245   100  -421 )  $ E2 Al end caps
                     :(13242 -13245   424  -426 )  $ E2 Al end caps
                     :(13242 -13245   430  -432 )  $ E2 Al end caps
                     :(13242 -13245   435  -200 )  $ E2 Al end caps
13255   30 6.02136-2   13241 -13242   100  -200    $ E2 Al holder
13256   30 6.02136-2   13245 -13246   100  -200    $ E2 Al housing
13257   10 1.00276-1   13246 -13205    96  -204    $ E2 H2O annulus
13260   44 5.60276-2   13242 -13245   421  -424    $ E2 lower HSA Co
13270   44 5.60276-2   13242 -13245   426  -430    $ E2 middle HSA Co
13280   44 5.60276-2   13242 -13245   432  -435    $ E2 upper HSA Co
c
13294   30 6.02136-2   13205 -13206    96  -204    $ E2 Al basket
13296   10 1.00276-1   13206 -13208    96  -204    $ E2 H2O annulus
13298   30 6.02136-2   13208 -13209    96  -204    $ E2 Al guide tube
c
13301   10 1.00276-1         -13304    96  -401    $ E3 lower water
13302   10 1.00276-1         -13304   416  -204    $ E3 upper water
13304   30 6.02136-2         -13304   401  -416    $ E3 Al filler
13305   10 1.00276-1   13304 -13305    96  -204    $ E3 H2O annulus
c
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13394   30 6.02136-2   13305 -13306    96  -204    $ E3 Al basket
13396   10 1.00276-1   13306 -13308    96  -204    $ E3 H2O annulus
13398   30 6.02136-2   13308 -13309    96  -204    $ E3 Al guide tube
c
13451   10 1.00276-1          -13446    96  -100    $ E4 lower water
13452   10 1.00276-1          -13446   200  -204    $ E4 upper water
13453   10 1.00276-1          -13441   100  -200    $ E4 interior water
13454   30 6.02136-2  (13442 -13445   100  -421 )  $ E4 Al end caps
                     :(13442 -13445   424  -426 )  $ E4 Al end caps
                     :(13442 -13445   430  -432 )  $ E4 Al end caps
                     :(13442 -13445   435  -200 )  $ E4 Al end caps
13455   30 6.02136-2   13441 -13442   100  -200    $ E4 Al holder
13456   30 6.02136-2   13445 -13446   100  -200    $ E4 Al housing
13457   10 1.00276-1   13446 -13405    96  -204    $ E4 H2O annulus
13460   44 5.60276-2   13442 -13445   421  -424    $ E4 lower HSA Co
13470   44 5.60276-2   13442 -13445   426  -430    $ E4 middle HSA Co
13480   44 5.60276-2   13442 -13445   432  -435    $ E4 upper HSA Co
c
13494   30 6.02136-2   13405 -13406    96  -204    $ E4 Al basket
13496   10 1.00276-1   13406 -13408    96  -204    $ E4 H2O annulus
13498   30 6.02136-2   13408 -13409    96  -204    $ E4 Al guide tube
c
13501   10 1.00276-1          -13504    96  -401    $ E5 lower water
13502   10 1.00276-1          -13504   416  -204    $ E5 upper water
13504   30 6.02136-2          -13504   401  -416    $ E5 Al filler
13505   10 1.00276-1   13504 -13505    96  -204    $ E5 H2O annulus
c
13594   30 6.02136-2   13505 -13506    96  -204    $ E5 Al basket
13596   10 1.00276-1   13506 -13508    96  -204    $ E5 H2O annulus
13598   30 6.02136-2   13508 -13509    96  -204    $ E5 Al guide tube
c
13651   10 1.00276-1          -13646    96  -100    $ E6 lower water
13652   10 1.00276-1          -13646   200  -204    $ E6 upper water
13653   10 1.00276-1          -13641   100  -200    $ E6 interior water
13654   30 6.02136-2  (13642 -13645   100  -421 )  $ E6 Al end caps
                     :(13642 -13645   424  -426 )  $ E6 Al end caps
                     :(13642 -13645   430  -432 )  $ E6 Al end caps
                     :(13642 -13645   435  -200 )  $ E6 Al end caps
13655   30 6.02136-2   13641 -13642   100  -200    $ E6 Al holder
13656   30 6.02136-2   13645 -13646   100  -200    $ E6 Al housing
13657   10 1.00276-1   13646 -13605    96  -204    $ E6 H2O annulus
13660   44 5.60276-2   13642 -13645   421  -424    $ E6 lower HSA Co
13670   44 5.60276-2   13642 -13645   426  -430    $ E6 middle HSA Co
13680   44 5.60276-2   13642 -13645   432  -435    $ E6 upper HSA Co
c
13694   30 6.02136-2   13605 -13606    96  -204    $ E6 Al basket
13696   10 1.00276-1   13606 -13608    96  -204    $ E6 H2O annulus
13698   30 6.02136-2   13608 -13609    96  -204    $ E6 Al guide tube
c
13751   10 1.00276-1          -13746    96  -100    $ E7 lower water
13752   10 1.00276-1          -13746   200  -204    $ E7 upper water
13753   10 1.00276-1          -13741   100  -200    $ E7 interior water
13754   30 6.02136-2  (13742 -13745   100  -421 )  $ E7 Al end caps
                     :(13742 -13745   424  -426 )  $ E7 Al end caps
                     :(13742 -13745   430  -432 )  $ E7 Al end caps
                     :(13742 -13745   435  -200 )  $ E7 Al end caps
13755   30 6.02136-2   13741 -13742   100  -200    $ E7 Al holder
13756   30 6.02136-2   13745 -13746   100  -200    $ E7 Al housing
13757   10 1.00276-1   13746 -13705    96  -204    $ E7 H2O annulus
13760   44 5.60276-2   13742 -13745   421  -424    $ E7 lower HSA Co
13770   44 5.60276-2   13742 -13745   426  -430    $ E7 middle HSA Co
13780   44 5.60276-2   13742 -13745   432  -435    $ E7 upper HSA Co
c
13794   30 6.02136-2   13705 -13706    96  -204    $ E7 Al basket
13796   10 1.00276-1   13706 -13708    96  -204    $ E7 H2O annulus
13798   30 6.02136-2   13708 -13709    96  -204    $ E7 Al guide tube
c
c
c   ---------------------------------------------------------------------------
c      SE Flux Trap
c
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14101  621 5.97730-2         -1714     96  -2401     $ SE experiment
                                      -30    10       $ East Quadrant
14102  622 6.20717-2         -1714   2401  -2402     $ SE experiment
                                      -30    10       $ East Quadrant
14103  623 6.34367-2         -1714   2402  -2403     $ SE experiment
                                      -30    10       $ East Quadrant
14104  624 6.14161-2         -1714   2403  -2404     $ SE experiment
                                      -30    10       $ East Quadrant
14105  625 6.58068-2         -1714   2404  -2405     $ SE experiment
                                      -30    10       $ East Quadrant
14106  626 6.76462-2         -1714   2405  -2406     $ SE experiment
                                      -30    10       $ East Quadrant
14107  627 6.30308-2         -1714   2406  -2407     $ SE experiment
                                      -30    10       $ East Quadrant
14108  628 6.23506-2         -1714   2407  -2408     $ SE experiment
                                      -30    10       $ East Quadrant
14109  629 6.70196-2         -1714   2408  -2409     $ SE experiment
                                      -30    10       $ East Quadrant
14110  630 6.13722-2         -1714   2409  -2410     $ SE experiment
                                      -30    10       $ East Quadrant
14111  631 6.13744-2         -1714   2410  -2411     $ SE experiment
                                      -30    10       $ East Quadrant
14112  632 6.17268-2         -1714   2411  -2412     $ SE experiment
                                      -30    10       $ East Quadrant
14113  632 6.17268-2         -1714   2412  -2413     $ SE experiment
                                      -30    10       $ East Quadrant
14114  632 6.17268-2         -1714   2413   -204     $ SE experiment
                                      -30    10       $ East Quadrant
14201   82 4.29492-2   1714  -1719     96  -2451     $ SE experiment shroud
                                      -30    10       $ East Quadrant
14202   71 4.55926-2   1714  -1719   2451  -2452     $ SE experiment shroud
                                      -30    10       $ East Quadrant
14203   82 4.29492-2   1714  -1719   2452  -2453     $ SE experiment shroud
                                      -30    10       $ East Quadrant
14204   75 4.43197-2   1714  -1719   2453  -2454     $ SE experiment shroud
                                      -30    10       $ East Quadrant
14205   80 4.34387-2   1714  -1719   2454  -2455     $ SE experiment shroud
                                      -30    10       $ East Quadrant
14206   75 4.43197-2   1714  -1719   2455  -2456     $ SE experiment shroud
                                      -30    10       $ East Quadrant
14207   82 4.29492-2   1714  -1719   2456  -2457     $ SE experiment shroud
                                      -30    10       $ East Quadrant
14208   71 4.55926-2   1714  -1719   2457  -2458     $ SE experiment shroud
                                      -30    10       $ East Quadrant
14209   77 4.37324-2   1714  -1719   2458  -2459     $ SE experiment shroud
                                      -30    10       $ East Quadrant
14210   71 4.55926-2   1714  -1719   2459  -2460     $ SE experiment shroud
                                      -30    10       $ East Quadrant
14211   77 4.37324-2   1714  -1719   2460  -2461     $ SE experiment shroud
                                      -30    10       $ East Quadrant
14212   82 4.29492-2   1714  -1719   2461   -204     $ SE experiment shroud
                                      -30    10       $ East Quadrant
14007  010 1.00276-1   1719  -1701    96  -204       $ SE water
                                      -30    10       $ East Quadrant
14008  038 8.71157-2   1701  -1702    96  -204       $ SE 348SS flow tube
                                      -30    10       $ East Quadrant
14009  010 1.00276-1   1702  -1703    96  -204       $ SE H2O annulus
                                      -30    10       $ East Quadrant
14010  038 8.71157-2   1703  -1704    96  -204       $ SE 348SS pressure tube
                                      -30    10       $ East Quadrant
14011  017  1.0-4      1704  -1705    96  -204       $ SE He annulus
                                      -30    10       $ East Quadrant
14012  038 8.71157-2   1705  -1706    96  -204       $ SE 348SS insulation tube
                                      -30    10       $ East Quadrant
14014  010 1.00276-1   1706  -1707    96  -204       $ SE H2O annulus
                                      -30    10       $ East Quadrant
14015  030 6.02136-2   1707  -1708    96  -204       $ SE Al-6061 SR guide tube
                                      -30    10       $ East Quadrant
14016  010 1.00276-1   1708  -1709    96  -204       $ SE water annulus
                                      -30    10       $ East Quadrant
14017  030 6.02136-2   1709  -1711    96  -185       $ SE Al SR follower
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                                    -30    10        $ East Quadrant
14031  010 1.00276-1   1711  -1712   96  -204        $ SE water annulus
                                    -30    10        $ East Quadrant
14032  030 6.02136-2   1712  -1713   96  -204        $ SE Al baffle
                                    -30    10        $ East Quadrant
14033  010 1.00276-1   1713  -1721   96  -204        $ SE water annulus
                                    -30    10        $ East Quadrant
14018  030 6.02136-2   1709  -1710  185  -204        $ SE Al
                                    -30    10        $ East Quadrant
14019   71 4.55926-2   1710  -1711  185  -204        $ SE Hf Safety Rod
                                    -30    10        $ East Quadrant
c
c
c   ------------------------------------------------------------------------
c       INNER A HOLES WITH 1/2-INCH HSA TARGETS (3 29 GRAM CO TARGETS)
c
22001   10 1.00276-1         -22011   100  -200   $ A2 H2O interior
22002   10 1.00276-1         -22014    96  -100   $ A2 lower water
22003   10 1.00276-1         -22014   200  -204   $ A2 upper water
22005   30 6.02136-2   22011 -22012   100  -200   $ A2 Al holder
22010   44 5.60276-2   22012 -22013   421  -424   $ A2 lower HSA Co
22020   44 5.60276-2   22012 -22013   426  -430   $ A2 middle HSA Co
22030   44 5.60276-2   22012 -22013   432  -435   $ A2 upper HSA Co
22040   30 6.02136-2 ( 22012 -22013   100  -421 ) $ A2 Al caps
                    :( 22012 -22013   424  -426 ) $ A2 Al caps
                    :( 22012 -22013   430  -432 ) $ A2 Al caps
                    :( 22012 -22013   435  -200 ) $ A2 Al caps
22060   30 6.02136-2   22013 -22014   100  -200   $ A2 Al housing
22070   10 1.00276-1   22014 -22015    96  -204   $ A2 water
22080   30 6.02136-2   22015 -22016    96  -204   $ A2 Al basket
22090   10 1.00276-1   22016 -22019    96  -204   $ A2 water
23001   10 1.00276-1         -23011   100  -200   $ A3 H2O interior
23002   10 1.00276-1         -23014    96  -100   $ A3 lower water
23003   10 1.00276-1         -23014   200  -204   $ A3 upper water
23005   30 6.02136-2   23011 -23012   100  -200   $ A3 Al holder
23010   44 5.60276-2   23012 -23013   421  -424   $ A3 lower HSA Co
23020   44 5.60276-2   23012 -23013   426  -430   $ A3 middle HSA Co
23030   44 5.60276-2   23012 -23013   432  -435   $ A3 upper HSA Co
23040   30 6.02136-2 ( 23012 -23013   100  -421 ) $ A3 Al caps
                    :( 23012 -23013   424  -426 ) $ A3 Al caps
                    :( 23012 -23013   430  -432 ) $ A3 Al caps
                    :( 23012 -23013   435  -200 ) $ A3 Al caps
23060   30 6.02136-2   23013 -23014   100  -200   $ A3 Al housing
23070   10 1.00276-1   23014 -23015    96  -204   $ A3 water
23080   30 6.02136-2   23015 -23016    96  -204   $ A3 Al basket
23090   10 1.00276-1   23016 -23019    96  -204   $ A3 water
c
c
c   ------------------------------------------------------------------------
c       OUTER A HOLES WITH 1/2-INCH HSA TARGETS (3 29 GRAM CO TARGETS)
c
32001   10 1.00276-1         -32011   100  -200   $ A10 H2O interior
32002   10 1.00276-1         -32014    96  -100   $ A10 lower water
32003   10 1.00276-1         -32014   200  -204   $ A10 upper water
32005   30 6.02136-2   32011 -32012   100  -200   $ A10 Al holder
32010   44 5.60276-2   32012 -32013   421  -424   $ A10 lower HSA Co
32020   44 5.60276-2   32012 -32013   426  -430   $ A10 middle HSA Co
32030   44 5.60276-2   32012 -32013   432  -435   $ A10 upper HSA Co
32040   30 6.02136-2 ( 32012 -32013   100  -421 ) $ A10 Al caps
                    :( 32012 -32013   424  -426 ) $ A10 Al caps
                    :( 32012 -32013   430  -432 ) $ A10 Al caps
                    :( 32012 -32013   435  -200 ) $ A10 Al caps
32060   30 6.02136-2   32013 -32014   100  -200   $ A10 Al housing
32070   10 1.00276-1   32014 -32015    96  -204   $ A10 water
32080   30 6.02136-2   32015 -32016    96  -204   $ A10 Al basket
32090   10 1.00276-1   32016 -32019    96  -204   $ A10 water
c
c   ------------------------------------------------------------------------
c      WATER HOLE NEXT TO OUTER A HOLE
c
39001  010 1.00276-1        -39001   96  -204        $ NE water hole near A-9
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c
c   ------------------------------------------------------------------------
c       Small B2 Positions with HSA Cobalt Targets
c
42001   10 1.00276-1         -42001   100  -200   $ B2 H2O interior
42002   10 1.00276-1         -42005    98  -100   $ B2 lower water
42003   10 1.00276-1         -42005   200  -202   $ B2 upper water
42005   30 6.02136-2   42001 -42002   100  -200   $ B2 Al holder
42010   43 5.60527-2   42002 -42003   421  -424   $ B2 lower Co
42020   43 5.60527-2   42002 -42003   426  -430   $ B2 middle Co
42030   43 5.60527-2   42002 -42003   432  -435   $ B2 upper Co
42040   30 6.02136-2 ( 42002 -42003   100  -421 ) $ B2 Al caps
                    :( 42002 -42003   424  -426 ) $ B2 Al caps
                    :( 42002 -42003   430  -432 ) $ B2 Al caps
                    :( 42002 -42003   435  -200 ) $ B2 Al caps
42060   30 6.02136-2   42003 -42005   100  -200   $ B2 Al housing
42070   10 1.00276-1   42005 -42006    98  -202   $ B2 water
42080   30 6.02136-2   42006 -42007    98  -202   $ B2 Al basket
42090   10 1.00276-1   42007 -42009    98  -202   $ B2 water
c
43001   10 1.00276-1         -43001   100  -200   $ B3 H2O interior
43002   10 1.00276-1         -43005    98  -100   $ B3 lower water
43003   10 1.00276-1         -43005   200  -202   $ B3 upper water
43005   30 6.02136-2   43001 -43002   100  -200   $ B3 Al holder
43010   43 5.60527-2   43002 -43003   421  -424   $ B3 lower Co
43020   43 5.60527-2   43002 -43003   426  -430   $ B3 middle Co
43030   43 5.60527-2   43002 -43003   432  -435   $ B3 upper Co
43040   30 6.02136-2 ( 43002 -43003   100  -421 ) $ B3 Al caps
                    :( 43002 -43003   424  -426 ) $ B3 Al caps
                    :( 43002 -43003   430  -432 ) $ B3 Al caps
                    :( 43002 -43003   435  -200 ) $ B3 Al caps
43060   30 6.02136-2   43003 -43005   100  -200   $ B3 Al housing
43070   10 1.00276-1   43005 -43006    98  -202   $ B3 water
43080   30 6.02136-2   43006 -43007    98  -202   $ B3 Al basket
43090   10 1.00276-1   43007 -43009    98  -202   $ B3 water
c
c
c   ------------------------------------------------------------------------
c       LARGE B10 HOLE  (AGR-1)
c
45001    0                   -52009    98  -202
c
c
c   ------------------------------------------------------------------------
c      LARGE AND MEDIUM I HOLES
c
64001   10 1.00276-1         -64001   98  -202        $ I4 interior H2O
64008   14 1.22430-1   64001 -64008   98  -202        $ I4 Be filler
64009   10 1.00276-1   64008 -64009   98  -202        $ I4 H2O annulus
c
65001   10 1.00276-1         -65001   98  -202        $ I5 interior H2O
65008   14 1.22430-1   65001 -65008   98  -202        $ I5 Be filler
65009   10 1.00276-1   65008 -65009   98  -202        $ I5 H2O annulus
c
66001   10 1.00276-1         -66001   98  -202        $ I6 interior H2O
66008   15 1.22948-1   66001 -66008   98  -202        $ I6 Be filler
66009   10 1.00276-1   66008 -66009   98  -202        $ I6 H2O annulus
c
67001   10 1.00276-1         -67001   98  -202        $ I7 interior H2O
67008   14 1.22430-1   67001 -67008   98  -202        $ I7 Be filler
67009   10 1.00276-1   67008 -67009   98  -202        $ I7 H2O annulus
c
68001   10 1.00276-1         -68001   98  -202        $ I8 interior H2O
68008   14 1.22430-1   68001 -68008   98  -202        $ I8 Be filler
68009   10 1.00276-1   68008 -68009   98  -202        $ I8 H2O annulus
c
c
c   ------------------------------------------------------------------------
c       SMALL I HOLES WITH BE FILLERS
c
c     81001   10 1.00276-1         -81001    98  -202      $ I21 interior H2O
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c     81002   30 6.02136-2   81001 -81002    98  -202      $ I21 Al tube
c     81003   10 1.00276-1   81002 -81003    98  -202      $ I21 H2O annulus
c     81004   18 1.23621-1   81003 -81004    98  -202      $ I21 Be filler
c     81005   30 6.02136-2   81004 -81005    98  -202      $ I21 Al clad
c     81009   10 1.00276-1   81005 -81009    98  -202      $ I21 H2O annulus
c
c     82001   10 1.00276-1         -82001    98  -202      $ I22 interior H2O
c     82002   30 6.02136-2   82001 -82002    98  -202      $ I22 Al tube
c     82003   10 1.00276-1   82002 -82003    98  -202      $ I22 H2O annulus
c     82004   18 1.23621-1   82003 -82004    98  -202      $ I22 Be filler
c     82005   30 6.02136-2   82004 -82005    98  -202      $ I22 Al clad
c     82009   10 1.00276-1   82005 -82009    98  -202      $ I22 H2O annulus
c
c
c   ------------------------------------------------------------------------
c       SMALL I HOLES WITH AL FILLERS
c
81008   30 6.02136-2          -81008    98  -202      $ I21 Al filler
                                     -30    10        $ East Quadrant
81009   10 1.00276-1   81008 -81009    98  -202      $ I21 H2O annulus
                                     -30    10        $ East Quadrant
82008   30 6.02136-2          -82008    98  -202      $ I22 Al filler
                                     -30    10        $ East Quadrant
82009   10 1.00276-1   82008 -82009    98  -202      $ I22 H2O annulus
                                     -30    10        $ East Quadrant
c
c   ------------------------------------------------------------------------
c
90301  010 1.00276-1           -90313   96  -149   $ H3 lower water
                                  -30    10        $ East Quadrant
90302  010 1.00276-1           -90313  149  -151   $ H3 tally water
                                  -30    10        $ East Quadrant
90303  010 1.00276-1           -90313  151  -204   $ H3 upper water
                                  -30    10        $ East Quadrant
90305  030 6.02136-2   90313   -90315   96  -204   $ H3 flux wire holder
                                  -30    10        $ East Quadrant
90307  010 1.00276-1   90315   -90317   96  -204   $ H3 water annulus
                                  -30    10        $ East Quadrant
90308  030 6.02136-2   90317   -90318   96  -204   $ H3 flux wire tube
                                  -30    10        $ East Quadrant
90309  010 1.00276-1   90318   -90319   96  -204   $ H3 water annulus
                                  -30    10        $ East Quadrant
c
90401   10 1.00276-1           -90411   100  -200   $ H4 H2O interior
90402   10 1.00276-1           -90414    96  -100   $ H4 lower  water
90403   10 1.00276-1           -90414   200  -204   $ H4 upper  water
90405   30 6.02136-2   90411 -90412   100  -200   $ H4 Al holder
90410   44 5.60276-2   90412 -90413   421  -424   $ H4 lower HSA Co
90420   44 5.60276-2   90412 -90413   426  -430   $ H4 middle HSA Co
90430   44 5.60276-2   90412 -90413   432  -435   $ H4 upper HSA Co
90440   30 6.02136-2 ( 90412 -90413   100  -421 ) $ H4 Al caps
                   :( 90412 -90413   424  -426 ) $ H4 Al caps
                   :( 90412 -90413   430  -432 ) $ H4 Al caps
                   :( 90412 -90413   435  -200 ) $ H4 Al caps
90460   30 6.02136-2   90413 -90414   100  -200   $ H4 Al housing
90470   10 1.00276-1   90414 -90415    96  -204   $ H4 water
90480   30 6.02136-2   90415 -90416    96  -204   $ H4 Al basket
90490   10 1.00276-1   90416 -90419    96  -204   $ H4 water
90501   10 1.00276-1           -90511   100  -200   $ H5 H2O interior
90502   10 1.00276-1           -90514    96  -100   $ H5 lower  water
90503   10 1.00276-1           -90514   200  -204   $ H5 upper  water
90505   30 6.02136-2   90511 -90512   100  -200   $ H5 Al holder
90510   44 5.60276-2   90512 -90513   421  -424   $ H5 lower HSA Co
90520   44 5.60276-2   90512 -90513   426  -430   $ H5 middle HSA Co
90530   44 5.60276-2   90512 -90513   432  -435   $ H5 upper HSA Co
90540   30 6.02136-2 ( 90512 -90513   100  -421 ) $ H5 Al caps
                   :( 90512 -90513   424  -426 ) $ H5 Al caps
                   :( 90512 -90513   430  -432 ) $ H5 Al caps
                   :( 90512 -90513   435  -200 ) $ H5 Al caps
90560   30 6.02136-2   90513 -90514   100  -200   $ H5 Al housing
90570   10 1.00276-1   90514 -90515    96  -204   $ H5 water
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90580   30 6.02136-2   90515 -90516    96  -204   $ H5 Al basket
90590   10 1.00276-1   90516 -90519    96  -204   $ H5 water
90601   10 1.00276-1         -90611   100  -200   $ H6 H2O interior
90602   10 1.00276-1         -90614    96  -100   $ H6 lower  water
90603   10 1.00276-1         -90614   200  -204   $ H6 upper  water
90605   30 6.02136-2   90611 -90612   100  -200   $ H6 Al holder
90610   44 5.60276-2   90612 -90613   421  -424   $ H6 lower HSA Co
90620   44 5.60276-2   90612 -90613   426  -430   $ H6 middle HSA Co
90630   44 5.60276-2   90612 -90613   432  -435   $ H6 upper HSA Co
90640   30 6.02136-2 ( 90612 -90613   100  -421 ) $ H6 Al caps
                    :( 90612 -90613   424  -426 ) $ H6 Al caps
                    :( 90612 -90613   430  -432 ) $ H6 Al caps
                    :( 90612 -90613   435  -200 ) $ H6 Al caps
90660   30 6.02136-2   90613 -90614   100  -200   $ H6 Al housing
90670   10 1.00276-1   90614 -90615    96  -204   $ H6 water
90680   30 6.02136-2   90615 -90616    96  -204   $ H6 Al basket
90690   10 1.00276-1   90616 -90619    96  -204   $ H6 water
90701   10 1.00276-1         -90711   100  -200   $ H7 H2O interior
                                -30    10         $ East Quadrant
90702   10 1.00276-1         -90714    96  -100   $ H7 lower  water
                                -30    10         $ East Quadrant
90703   10 1.00276-1         -90714   200  -204   $ H7 upper  water
                                -30    10         $ East Quadrant
90705   30 6.02136-2   90711 -90712   100  -200   $ H7 Al holder
                                -30    10         $ East Quadrant
90710   44 5.60276-2   90712 -90713   421  -424   $ H7 lower HSA Co
                                -30    10         $ East Quadrant
90720   44 5.60276-2   90712 -90713   426  -430   $ H7 middle HSA Co
                                -30    10         $ East Quadrant
90730   44 5.60276-2   90712 -90713   432  -435   $ H7 upper HSA Co
                                -30    10         $ East Quadrant
90740   30 6.02136-2 ( 90712 -90713 100 -421  10) $ H7 Al caps
                    :( 90712 -90713 424 -426  10) $ H7 Al caps
                    :( 90712 -90713 430 -432  10) $ H7 Al caps
                    :( 90712 -90713 435 -200  10) $ H7 Al caps
90760   30 6.02136-2   90713 -90714   100  -200   $ H7 Al housing
                                -30    10         $ East Quadrant
90770   10 1.00276-1   90714 -90715    96  -204   $ H7 water
                                -30    10         $ East Quadrant
90780   30 6.02136-2   90715 -90716    96  -204   $ H7 Al basket
                                -30    10         $ East Quadrant
90790   10 1.00276-1   90716 -90719    96  -204   $ H7 water
                                -30    10         $ East Quadrant
c   ---------------------------------------------------------------------------
c      EXTERNAL VOIDS
c
   91  0                         205                $ Upper void
   92  0          331      95   -205                $ NE Radial void
   93  0                   -95                      $ Lower void
   97  0      (   -331     95   -205   +10   +30   )       $ N interior radial void
            :(   -331     95   -205   -10   +30   )       $ W interior radial void
            :(   -331     95   -205   -10   -30   )       $ S interior radial void
c   ---------------------------------------------------------------------------
c
c
c
c
c


c
c
c
c
c        9   px    -0.805
  *10   px     0.000
   11   px     0.805
   12   px    14.462
   13   px    15.267
   14   px    16.072
   15   px    29.728
   16   px    30.533
```

```
   17   px    31.338
   23   py   -31.338
   24   py   -30.533
   25   py   -29.728
   26   py   -16.072
   27   py   -15.267
   28   py   -14.462
   29   py    -0.805
  *30   py     0.000
c       31   py     0.805
c
   45   p   1  -1  0.0  -42.656
   52   p   1  -1  0.0   29.395
   53   p   1  -1  0.0   30.533
   54   p   1  -1  0.0   31.671
   55   p   1  -1  0.0   42.656
   66   p   1   1  0.0  -31.671
   67   p   1   1  0.0  -30.533
   68   p   1   1  0.0  -29.395
   69   p   1   1  0.0   -1.138
   70   p   1   1  0.0    0.0
   71   p   1   1  0.0    1.138
   72   p   1   1  0.0   29.395
   73   p   1   1  0.0   30.533
   74   p   1   1  0.0   31.671
c
   95   pz   -64.540                  $ bottom of H2O reflector
   96   pz   -41.540                  $ bottom of shim housing
   97   pz   -20.955                  $ bottom of fuel element
   98   pz    -2.540                  $ bottom of Be reflector
   99   pz    -1.905                  $ bottom of fuel plates
  100   pz     0.000                  $ bottom of fuel meat
  101   pz     5.080                  $ bottom of Hf shim on drums
  102   pz     3.0163                 $ used for below OSC Hf region
  110   pz    15.240                  $ fuel segmentation plane
  120   pz    30.480                  $ fuel segmentation plane
  130   pz    45.720                  $ fuel segmentation plane
  149   pz    57.150                  $ tally plane 1.5 in below midplane
  150   pz    60.960                  $ middle of active fuel
  151   pz    64.770                  $ tally plane 1.5 in above midplane
  160   pz    76.200                  $ fuel segmentation plane
  170   pz    91.440                  $ fuel segmentation plane
  180   pz   106.680                  $ fuel segmentation plane
  185   pz   114.30                   $ bottom of safety rod
  200   pz   121.920                  $ top of fuel meat
  201   pz   123.825                  $ top of fuel plates
  202   pz   127.0000                 $ top of Be reflector
  203   pz   147.320                  $ top of fuel element
  204   pz   166.0000                 $ top of shim housing
  205   pz   187.0000                 $ top of H2O reflector
  208   pz   137.1600                 $ used for above OSC region
c
c         cylinders cetered at origin
c
  310   cz     4.09702                $ i.r of H holes housing
  311   cz     6.587                  $ o.r. of H holes housing
  321   cz    64.294                  $ i.r of Al reflector tank
  322   cz    68.580                  $ o.r of Al reflector tank
  331   cz   100.00                   $ o.r of water reflector
c
c
c        target definition planes
c
  401   pz    -2.05740              $ bottom of flux trap target stack
  416   pz   123.97740              $ top of flux trap target stack
c
c
  421   pz     1.27000                $ bottom of HSA lower target
c       422   pz    13.97000              $ HSA target segmentation surface
c       423   pz    26.67000              $ HSA target segmentation surface
  424   pz    39.37000                $ top of HSA lower target
```

```
  426   pz    41.91000                $ bottom of HSA middle target
c       427   pz    54.61000                $ HSA target segmentation surface
c       429   pz    67.31000                $ HSA target segmentation surface
  430   pz    80.01000                $ top of HSA middle target
  432   pz    82.55000                $ bottom of HSA upper target
c       433   pz    95.25000                $ HSA target segmentation surface
c       434   pz   107.95000                $ HSA target segmentation surface
  435   pz   120.65000                $ top of HSA upper target
c
  572   pz    106.68000             $ Center T/C ledge surface
c
c
c        surfaces for Be water holes
c
  625   c/z    26.167  -22.714   0.401       $ water hole around E2
  626   c/z    26.217  -18.725   0.401       $ water hole around E2
  627   c/z    27.994  -16.821   0.401       $ water hole around E2
  628   c/z    23.839  -20.186   0.401       $ water hole around E2
  629   c/z    22.714  -26.167   0.401       $ water hole around E3
  630   c/z    18.725  -26.217   0.401       $ water hole around E3
  631   c/z    16.821  -27.994   0.401       $ water hole around E3
  632   c/z    20.186  -23.839   0.401       $ water hole around E3
c
c     N-16 Detectors...square holes
c
  651   c/z    46.925    0.0     0.329       $ NE
  652   c/z    46.925    0.0     0.476       $ NE
  653   c/z    46.925    0.0     0.583       $ NE
  654   c/z    46.925    0.0     0.794       $ NE
  655   c/z    46.925    0.0     1.0375      $ NE
  666   c/z     0.0    -46.925   0.329       $ SE
  667   c/z     0.0    -46.925   0.476       $ SE
  668   c/z     0.0    -46.925   0.583       $ SE
  669   c/z     0.0    -46.925   0.794       $ SE
  670   c/z     0.0    -46.925   1.0375      $ SE
c
c     N-16 Detectors...outside drums (round holes)
c
  686   c/z    34.123  -34.123   0.329       $ E
  687   c/z    34.123  -34.123   0.476       $ E
  688   c/z    34.123  -34.123   0.583       $ E
  689   c/z    34.123  -34.123   0.794       $ E
  690   c/z    34.123  -34.123   0.953       $ E
c
c     SHIM RODS
c
  701   c/z     9.474    0.0     0.239       $ NE 1
  702   c/z     9.474    0.0     0.444       $ NE 1
  703   c/z     9.474    0.0     0.752       $ NE 1
  706   c/z    11.405    0.0     0.239       $ NE 2
  707   c/z    11.405    0.0     0.444       $ NE 2
  708   c/z    11.405    0.0     0.752       $ NE 2
  711   c/z    13.335    0.0     0.239       $ NE 3
  712   c/z    13.335    0.0     0.444       $ NE 3
  713   c/z    13.335    0.0     0.752       $ NE 3
  716   c/z    15.265    0.0     0.239       $ NE 4
  717   c/z    15.265    0.0     0.444       $ NE 4
  718   c/z    15.265    0.0     0.752       $ NE 4
  721   c/z    17.196    0.0     0.239       $ NE 5
  722   c/z    17.196    0.0     0.444       $ NE 5
  723   c/z    17.196    0.0     0.752       $ NE 5
  726   c/z    19.126    0.0     0.239       $ NE 6
  727   c/z    19.126    0.0     0.444       $ NE 6
  728   c/z    19.126    0.0     0.752       $ NE 6
c
  791   c/z     0.0     -9.474   0.239       $ SE 1
  792   c/z     0.0     -9.474   0.444       $ SE 1
  793   c/z     0.0     -9.474   0.752       $ SE 1
  796   c/z     0.0    -11.405   0.239       $ SE 2
  797   c/z     0.0    -11.405   0.444       $ SE 2
  798   c/z     0.0    -11.405   0.752       $ SE 2
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  801   c/z      0.0    -13.335   0.239       $ SE 3
  802   c/z      0.0    -13.335   0.444       $ SE 3
  803   c/z      0.0    -13.335   0.752       $ SE 3
  806   c/z      0.0    -15.265   0.239       $ SE 4
  807   c/z      0.0    -15.265   0.444       $ SE 4
  808   c/z      0.0    -15.265   0.752       $ SE 4
  811   c/z      0.0    -17.196   0.239       $ SE 5
  812   c/z      0.0    -17.196   0.444       $ SE 5
  813   c/z      0.0    -17.196   0.752       $ SE 5
  816   c/z      0.0    -19.126   0.239       $ SE 6
  817   c/z      0.0    -19.126   0.444       $ SE 6
  818   c/z      0.0    -19.126   0.752       $ SE 6
c
c
c       CONTROL DRUMS
c
  901   c/z    52.596  -10.157   1.429       $ E1
  902   c/z    52.596  -10.157   8.560       $ E1
  904   c/z    52.596  -10.157   9.195       $ E1
  905   c/z    52.596  -10.157   9.525       $ E1
  906   c/z    37.610  -23.228   1.429       $ E2
  907   c/z    37.610  -23.228   8.560       $ E2
  909   c/z    37.610  -23.228   9.195       $ E2
  910   c/z    37.610  -23.228   9.525       $ E2
  911   c/z    23.228  -37.610   1.429       $ E3
  912   c/z    23.228  -37.610   8.560       $ E3
  914   c/z    23.228  -37.610   9.195       $ E3
  915   c/z    23.228  -37.610   9.525       $ E3
  916   c/z    10.157  -52.596   1.429       $ E4
  917   c/z    10.157  -52.596   8.560       $ E4
  919   c/z    10.157  -52.596   9.195       $ E4
  920   c/z    10.157  -52.596   9.525       $ E4
c
c     ------------------------------------------------------------------------
c
c       CONTROL DRUM POSITION SURFACES
c
c       Nominal Beginning of Cycle Positions
c
  981   c/z   44.2816  -14.0837  9.195       $ DRUM E1 AT 50 DEGREES
  982   c/z   28.6141  -25.1311  9.195       $ DRUM E2 AT 50 DEGREES
  983   c/z   25.1311  -28.6141  9.195       $ DRUM E3 AT 50 DEGREES
  984   c/z   14.0837  -44.2816  9.195       $ DRUM E4 AT 50 DEGREES
c
c     ------------------------------------------------------------------------
c
c      981   c/z    44.2436  -6.3119  9.195       $ DRUM E1 AT 0 DEGREES
c      982   c/z    30.3697 -17.5600  9.195       $ DRUM E2 AT 0 DEGREES
c      983   c/z    17.5600 -30.3697  9.195       $ DRUM E3 AT 0 DEGREES
c      984   c/z     6.3119 -44.2436  9.195       $ DRUM E4 AT 0 DEGREES
c
c      981   c/z   43.4011  -10.2020  9.195       $ DRUM E1 AT 25 DEGREES
c      982   c/z   28.6527  -21.1509  9.195       $ DRUM E2 AT 25 DEGREES
c      983   c/z   21.1509  -28.6527  9.195       $ DRUM E3 AT 25 DEGREES
c      984   c/z   10.2020  -43.4011  9.195       $ DRUM E4 AT 25 DEGREES
c
c      981   c/z    43.7261 -12.5803  9.195       $ DRUM E1 AT 40 DEGREES
c      982   c/z    28.4203 -23.5400  9.195       $ DRUM E2 AT 40 DEGREES
c      983   c/z    23.5400 -28.4203  9.195       $ DRUM E3 AT 40 DEGREES
c      984   c/z    12.5803 -43.7261  9.195       $ DRUM E4 AT 40 DEGREES
c
c      981   c/z   44.2816  -14.0837  9.195       $ DRUM E1 AT 50 DEGREES
c      982   c/z   28.6141  -25.1311  9.195       $ DRUM E2 AT 50 DEGREES
c      983   c/z   25.1311  -28.6141  9.195       $ DRUM E3 AT 50 DEGREES
c      984   c/z   14.0837  -44.2816  9.195       $ DRUM E4 AT 50 DEGREES
c
c      981   c/z    45.0898 -15.4678  9.195       $ DRUM E1 AT 60 DEGREES
c      982   c/z    29.0812 -26.6643  9.195       $ DRUM E2 AT 60 DEGREES
c      983   c/z    26.6643 -29.0812  9.195       $ DRUM E3 AT 60 DEGREES
c      984   c/z    15.4678 -45.0898  9.195       $ DRUM E4 AT 60 DEGREES
c
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c      981   c/z    45.5812 -16.1018  9.195       $ DRUM E1 AT 65 DEGREES
c      982   c/z    29.4132 -27.3945  9.195       $ DRUM E2 AT 65 DEGREES
c      983   c/z    27.3945 -29.4132  9.195       $ DRUM E3 AT 65 DEGREES
c      984   c/z    16.1018 -45.5812  9.195       $ DRUM E4 AT 65 DEGREES
c
c      981   c/z   46.7201  -17.2296  9.195       $ DRUM E1 AT 75 DEGREES
c      982   c/z   30.2612  -28.7546  9.195       $ DRUM E2 AT 75 DEGREES
c      983   c/z   28.7546  -30.2612  9.195       $ DRUM E3 AT 75 DEGREES
c      984   c/z   17.2296  -46.7201  9.195       $ DRUM E4 AT 75 DEGREES
c
c      981   c/z    47.3589 -17.7148  9.195       $ DRUM E1 AT 80 DEGREES
c      982   c/z    30.7708 -29.3741  9.195       $ DRUM E2 AT 80 DEGREES
c      983   c/z    29.3741 -30.7708  9.195       $ DRUM E3 AT 80 DEGREES
c      984   c/z    17.7148 -47.3589  9.195       $ DRUM E4 AT 80 DEGREES
c
c      981   c/z    48.0375 -18.1425  9.195       $ DRUM E1 AT 85 DEGREES
c      982   c/z    31.3325 -29.9467  9.195       $ DRUM E2 AT 85 DEGREES
c      983   c/z    29.9467 -31.3325  9.195       $ DRUM E3 AT 85 DEGREES
c      984   c/z    18.1425 -48.0375  9.195       $ DRUM E4 AT 85 DEGREES
c
c      981   c/z   50.2597  -19.0502  9.195       $ DRUM E1 AT 100 DEGREES
c      982   c/z   33.2854  -31.3425  9.195       $ DRUM E2 AT 100 DEGREES
c      983   c/z   31.3425  -33.2854  9.195       $ DRUM E3 AT 100 DEGREES
c      984   c/z   19.0502  -50.2597  9.195       $ DRUM E4 AT 100 DEGREES
c
c      981   c/z    53.4422 -19.3130  9.195       $ DRUM E1 AT 120 DEGREES
c      982   c/z    36.3215 -32.3323  9.195       $ DRUM E2 AT 120 DEGREES
c      983   c/z    32.3323 -36.3215  9.195       $ DRUM E3 AT 120 DEGREES
c      984   c/z    19.3130 -53.4422  9.195       $ DRUM E4 AT 120 DEGREES
c
c      981   c/z   54.2370  -19.2044  9.195       $ DRUM E1 AT 125 DEGREES
c      982   c/z   37.1199  -32.4099  9.195       $ DRUM E2 AT 125 DEGREES
c      983   c/z   32.4099  -37.1199  9.195       $ DRUM E3 AT 125 DEGREES
c      984   c/z   19.2044  -54.2370  9.195       $ DRUM E4 AT 125 DEGREES
c
c      981   c/z    57.9068 -17.6632  9.195       $ DRUM E1 AT 150 DEGREES
c      982   c/z    41.0463 -31.7568  9.195       $ DRUM E2 AT 150 DEGREES
c      983   c/z    31.7568 -41.0463  9.195       $ DRUM E3 AT 150 DEGREES
c      984   c/z    17.6632 -57.9068  9.195       $ DRUM E4 AT 150 DEGREES
c
c     ------------------------------------------------------------------------
c
c       LOBE AND FUEL REGIONS
c
c       NE lobe
c
 1104   c/z    30.533    0.0     6.82625     $ water
 1105   c/z    30.533    0.0     7.46125     $ Al-6061 Baffle
c
 1111   c/z    30.533    0.0     7.658       $ 1st fuel plate-inner
c       1112   c/z    30.533    0.0     7.861       $ 1st fuel plate-outer
c       1113   c/z    30.533    0.0     8.059       $ 2nd fuel plate-inner
c       1114   c/z    30.533    0.0     8.186       $ 2nd fuel plate-outer
c       1115   c/z    30.533    0.0     8.385       $ 3rd fuel plate-inner
c       1116   c/z    30.533    0.0     8.512       $ 3rd fuel plate-outer
c       1117   c/z    30.533    0.0     8.710       $ 4th fuel plate-inner
 1118   c/z    30.533    0.0     8.837       $ 4th fuel plate-outer
 1119   c/z    30.533    0.0     9.0348      $ 5th fuel plate-inner
 1120   c/z    30.533    0.0    12.413       $ 15th fuel plate-outer
 1121   c/z    30.533    0.0    12.611       $ 16thfuel plate-inner
c       1122   c/z    30.533    0.0    12.738       $ 16thfuel plate-outer
c       1123   c/z    30.533    0.0    12.936       $ 17thfuel plate-inner
c       1124   c/z    30.533    0.0    13.063       $ 17thfuel plate-outer
c       1125   c/z    30.533    0.0    13.261       $ 18thfuel plate-inner
c       1126   c/z    30.533    0.0    13.388       $ 18thfuel plate-outer
c       1127   c/z    30.533    0.0    13.586       $ 19thfuel plate-inner
 1128   c/z    30.533    0.0    13.84        $ 19thfuel plate-outer
 1200   c/z    30.533    0.0    14.133       $ o.r. of NE loop
 1196   c/z    29.862    2.455  26.353       $ Be with sawcuts
c       1195   c/z    29.862   -2.455  26.353       $ Be with sawcuts
c
```

```
c    SE  lobe
c
c       1718   c/z     0.0    -30.533   0.114       $ water
c       1717   c/z     0.0    -30.533   0.238       $ Al flux wire tube
c       1715   c/z     0.0    -30.533   0.311       $ water
c       1716   c/z     0.0    -30.533   0.476       $ SS304 flux wire holder
 1714   c/z     0.0    -30.533   2.04470     $ shroud inner radius
 1719   c/z     0.0    -30.533   2.17170     $ shroud outer radius
 1701   c/z     0.0    -30.533   2.216       $ water
 1702   c/z     0.0    -30.533   2.381       $ flow tube
 1703   c/z     0.0    -30.533   2.696       $ water
 1704   c/z     0.0    -30.533   3.213       $ pressure tube
 1705   c/z     0.0    -30.533   3.341       $ He gap
 1706   c/z     0.0    -30.533   3.651       $ insulation tube
 1707   c/z     0.0    -30.533   4.128       $ water
 1708   c/z     0.0    -30.533   4.763       $ Safety Rod Guide Tube
 1709   c/z     0.0    -30.533   4.920       $ water
 1710   c/z     0.0    -30.533   5.791       $ inner radius of Hf safety rod
 1711   c/z     0.0    -30.533   6.426       $ o.r of Hf
 1712   c/z     0.0    -30.533   6.826       $ water
 1713   c/z     0.0    -30.533   7.461       $ Al baffle
c
 1721   c/z     0.0    -30.533   7.658       $ 1st fuel plate-inner
c       1722   c/z     0.0    -30.533   7.861       $ 1st fuel plate-outer
c       1723   c/z     0.0    -30.533   8.059       $ 2nd fuel plate-inner
c       1724   c/z     0.0    -30.533   8.186       $ 2nd fuel plate-outer
c       1725   c/z     0.0    -30.533   8.385       $ 3rd fuel plate-inner
c       1726   c/z     0.0    -30.533   8.512       $ 3rd fuel plate-outer
c       1727   c/z     0.0    -30.533   8.710       $ 4th fuel plate-inner
 1728   c/z     0.0    -30.533   8.837       $ 4th fuel plate-outer
 1729   c/z     0.0    -30.533   9.0348      $ 5th fuel plate-inner
 1730   c/z     0.0    -30.533  12.413       $ 15thfuel plate-outer
 1731   c/z     0.0    -30.533  12.611       $ 16thfuel plate-inner
c       1732   c/z     0.0    -30.533  12.738       $ 16thfuel plate-outer
c       1733   c/z     0.0    -30.533  12.936       $ 17thfuel plate-inner
c       1734   c/z     0.0    -30.533  13.063       $ 17thfuel plate-outer
c       1735   c/z     0.0    -30.533  13.261       $ 18thfuel plate-inner
c       1736   c/z     0.0    -30.533  13.388       $ 18thfuel plate-outer
c       1737   c/z     0.0    -30.533  13.586       $ 19thfuel plate-inner
 1738   c/z     0.0    -30.533  13.84        $ 19thfuel plate-outer
 1800   c/z     0.0    -30.533  14.133       $ o.r. of SE loop
c       1796   c/z     2.455  -29.862  26.353       $ Be with sockets
 1795   c/z    -2.455  -29.862  26.353       $ Be with sockets
c
c      E loop
c
 1807   c/z    15.267  -15.267   4.128       $ water
 1808   c/z    15.267  -15.267   4.763       $ Safety Rod Guide Tube
 1809   c/z    15.267  -15.267   4.920       $ water
 1810   c/z    15.267  -15.267   5.791       $ inner radius of Hf safety rod
 1811   c/z    15.267  -15.267   6.426       $ o.r. of Hf
 1812   c/z    15.267  -15.267   6.826       $ water
 1813   c/z    15.267  -15.267   7.461       $ Al baffle
 1881   c/z    15.267  -15.267   2.85750     $ E flux trap interior H2O
 1882   c/z    15.267  -15.267   3.17500     $ E flux trap housing
 1883   c/z    15.267  -15.267   3.33248     $ E water
 1884   c/z    15.267  -15.267   3.65125     $ E envelope tube
c
 1821   c/z    15.267  -15.267   7.658        $ 1st fuel plate-inner
c       1822   c/z    15.267  -15.267   7.861        $ 1st fuel plate-outer
c       1823   c/z    15.267  -15.267   8.059        $ 2nd fuel plate-inner
c       1824   c/z    15.267  -15.267   8.186        $ 2nd fuel plate-outer
c       1825   c/z    15.267  -15.267   8.385        $ 3rd fuel plate-inner
c       1826   c/z    15.267  -15.267   8.512        $ 3rd fuel plate-outer
c       1827   c/z    15.267  -15.267   8.710        $ 4th fuel plate-inner
 1828   c/z    15.267  -15.267   8.837        $ 4th fuel plate-outer
 1829   c/z    15.267  -15.267   9.0348       $ 5th fuel plate-inner
 1830   c/z    15.267  -15.267  12.413        $ 15thfuel plate-outer
 1831   c/z    15.267  -15.267  12.611        $ 16thfuel plate-inner
c       1832   c/z    15.267  -15.267  12.738        $ 16thfuel plate-outer
c       1833   c/z    15.267  -15.267  12.936        $ 17thfuel plate-inner
```

```
c       1834   c/z    15.267  -15.267  13.063        $ 17thfuel plate-outer
c       1835   c/z    15.267  -15.267  13.261        $ 18thfuel plate-inner
c       1836   c/z    15.267  -15.267  13.388        $ 18thfuel plate-outer
c       1837   c/z    15.267  -15.267  13.586        $ 19thfuel plate-inner
 1838   c/z    15.267  -15.267  13.84         $ 19thfuel plate-outer
 1900   c/z    15.267  -15.267  14.181        $ E loop outer radius
c
 2461   pz   122.55500
 2460   pz   118.11000
 2459   pz   104.77500
 2458   pz    91.44000
 2457   pz    87.63000
 2456   pz    69.21500
 2455   pz    64.77000
 2454   pz    55.88000
 2453   pz    51.43500
 2452   pz    20.32000
 2451   pz    -1.90500
c
 2413   pz   156.84500
 2412   pz   139.06500
 2411   pz   121.28500
 2410   pz   103.50500
 2409   pz    85.72500
 2408   pz    67.94500
 2407   pz    50.16500
 2406   pz    32.38500
 2405   pz    27.94000
 2404   pz    19.05000
 2403   pz     1.27000
 2402   pz   -16.51000
 2401   pz   -34.29000
c
c
c      C Flux Trap
c
11006   cz      3.62966                     $ ITV center filler outer radius
11007   cz      3.73880                     $ ITV filter inner radius
11008   cz      3.98780                     $ ITV filter outer radius
11130   c/z     1.98730   0.53249  0.64770   $ ITV NE interior void radius
11140   c/z     1.98730   0.53249  0.95250   $ ITV NE seal ring inner radius
11150   c/z     1.98730   0.53249  1.23190   $ ITV NE seal ring outer radius
11160   c/z     1.98730   0.53249  1.27000   $ ITV NE gas tube inner radius
11170   c/z     1.98730   0.53249  1.39700   $ ITV NE gas tube outer radius
11180   c/z     1.98730   0.53249  1.55956   $ ITV NE pressure tube outer radius
11190   c/z     1.98730   0.53249  1.66878   $ ITV NE test annulus outer radius
11230   c/z    -0.53249  -1.98730  0.64770   $ ITV SE interior void radius
11240   c/z    -0.53249  -1.98730  0.95250   $ ITV SE seal ring inner radius
11250   c/z    -0.53249  -1.98730  1.23190   $ ITV SE seal ring outer radius
11260   c/z    -0.53249  -1.98730  1.27000   $ ITV SE gas tube inner radius
11270   c/z    -0.53249  -1.98730  1.39700   $ ITV SE gas tube outer radius
11280   c/z    -0.53249  -1.98730  1.55956   $ ITV SE pressure tube outer radius
11290   c/z    -0.53249  -1.98730  1.66878   $ ITV SE test annulus outer radius
11770   c/z     1.97566  -1.97566  0.11430   $ ITV E FM sheath inner radius
11780   c/z     1.97566  -1.97566  0.23876   $ ITV E FM sheath outer radius
11790   c/z     1.97566  -1.97566  0.31750   $ ITV E FM position outer radius
c
c
c     ***************************************************************************
c
c               NE Flux Trap                              (beginning)
c
c     ***************************************************************************
c
c
c     NE Experiment Axial Levels
c
 2221  pz    129.84480
 2220  pz    104.47020
 2219  pz    102.53980
 2218  pz     77.16520
```

```
 2217  pz     75.23480
 2216  pz     49.86020
 2215  pz     47.92980
 2214  pz     22.55520
 2213  pz     20.62480
 2212  pz     -4.74980
 2211  pz     -6.68020
 2252  pz    131.76504
 2251  pz     -4.75996
c
c
  891   p  30.53300  0.0     0.0   30.53300  0.0     1.0  31.53300  1.0     0.0
c     892   p  30.53300  0.0     0.0   30.53300  0.0     1.0  32.53300  0.0     0.0
  893   p  30.53300  0.0     0.0   30.53300  0.0     1.0  31.53300 -1.0     0.0
  894   p  30.53300  0.0     0.0   30.53300  0.0     1.0  30.53300 -2.0     0.0
c
 1131   c/z    34.89672   0.00000  1.58115   $ NE basket inner radius
 1133   c/z    34.89672   0.00000  1.74625   $ NE basket outer radius
 1135   c/z    26.16928   0.00000  1.58115   $ SW basket inner radius
 1137   c/z    26.16928   0.00000  1.74625   $ SW basket outer radius
c
 1241   c/z    30.53300   0.00000  6.28015   $ Sleeve Inner Rad
 1242   c/z    30.53300   0.00000  6.58559   $ Sleeve Outer Rad
 1244   c/z    34.89672   0.00000  1.90500   $ NE position hole
 1246   c/z    26.16928   0.00000  1.90500   $ SW position hole
c     1247   c/z    34.70066   4.02467  0.26543   $ N guide tube Inner Rad
c     1248   c/z    34.70066   4.02467  0.47625   $ N guide tube Outer Rad
c     1249   c/z    34.70066   4.02467  0.48387   $ N hole
 1250   c/z    34.70066  -4.02467  0.26543   $ E guide tube Inner Rad
 1251   c/z    34.70066  -4.02467  0.47625   $ E guide tube Outer Rad
 1252   c/z    34.70066  -4.02467  0.48387   $ E hole
 1253   c/z    26.36534  -4.02467  0.26543   $ S guide tube Inner Rad
 1254   c/z    26.36534  -4.02467  0.47625   $ S guide tube Outer Rad
 1255   c/z    26.36534  -4.02467  0.48387   $ S hole
c     1256   c/z    26.36534   4.02467  0.26543   $ W guide tube Inner Rad
c     1257   c/z    26.36534   4.02467  0.47625   $ W guide tube Outer Rad
c     1258   c/z    26.36534   4.02467  0.48387   $ W hole
 1277   c/z    30.53300  -3.09626  2.89306   $ SE shroud Inner Radius
 1278   c/z    30.53300  -3.09626  3.02006   $ SE shroud Outer Radius
 1279   c/z    30.53300  -3.09626  3.17500   $ SE position hole
c     1297   c/z    30.53300   3.09626  2.89306   $ NW shroud Inner Radius
c     1298   c/z    30.53300   3.09626  3.02006   $ NW shroud Outer Radius
c     1299   c/z    30.53300   3.09626  3.17500   $ NW hole
c
12005  pz     -16.20012         $ Bottom of bottom plate
12007  pz      -9.85012         $ Bottom of fillers
12008  pz      -9.19226         $ Bottom of shroud
c
12029  pz      -1.87706         $ Bottom of shroud
12031  pz      -0.32512         $ Bottom of bottom sleeve
c
12106  pz     131.76504         $ Top of test position
12105  pz     104.46004
12104  pz      77.15504
12103  pz      49.85004
12102  pz      22.54504
12101  pz      -4.75996         $ Bottom of test position
c
12478  pz     123.17984         $ Top of top sleeve
12492  pz     134.64794         $ Top of shroud
12494  pz     135.25500         $ Bottom of top bracket
12497  pz     153.67000         $ Top of fillers
c
c
12992  pz     134.64794         $ Top of shroud
c    12994  pz     135.255001        $ Bottom of top bracket
c
c
c     ***************************************************************************
c
c               NE Flux Trap                                      (end)
```

```
c
c     ***************************************************************************
c
c
c
c
c
c      E Flux Trap
c
13104   c/z    16.61404 -13.91996  0.61595   $ E1 Al filler
13105   c/z    16.61404 -13.91996  0.62230   $ E1 Al basket inner radius
13106   c/z    16.61404 -13.91996  0.71755   $ E1 Al basket outer radius
13108   c/z    16.61404 -13.91996  0.88138   $ E1 guide tube inner radius
13109   c/z    16.61404 -13.91996  0.95249   $ E1 guide tube outer radius
13205   c/z    17.10709 -15.76005  0.62230   $ E2 Al basket inner radius
13206   c/z    17.10709 -15.76005  0.71755   $ E2 Al basket outer radius
13208   c/z    17.10709 -15.76005  0.88138   $ E2 guide tube inner radius
13209   c/z    17.10709 -15.76005  0.95249   $ E2 guide tube outer radius
13241   c/z    17.10709 -15.76005  0.31750   $ E2 HSA interior water
13242   c/z    17.10709 -15.76005  0.40005   $ E2 HSA Al holder
13245   c/z    17.10709 -15.76005  0.54610   $ E2 HSA Al housing inner rad
13246   c/z    17.10709 -15.76005  0.61595   $ E2 HSA Al housing outer rad
c
13304   c/z    15.76005 -17.10709  0.61595   $ E3 Al filler
13305   c/z    15.76005 -17.10709  0.62230   $ E3 Al basket inner radius
13306   c/z    15.76005 -17.10709  0.71755   $ E3 Al basket outer radius
13308   c/z    15.76005 -17.10709  0.88138   $ E3 guide tube inner radius
13309   c/z    15.76005 -17.10709  0.95249   $ E3 guide tube outer radius
13405   c/z    13.91996 -16.61404  0.62230   $ E4 Al basket inner radius
13406   c/z    13.91996 -16.61404  0.71755   $ E4 Al basket outer radius
13408   c/z    13.91996 -16.61404  0.88138   $ E4 guide tube inner radius
13409   c/z    13.91996 -16.61404  0.95249   $ E4 guide tube outer radius
13441   c/z    13.91996 -16.61404  0.31750   $ E4 HSA interior water
13442   c/z    13.91996 -16.61404  0.40005   $ E4 HSA Al holder
13445   c/z    13.91996 -16.61404  0.54610   $ E4 HSA Al housing inner rad
13446   c/z    13.91996 -16.61404  0.61595   $ E4 HSA Al housing outer rad
c
13504   c/z    13.42691 -14.77395  0.61595   $ E5 Al filler
13505   c/z    13.42691 -14.77395  0.62230   $ E5 Al basket inner radius
13506   c/z    13.42691 -14.77395  0.71755   $ E5 Al basket outer radius
13508   c/z    13.42691 -14.77395  0.88138   $ E5 guide tube inner radius
13509   c/z    13.42691 -14.77395  0.95249   $ E5 guide tube outer radius
c
c      13604   c/z    14.77395 -13.42691  0.61595   $ E6 Al filler
13605   c/z    14.77395 -13.42691  0.62230   $ E6 Al basket inner radius
13606   c/z    14.77395 -13.42691  0.71755   $ E6 Al basket outer radius
13608   c/z    14.77395 -13.42691  0.88138   $ E6 guide tube inner radius
13609   c/z    14.77395 -13.42691  0.95249   $ E6 guide tube outer radius
13641   c/z    14.77395 -13.42691  0.31750   $ E6 HSA interior water
13642   c/z    14.77395 -13.42691  0.40005   $ E6 HSA Al holder
13645   c/z    14.77395 -13.42691  0.54610   $ E6 HSA Al housing inner rad
13646   c/z    14.77395 -13.42691  0.61595   $ E6 HSA Al housing outer rad
c
13705   c/z    15.26700 -15.26700  0.62230   $ E7 Al basket inner radius
13706   c/z    15.26700 -15.26700  0.71755   $ E7 Al basket outer radius
13708   c/z    15.26700 -15.26700  0.88138   $ E7 guide tube inner radius
13709   c/z    15.26700 -15.26700  0.95249   $ E7 guide tube outer radius
13741   c/z    15.26700 -15.26700  0.31750   $ E7 HSA interior water
13742   c/z    15.26700 -15.26700  0.40005   $ E7 HSA Al holder
13745   c/z    15.26700 -15.26700  0.54610   $ E7 HSA Al housing inner rad
13746   c/z    15.26700 -15.26700  0.61595   $ E7 HSA Al housing outer rad
c
c
c       INNER A HOLES WITH 1/2-INCH HSA COBALT TARGETS
c
22011   c/z     8.29600  -1.55700  0.31750   $ A2 H2O Interior
22012   c/z     8.29600  -1.55700  0.40005   $ A2 Al Holder
22013   c/z     8.29600  -1.55700  0.54610   $ A2 Target
22014   c/z     8.29600  -1.55700  0.61595   $ A2 Al Housing
22015   c/z     8.29600  -1.55700  0.62230   $ A2 H2O Gap
22016   c/z     8.29600  -1.55700  0.71755   $ A2 Al Basket
22019   c/z     8.29600  -1.55700  0.79375   $ A2 H2O Gap
```

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23011   c/z     1.55700  -8.29600  0.31750   $ A3 H2O Interior
23012   c/z     1.55700  -8.29600  0.40005   $ A3 Al Holder
23013   c/z     1.55700  -8.29600  0.54610   $ A3 Target
23014   c/z     1.55700  -8.29600  0.61595   $ A3 Al Housing
23015   c/z     1.55700  -8.29600  0.62230   $ A3 H2O Gap
23016   c/z     1.55700  -8.29600  0.71755   $ A3 Al Basket
23019   c/z     1.55700  -8.29600  0.79375   $ A3 H2O Gap
c
c
c       OUTER A HOLE WITH LSA COBALT TARGETS
c
32011   c/z     1.04900 -20.95500  0.31750   $ A10 H2O Interior
32012   c/z     1.04900 -20.95500  0.40005   $ A10 Al Holder
32013   c/z     1.04900 -20.95500  0.54610   $ A10 Target
32014   c/z     1.04900 -20.95500  0.61595   $ A10 Al Housing
32015   c/z     1.04900 -20.95500  0.62230   $ A10 H2O Gap
32016   c/z     1.04900 -20.95500  0.71755   $ A10 Al Basket
32019   c/z     1.04900 -20.95500  0.79375   $ A10 H2O Gap
c
c
39001   c/z    20.955   -1.049   0.635       $ NE water hole (next to A9)
c
c         SMALL B HOLES
c
42001   c/z    25.19700 -15.38000  0.47625   $ B2 H2O interior
42002   c/z    25.19700 -15.38000  0.55880   $ B2 Al holder
42003   c/z    25.19700 -15.38000  0.70485   $ B2 Co target
c       42004   c/z    25.19700 -15.38000  0.65024   $ B2 Ir holder
42005   c/z    25.19700 -15.38000  0.79375   $ B2 Al housing
42006   c/z    25.19700 -15.38000  0.96520   $ B2 H2O Gap
42007   c/z    25.19700 -15.38000  1.06680   $ B2 Al basket
42009   c/z    25.19700 -15.38000  1.11125   $ B2 H2O Gap
c
43001   c/z    15.38000 -25.19700  0.47625   $ B3 H2O interior
43002   c/z    15.38000 -25.19700  0.55880   $ B3 Al holder
43003   c/z    15.38000 -25.19700  0.70485   $ B3 Co target
c      43004   c/z    15.38000 -25.19700  0.65024   $ B3 Ir holder
43005   c/z    15.38000 -25.19700  0.79375   $ B3 Al housing
43006   c/z    15.38000 -25.19700  0.96520   $ B3 H2O Gap
43007   c/z    15.38000 -25.19700  1.06680   $ B3 Al basket
43009   c/z    15.38000 -25.19700  1.11125   $ B3 H2O Gap
c
c
c         LARGE B Position
c
52009   c/z    25.33700 -25.33700  1.90500   $ B10 position outer radius
c
c
c
c       LARGE AND MEDIUM I HOLES
c
64001   c/z    53.50400  -24.76800  0.79400     $ I4 interior H2O
64008   c/z    53.50400  -24.76800  3.55000     $ I4 Be filler
64009   c/z    53.50400  -24.76800  4.12750     $ I4 H2O annulus
65001   c/z    49.06200  -32.89400  0.79400     $ I5 interior H2O
65008   c/z    49.06200  -32.89400  3.55000     $ I5 Be filler
65009   c/z    49.06200  -32.89400  4.12750     $ I5 H2O annulus
66001   c/z    39.60000  -39.60000  0.79400     $ I6 interior H2O
66008   c/z    39.60000  -39.60000  5.77200     $ I6 Be filler
66009   c/z    39.60000  -39.60000  6.35000     $ I6 H2O annulus
67001   c/z    32.89400  -49.06200  0.79400     $ I7 interior H2O
67008   c/z    32.89400  -49.06200  3.55000     $ I7 Be filler
67009   c/z    32.89400  -49.06200  4.12750     $ I7 H2O annulus
68001   c/z    24.76800  -53.50400  0.79400     $ I8 interior H2O
68008   c/z    24.76800  -53.50400  3.55000     $ I8 Be filler
68009   c/z    24.76800  -53.50400  4.12750     $ I8 H2O annulus
c
c
c       SMALL I HOLES
c
81008   c/z    60.96700   0.00000  1.86055   $ I21 Al filler
```

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81009   c/z    60.96700   0.00000  1.90500   $ I21 water annulus
82008   c/z     0.00000 -60.96700  1.86055   $ I22 Al filler
82009   c/z     0.00000 -60.96700  1.90500   $ I22 water annulus
c
c
c
c        H HOLE SURFACES FOR 1/2-INCH HSA COBALT TARGETS
c
90313   c/z     5.47600   0.00000  0.11400   $ H3 tally water
90315   c/z     5.47600   0.00000  0.22800   $ H3 flux monitor holder
90317   c/z     5.47600   0.00000  0.41700   $ H3 water annulus
90318   c/z     5.47600   0.00000  0.68600   $ H3 flux wire tube
90319   c/z     5.47600   0.00000  0.79375   $ H3 water annulus
90411   c/z     5.05900  -2.09600  0.31750   $ H4 H2O Interior
90412   c/z     5.05900  -2.09600  0.40005   $ H4 Al Holder
90413   c/z     5.05900  -2.09600  0.54610   $ H4 Target
90414   c/z     5.05900  -2.09600  0.61595   $ H4 Al Housing
90415   c/z     5.05900  -2.09600  0.62230   $ H4 H2O Gap
90416   c/z     5.05900  -2.09600  0.71755   $ H4 Al Basket
90419   c/z     5.05900  -2.09600  0.79375   $ H4 H2O Gap
90511   c/z     3.87200  -3.87200  0.31750   $ H5 H2O Interior
90512   c/z     3.87200  -3.87200  0.40005   $ H5 Al Holder
90513   c/z     3.87200  -3.87200  0.54610   $ H5 Target
90514   c/z     3.87200  -3.87200  0.61595   $ H5 Al Housing
90515   c/z     3.87200  -3.87200  0.62230   $ H5 H2O Gap
90516   c/z     3.87200  -3.87200  0.71755   $ H5 Al Basket
90519   c/z     3.87200  -3.87200  0.79375   $ H5 H2O Gap
90611   c/z     2.09600  -5.05900  0.31750   $ H6 H2O Interior
90612   c/z     2.09600  -5.05900  0.40005   $ H6 Al Holder
90613   c/z     2.09600  -5.05900  0.54610   $ H6 Target
90614   c/z     2.09600  -5.05900  0.61595   $ H6 Al Housing
90615   c/z     2.09600  -5.05900  0.62230   $ H6 H2O Gap
90616   c/z     2.09600  -5.05900  0.71755   $ H6 Al Basket
90619   c/z     2.09600  -5.05900  0.79375   $ H6 H2O Gap
90711   c/z     0.00000  -5.47600  0.31750   $ H7 H2O Interior
90712   c/z     0.00000  -5.47600  0.40005   $ H7 Al Holder
90713   c/z     0.00000  -5.47600  0.54610   $ H7 Target
90714   c/z     0.00000  -5.47600  0.61595   $ H7 Al Housing
90715   c/z     0.00000  -5.47600  0.62230   $ H7 H2O Gap
90716   c/z     0.00000  -5.47600  0.71755   $ H7 Al Basket
90719   c/z     0.00000  -5.47600  0.79375   $ H7 H2O Gap
c
c
c
c

c
c
c
c
c  ____________________________________________________________________
c
c
awtab   27458  57.4380612
        36085  84.183600   38089  88.144000   38090  89.135300
        44103 102.022000   44106 104.997000
        45105 104.005000   46107 105.987000   47510 108.961963
        51124 122.842000
        51125 123.832000   52127 125.815000   52527 125.815000
        53129 127.797997
        54133 131.764008   55134 132.757004   56140 138.709000
        57140 138.707993   58141 139.697998   58143 141.684998
        58144 142.678000
        59143 141.682999   60147 145.654000   61147 145.653000
        61148 146.647000   61548 146.647000
        61149 147.639000   61151 149.625000
        62151 149.623000   62153 151.608002   63155 153.592000
        63156 154.585007   63157 155.570000
        92241 238.986000
        95642 239.980134   95644 241.967648
        96249 246.935000   96250 247.928000
```

```
        97250 247.928000   98254 251.905000
c
c  ____________________________________________________________________________
c
c
c
c    ---------------------------------------------------------------------------
c
m10      8016.70c   3.34253-2
         1001.70c   6.68506-2
mt10     lwtr.10t
c
c     Medium I hole Be + H2O  (1.22430-1)
m14      1001.70c   3.40940-3
         8016.70c   1.70470-3
         4009.60c   1.17316-1
mt14     lwtr.10t  be.01t
c
c     Large I hole Be + H2O   (1.22948-1)
m15      1001.70c   1.93870-3
         8016.70c   9.69330-4
         4009.60c   1.20040-1
mt15     lwtr.10t  be.01t
c
c     BE + 1.53% water        (1.23264-1)
m16      1001.70c   5.11410-4
         8016.70c   1.02280-3
         4009.60c   1.21730-1
mt16     lwtr.10t  be.01t
c
c       Helium                (1.00000-4)
m17      2004.60c   1.00000-4
c
c      Beryllium              (1.23621-1)
m18      4009.60c   1.23621-1
mt18       be.01t
c
c
c       Below Hf  OSC-13/16"  (1.21987-1)
m19      1001.70c   4.67950-3
         8016.70c   2.33980-3
         4009.60c   1.14968-1
mt19     lwtr.10t  be.01t
c
c       OSC  Be + water       (1.21933-1)
m20      1001.70c   4.83330-3
         8016.70c   2.41665-3
         4009.60c   1.14683-1
mt20     lwtr.10t  be.01t
c
c       Above Hf OSC-2"       (9.46985-2)
m21     26000.50c   2.73916-2
        28000.50c   3.44292-3
        24000.50c   7.56778-3
         6000.70c   1.41670-4
         1001.70c   3.74363-2
         8016.70c   1.87182-2
mt21     lwtr.10t
c
c       Al,SS & H2O           (8.70910-2) Below OSC m20 ~2"
m22     26000.50c   1.55634-2
        28000.50c   1.95621-3
        29000.50c   1.60040-5
        24000.50c   4.31553-3
         6000.70c   8.04945-5
        13027.70c   1.47675-2
        14000.60c   8.69050-5
        12000.60c   1.67371-4
         1001.70c   3.34253-2
         8016.70c   1.67126-2
mt22     lwtr.10t
```

```
c
c       Above OSC             (7.64420-2)
m23     26000.50c   1.86761-2
        28000.50c   2.34745-3
        29000.50c   3.20080-5
        24000.50c   5.19114-3
         6000.70c   9.65934-5
        13027.70c   2.95350-2
        14000.60c   1.73810-4
        12000.60c   3.34742-4
         1001.70c   1.33701-2
         8016.70c   6.68506-3
mt23     lwtr.10t
c
c       Below OSC             (9.56360-2)
m24     26000.50c   3.11268-3
        28000.50c   3.91240-4
        29000.50c   6.40160-6
        24000.50c   8.66239-4
         6000.70c   1.60990-5
        13027.70c   5.90699-3
        14000.60c   3.47620-5
        12000.60c   6.69484-5
         1001.70c   5.68230-2
         8016.70c   2.84120-2
mt24     lwtr.10t
c
c       Above Be reflector    (9.82730-2)
m25     13027.70c   2.95350-3
         1001.70c   6.35080-2
         8016.70c   3.17540-2
        24000.50c   3.12944-6
        14000.60c   1.73810-5
        12000.60c   3.34742-5
        29000.50c   3.20080-6
mt25     lwtr.10t
c
c       Below Be reflector    (9.62700-2)
m26     13027.70c   5.90699-3
         1001.70c   6.01655-2
         8016.70c   3.00828-2
        24000.50c   6.25887-6
        14000.60c   3.47620-5
        12000.60c   6.69484-5
        29000.50c   6.40160-6
mt26     lwtr.10t
c
c      Nonfuel region + side plates    (7.21241-2)
m29     13027.70c   4.20684-2
         1001.70c   1.93147-2
         8016.70c   9.93734-3
        24000.50c   4.39810-5
        14000.60c   2.44273-4
        12000.60c   4.70446-4
        29000.50c   4.49840-5
mt29     lwtr.10t
c
c      Aluminum-6061                (6.02136-2)
m30     13027.70c   5.90699-2
        24000.50c   6.25887-5
        14000.60c   3.47620-4
        12000.60c   6.69484-4
        29000.50c   6.40160-5
c
c      Material above/below fuel meat  (8.46310-2)
c      39.1% Al + 60.1% water
m31     13027.70c   2.35630-2
         1001.70c   4.07120-2
         8016.70c   2.03560-2
mt31     lwtr.10t
c
```

```
c      Material above fuel plates      (9.26520-2)
m32     13027.70c   1.12410-2
         1001.70c   5.41290-2
         8016.70c   2.70640-2
        24000.50c   1.19110-5
        14000.60c   6.61520-5
        12000.60c   1.27400-4
        29000.50c   1.21820-5
mt32     lwtr.10t
c
c      Material below fuel plates      (9.36650-2)
m33     13027.70c   9.74650-3
         1001.70c   5.58200-2
         8016.70c   2.79100-2
        24000.50c   1.03270-5
        14000.60c   5.73570-5
        12000.60c   1.10460-4
        29000.50c   1.05630-5
mt33     lwtr.10t
c
c
c      SSTL 348                        (8.71157-2)
m38     6000.70c    3.20084-4
       14000.60c    1.28331-3
       15031.70c    6.20611-5
       16032.70c    4.49604-5
       24000.50c    1.84847-2
       25055.70c    1.74949-3
       26000.50c    4.94791-2
       28000.50c    1.51482-2
       41093.70c    5.17259-4
       73181.60c    2.65583-5
c
c
c      Cobalt + Al 5/8-inch HSA targets   (5.60527-2)
m43     27059.70c   1.78891-2
        13027.70c   3.74387-2
        12000.60c   4.24321-4
        14000.60c   2.20323-4
        24000.50c   3.96689-5
        29000.50c   4.05735-5
c
c      Cobalt + Al 1/2-inch HSA targets   (5.60276-2)
m44     27059.70c   1.79971-2
        13027.70c   3.73082-2
        12000.60c   4.22842-4
        14000.60c   2.19555-4
        24000.50c   3.95306-5
        29000.50c   4.04321-5
c
c
c       Hafnium                (4.55926e-02)
m71     1001.70c   3.91044e-05
        6012.50c   4.59419e-05
        7014.70c   1.74468e-05
       13027.70c   1.46081e-05
       22000.60c   8.23201e-06
       29000.50c   6.20258e-06
       40000.60c   2.67882e-03
       41093.70c   4.24243e-06
       42000.60c   8.21657e-07
       72000.60c   4.27740e-02    $ For gamma heating
       74000.55c   3.21579e-06
c
c       Shroud     (4.43197e-02)
m75     2004.60c   1.00000-9
       40000.60c   1.28848e-02
       72000.60c   3.14350e-02
c
c       Shroud     (4.37324e-02)
m77     2004.60c   1.00000-9
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        40000.60c   2.57695e-02
        72000.60c   1.79628e-02
c
c       Shroud     (4.34387e-02)
m80      2004.60c   1.00000-9
        40000.60c   3.22119e-02
        72000.60c   1.12268e-02
c
c       Zirconium  (4.29492e-02)
m82      2004.60c   1.00000-9
        40000.60c   4.29492e-02
c
c    ---------------------------------------------------------------------------
c
c
c   ******************************************************
c
c                       MATERIALS
c                   (ATR fuel elements)
c
c   ******************************************************
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  1
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.969921E-02 a/b-cm
m2106
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  4.522560E-06 $ B-10
                    92234.70c  5.873407E-06 $U-234
                    92235.70c  4.198373E-04 $U-235
                    92236.70c  1.517056E-05 $U-236
                    92237.70c  1.326253E-07 $U-237
                    92238.70c  3.057844E-05 $U-238
                    93237.70c  1.886031E-07 $Np237
                    94239.70c  3.962382E-07 $Pu239
                    94240.70c  3.184477E-08 $Pu240
                    94241.70c  1.038741E-08 $Pu241
                    36083.70c  2.749474E-07 $Kr-83
                    42095.70c  9.415301E-08 $Mo-95
                    44101.70c  2.720314E-06 $Ru101
                    45103.70c  3.635464E-07 $Rh103
                    45105.70c  7.425954E-31 $Rh105
                    48113.70c  7.621751E-10 $Cd113
                    54131.70c  9.237888E-07 $Xe131
                    54133.70c  5.861527E-31 $Xe133
                    55133.70c  2.445752E-06 $Cs133
                    54135.70c  5.732034E-31 $Xe135
                    57140.70c  5.568047E-31 $La140
                    58141.70c  5.528633E-31 $Ce141
                    59143.70c  5.451170E-31 $Pr143
                    60143.70c  1.325206E-06 $Nd143
                    60145.70c  2.037404E-06 $Nd145
                    61147.70c  5.302593E-31 $Pm147
                    61149.70c  5.231266E-31 $Pm149
                    62149.70c  2.657344E-08 $Sm149
                    61151.70c  5.161789E-31 $Pm151
                    62151.70c  7.853828E-08 $Sm151
                    62152.70c  2.482928E-07 $Sm152
                    63153.70c  1.027083E-07 $Eu153
                    63155.70c  1.247127E-08 $Eu155
                    64157.70c  1.440627E-10 $Gd157
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mt2106      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  1
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.967400E-02 a/b-cm
m2107
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  4.522560E-06 $ B-10
                   92234.70c  5.632970E-06 $U-234
                   92235.70c  3.818421E-04 $U-235
                   92236.70c  2.188267E-05 $U-236
                   92237.70c  2.098019E-07 $U-237
                   92238.70c  3.024020E-05 $U-238
                   93237.70c  2.983540E-07 $Np237
                   94239.70c  6.268152E-07 $Pu239
                   94240.70c  5.037572E-08 $Pu240
                   94241.70c  1.643201E-08 $Pu241
                   36083.70c  4.349434E-07 $Kr-83
                   42095.70c  1.489421E-07 $Mo-95
                   44101.70c  4.303306E-06 $Ru101
                   45103.70c  5.750994E-07 $Rh103
                   45105.70c  1.174723E-30 $Rh105
                   48113.70c  1.205696E-09 $Cd113
                   54131.70c  1.461355E-06 $Xe131
                   54133.70c  9.272438E-31 $Xe133
                   55133.70c  3.868971E-06 $Cs133
                   54135.70c  9.067592E-31 $Xe135
                   57140.70c  8.808179E-31 $La140
                   58141.70c  8.745828E-31 $Ce141
                   59143.70c  8.623289E-31 $Pr143
                   60143.70c  2.096363E-06 $Nd143
                   60145.70c  3.223000E-06 $Nd145
                   61147.70c  8.388252E-31 $Pm147
                   61149.70c  8.275419E-31 $Pm149
                   62149.70c  4.203692E-08 $Sm149
                   61151.70c  8.165512E-31 $Pm151
                   62151.70c  1.242409E-07 $Sm151
                   62152.70c  3.927781E-07 $Sm152
                   63153.70c  1.624758E-07 $Eu153
                   63155.70c  1.972849E-08 $Eu155
                   64157.70c  2.278950E-10 $Gd157
mt2107      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  1
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.965632E-02 a/b-cm
m2108
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  4.522560E-06 $ B-10
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                    92234.70c  5.464604E-06 $U-234
                    92235.70c  3.552361E-04 $U-235
                    92236.70c  2.658282E-05 $U-236
                    92237.70c  2.638447E-07 $U-237
                    92238.70c  3.000335E-05 $U-238
                    93237.70c  3.752070E-07 $Np237
                    94239.70c  7.882763E-07 $Pu239
                    94240.70c  6.335199E-08 $Pu240
                    94241.70c  2.066472E-08 $Pu241
                    36083.70c  5.469805E-07 $Kr-83
                    42095.70c  1.873080E-07 $Mo-95
                    44101.70c  5.411793E-06 $Ru101
                    45103.70c  7.232392E-07 $Rh103
                    45105.70c  1.477320E-30 $Rh105
                    48113.70c  1.516271E-09 $Cd113
                    54131.70c  1.837786E-06 $Xe131
                    54133.70c  1.166092E-30 $Xe133
                    55133.70c  4.865578E-06 $Cs133
                    54135.70c  1.140331E-30 $Xe135
                    57140.70c  1.107708E-30 $La140
                    58141.70c  1.099866E-30 $Ce141
                    59143.70c  1.084456E-30 $Pr143
                    60143.70c  2.636365E-06 $Nd143
                    60145.70c  4.053211E-06 $Nd145
                    61147.70c  1.054898E-30 $Pm147
                    61149.70c  1.040708E-30 $Pm149
                    62149.70c  5.286519E-08 $Sm149
                    61151.70c  1.026887E-30 $Pm151
                    62151.70c  1.562441E-07 $Sm151
                    62152.70c  4.939537E-07 $Sm152
                    63153.70c  2.043279E-07 $Eu153
                    63155.70c  2.481034E-08 $Eu155
                    64157.70c  2.865984E-10 $Gd157
mt2108      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  1
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.964923E-02 a/b-cm
m2109
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  4.522561E-06 $ B-10
                    92234.70c  5.396837E-06 $U-234
                    92235.70c  3.445273E-04 $U-235
                    92236.70c  2.847462E-05 $U-236
                    92237.70c  2.855968E-07 $U-237
                    92238.70c  2.990802E-05 $U-238
                    93237.70c  4.061401E-07 $Np237
                    94239.70c  8.532641E-07 $Pu239
                    94240.70c  6.857490E-08 $Pu240
                    94241.70c  2.236838E-08 $Pu241
                    36083.70c  5.920750E-07 $Kr-83
                    42095.70c  2.027502E-07 $Mo-95
                    44101.70c  5.857956E-06 $Ru101
                    45103.70c  7.828650E-07 $Rh103
                    45105.70c  1.599114E-30 $Rh105
                    48113.70c  1.641277E-09 $Cd113
                    54131.70c  1.989298E-06 $Xe131
                    54133.70c  1.262228E-30 $Xe133
                    55133.70c  5.266710E-06 $Cs133
                    54135.70c  1.234343E-30 $Xe135
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                   57140.70c  1.199030E-30 $La140
                   58141.70c  1.190542E-30 $Ce141
                   59143.70c  1.173861E-30 $Pr143
                   60143.70c  2.853714E-06 $Nd143
                   60145.70c  4.387370E-06 $Nd145
                   61147.70c  1.141867E-30 $Pm147
                   61149.70c  1.126507E-30 $Pm149
                   62149.70c  5.722355E-08 $Sm149
                   61151.70c  1.111546E-30 $Pm151
                   62151.70c  1.691252E-07 $Sm151
                   62152.70c  5.346767E-07 $Sm152
                   63153.70c  2.211732E-07 $Eu153
                   63155.70c  2.685577E-08 $Eu155
                   64157.70c  3.102264E-10 $Gd157
mt2109      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  1
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.965902E-02 a/b-cm
m2110
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  4.522560E-06 $ B-10
                   92234.70c  5.490160E-06 $U-234
                   92235.70c  3.592745E-04 $U-235
                   92236.70c  2.586940E-05 $U-236
                   92237.70c  2.556417E-07 $U-237
                   92238.70c  3.003930E-05 $U-238
                   93237.70c  3.635416E-07 $Np237
                   94239.70c  7.637686E-07 $Pu239
                   94240.70c  6.138235E-08 $Pu240
                   94241.70c  2.002225E-08 $Pu241
                   36083.70c  5.299746E-07 $Kr-83
                   42095.70c  1.814845E-07 $Mo-95
                   44101.70c  5.243538E-06 $Ru101
                   45103.70c  7.007535E-07 $Rh103
                   45105.70c  1.431389E-30 $Rh105
                   48113.70c  1.469130E-09 $Cd113
                   54131.70c  1.780648E-06 $Xe131
                   54133.70c  1.129838E-30 $Xe133
                   55133.70c  4.714306E-06 $Cs133
                   54135.70c  1.104878E-30 $Xe135
                   57140.70c  1.073269E-30 $La140
                   58141.70c  1.065671E-30 $Ce141
                   59143.70c  1.050740E-30 $Pr143
                   60143.70c  2.554399E-06 $Nd143
                   60145.70c  3.927196E-06 $Nd145
                   61147.70c  1.022101E-30 $Pm147
                   61149.70c  1.008352E-30 $Pm149
                   62149.70c  5.122159E-08 $Sm149
                   61151.70c  9.949601E-31 $Pm151
                   62151.70c  1.513864E-07 $Sm151
                   62152.70c  4.785965E-07 $Sm152
                   63153.70c  1.979753E-07 $Eu153
                   63155.70c  2.403898E-08 $Eu155
                   64157.70c  2.776880E-10 $Gd157
mt2110      lwtr.10t
c
c
c
c
```

```
c            ATR Element No. =  6
c            Radial Zone No. =  1
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.967913E-02 a/b-cm
m2111
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  4.522560E-06 $ B-10
                   92234.70c  5.682128E-06 $U-234
                   92235.70c  3.896104E-04 $U-235
                   92236.70c  2.051036E-05 $U-236
                   92237.70c  1.940229E-07 $U-237
                   92238.70c  3.030936E-05 $U-238
                   93237.70c  2.759150E-07 $Np237
                   94239.70c  5.796729E-07 $Pu239
                   94240.70c  4.658700E-08 $Pu240
                   94241.70c  1.519617E-08 $Pu241
                   36083.70c  4.022317E-07 $Kr-83
                   42095.70c  1.377402E-07 $Mo-95
                   44101.70c  3.979657E-06 $Ru101
                   45103.70c  5.318466E-07 $Rh103
                   45105.70c  1.086373E-30 $Rh105
                   48113.70c  1.115017E-09 $Cd113
                   54131.70c  1.351448E-06 $Xe131
                   54133.70c  8.575064E-31 $Xe133
                   55133.70c  3.577989E-06 $Cs133
                   54135.70c  8.385625E-31 $Xe135
                   57140.70c  8.145722E-31 $La140
                   58141.70c  8.088060E-31 $Ce141
                   59143.70c  7.974737E-31 $Pr143
                   60143.70c  1.938697E-06 $Nd143
                   60145.70c  2.980600E-06 $Nd145
                   61147.70c  7.757377E-31 $Pm147
                   61149.70c  7.653031E-31 $Pm149
                   62149.70c  3.887535E-08 $Sm149
                   61151.70c  7.551389E-31 $Pm151
                   62151.70c  1.148968E-07 $Sm151
                   62152.70c  3.632376E-07 $Sm152
                   63153.70c  1.502561E-07 $Eu153
                   63155.70c  1.824472E-08 $Eu155
                   64157.70c  2.107552E-10 $Gd157
mt2111      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  1
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.971317E-02 a/b-cm
m2112
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  4.522560E-06 $ B-10
                   92234.70c  6.006495E-06 $U-234
                   92235.70c  4.408686E-04 $U-235
                   92236.70c  1.145522E-05 $U-236
                   92237.70c  8.990592E-08 $U-237
                   92238.70c  3.076566E-05 $U-238
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                    93237.70c  1.278530E-07 $Np237
                    94239.70c  2.686077E-07 $Pu239
                    94240.70c  2.158739E-08 $Pu240
                    94241.70c  7.041570E-09 $Pu241
                    36083.70c  1.863853E-07 $Kr-83
                    42095.70c  6.382580E-08 $Mo-95
                    44101.70c  1.844085E-06 $Ru101
                    45103.70c  2.464460E-07 $Rh103
                    45105.70c  5.034013E-31 $Rh105
                    48113.70c  5.166742E-10 $Cd113
                    54131.70c  6.262313E-07 $Xe131
                    54133.70c  3.973496E-31 $Xe133
                    55133.70c  1.657961E-06 $Cs133
                    54135.70c  3.885714E-31 $Xe135
                    57140.70c  3.774548E-31 $La140
                    58141.70c  3.747829E-31 $Ce141
                    59143.70c  3.695318E-31 $Pr143
                    60143.70c  8.983495E-07 $Nd143
                    60145.70c  1.381145E-06 $Nd145
                    61147.70c  3.594598E-31 $Pm147
                    61149.70c  3.546246E-31 $Pm149
                    62149.70c  1.801398E-08 $Sm149
                    61151.70c  3.499148E-31 $Pm151
                    62151.70c  5.324066E-08 $Sm151
                    62152.70c  1.683163E-07 $Sm152
                    63153.70c  6.962537E-08 $Eu153
                    63155.70c  8.454202E-09 $Eu155
                    64157.70c  9.765931E-11 $Gd157
mt2112      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  2
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.290653E-02 a/b-cm
m2113
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  7.953978E-06 $U-234
                    92235.70c  5.813325E-04 $U-235
                    92236.70c  1.604282E-05 $U-236
                    92237.70c  1.288956E-07 $U-237
                    92238.70c  4.084960E-05 $U-238
                    93237.70c  1.832992E-07 $Np237
                    94239.70c  3.850953E-07 $Pu239
                    94240.70c  3.094924E-08 $Pu240
                    94241.70c  1.009530E-08 $Pu241
                    36083.70c  2.672154E-07 $Kr-83
                    42095.70c  9.150528E-08 $Mo-95
                    44101.70c  2.643814E-06 $Ru101
                    45103.70c  3.533228E-07 $Rh103
                    45105.70c  7.217125E-31 $Rh105
                    48113.70c  7.407414E-10 $Cd113
                    54131.70c  8.978103E-07 $Xe131
                    54133.70c  5.696692E-31 $Xe133
                    55133.70c  2.376973E-06 $Cs133
                    54135.70c  5.570840E-31 $Xe135
                    57140.70c  5.411465E-31 $La140
                    58141.70c  5.373159E-31 $Ce141
                    59143.70c  5.297875E-31 $Pr143
                    60143.70c  1.287939E-06 $Nd143
                    60145.70c  1.980108E-06 $Nd145
```

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                   61147.70c  5.153475E-31 $Pm147
                   61149.70c  5.084154E-31 $Pm149
                   62149.70c  2.582615E-08 $Sm149
                   61151.70c  5.016631E-31 $Pm151
                   62151.70c  7.632965E-08 $Sm151
                   62152.70c  2.413104E-07 $Sm152
                   63153.70c  9.981995E-08 $Eu153
                   63155.70c  1.212056E-08 $Eu155
                   64157.70c  1.400114E-10 $Gd157
mt2113      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  2
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.288057E-02 a/b-cm
m2114
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  7.706201E-06 $U-234
                   92235.70c  5.421778E-04 $U-235
                   92236.70c  2.295979E-05 $U-236
                   92237.70c  2.084276E-07 $U-237
                   92238.70c  4.050104E-05 $U-238
                   93237.70c  2.963998E-07 $Np237
                   94239.70c  6.227094E-07 $Pu239
                   94240.70c  5.004575E-08 $Pu240
                   94241.70c  1.632438E-08 $Pu241
                   36083.70c  4.320945E-07 $Kr-83
                   42095.70c  1.479665E-07 $Mo-95
                   44101.70c  4.275118E-06 $Ru101
                   45103.70c  5.713324E-07 $Rh103
                   45105.70c  1.167028E-30 $Rh105
                   48113.70c  1.197799E-09 $Cd113
                   54131.70c  1.451783E-06 $Xe131
                   54133.70c  9.211702E-31 $Xe133
                   55133.70c  3.843628E-06 $Cs133
                   54135.70c  9.008198E-31 $Xe135
                   57140.70c  8.750483E-31 $La140
                   58141.70c  8.688541E-31 $Ce141
                   59143.70c  8.566805E-31 $Pr143
                   60143.70c  2.082631E-06 $Nd143
                   60145.70c  3.201888E-06 $Nd145
                   61147.70c  8.333307E-31 $Pm147
                   61149.70c  8.221213E-31 $Pm149
                   62149.70c  4.176157E-08 $Sm149
                   61151.70c  8.112026E-31 $Pm151
                   62151.70c  1.234271E-07 $Sm151
                   62152.70c  3.902053E-07 $Sm152
                   63153.70c  1.614115E-07 $Eu153
                   63155.70c  1.959926E-08 $Eu155
                   64157.70c  2.264022E-10 $Gd157
mt2114      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  2
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.286028E-02 a/b-cm
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m2115
                  1001.70c  3.920790E-02 $ H-1
                  8016.70c  1.960390E-02 $ O-16
                 12000.60c  1.660990E-04 $Mg-nat
                 13027.70c  2.315370E-02 $Al-27
                 14000.60c  8.624450E-05 $Si-nat
                 24000.50c  1.552830E-05 $Cr-nat
                 29000.50c  1.588240E-05 $Cu-nat
                  5010.70c  1.714619E-28 $ B-10
                 92234.70c  7.513132E-06 $U-234
                 92235.70c  5.116678E-04 $U-235
                 92236.70c  2.834960E-05 $U-236
                 92237.70c  2.704003E-07 $U-237
                 92238.70c  4.022944E-05 $U-238
                 93237.70c  3.845295E-07 $Np237
                 94239.70c  8.078620E-07 $Pu239
                 94240.70c  6.492604E-08 $Pu240
                 94241.70c  2.117817E-08 $Pu241
                 36083.70c  5.605709E-07 $Kr-83
                 42095.70c  1.919619E-07 $Mo-95
                 44101.70c  5.546255E-06 $Ru101
                 45103.70c  7.412090E-07 $Rh103
                 45105.70c  1.514025E-30 $Rh105
                 48113.70c  1.553945E-09 $Cd113
                 54131.70c  1.883448E-06 $Xe131
                 54133.70c  1.195065E-30 $Xe133
                 55133.70c  4.986470E-06 $Cs133
                 54135.70c  1.168664E-30 $Xe135
                 57140.70c  1.135230E-30 $La140
                 58141.70c  1.127194E-30 $Ce141
                 59143.70c  1.111401E-30 $Pr143
                 60143.70c  2.701868E-06 $Nd143
                 60145.70c  4.153919E-06 $Nd145
                 61147.70c  1.081108E-30 $Pm147
                 61149.70c  1.066566E-30 $Pm149
                 62149.70c  5.417870E-08 $Sm149
                 61151.70c  1.052401E-30 $Pm151
                 62151.70c  1.601261E-07 $Sm151
                 62152.70c  5.062266E-07 $Sm152
                 63153.70c  2.094047E-07 $Eu153
                 63155.70c  2.542679E-08 $Eu155
                 64157.70c  2.937193E-10 $Gd157
mt2115      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  2
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.285143E-02 a/b-cm
m2116
                  1001.70c  3.920790E-02 $ H-1
                  8016.70c  1.960390E-02 $ O-16
                 12000.60c  1.660990E-04 $Mg-nat
                 13027.70c  2.315370E-02 $Al-27
                 14000.60c  8.624450E-05 $Si-nat
                 24000.50c  1.552830E-05 $Cr-nat
                 29000.50c  1.588240E-05 $Cu-nat
                  5010.70c  8.573098E-29 $ B-10
                 92234.70c  7.428716E-06 $U-234
                 92235.70c  4.983281E-04 $U-235
                 92236.70c  3.070611E-05 $U-236
                 92237.70c  2.974956E-07 $U-237
                 92238.70c  4.011067E-05 $U-238
                 93237.70c  4.230611E-07 $Np237
                 94239.70c  8.888138E-07 $Pu239
                 94240.70c  7.143195E-08 $Pu240
                 94241.70c  2.330032E-08 $Pu241
                 36083.70c  6.167427E-07 $Kr-83
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                    42095.70c  2.111974E-07 $Mo-95
                    44101.70c  6.102017E-06 $Ru101
                    45103.70c  8.154817E-07 $Rh103
                    45105.70c  1.665738E-30 $Rh105
                    48113.70c  1.709657E-09 $Cd113
                    54131.70c  2.072178E-06 $Xe131
                    54133.70c  1.314817E-30 $Xe133
                    55133.70c  5.486138E-06 $Cs133
                    54135.70c  1.285770E-30 $Xe135
                    57140.70c  1.248985E-30 $La140
                    58141.70c  1.240144E-30 $Ce141
                    59143.70c  1.222768E-30 $Pr143
                    60143.70c  2.972609E-06 $Nd143
                    60145.70c  4.570161E-06 $Nd145
                    61147.70c  1.189441E-30 $Pm147
                    61149.70c  1.173441E-30 $Pm149
                    62149.70c  5.960767E-08 $Sm149
                    61151.70c  1.157856E-30 $Pm151
                    62151.70c  1.761716E-07 $Sm151
                    62152.70c  5.569530E-07 $Sm152
                    63153.70c  2.303880E-07 $Eu153
                    63155.70c  2.797467E-08 $Eu155
                    64157.70c  3.231514E-10 $Gd157
mt2116      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  2
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.286359E-02 a/b-cm
m2117
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  7.544610E-06 $U-234
                    92235.70c  5.166420E-04 $U-235
                    92236.70c  2.747086E-05 $U-236
                    92237.70c  2.602965E-07 $U-237
                    92238.70c  4.027372E-05 $U-238
                    93237.70c  3.701611E-07 $Np237
                    94239.70c  7.776754E-07 $Pu239
                    94240.70c  6.250002E-08 $Pu240
                    94241.70c  2.038682E-08 $Pu241
                    36083.70c  5.396245E-07 $Kr-83
                    42095.70c  1.847891E-07 $Mo-95
                    44101.70c  5.339014E-06 $Ru101
                    45103.70c  7.135129E-07 $Rh103
                    45105.70c  1.457452E-30 $Rh105
                    48113.70c  1.495880E-09 $Cd113
                    54131.70c  1.813071E-06 $Xe131
                    54133.70c  1.150411E-30 $Xe133
                    55133.70c  4.800145E-06 $Cs133
                    54135.70c  1.124996E-30 $Xe135
                    57140.70c  1.092811E-30 $La140
                    58141.70c  1.085075E-30 $Ce141
                    59143.70c  1.069872E-30 $Pr143
                    60143.70c  2.600910E-06 $Nd143
                    60145.70c  3.998703E-06 $Nd145
                    61147.70c  1.040712E-30 $Pm147
                    61149.70c  1.026713E-30 $Pm149
                    62149.70c  5.215425E-08 $Sm149
                    61151.70c  1.013077E-30 $Pm151
                    62151.70c  1.541429E-07 $Sm151
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                  62152.70c  4.873110E-07 $Sm152
                  63153.70c  2.015801E-07 $Eu153
                  63155.70c  2.447669E-08 $Eu155
                  64157.70c  2.827442E-10 $Gd157
mt2117      lwtr.10t
c
c
c
c
c           ATR Element No. =  6
c           Radial Zone No. =  2
c           Axial  Zone No. =  6
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.288571E-02 a/b-cm
m2118
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  1.714619E-28 $ B-10
                  92234.70c  7.755540E-06 $U-234
                  92235.70c  5.499743E-04 $U-235
                  92236.70c  2.158247E-05 $U-236
                  92237.70c  1.925910E-07 $U-237
                  92238.70c  4.057045E-05 $U-238
                  93237.70c  2.738789E-07 $Np237
                  94239.70c  5.753952E-07 $Pu239
                  94240.70c  4.624321E-08 $Pu240
                  94241.70c  1.508403E-08 $Pu241
                  36083.70c  3.992634E-07 $Kr-83
                  42095.70c  1.367238E-07 $Mo-95
                  44101.70c  3.950289E-06 $Ru101
                  45103.70c  5.279219E-07 $Rh103
                  45105.70c  1.078356E-30 $Rh105
                  48113.70c  1.106788E-09 $Cd113
                  54131.70c  1.341475E-06 $Xe131
                  54133.70c  8.511786E-31 $Xe133
                  55133.70c  3.551585E-06 $Cs133
                  54135.70c  8.323743E-31 $Xe135
                  57140.70c  8.085611E-31 $La140
                  58141.70c  8.028375E-31 $Ce141
                  59143.70c  7.915889E-31 $Pr143
                  60143.70c  1.924390E-06 $Nd143
                  60145.70c  2.958605E-06 $Nd145
                  61147.70c  7.700132E-31 $Pm147
                  61149.70c  7.596555E-31 $Pm149
                  62149.70c  3.858847E-08 $Sm149
                  61151.70c  7.495665E-31 $Pm151
                  62151.70c  1.140489E-07 $Sm151
                  62152.70c  3.605571E-07 $Sm152
                  63153.70c  1.491473E-07 $Eu153
                  63155.70c  1.811008E-08 $Eu155
                  64157.70c  2.091999E-10 $Gd157
mt2118      lwtr.10t
c
c
c
c
c           ATR Element No. =  6
c           Radial Zone No. =  2
c           Axial  Zone No. =  7
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.291521E-02 a/b-cm
m2119
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
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```
                     14000.60c  8.624450E-05 $Si-nat
                     24000.50c  1.552830E-05 $Cr-nat
                     29000.50c  1.588240E-05 $Cu-nat
                      5010.70c  1.714619E-28 $ B-10
                     92234.70c  8.036629E-06 $U-234
                     92235.70c  5.943936E-04 $U-235
                     92236.70c  1.373548E-05 $U-236
                     92237.70c  1.023656E-07 $U-237
                     92238.70c  4.096588E-05 $U-238
                     93237.70c  1.455716E-07 $Np237
                     94239.70c  3.058329E-07 $Pu239
                     94240.70c  2.457910E-08 $Pu240
                     94241.70c  8.017431E-09 $Pu241
                     36083.70c  2.122157E-07 $Kr-83
                     42095.70c  7.267115E-08 $Mo-95
                     44101.70c  2.099650E-06 $Ru101
                     45103.70c  2.806000E-07 $Rh103
                     45105.70c  5.731656E-31 $Rh105
                     48113.70c  5.882779E-10 $Cd113
                     54131.70c  7.130180E-07 $Xe131
                     54133.70c  4.524167E-31 $Xe133
                     55133.70c  1.887731E-06 $Cs133
                     54135.70c  4.424219E-31 $Xe135
                     57140.70c  4.297647E-31 $La140
                     58141.70c  4.267226E-31 $Ce141
                     59143.70c  4.207437E-31 $Pr143
                     60143.70c  1.022848E-06 $Nd143
                     60145.70c  1.572552E-06 $Nd145
                     61147.70c  4.092758E-31 $Pm147
                     61149.70c  4.037706E-31 $Pm149
                     62149.70c  2.051046E-08 $Sm149
                     61151.70c  3.984080E-31 $Pm151
                     62151.70c  6.061905E-08 $Sm151
                     62152.70c  1.916426E-07 $Sm152
                     63153.70c  7.927446E-08 $Eu153
                     63155.70c  9.625834E-09 $Eu155
                     64157.70c  1.111935E-10 $Gd157
mt2119      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  3
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.864934E-02 a/b-cm
m2120
                      1001.70c  3.212840E-02 $ H-1
                      8016.70c  1.606420E-02 $ O-16
                     12000.60c  2.399430E-04 $Mg-nat
                     13027.70c  2.958200E-02 $Al-27
                     14000.60c  1.245870E-04 $Si-nat
                     24000.50c  2.243180E-05 $Cr-nat
                     29000.50c  2.294330E-05 $Cu-nat
                      5010.70c  4.498556E-06 $ B-10
                     92234.70c  5.593492E-06 $U-234
                     92235.70c  4.016172E-04 $U-235
                     92236.70c  1.381726E-05 $U-236
                     92237.70c  1.192045E-07 $U-237
                     92238.70c  2.904261E-05 $U-238
                     93237.70c  1.695178E-07 $Np237
                     94239.70c  3.561417E-07 $Pu239
                     94240.70c  2.862230E-08 $Pu240
                     94241.70c  9.336279E-09 $Pu241
                     36083.70c  2.471246E-07 $Kr-83
                     42095.70c  8.462538E-08 $Mo-95
                     44101.70c  2.445037E-06 $Ru101
                     45103.70c  3.267580E-07 $Rh103
                     45105.70c  6.674500E-31 $Rh105
                     48113.70c  6.850482E-10 $Cd113
```

```
                   54131.70c  8.303078E-07 $Xe131
                   54133.70c  5.268381E-31 $Xe133
                   55133.70c  2.198259E-06 $Cs133
                   54135.70c  5.151993E-31 $Xe135
                   57140.70c  5.004600E-31 $La140
                   58141.70c  4.969174E-31 $Ce141
                   59143.70c  4.899550E-31 $Pr143
                   60143.70c  1.191104E-06 $Nd143
                   60145.70c  1.831233E-06 $Nd145
                   61147.70c  4.766008E-31 $Pm147
                   61149.70c  4.701899E-31 $Pm149
                   62149.70c  2.388439E-08 $Sm149
                   61151.70c  4.639452E-31 $Pm151
                   62151.70c  7.059074E-08 $Sm151
                   62152.70c  2.231673E-07 $Sm152
                   63153.70c  9.231492E-08 $Eu153
                   63155.70c  1.120926E-08 $Eu155
                   64157.70c  1.294846E-10 $Gd157
mt2120      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  3
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.862680E-02 a/b-cm
m2121
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  4.498556E-06 $ B-10
                   92234.70c  5.378763E-06 $U-234
                   92235.70c  3.676846E-04 $U-235
                   92236.70c  1.981170E-05 $U-236
                   92237.70c  1.881292E-07 $U-237
                   92238.70c  2.874054E-05 $U-238
                   93237.70c  2.675338E-07 $Np237
                   94239.70c  5.620647E-07 $Pu239
                   94240.70c  4.517187E-08 $Pu240
                   94241.70c  1.473457E-08 $Pu241
                   36083.70c  3.900134E-07 $Kr-83
                   42095.70c  1.335562E-07 $Mo-95
                   44101.70c  3.858770E-06 $Ru101
                   45103.70c  5.156912E-07 $Rh103
                   45105.70c  1.053373E-30 $Rh105
                   48113.70c  1.081147E-09 $Cd113
                   54131.70c  1.310396E-06 $Xe131
                   54133.70c  8.314588E-31 $Xe133
                   55133.70c  3.469303E-06 $Cs133
                   54135.70c  8.130903E-31 $Xe135
                   57140.70c  7.898288E-31 $La140
                   58141.70c  7.842376E-31 $Ce141
                   59143.70c  7.732496E-31 $Pr143
                   60143.70c  1.879807E-06 $Nd143
                   60145.70c  2.890061E-06 $Nd145
                   61147.70c  7.521739E-31 $Pm147
                   61149.70c  7.420562E-31 $Pm149
                   62149.70c  3.769447E-08 $Sm149
                   61151.70c  7.322008E-31 $Pm151
                   62151.70c  1.114067E-07 $Sm151
                   62152.70c  3.522038E-07 $Sm152
                   63153.70c  1.456919E-07 $Eu153
                   63155.70c  1.769052E-08 $Eu155
                   64157.70c  2.043533E-10 $Gd157
mt2121      lwtr.10t
```

```
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  3
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.861021E-02 a/b-cm
m2122
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  4.498556E-06 $ B-10
                  92234.70c  5.220254E-06 $U-234
                  92235.70c  3.426361E-04 $U-235
                  92236.70c  2.423669E-05 $U-236
                  92237.70c  2.390082E-07 $U-237
                  92238.70c  2.851755E-05 $U-238
                  93237.70c  3.398876E-07 $Np237
                  94239.70c  7.140736E-07 $Pu239
                  94240.70c  5.738849E-08 $Pu240
                  94241.70c  1.871949E-08 $Pu241
                  36083.70c  4.954916E-07 $Kr-83
                  42095.70c  1.696762E-07 $Mo-95
                  44101.70c  4.902365E-06 $Ru101
                  45103.70c  6.551586E-07 $Rh103
                  45105.70c  1.338255E-30 $Rh105
                  48113.70c  1.373540E-09 $Cd113
                  54131.70c  1.664790E-06 $Xe131
                  54133.70c  1.056325E-30 $Xe133
                  55133.70c  4.407568E-06 $Cs133
                  54135.70c  1.032988E-30 $Xe135
                  57140.70c  1.003436E-30 $La140
                  58141.70c  9.963327E-31 $Ce141
                  59143.70c  9.823730E-31 $Pr143
                  60143.70c  2.388196E-06 $Nd143
                  60145.70c  3.671671E-06 $Nd145
                  61147.70c  9.555974E-31 $Pm147
                  61149.70c  9.427434E-31 $Pm149
                  62149.70c  4.788885E-08 $Sm149
                  61151.70c  9.302227E-31 $Pm151
                  62151.70c  1.415364E-07 $Sm151
                  62152.70c  4.474565E-07 $Sm152
                  63153.70c  1.850939E-07 $Eu153
                  63155.70c  2.247487E-08 $Eu155
                  64157.70c  2.596201E-10 $Gd157
mt2122      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  3
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.860361E-02 a/b-cm
m2123
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  4.498558E-06 $ B-10
                  92234.70c  5.157614E-06 $U-234
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                    92235.70c  3.327364E-04 $U-235
                    92236.70c  2.598572E-05 $U-236
                    92237.70c  2.591186E-07 $U-237
                    92238.70c  2.842948E-05 $U-238
                    93237.70c  3.684862E-07 $Np237
                    94239.70c  7.741566E-07 $Pu239
                    94240.70c  6.221721E-08 $Pu240
                    94241.70c  2.029457E-08 $Pu241
                    36083.70c  5.371828E-07 $Kr-83
                    42095.70c  1.839529E-07 $Mo-95
                    44101.70c  5.314855E-06 $Ru101
                    45103.70c  7.102844E-07 $Rh103
                    45105.70c  1.450857E-30 $Rh105
                    48113.70c  1.489111E-09 $Cd113
                    54131.70c  1.804867E-06 $Xe131
                    54133.70c  1.145205E-30 $Xe133
                    55133.70c  4.778425E-06 $Cs133
                    54135.70c  1.119905E-30 $Xe135
                    57140.70c  1.087866E-30 $La140
                    58141.70c  1.080165E-30 $Ce141
                    59143.70c  1.065031E-30 $Pr143
                    60143.70c  2.589141E-06 $Nd143
                    60145.70c  3.980609E-06 $Nd145
                    61147.70c  1.036002E-30 $Pm147
                    61149.70c  1.022067E-30 $Pm149
                    62149.70c  5.191826E-08 $Sm149
                    61151.70c  1.008493E-30 $Pm151
                    62151.70c  1.534454E-07 $Sm151
                    62152.70c  4.851059E-07 $Sm152
                    63153.70c  2.006679E-07 $Eu153
                    63155.70c  2.436593E-08 $Eu155
                    64157.70c  2.814648E-10 $Gd157
mt2123      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  3
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.861274E-02 a/b-cm
m2124
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  4.498556E-06 $ B-10
                    92234.70c  5.244710E-06 $U-234
                    92235.70c  3.465008E-04 $U-235
                    92236.70c  2.355397E-05 $U-236
                    92237.70c  2.311582E-07 $U-237
                    92238.70c  2.855196E-05 $U-238
                    93237.70c  3.287243E-07 $Np237
                    94239.70c  6.906205E-07 $Pu239
                    94240.70c  5.550361E-08 $Pu240
                    94241.70c  1.810467E-08 $Pu241
                    36083.70c  4.792175E-07 $Kr-83
                    42095.70c  1.641033E-07 $Mo-95
                    44101.70c  4.741351E-06 $Ru101
                    45103.70c  6.336405E-07 $Rh103
                    45105.70c  1.294301E-30 $Rh105
                    48113.70c  1.328427E-09 $Cd113
                    54131.70c  1.610111E-06 $Xe131
                    54133.70c  1.021631E-30 $Xe133
                    55133.70c  4.262805E-06 $Cs133
                    54135.70c  9.990608E-31 $Xe135
                    57140.70c  9.704788E-31 $La140
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                   58141.70c  9.636091E-31 $Ce141
                   59143.70c  9.501078E-31 $Pr143
                   60143.70c  2.309758E-06 $Nd143
                   60145.70c  3.551078E-06 $Nd145
                   61147.70c  9.242117E-31 $Pm147
                   61149.70c  9.117797E-31 $Pm149
                   62149.70c  4.631597E-08 $Sm149
                   61151.70c  8.996702E-31 $Pm151
                   62151.70c  1.368877E-07 $Sm151
                   62152.70c  4.327601E-07 $Sm152
                   63153.70c  1.790147E-07 $Eu153
                   63155.70c  2.173670E-08 $Eu155
                   64157.70c  2.510931E-10 $Gd157
mt2124      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
c            Radial Zone No. =  3
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.863101E-02 a/b-cm
m2125
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  4.498556E-06 $ B-10
                   92234.70c  5.418598E-06 $U-234
                   92235.70c  3.739794E-04 $U-235
                   92236.70c  1.869967E-05 $U-236
                   92237.70c  1.753429E-07 $U-237
                   92238.70c  2.879657E-05 $U-238
                   93237.70c  2.493508E-07 $Np237
                   94239.70c  5.238638E-07 $Pu239
                   94240.70c  4.210175E-08 $Pu240
                   94241.70c  1.373313E-08 $Pu241
                   36083.70c  3.635061E-07 $Kr-83
                   42095.70c  1.244790E-07 $Mo-95
                   44101.70c  3.596508E-06 $Ru101
                   45103.70c  4.806421E-07 $Rh103
                   45105.70c  9.817803E-31 $Rh105
                   48113.70c  1.007666E-09 $Cd113
                   54131.70c  1.221335E-06 $Xe131
                   54133.70c  7.749484E-31 $Xe133
                   55133.70c  3.233511E-06 $Cs133
                   54135.70c  7.578283E-31 $Xe135
                   57140.70c  7.361477E-31 $La140
                   58141.70c  7.309367E-31 $Ce141
                   59143.70c  7.206955E-31 $Pr143
                   60143.70c  1.752045E-06 $Nd143
                   60145.70c  2.693638E-06 $Nd145
                   61147.70c  7.010521E-31 $Pm147
                   61149.70c  6.916221E-31 $Pm149
                   62149.70c  3.513255E-08 $Sm149
                   61151.70c  6.824366E-31 $Pm151
                   62151.70c  1.038349E-07 $Sm151
                   62152.70c  3.282662E-07 $Sm152
                   63153.70c  1.357899E-07 $Eu153
                   63155.70c  1.648818E-08 $Eu155
                   64157.70c  1.904643E-10 $Gd157
mt2125      lwtr.10t
c
c
c
c
c            ATR Element No. =  6
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c            Radial Zone No. =  3
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.865541E-02 a/b-cm
m2126
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  4.498556E-06 $ B-10
                   92234.70c  5.651361E-06 $U-234
                   92235.70c  4.107619E-04 $U-235
                   92236.70c  1.220177E-05 $U-236
                   92237.70c  1.006295E-07 $U-237
                   92238.70c  2.912402E-05 $U-238
                   93237.70c  1.431026E-07 $Np237
                   94239.70c  3.006459E-07 $Pu239
                   94240.70c  2.416223E-08 $Pu240
                   94241.70c  7.881454E-09 $Pu241
                   36083.70c  2.086164E-07 $Kr-83
                   42095.70c  7.143862E-08 $Mo-95
                   44101.70c  2.064039E-06 $Ru101
                   45103.70c  2.758409E-07 $Rh103
                   45105.70c  5.634446E-31 $Rh105
                   48113.70c  5.783005E-10 $Cd113
                   54131.70c  7.009251E-07 $Xe131
                   54133.70c  4.447436E-31 $Xe133
                   55133.70c  1.855715E-06 $Cs133
                   54135.70c  4.349183E-31 $Xe135
                   57140.70c  4.224758E-31 $La140
                   58141.70c  4.194852E-31 $Ce141
                   59143.70c  4.136078E-31 $Pr143
                   60143.70c  1.005500E-06 $Nd143
                   60145.70c  1.545881E-06 $Nd145
                   61147.70c  4.023344E-31 $Pm147
                   61149.70c  3.969225E-31 $Pm149
                   62149.70c  2.016260E-08 $Sm149
                   61151.70c  3.916509E-31 $Pm151
                   62151.70c  5.959094E-08 $Sm151
                   62152.70c  1.883922E-07 $Sm152
                   63153.70c  7.792995E-08 $Eu153
                   63155.70c  9.462577E-09 $Eu155
                   64157.70c  1.093076E-10 $Gd157
mt2126      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  1
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975810E-02 a/b-cm
m2127
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976801E-05 $ B-10
                   92234.70c  6.290244E-06 $U-234
                   92235.70c  4.854137E-04 $U-235
                   92236.70c  3.638147E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.117785E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
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                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2127      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  1
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975810E-02 a/b-cm
m2128
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976801E-05 $ B-10
                   92234.70c  6.290244E-06 $U-234
                   92235.70c  4.854137E-04 $U-235
                   92236.70c  3.638147E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.117785E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
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                  61149.70c  4.623135E-29 $Pm149
                  62149.70c  4.623132E-29 $Sm149
                  61151.70c  4.561735E-29 $Pm151
                  62151.70c  4.561782E-29 $Sm151
                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2128      lwtr.10t
c
c
c
c
c           ATR Element No. =  7
c           Radial Zone No. =  1
c           Axial  Zone No. =  3
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.975810E-02 a/b-cm
m2129
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  1.976801E-05 $ B-10
                  92234.70c  6.290244E-06 $U-234
                  92235.70c  4.854137E-04 $U-235
                  92236.70c  3.638147E-06 $U-236
                  92237.70c  2.904335E-29 $U-237
                  92238.70c  3.117785E-05 $U-238
                  93237.70c  2.904320E-29 $Np237
                  94239.70c  2.879973E-29 $Pu239
                  94240.70c  2.867956E-29 $Pu240
                  94241.70c  2.856023E-29 $Pu241
                  36083.70c  8.303334E-29 $Kr-83
                  42095.70c  7.178626E-29 $Mo-95
                  44101.70c  6.822852E-29 $Ru101
                  45103.70c  6.690253E-29 $Rh103
                  45105.70c  6.562692E-29 $Rh105
                  48113.70c  6.097758E-29 $Cd113
                  54131.70c  5.259260E-29 $Xe131
                  54133.70c  5.180129E-29 $Xe133
                  55133.70c  5.180102E-29 $Cs133
                  54135.70c  5.065689E-29 $Xe135
                  57140.70c  4.920766E-29 $La140
                  58141.70c  4.885933E-29 $Ce141
                  59143.70c  4.817476E-29 $Pr143
                  60143.70c  4.817471E-29 $Nd143
                  60145.70c  4.750891E-29 $Nd145
                  61147.70c  4.686170E-29 $Pm147
                  61149.70c  4.623135E-29 $Pm149
                  62149.70c  4.623132E-29 $Sm149
                  61151.70c  4.561735E-29 $Pm151
                  62151.70c  4.561782E-29 $Sm151
                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2129      lwtr.10t
c
c
c
c
c           ATR Element No. =  7
c           Radial Zone No. =  1
c           Axial  Zone No. =  4
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.975810E-02 a/b-cm
m2130
```

```
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  1.976802E-05 $ B-10
                    92234.70c  6.290264E-06 $U-234
                    92235.70c  4.854152E-04 $U-235
                    92236.70c  3.638159E-06 $U-236
                    92237.70c  1.452167E-29 $U-237
                    92238.70c  3.117796E-05 $U-238
                    93237.70c  1.452160E-29 $Np237
                    94239.70c  1.439987E-29 $Pu239
                    94240.70c  1.433978E-29 $Pu240
                    94241.70c  1.428012E-29 $Pu241
                    36083.70c  4.151667E-29 $Kr-83
                    42095.70c  3.589313E-29 $Mo-95
                    44101.70c  3.411426E-29 $Ru101
                    45103.70c  3.345127E-29 $Rh103
                    45105.70c  3.281347E-29 $Rh105
                    48113.70c  3.048880E-29 $Cd113
                    54131.70c  2.629630E-29 $Xe131
                    54133.70c  2.590065E-29 $Xe133
                    55133.70c  2.590051E-29 $Cs133
                    54135.70c  2.532845E-29 $Xe135
                    57140.70c  2.460383E-29 $La140
                    58141.70c  2.442967E-29 $Ce141
                    59143.70c  2.408738E-29 $Pr143
                    60143.70c  2.408736E-29 $Nd143
                    60145.70c  2.375446E-29 $Nd145
                    61147.70c  2.343085E-29 $Pm147
                    61149.70c  2.311568E-29 $Pm149
                    62149.70c  2.311566E-29 $Sm149
                    61151.70c  2.280868E-29 $Pm151
                    62151.70c  2.280891E-29 $Sm151
                    62152.70c  2.265881E-29 $Sm152
                    63153.70c  2.251041E-29 $Eu153
                    63155.70c  2.221967E-29 $Eu155
                    64157.70c  2.193623E-29 $Gd157
mt2130      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  1
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975810E-02 a/b-cm
m2131
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  1.976801E-05 $ B-10
                    92234.70c  6.290244E-06 $U-234
                    92235.70c  4.854137E-04 $U-235
                    92236.70c  3.638147E-06 $U-236
                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.117785E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
```

```
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2131      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  1
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975810E-02 a/b-cm
m2132
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976801E-05 $ B-10
                   92234.70c  6.290244E-06 $U-234
                   92235.70c  4.854137E-04 $U-235
                   92236.70c  3.638147E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.117785E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
```

```
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2132      lwtr.10t
c
c
c
c
c           ATR Element No. =  7
c           Radial Zone No. =  1
c           Axial  Zone No. =  7
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.975810E-02 a/b-cm
m2133
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  1.976801E-05 $ B-10
                  92234.70c  6.290244E-06 $U-234
                  92235.70c  4.854137E-04 $U-235
                  92236.70c  3.638147E-06 $U-236
                  92237.70c  2.904335E-29 $U-237
                  92238.70c  3.117785E-05 $U-238
                  93237.70c  2.904320E-29 $Np237
                  94239.70c  2.879973E-29 $Pu239
                  94240.70c  2.867956E-29 $Pu240
                  94241.70c  2.856023E-29 $Pu241
                  36083.70c  8.303334E-29 $Kr-83
                  42095.70c  7.178626E-29 $Mo-95
                  44101.70c  6.822852E-29 $Ru101
                  45103.70c  6.690253E-29 $Rh103
                  45105.70c  6.562692E-29 $Rh105
                  48113.70c  6.097758E-29 $Cd113
                  54131.70c  5.259260E-29 $Xe131
                  54133.70c  5.180129E-29 $Xe133
                  55133.70c  5.180102E-29 $Cs133
                  54135.70c  5.065689E-29 $Xe135
                  57140.70c  4.920766E-29 $La140
                  58141.70c  4.885933E-29 $Ce141
                  59143.70c  4.817476E-29 $Pr143
                  60143.70c  4.817471E-29 $Nd143
                  60145.70c  4.750891E-29 $Nd145
                  61147.70c  4.686170E-29 $Pm147
                  61149.70c  4.623135E-29 $Pm149
                  62149.70c  4.623132E-29 $Sm149
                  61151.70c  4.561735E-29 $Pm151
                  62151.70c  4.561782E-29 $Sm151
                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2133      lwtr.10t
c
c
c
c
c           ATR Element No. =  7
c           Radial Zone No. =  2
c           Axial  Zone No. =  1
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.294907E-02 a/b-cm
m2134
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
```

```
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.360426E-06 $U-234
                    92235.70c  6.451682E-04 $U-235
                    92236.70c  4.835498E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.143880E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
                    60145.70c  1.184740E-29 $Nd145
                    61147.70c  1.168601E-29 $Pm147
                    61149.70c  1.152882E-29 $Pm149
                    62149.70c  1.152881E-29 $Sm149
                    61151.70c  1.137570E-29 $Pm151
                    62151.70c  1.137582E-29 $Sm151
                    62152.70c  1.130095E-29 $Sm152
                    63153.70c  1.122694E-29 $Eu153
                    63155.70c  1.108194E-29 $Eu155
                    64157.70c  1.094057E-29 $Gd157
mt2134      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  2
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294907E-02 a/b-cm
m2135
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.360426E-06 $U-234
                    92235.70c  6.451682E-04 $U-235
                    92236.70c  4.835498E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.143880E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
```

```
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2135      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  2
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294907E-02 a/b-cm
m2136
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.360426E-06 $U-234
                   92235.70c  6.451682E-04 $U-235
                   92236.70c  4.835498E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.143880E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2136      lwtr.10t
c
```

```
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  2
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294907E-02 a/b-cm
m2137
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  8.573098E-29 $ B-10
                  92234.70c  8.360423E-06 $U-234
                  92235.70c  6.451679E-04 $U-235
                  92236.70c  4.835496E-06 $U-236
                  92237.70c  3.621303E-30 $U-237
                  92238.70c  4.143878E-05 $U-238
                  93237.70c  3.621285E-30 $Np237
                  94239.70c  3.590928E-30 $Pu239
                  94240.70c  3.575944E-30 $Pu240
                  94241.70c  3.561065E-30 $Pu241
                  36083.70c  1.035311E-29 $Kr-83
                  42095.70c  8.950752E-30 $Mo-95
                  44101.70c  8.507152E-30 $Ru101
                  45103.70c  8.341818E-30 $Rh103
                  45105.70c  8.182769E-30 $Rh105
                  48113.70c  7.603060E-30 $Cd113
                  54131.70c  6.557568E-30 $Xe131
                  54133.70c  6.458903E-30 $Xe133
                  55133.70c  6.458870E-30 $Cs133
                  54135.70c  6.316213E-30 $Xe135
                  57140.70c  6.135514E-30 $La140
                  58141.70c  6.092082E-30 $Ce141
                  59143.70c  6.006725E-30 $Pr143
                  60143.70c  6.006719E-30 $Nd143
                  60145.70c  5.923703E-30 $Nd145
                  61147.70c  5.843005E-30 $Pm147
                  61149.70c  5.764410E-30 $Pm149
                  62149.70c  5.764405E-30 $Sm149
                  61151.70c  5.687851E-30 $Pm151
                  62151.70c  5.687911E-30 $Sm151
                  62152.70c  5.650478E-30 $Sm152
                  63153.70c  5.613472E-30 $Eu153
                  63155.70c  5.540969E-30 $Eu155
                  64157.70c  5.470287E-30 $Gd157
mt2137      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  2
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294907E-02 a/b-cm
m2138
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  1.714619E-28 $ B-10
                  92234.70c  8.360426E-06 $U-234
                  92235.70c  6.451682E-04 $U-235
```

```
                   92236.70c  4.835498E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.143880E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2138      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  2
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294907E-02 a/b-cm
m2139
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.360426E-06 $U-234
                   92235.70c  6.451682E-04 $U-235
                   92236.70c  4.835498E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.143880E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
```

```
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2139      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  2
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294907E-02 a/b-cm
m2140
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.360426E-06 $U-234
                   92235.70c  6.451682E-04 $U-235
                   92236.70c  4.835498E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.143880E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2140      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  3
```

```
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.858601E-02 a/b-cm
m2141
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.312339E-05 $ B-10
                   92234.70c  4.639810E-06 $U-234
                   92235.70c  3.580509E-04 $U-235
                   92236.70c  2.683571E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.299741E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2141      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  3
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.858601E-02 a/b-cm
m2142
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.312339E-05 $ B-10
                   92234.70c  4.639810E-06 $U-234
                   92235.70c  3.580509E-04 $U-235
                   92236.70c  2.683571E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.299741E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
```

```
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
                    45103.70c  3.559438E-29 $Rh103
                    45105.70c  3.491572E-29 $Rh105
                    48113.70c  3.244211E-29 $Cd113
                    54131.70c  2.798102E-29 $Xe131
                    54133.70c  2.756002E-29 $Xe133
                    55133.70c  2.755987E-29 $Cs133
                    54135.70c  2.695116E-29 $Xe135
                    57140.70c  2.618012E-29 $La140
                    58141.70c  2.599480E-29 $Ce141
                    59143.70c  2.563058E-29 $Pr143
                    60143.70c  2.563055E-29 $Nd143
                    60145.70c  2.527633E-29 $Nd145
                    61147.70c  2.493199E-29 $Pm147
                    61149.70c  2.459663E-29 $Pm149
                    62149.70c  2.459661E-29 $Sm149
                    61151.70c  2.426995E-29 $Pm151
                    62151.70c  2.427021E-29 $Sm151
                    62152.70c  2.411048E-29 $Sm152
                    63153.70c  2.395258E-29 $Eu153
                    63155.70c  2.364321E-29 $Eu155
                    64157.70c  2.334161E-29 $Gd157
mt2142      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  3
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.858601E-02 a/b-cm
m2143
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.312339E-05 $ B-10
                    92234.70c  4.639810E-06 $U-234
                    92235.70c  3.580509E-04 $U-235
                    92236.70c  2.683571E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.299741E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
                    45103.70c  3.559438E-29 $Rh103
                    45105.70c  3.491572E-29 $Rh105
                    48113.70c  3.244211E-29 $Cd113
                    54131.70c  2.798102E-29 $Xe131
                    54133.70c  2.756002E-29 $Xe133
                    55133.70c  2.755987E-29 $Cs133
                    54135.70c  2.695116E-29 $Xe135
                    57140.70c  2.618012E-29 $La140
                    58141.70c  2.599480E-29 $Ce141
                    59143.70c  2.563058E-29 $Pr143
                    60143.70c  2.563055E-29 $Nd143
                    60145.70c  2.527633E-29 $Nd145
                    61147.70c  2.493199E-29 $Pm147
                    61149.70c  2.459663E-29 $Pm149
```

```
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2143      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  3
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.858601E-02 a/b-cm
m2144
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.312339E-05 $ B-10
                   92234.70c  4.639812E-06 $U-234
                   92235.70c  3.580510E-04 $U-235
                   92236.70c  2.683571E-06 $U-236
                   92237.70c  7.726017E-30 $U-237
                   92238.70c  2.299742E-05 $U-238
                   93237.70c  7.725979E-30 $Np237
                   94239.70c  7.661212E-30 $Pu239
                   94240.70c  7.629244E-30 $Pu240
                   94241.70c  7.597500E-30 $Pu241
                   36083.70c  2.208826E-29 $Kr-83
                   42095.70c  1.909635E-29 $Mo-95
                   44101.70c  1.814993E-29 $Ru101
                   45103.70c  1.779720E-29 $Rh103
                   45105.70c  1.745786E-29 $Rh105
                   48113.70c  1.622106E-29 $Cd113
                   54131.70c  1.399051E-29 $Xe131
                   54133.70c  1.378001E-29 $Xe133
                   55133.70c  1.377994E-29 $Cs133
                   54135.70c  1.347558E-29 $Xe135
                   57140.70c  1.309006E-29 $La140
                   58141.70c  1.299740E-29 $Ce141
                   59143.70c  1.281529E-29 $Pr143
                   60143.70c  1.281528E-29 $Nd143
                   60145.70c  1.263817E-29 $Nd145
                   61147.70c  1.246600E-29 $Pm147
                   61149.70c  1.229832E-29 $Pm149
                   62149.70c  1.229831E-29 $Sm149
                   61151.70c  1.213498E-29 $Pm151
                   62151.70c  1.213511E-29 $Sm151
                   62152.70c  1.205524E-29 $Sm152
                   63153.70c  1.197629E-29 $Eu153
                   63155.70c  1.182161E-29 $Eu155
                   64157.70c  1.167081E-29 $Gd157
mt2144      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  3
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.858601E-02 a/b-cm
m2145
                    1001.70c  3.212840E-02 $ H-1
```

```
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.312339E-05 $ B-10
                    92234.70c  4.639810E-06 $U-234
                    92235.70c  3.580509E-04 $U-235
                    92236.70c  2.683571E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.299741E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
                    45103.70c  3.559438E-29 $Rh103
                    45105.70c  3.491572E-29 $Rh105
                    48113.70c  3.244211E-29 $Cd113
                    54131.70c  2.798102E-29 $Xe131
                    54133.70c  2.756002E-29 $Xe133
                    55133.70c  2.755987E-29 $Cs133
                    54135.70c  2.695116E-29 $Xe135
                    57140.70c  2.618012E-29 $La140
                    58141.70c  2.599480E-29 $Ce141
                    59143.70c  2.563058E-29 $Pr143
                    60143.70c  2.563055E-29 $Nd143
                    60145.70c  2.527633E-29 $Nd145
                    61147.70c  2.493199E-29 $Pm147
                    61149.70c  2.459663E-29 $Pm149
                    62149.70c  2.459661E-29 $Sm149
                    61151.70c  2.426995E-29 $Pm151
                    62151.70c  2.427021E-29 $Sm151
                    62152.70c  2.411048E-29 $Sm152
                    63153.70c  2.395258E-29 $Eu153
                    63155.70c  2.364321E-29 $Eu155
                    64157.70c  2.334161E-29 $Gd157
mt2145      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  3
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.858601E-02 a/b-cm
m2146
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.312339E-05 $ B-10
                    92234.70c  4.639810E-06 $U-234
                    92235.70c  3.580509E-04 $U-235
                    92236.70c  2.683571E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.299741E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
```

```
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2146      lwtr.10t
c
c
c
c
c            ATR Element No. =  7
c            Radial Zone No. =  3
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.858601E-02 a/b-cm
m2147
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.312339E-05 $ B-10
                   92234.70c  4.639810E-06 $U-234
                   92235.70c  3.580509E-04 $U-235
                   92236.70c  2.683571E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.299741E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
```

```
                  63155.70c  2.364321E-29 $Eu155
                  64157.70c  2.334161E-29 $Gd157
mt2147      lwtr.10t
c
c
c
c
c           ATR Element No. =  8
c           Radial Zone No. =  1
c           Axial  Zone No. =  1
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.973803E-02 a/b-cm
m2148
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  6.875743E-28 $ B-10
                  92234.70c  6.286590E-06 $U-234
                  92235.70c  4.851306E-04 $U-235
                  92236.70c  3.636026E-06 $U-236
                  92237.70c  2.904335E-29 $U-237
                  92238.70c  3.115969E-05 $U-238
                  93237.70c  2.904320E-29 $Np237
                  94239.70c  2.879973E-29 $Pu239
                  94240.70c  2.867956E-29 $Pu240
                  94241.70c  2.856023E-29 $Pu241
                  36083.70c  8.303334E-29 $Kr-83
                  42095.70c  7.178626E-29 $Mo-95
                  44101.70c  6.822852E-29 $Ru101
                  45103.70c  6.690253E-29 $Rh103
                  45105.70c  6.562692E-29 $Rh105
                  48113.70c  6.097758E-29 $Cd113
                  54131.70c  5.259260E-29 $Xe131
                  54133.70c  5.180129E-29 $Xe133
                  55133.70c  5.180102E-29 $Cs133
                  54135.70c  5.065689E-29 $Xe135
                  57140.70c  4.920766E-29 $La140
                  58141.70c  4.885933E-29 $Ce141
                  59143.70c  4.817476E-29 $Pr143
                  60143.70c  4.817471E-29 $Nd143
                  60145.70c  4.750891E-29 $Nd145
                  61147.70c  4.686170E-29 $Pm147
                  61149.70c  4.623135E-29 $Pm149
                  62149.70c  4.623132E-29 $Sm149
                  61151.70c  4.561735E-29 $Pm151
                  62151.70c  4.561782E-29 $Sm151
                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2148      lwtr.10t
c
c
c
c
c           ATR Element No. =  8
c           Radial Zone No. =  1
c           Axial  Zone No. =  2
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.973803E-02 a/b-cm
m2149
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
```

```
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  6.875743E-28 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2149      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  1
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.973803E-02 a/b-cm
m2150
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  6.875743E-28 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
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                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
                    60143.70c  4.817471E-29 $Nd143
                    60145.70c  4.750891E-29 $Nd145
                    61147.70c  4.686170E-29 $Pm147
                    61149.70c  4.623135E-29 $Pm149
                    62149.70c  4.623132E-29 $Sm149
                    61151.70c  4.561735E-29 $Pm151
                    62151.70c  4.561782E-29 $Sm151
                    62152.70c  4.531760E-29 $Sm152
                    63153.70c  4.502082E-29 $Eu153
                    63155.70c  4.443934E-29 $Eu155
                    64157.70c  4.387245E-29 $Gd157
mt2150      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  1
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.973803E-02 a/b-cm
m2151
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  3.437872E-28 $ B-10
                    92234.70c  6.286591E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  1.452167E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  1.452160E-29 $Np237
                    94239.70c  1.439987E-29 $Pu239
                    94240.70c  1.433978E-29 $Pu240
                    94241.70c  1.428012E-29 $Pu241
                    36083.70c  4.151667E-29 $Kr-83
                    42095.70c  3.589313E-29 $Mo-95
                    44101.70c  3.411426E-29 $Ru101
                    45103.70c  3.345127E-29 $Rh103
                    45105.70c  3.281347E-29 $Rh105
                    48113.70c  3.048880E-29 $Cd113
                    54131.70c  2.629630E-29 $Xe131
                    54133.70c  2.590065E-29 $Xe133
                    55133.70c  2.590051E-29 $Cs133
                    54135.70c  2.532845E-29 $Xe135
                    57140.70c  2.460383E-29 $La140
                    58141.70c  2.442967E-29 $Ce141
                    59143.70c  2.408738E-29 $Pr143
                    60143.70c  2.408736E-29 $Nd143
                    60145.70c  2.375446E-29 $Nd145
                    61147.70c  2.343085E-29 $Pm147
                    61149.70c  2.311568E-29 $Pm149
                    62149.70c  2.311566E-29 $Sm149
                    61151.70c  2.280868E-29 $Pm151
                    62151.70c  2.280891E-29 $Sm151
                    62152.70c  2.265881E-29 $Sm152
                    63153.70c  2.251041E-29 $Eu153
                    63155.70c  2.221967E-29 $Eu155
                    64157.70c  2.193623E-29 $Gd157
mt2151      lwtr.10t
c
c
```

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c
c
c            ATR Element No. =  8
c            Radial Zone No. =  1
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.973803E-02 a/b-cm
m2152
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  6.875743E-28 $ B-10
                  92234.70c  6.286590E-06 $U-234
                  92235.70c  4.851306E-04 $U-235
                  92236.70c  3.636026E-06 $U-236
                  92237.70c  2.904335E-29 $U-237
                  92238.70c  3.115969E-05 $U-238
                  93237.70c  2.904320E-29 $Np237
                  94239.70c  2.879973E-29 $Pu239
                  94240.70c  2.867956E-29 $Pu240
                  94241.70c  2.856023E-29 $Pu241
                  36083.70c  8.303334E-29 $Kr-83
                  42095.70c  7.178626E-29 $Mo-95
                  44101.70c  6.822852E-29 $Ru101
                  45103.70c  6.690253E-29 $Rh103
                  45105.70c  6.562692E-29 $Rh105
                  48113.70c  6.097758E-29 $Cd113
                  54131.70c  5.259260E-29 $Xe131
                  54133.70c  5.180129E-29 $Xe133
                  55133.70c  5.180102E-29 $Cs133
                  54135.70c  5.065689E-29 $Xe135
                  57140.70c  4.920766E-29 $La140
                  58141.70c  4.885933E-29 $Ce141
                  59143.70c  4.817476E-29 $Pr143
                  60143.70c  4.817471E-29 $Nd143
                  60145.70c  4.750891E-29 $Nd145
                  61147.70c  4.686170E-29 $Pm147
                  61149.70c  4.623135E-29 $Pm149
                  62149.70c  4.623132E-29 $Sm149
                  61151.70c  4.561735E-29 $Pm151
                  62151.70c  4.561782E-29 $Sm151
                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2152      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  1
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.973803E-02 a/b-cm
m2153
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  6.875743E-28 $ B-10
                  92234.70c  6.286590E-06 $U-234
                  92235.70c  4.851306E-04 $U-235
                  92236.70c  3.636026E-06 $U-236
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                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
                    60143.70c  4.817471E-29 $Nd143
                    60145.70c  4.750891E-29 $Nd145
                    61147.70c  4.686170E-29 $Pm147
                    61149.70c  4.623135E-29 $Pm149
                    62149.70c  4.623132E-29 $Sm149
                    61151.70c  4.561735E-29 $Pm151
                    62151.70c  4.561782E-29 $Sm151
                    62152.70c  4.531760E-29 $Sm152
                    63153.70c  4.502082E-29 $Eu153
                    63155.70c  4.443934E-29 $Eu155
                    64157.70c  4.387245E-29 $Gd157
mt2153      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  1
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.973803E-02 a/b-cm
m2154
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  6.875743E-28 $ B-10
                    92234.70c  6.286590E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
```

```
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2154      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  2
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2155
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2155      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  2
c            Axial  Zone No. =  2
```

```
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2156
                  1001.70c  3.920790E-02 $ H-1
                  8016.70c  1.960390E-02 $ O-16
                 12000.60c  1.660990E-04 $Mg-nat
                 13027.70c  2.315370E-02 $Al-27
                 14000.60c  8.624450E-05 $Si-nat
                 24000.50c  1.552830E-05 $Cr-nat
                 29000.50c  1.588240E-05 $Cu-nat
                  5010.70c  1.714619E-28 $ B-10
                 92234.70c  8.355541E-06 $U-234
                 92235.70c  6.447897E-04 $U-235
                 92236.70c  4.832662E-06 $U-236
                 92237.70c  7.242605E-30 $U-237
                 92238.70c  4.141451E-05 $U-238
                 93237.70c  7.242569E-30 $Np237
                 94239.70c  7.181854E-30 $Pu239
                 94240.70c  7.151887E-30 $Pu240
                 94241.70c  7.122128E-30 $Pu241
                 36083.70c  2.070621E-29 $Kr-83
                 42095.70c  1.790150E-29 $Mo-95
                 44101.70c  1.701430E-29 $Ru101
                 45103.70c  1.668363E-29 $Rh103
                 45105.70c  1.636554E-29 $Rh105
                 48113.70c  1.520612E-29 $Cd113
                 54131.70c  1.311513E-29 $Xe131
                 54133.70c  1.291780E-29 $Xe133
                 55133.70c  1.291774E-29 $Cs133
                 54135.70c  1.263242E-29 $Xe135
                 57140.70c  1.227103E-29 $La140
                 58141.70c  1.218416E-29 $Ce141
                 59143.70c  1.201345E-29 $Pr143
                 60143.70c  1.201344E-29 $Nd143
                 60145.70c  1.184740E-29 $Nd145
                 61147.70c  1.168601E-29 $Pm147
                 61149.70c  1.152882E-29 $Pm149
                 62149.70c  1.152881E-29 $Sm149
                 61151.70c  1.137570E-29 $Pm151
                 62151.70c  1.137582E-29 $Sm151
                 62152.70c  1.130095E-29 $Sm152
                 63153.70c  1.122694E-29 $Eu153
                 63155.70c  1.108194E-29 $Eu155
                 64157.70c  1.094057E-29 $Gd157
mt2156      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  2
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2157
                  1001.70c  3.920790E-02 $ H-1
                  8016.70c  1.960390E-02 $ O-16
                 12000.60c  1.660990E-04 $Mg-nat
                 13027.70c  2.315370E-02 $Al-27
                 14000.60c  8.624450E-05 $Si-nat
                 24000.50c  1.552830E-05 $Cr-nat
                 29000.50c  1.588240E-05 $Cu-nat
                  5010.70c  1.714619E-28 $ B-10
                 92234.70c  8.355541E-06 $U-234
                 92235.70c  6.447897E-04 $U-235
                 92236.70c  4.832662E-06 $U-236
                 92237.70c  7.242605E-30 $U-237
                 92238.70c  4.141451E-05 $U-238
                 93237.70c  7.242569E-30 $Np237
                 94239.70c  7.181854E-30 $Pu239
                 94240.70c  7.151887E-30 $Pu240
```

```
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
                    60145.70c  1.184740E-29 $Nd145
                    61147.70c  1.168601E-29 $Pm147
                    61149.70c  1.152882E-29 $Pm149
                    62149.70c  1.152881E-29 $Sm149
                    61151.70c  1.137570E-29 $Pm151
                    62151.70c  1.137582E-29 $Sm151
                    62152.70c  1.130095E-29 $Sm152
                    63153.70c  1.122694E-29 $Eu153
                    63155.70c  1.108194E-29 $Eu155
                    64157.70c  1.094057E-29 $Gd157
mt2157      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  2
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2158
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  8.573098E-29 $ B-10
                    92234.70c  8.355538E-06 $U-234
                    92235.70c  6.447894E-04 $U-235
                    92236.70c  4.832660E-06 $U-236
                    92237.70c  3.621303E-30 $U-237
                    92238.70c  4.141449E-05 $U-238
                    93237.70c  3.621285E-30 $Np237
                    94239.70c  3.590928E-30 $Pu239
                    94240.70c  3.575944E-30 $Pu240
                    94241.70c  3.561065E-30 $Pu241
                    36083.70c  1.035311E-29 $Kr-83
                    42095.70c  8.950752E-30 $Mo-95
                    44101.70c  8.507152E-30 $Ru101
                    45103.70c  8.341818E-30 $Rh103
                    45105.70c  8.182769E-30 $Rh105
                    48113.70c  7.603060E-30 $Cd113
                    54131.70c  6.557568E-30 $Xe131
                    54133.70c  6.458903E-30 $Xe133
                    55133.70c  6.458870E-30 $Cs133
                    54135.70c  6.316213E-30 $Xe135
                    57140.70c  6.135514E-30 $La140
                    58141.70c  6.092082E-30 $Ce141
                    59143.70c  6.006725E-30 $Pr143
                    60143.70c  6.006719E-30 $Nd143
                    60145.70c  5.923703E-30 $Nd145
                    61147.70c  5.843005E-30 $Pm147
                    61149.70c  5.764410E-30 $Pm149
                    62149.70c  5.764405E-30 $Sm149
```

```
                  61151.70c  5.687851E-30 $Pm151
                  62151.70c  5.687911E-30 $Sm151
                  62152.70c  5.650478E-30 $Sm152
                  63153.70c  5.613472E-30 $Eu153
                  63155.70c  5.540969E-30 $Eu155
                  64157.70c  5.470287E-30 $Gd157
mt2158      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  2
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2159
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  1.714619E-28 $ B-10
                  92234.70c  8.355541E-06 $U-234
                  92235.70c  6.447897E-04 $U-235
                  92236.70c  4.832662E-06 $U-236
                  92237.70c  7.242605E-30 $U-237
                  92238.70c  4.141451E-05 $U-238
                  93237.70c  7.242569E-30 $Np237
                  94239.70c  7.181854E-30 $Pu239
                  94240.70c  7.151887E-30 $Pu240
                  94241.70c  7.122128E-30 $Pu241
                  36083.70c  2.070621E-29 $Kr-83
                  42095.70c  1.790150E-29 $Mo-95
                  44101.70c  1.701430E-29 $Ru101
                  45103.70c  1.668363E-29 $Rh103
                  45105.70c  1.636554E-29 $Rh105
                  48113.70c  1.520612E-29 $Cd113
                  54131.70c  1.311513E-29 $Xe131
                  54133.70c  1.291780E-29 $Xe133
                  55133.70c  1.291774E-29 $Cs133
                  54135.70c  1.263242E-29 $Xe135
                  57140.70c  1.227103E-29 $La140
                  58141.70c  1.218416E-29 $Ce141
                  59143.70c  1.201345E-29 $Pr143
                  60143.70c  1.201344E-29 $Nd143
                  60145.70c  1.184740E-29 $Nd145
                  61147.70c  1.168601E-29 $Pm147
                  61149.70c  1.152882E-29 $Pm149
                  62149.70c  1.152881E-29 $Sm149
                  61151.70c  1.137570E-29 $Pm151
                  62151.70c  1.137582E-29 $Sm151
                  62152.70c  1.130095E-29 $Sm152
                  63153.70c  1.122694E-29 $Eu153
                  63155.70c  1.108194E-29 $Eu155
                  64157.70c  1.094057E-29 $Gd157
mt2159      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  2
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2160
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
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```
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2160      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  2
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2161
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
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                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2161      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  3
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
m2162
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  3.658125E-28 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
```

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                  64157.70c  2.334161E-29 $Gd157
mt2162      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  3
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
m2163
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  3.658125E-28 $ B-10
                  92234.70c  5.964864E-06 $U-234
                  92235.70c  4.603032E-04 $U-235
                  92236.70c  3.449947E-06 $U-236
                  92237.70c  1.545203E-29 $U-237
                  92238.70c  2.956504E-05 $U-238
                  93237.70c  1.545195E-29 $Np237
                  94239.70c  1.532242E-29 $Pu239
                  94240.70c  1.525848E-29 $Pu240
                  94241.70c  1.519499E-29 $Pu241
                  36083.70c  4.417651E-29 $Kr-83
                  42095.70c  3.819269E-29 $Mo-95
                  44101.70c  3.629985E-29 $Ru101
                  45103.70c  3.559438E-29 $Rh103
                  45105.70c  3.491572E-29 $Rh105
                  48113.70c  3.244211E-29 $Cd113
                  54131.70c  2.798102E-29 $Xe131
                  54133.70c  2.756002E-29 $Xe133
                  55133.70c  2.755987E-29 $Cs133
                  54135.70c  2.695116E-29 $Xe135
                  57140.70c  2.618012E-29 $La140
                  58141.70c  2.599480E-29 $Ce141
                  59143.70c  2.563058E-29 $Pr143
                  60143.70c  2.563055E-29 $Nd143
                  60145.70c  2.527633E-29 $Nd145
                  61147.70c  2.493199E-29 $Pm147
                  61149.70c  2.459663E-29 $Pm149
                  62149.70c  2.459661E-29 $Sm149
                  61151.70c  2.426995E-29 $Pm151
                  62151.70c  2.427021E-29 $Sm151
                  62152.70c  2.411048E-29 $Sm152
                  63153.70c  2.395258E-29 $Eu153
                  63155.70c  2.364321E-29 $Eu155
                  64157.70c  2.334161E-29 $Gd157
mt2163      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  3
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
m2164
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
```

```
                     5010.70c  3.658125E-28 $ B-10
                    92234.70c  5.964864E-06 $U-234
                    92235.70c  4.603032E-04 $U-235
                    92236.70c  3.449947E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.956504E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
                    45103.70c  3.559438E-29 $Rh103
                    45105.70c  3.491572E-29 $Rh105
                    48113.70c  3.244211E-29 $Cd113
                    54131.70c  2.798102E-29 $Xe131
                    54133.70c  2.756002E-29 $Xe133
                    55133.70c  2.755987E-29 $Cs133
                    54135.70c  2.695116E-29 $Xe135
                    57140.70c  2.618012E-29 $La140
                    58141.70c  2.599480E-29 $Ce141
                    59143.70c  2.563058E-29 $Pr143
                    60143.70c  2.563055E-29 $Nd143
                    60145.70c  2.527633E-29 $Nd145
                    61147.70c  2.493199E-29 $Pm147
                    61149.70c  2.459663E-29 $Pm149
                    62149.70c  2.459661E-29 $Sm149
                    61151.70c  2.426995E-29 $Pm151
                    62151.70c  2.427021E-29 $Sm151
                    62152.70c  2.411048E-29 $Sm152
                    63153.70c  2.395258E-29 $Eu153
                    63155.70c  2.364321E-29 $Eu155
                    64157.70c  2.334161E-29 $Gd157
mt2164      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  3
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
m2165
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.829063E-28 $ B-10
                    92234.70c  5.964876E-06 $U-234
                    92235.70c  4.603042E-04 $U-235
                    92236.70c  3.449954E-06 $U-236
                    92237.70c  7.726017E-30 $U-237
                    92238.70c  2.956510E-05 $U-238
                    93237.70c  7.725979E-30 $Np237
                    94239.70c  7.661212E-30 $Pu239
                    94240.70c  7.629244E-30 $Pu240
                    94241.70c  7.597500E-30 $Pu241
                    36083.70c  2.208826E-29 $Kr-83
                    42095.70c  1.909635E-29 $Mo-95
                    44101.70c  1.814993E-29 $Ru101
                    45103.70c  1.779720E-29 $Rh103
                    45105.70c  1.745786E-29 $Rh105
                    48113.70c  1.622106E-29 $Cd113
                    54131.70c  1.399051E-29 $Xe131
                    54133.70c  1.378001E-29 $Xe133
                    55133.70c  1.377994E-29 $Cs133
```

```
                    54135.70c  1.347558E-29 $Xe135
                    57140.70c  1.309006E-29 $La140
                    58141.70c  1.299740E-29 $Ce141
                    59143.70c  1.281529E-29 $Pr143
                    60143.70c  1.281528E-29 $Nd143
                    60145.70c  1.263817E-29 $Nd145
                    61147.70c  1.246600E-29 $Pm147
                    61149.70c  1.229832E-29 $Pm149
                    62149.70c  1.229831E-29 $Sm149
                    61151.70c  1.213498E-29 $Pm151
                    62151.70c  1.213511E-29 $Sm151
                    62152.70c  1.205524E-29 $Sm152
                    63153.70c  1.197629E-29 $Eu153
                    63155.70c  1.182161E-29 $Eu155
                    64157.70c  1.167081E-29 $Gd157
mt2165      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  3
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
m2166
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  3.658125E-28 $ B-10
                    92234.70c  5.964864E-06 $U-234
                    92235.70c  4.603032E-04 $U-235
                    92236.70c  3.449947E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.956504E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
                    45103.70c  3.559438E-29 $Rh103
                    45105.70c  3.491572E-29 $Rh105
                    48113.70c  3.244211E-29 $Cd113
                    54131.70c  2.798102E-29 $Xe131
                    54133.70c  2.756002E-29 $Xe133
                    55133.70c  2.755987E-29 $Cs133
                    54135.70c  2.695116E-29 $Xe135
                    57140.70c  2.618012E-29 $La140
                    58141.70c  2.599480E-29 $Ce141
                    59143.70c  2.563058E-29 $Pr143
                    60143.70c  2.563055E-29 $Nd143
                    60145.70c  2.527633E-29 $Nd145
                    61147.70c  2.493199E-29 $Pm147
                    61149.70c  2.459663E-29 $Pm149
                    62149.70c  2.459661E-29 $Sm149
                    61151.70c  2.426995E-29 $Pm151
                    62151.70c  2.427021E-29 $Sm151
                    62152.70c  2.411048E-29 $Sm152
                    63153.70c  2.395258E-29 $Eu153
                    63155.70c  2.364321E-29 $Eu155
                    64157.70c  2.334161E-29 $Gd157
mt2166      lwtr.10t
c
c
c
```

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c
c            ATR Element No. =  8
c            Radial Zone No. =  3
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
m2167
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  3.658125E-28 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2167      lwtr.10t
c
c
c
c
c            ATR Element No. =  8
c            Radial Zone No. =  3
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
m2168
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  3.658125E-28 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
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                    92238.70c  2.956504E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
                    45103.70c  3.559438E-29 $Rh103
                    45105.70c  3.491572E-29 $Rh105
                    48113.70c  3.244211E-29 $Cd113
                    54131.70c  2.798102E-29 $Xe131
                    54133.70c  2.756002E-29 $Xe133
                    55133.70c  2.755987E-29 $Cs133
                    54135.70c  2.695116E-29 $Xe135
                    57140.70c  2.618012E-29 $La140
                    58141.70c  2.599480E-29 $Ce141
                    59143.70c  2.563058E-29 $Pr143
                    60143.70c  2.563055E-29 $Nd143
                    60145.70c  2.527633E-29 $Nd145
                    61147.70c  2.493199E-29 $Pm147
                    61149.70c  2.459663E-29 $Pm149
                    62149.70c  2.459661E-29 $Sm149
                    61151.70c  2.426995E-29 $Pm151
                    62151.70c  2.427021E-29 $Sm151
                    62152.70c  2.411048E-29 $Sm152
                    63153.70c  2.395258E-29 $Eu153
                    63155.70c  2.364321E-29 $Eu155
                    64157.70c  2.334161E-29 $Gd157
mt2168      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  1
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.973803E-02 a/b-cm
m2169
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  6.875743E-28 $ B-10
                    92234.70c  6.286590E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
                    60143.70c  4.817471E-29 $Nd143
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                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2169      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  1
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.973803E-02 a/b-cm
m2170
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  6.875743E-28 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2170      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  1
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
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c            Total Number Density   = 7.973803E-02 a/b-cm
m2171
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  6.875743E-28 $ B-10
                    92234.70c  6.286590E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
                    60143.70c  4.817471E-29 $Nd143
                    60145.70c  4.750891E-29 $Nd145
                    61147.70c  4.686170E-29 $Pm147
                    61149.70c  4.623135E-29 $Pm149
                    62149.70c  4.623132E-29 $Sm149
                    61151.70c  4.561735E-29 $Pm151
                    62151.70c  4.561782E-29 $Sm151
                    62152.70c  4.531760E-29 $Sm152
                    63153.70c  4.502082E-29 $Eu153
                    63155.70c  4.443934E-29 $Eu155
                    64157.70c  4.387245E-29 $Gd157
mt2171      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  1
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.973803E-02 a/b-cm
m2172
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  3.437872E-28 $ B-10
                    92234.70c  6.286591E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  1.452167E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  1.452160E-29 $Np237
                    94239.70c  1.439987E-29 $Pu239
                    94240.70c  1.433978E-29 $Pu240
                    94241.70c  1.428012E-29 $Pu241
```

```
                    36083.70c  4.151667E-29 $Kr-83
                    42095.70c  3.589313E-29 $Mo-95
                    44101.70c  3.411426E-29 $Ru101
                    45103.70c  3.345127E-29 $Rh103
                    45105.70c  3.281347E-29 $Rh105
                    48113.70c  3.048880E-29 $Cd113
                    54131.70c  2.629630E-29 $Xe131
                    54133.70c  2.590065E-29 $Xe133
                    55133.70c  2.590051E-29 $Cs133
                    54135.70c  2.532845E-29 $Xe135
                    57140.70c  2.460383E-29 $La140
                    58141.70c  2.442967E-29 $Ce141
                    59143.70c  2.408738E-29 $Pr143
                    60143.70c  2.408736E-29 $Nd143
                    60145.70c  2.375446E-29 $Nd145
                    61147.70c  2.343085E-29 $Pm147
                    61149.70c  2.311568E-29 $Pm149
                    62149.70c  2.311566E-29 $Sm149
                    61151.70c  2.280868E-29 $Pm151
                    62151.70c  2.280891E-29 $Sm151
                    62152.70c  2.265881E-29 $Sm152
                    63153.70c  2.251041E-29 $Eu153
                    63155.70c  2.221967E-29 $Eu155
                    64157.70c  2.193623E-29 $Gd157
mt2172      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  1
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.973803E-02 a/b-cm
m2173
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  6.875743E-28 $ B-10
                    92234.70c  6.286590E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
                    60143.70c  4.817471E-29 $Nd143
                    60145.70c  4.750891E-29 $Nd145
                    61147.70c  4.686170E-29 $Pm147
                    61149.70c  4.623135E-29 $Pm149
                    62149.70c  4.623132E-29 $Sm149
                    61151.70c  4.561735E-29 $Pm151
```

```
                  62151.70c  4.561782E-29 $Sm151
                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2173      lwtr.10t
c
c
c
c
c           ATR Element No. =  9
c           Radial Zone No. =  1
c           Axial  Zone No. =  6
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.973803E-02 a/b-cm
m2174
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  6.875743E-28 $ B-10
                  92234.70c  6.286590E-06 $U-234
                  92235.70c  4.851306E-04 $U-235
                  92236.70c  3.636026E-06 $U-236
                  92237.70c  2.904335E-29 $U-237
                  92238.70c  3.115969E-05 $U-238
                  93237.70c  2.904320E-29 $Np237
                  94239.70c  2.879973E-29 $Pu239
                  94240.70c  2.867956E-29 $Pu240
                  94241.70c  2.856023E-29 $Pu241
                  36083.70c  8.303334E-29 $Kr-83
                  42095.70c  7.178626E-29 $Mo-95
                  44101.70c  6.822852E-29 $Ru101
                  45103.70c  6.690253E-29 $Rh103
                  45105.70c  6.562692E-29 $Rh105
                  48113.70c  6.097758E-29 $Cd113
                  54131.70c  5.259260E-29 $Xe131
                  54133.70c  5.180129E-29 $Xe133
                  55133.70c  5.180102E-29 $Cs133
                  54135.70c  5.065689E-29 $Xe135
                  57140.70c  4.920766E-29 $La140
                  58141.70c  4.885933E-29 $Ce141
                  59143.70c  4.817476E-29 $Pr143
                  60143.70c  4.817471E-29 $Nd143
                  60145.70c  4.750891E-29 $Nd145
                  61147.70c  4.686170E-29 $Pm147
                  61149.70c  4.623135E-29 $Pm149
                  62149.70c  4.623132E-29 $Sm149
                  61151.70c  4.561735E-29 $Pm151
                  62151.70c  4.561782E-29 $Sm151
                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2174      lwtr.10t
c
c
c
c
c           ATR Element No. =  9
c           Radial Zone No. =  1
c           Axial  Zone No. =  7
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.973803E-02 a/b-cm
m2175
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
```

```
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  6.875743E-28 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2175      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  2
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2176
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
```

```
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
                    60145.70c  1.184740E-29 $Nd145
                    61147.70c  1.168601E-29 $Pm147
                    61149.70c  1.152882E-29 $Pm149
                    62149.70c  1.152881E-29 $Sm149
                    61151.70c  1.137570E-29 $Pm151
                    62151.70c  1.137582E-29 $Sm151
                    62152.70c  1.130095E-29 $Sm152
                    63153.70c  1.122694E-29 $Eu153
                    63155.70c  1.108194E-29 $Eu155
                    64157.70c  1.094057E-29 $Gd157
mt2176      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  2
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2177
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.355541E-06 $U-234
                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
                    60145.70c  1.184740E-29 $Nd145
                    61147.70c  1.168601E-29 $Pm147
                    61149.70c  1.152882E-29 $Pm149
                    62149.70c  1.152881E-29 $Sm149
                    61151.70c  1.137570E-29 $Pm151
                    62151.70c  1.137582E-29 $Sm151
                    62152.70c  1.130095E-29 $Sm152
                    63153.70c  1.122694E-29 $Eu153
                    63155.70c  1.108194E-29 $Eu155
                    64157.70c  1.094057E-29 $Gd157
```

```
mt2177      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  2
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2178
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2178      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  2
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2179
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  8.573098E-29 $ B-10
```

```
                    92234.70c  8.355538E-06 $U-234
                    92235.70c  6.447894E-04 $U-235
                    92236.70c  4.832660E-06 $U-236
                    92237.70c  3.621303E-30 $U-237
                    92238.70c  4.141449E-05 $U-238
                    93237.70c  3.621285E-30 $Np237
                    94239.70c  3.590928E-30 $Pu239
                    94240.70c  3.575944E-30 $Pu240
                    94241.70c  3.561065E-30 $Pu241
                    36083.70c  1.035311E-29 $Kr-83
                    42095.70c  8.950752E-30 $Mo-95
                    44101.70c  8.507152E-30 $Ru101
                    45103.70c  8.341818E-30 $Rh103
                    45105.70c  8.182769E-30 $Rh105
                    48113.70c  7.603060E-30 $Cd113
                    54131.70c  6.557568E-30 $Xe131
                    54133.70c  6.458903E-30 $Xe133
                    55133.70c  6.458870E-30 $Cs133
                    54135.70c  6.316213E-30 $Xe135
                    57140.70c  6.135514E-30 $La140
                    58141.70c  6.092082E-30 $Ce141
                    59143.70c  6.006725E-30 $Pr143
                    60143.70c  6.006719E-30 $Nd143
                    60145.70c  5.923703E-30 $Nd145
                    61147.70c  5.843005E-30 $Pm147
                    61149.70c  5.764410E-30 $Pm149
                    62149.70c  5.764405E-30 $Sm149
                    61151.70c  5.687851E-30 $Pm151
                    62151.70c  5.687911E-30 $Sm151
                    62152.70c  5.650478E-30 $Sm152
                    63153.70c  5.613472E-30 $Eu153
                    63155.70c  5.540969E-30 $Eu155
                    64157.70c  5.470287E-30 $Gd157
mt2179      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  2
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2180
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.355541E-06 $U-234
                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
```

```
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2180      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  2
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2181
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2181      lwtr.10t
c
c
c
c
```

```
c            ATR Element No. =  9
c            Radial Zone No. =  2
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2182
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2182      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  3
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
m2183
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  3.658125E-28 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
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                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2183      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  3
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
m2184
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  3.658125E-28 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
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                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2184      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  3
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
m2185
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  3.658125E-28 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2185      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  3
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
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m2186
                  1001.70c  3.212840E-02 $ H-1
                  8016.70c  1.606420E-02 $ O-16
                 12000.60c  2.399430E-04 $Mg-nat
                 13027.70c  2.958200E-02 $Al-27
                 14000.60c  1.245870E-04 $Si-nat
                 24000.50c  2.243180E-05 $Cr-nat
                 29000.50c  2.294330E-05 $Cu-nat
                  5010.70c  1.829063E-28 $ B-10
                 92234.70c  5.964876E-06 $U-234
                 92235.70c  4.603042E-04 $U-235
                 92236.70c  3.449954E-06 $U-236
                 92237.70c  7.726017E-30 $U-237
                 92238.70c  2.956510E-05 $U-238
                 93237.70c  7.725979E-30 $Np237
                 94239.70c  7.661212E-30 $Pu239
                 94240.70c  7.629244E-30 $Pu240
                 94241.70c  7.597500E-30 $Pu241
                 36083.70c  2.208826E-29 $Kr-83
                 42095.70c  1.909635E-29 $Mo-95
                 44101.70c  1.814993E-29 $Ru101
                 45103.70c  1.779720E-29 $Rh103
                 45105.70c  1.745786E-29 $Rh105
                 48113.70c  1.622106E-29 $Cd113
                 54131.70c  1.399051E-29 $Xe131
                 54133.70c  1.378001E-29 $Xe133
                 55133.70c  1.377994E-29 $Cs133
                 54135.70c  1.347558E-29 $Xe135
                 57140.70c  1.309006E-29 $La140
                 58141.70c  1.299740E-29 $Ce141
                 59143.70c  1.281529E-29 $Pr143
                 60143.70c  1.281528E-29 $Nd143
                 60145.70c  1.263817E-29 $Nd145
                 61147.70c  1.246600E-29 $Pm147
                 61149.70c  1.229832E-29 $Pm149
                 62149.70c  1.229831E-29 $Sm149
                 61151.70c  1.213498E-29 $Pm151
                 62151.70c  1.213511E-29 $Sm151
                 62152.70c  1.205524E-29 $Sm152
                 63153.70c  1.197629E-29 $Eu153
                 63155.70c  1.182161E-29 $Eu155
                 64157.70c  1.167081E-29 $Gd157
mt2186      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  3
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
m2187
                  1001.70c  3.212840E-02 $ H-1
                  8016.70c  1.606420E-02 $ O-16
                 12000.60c  2.399430E-04 $Mg-nat
                 13027.70c  2.958200E-02 $Al-27
                 14000.60c  1.245870E-04 $Si-nat
                 24000.50c  2.243180E-05 $Cr-nat
                 29000.50c  2.294330E-05 $Cu-nat
                  5010.70c  3.658125E-28 $ B-10
                 92234.70c  5.964864E-06 $U-234
                 92235.70c  4.603032E-04 $U-235
                 92236.70c  3.449947E-06 $U-236
                 92237.70c  1.545203E-29 $U-237
                 92238.70c  2.956504E-05 $U-238
                 93237.70c  1.545195E-29 $Np237
                 94239.70c  1.532242E-29 $Pu239
                 94240.70c  1.525848E-29 $Pu240
                 94241.70c  1.519499E-29 $Pu241
                 36083.70c  4.417651E-29 $Kr-83
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                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2187      lwtr.10t
c
c
c
c
c            ATR Element No. =  9
c            Radial Zone No. =  3
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.868379E-02 a/b-cm
m2188
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  3.658125E-28 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
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                  62152.70c  2.411048E-29 $Sm152
                  63153.70c  2.395258E-29 $Eu153
                  63155.70c  2.364321E-29 $Eu155
                  64157.70c  2.334161E-29 $Gd157
mt2188      lwtr.10t
c
c
c
c
c           ATR Element No. =  9
c           Radial Zone No. =  3
c           Axial  Zone No. =  7
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.868379E-02 a/b-cm
m2189
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  3.658125E-28 $ B-10
                  92234.70c  5.964864E-06 $U-234
                  92235.70c  4.603032E-04 $U-235
                  92236.70c  3.449947E-06 $U-236
                  92237.70c  1.545203E-29 $U-237
                  92238.70c  2.956504E-05 $U-238
                  93237.70c  1.545195E-29 $Np237
                  94239.70c  1.532242E-29 $Pu239
                  94240.70c  1.525848E-29 $Pu240
                  94241.70c  1.519499E-29 $Pu241
                  36083.70c  4.417651E-29 $Kr-83
                  42095.70c  3.819269E-29 $Mo-95
                  44101.70c  3.629985E-29 $Ru101
                  45103.70c  3.559438E-29 $Rh103
                  45105.70c  3.491572E-29 $Rh105
                  48113.70c  3.244211E-29 $Cd113
                  54131.70c  2.798102E-29 $Xe131
                  54133.70c  2.756002E-29 $Xe133
                  55133.70c  2.755987E-29 $Cs133
                  54135.70c  2.695116E-29 $Xe135
                  57140.70c  2.618012E-29 $La140
                  58141.70c  2.599480E-29 $Ce141
                  59143.70c  2.563058E-29 $Pr143
                  60143.70c  2.563055E-29 $Nd143
                  60145.70c  2.527633E-29 $Nd145
                  61147.70c  2.493199E-29 $Pm147
                  61149.70c  2.459663E-29 $Pm149
                  62149.70c  2.459661E-29 $Sm149
                  61151.70c  2.426995E-29 $Pm151
                  62151.70c  2.427021E-29 $Sm151
                  62152.70c  2.411048E-29 $Sm152
                  63153.70c  2.395258E-29 $Eu153
                  63155.70c  2.364321E-29 $Eu155
                  64157.70c  2.334161E-29 $Gd157
mt2189      lwtr.10t
c
c
c
c
c           ATR Element No. = 10
c           Radial Zone No. =  1
c           Axial  Zone No. =  1
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.967879E-02 a/b-cm
m2190
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
```

```
                     14000.60c  1.130110E-04 $Si-nat
                     24000.50c  2.304760E-05 $Cr-nat
                     29000.50c  2.081160E-05 $Cu-nat
                      5010.70c  1.720620E-06 $ B-10
                     92234.70c  5.688298E-06 $U-234
                     92235.70c  3.902910E-04 $U-235
                     92236.70c  2.044226E-05 $U-236
                     92237.70c  2.146926E-07 $U-237
                     92238.70c  3.030311E-05 $U-238
                     93237.70c  4.171517E-07 $Np237
                     94239.70c  5.375831E-07 $Pu239
                     94240.70c  6.383304E-08 $Pu240
                     94241.70c  2.804938E-08 $Pu241
                     36083.70c  3.996481E-07 $Kr-83
                     42095.70c  2.572275E-07 $Mo-95
                     44101.70c  3.962531E-06 $Ru101
                     45103.70c  7.158842E-07 $Rh103
                     45105.70c  7.425954E-31 $Rh105
                     48113.70c  6.983500E-10 $Cd113
                     54131.70c  1.593521E-06 $Xe131
                     54133.70c  5.861527E-31 $Xe133
                     55133.70c  4.150200E-06 $Cs133
                     54135.70c  5.732034E-31 $Xe135
                     57140.70c  5.568047E-31 $La140
                     58141.70c  5.528633E-31 $Ce141
                     59143.70c  5.451170E-31 $Pr143
                     60143.70c  2.522660E-06 $Nd143
                     60145.70c  2.970121E-06 $Nd145
                     61147.70c  5.302593E-31 $Pm147
                     61149.70c  5.231266E-31 $Pm149
                     62149.70c  2.739326E-08 $Sm149
                     61151.70c  5.161789E-31 $Pm151
                     62151.70c  7.742765E-08 $Sm151
                     62152.70c  3.829744E-07 $Sm152
                     63153.70c  1.793236E-07 $Eu153
                     63155.70c  1.602541E-08 $Eu155
                     64157.70c  1.637703E-10 $Gd157
mt2190      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  1
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.964312E-02 a/b-cm
m2191
                      1001.70c  3.393340E-02 $ H-1
                      8016.70c  1.696670E-02 $ O-16
                     12000.60c  2.176490E-04 $Mg-nat
                     13027.70c  2.793720E-02 $Al-27
                     14000.60c  1.130110E-04 $Si-nat
                     24000.50c  2.304760E-05 $Cr-nat
                     29000.50c  2.081160E-05 $Cu-nat
                      5010.70c  1.720620E-06 $ B-10
                     92234.70c  5.338016E-06 $U-234
                     92235.70c  3.349376E-04 $U-235
                     92236.70c  3.022082E-05 $U-236
                     92237.70c  3.396254E-07 $U-237
                     92238.70c  2.979408E-05 $U-238
                     93237.70c  6.598986E-07 $Np237
                     94239.70c  8.504109E-07 $Pu239
                     94240.70c  1.009784E-07 $Pu240
                     94241.70c  4.437174E-08 $Pu241
                     36083.70c  6.322094E-07 $Kr-83
                     42095.70c  4.069121E-07 $Mo-95
                     44101.70c  6.268387E-06 $Ru101
                     45103.70c  1.132468E-06 $Rh103
                     45105.70c  1.174723E-30 $Rh105
                     48113.70c  1.104730E-09 $Cd113
```

```
                   54131.70c  2.520815E-06 $Xe131
                   54133.70c  9.272438E-31 $Xe133
                   55133.70c  6.565264E-06 $Cs133
                   54135.70c  9.067592E-31 $Xe135
                   57140.70c  8.808179E-31 $La140
                   58141.70c  8.745828E-31 $Ce141
                   59143.70c  8.623289E-31 $Pr143
                   60143.70c  3.990633E-06 $Nd143
                   60145.70c  4.698478E-06 $Nd145
                   61147.70c  8.388252E-31 $Pm147
                   61149.70c  8.275419E-31 $Pm149
                   62149.70c  4.333381E-08 $Sm149
                   61151.70c  8.165512E-31 $Pm151
                   62151.70c  1.224840E-07 $Sm151
                   62152.70c  6.058330E-07 $Sm152
                   63153.70c  2.836748E-07 $Eu153
                   63155.70c  2.535083E-08 $Eu155
                   64157.70c  2.590706E-10 $Gd157
mt2191      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  1
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.961814E-02 a/b-cm
m2192
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.720620E-06 $ B-10
                   92234.70c  5.092732E-06 $U-234
                   92235.70c  2.961765E-04 $U-235
                   92236.70c  3.706825E-05 $U-236
                   92237.70c  4.271094E-07 $U-237
                   92238.70c  2.943763E-05 $U-238
                   93237.70c  8.298817E-07 $Np237
                   94239.70c  1.069468E-06 $Pu239
                   94240.70c  1.269895E-07 $Pu240
                   94241.70c  5.580144E-08 $Pu241
                   36083.70c  7.950601E-07 $Kr-83
                   42095.70c  5.117284E-07 $Mo-95
                   44101.70c  7.883059E-06 $Ru101
                   45103.70c  1.424180E-06 $Rh103
                   45105.70c  1.477320E-30 $Rh105
                   48113.70c  1.389298E-09 $Cd113
                   54131.70c  3.170151E-06 $Xe131
                   54133.70c  1.166092E-30 $Xe133
                   55133.70c  8.256409E-06 $Cs133
                   54135.70c  1.140331E-30 $Xe135
                   57140.70c  1.107708E-30 $La140
                   58141.70c  1.099866E-30 $Ce141
                   59143.70c  1.084456E-30 $Pr143
                   60143.70c  5.018580E-06 $Nd143
                   60145.70c  5.908758E-06 $Nd145
                   61147.70c  1.054898E-30 $Pm147
                   61149.70c  1.040708E-30 $Pm149
                   62149.70c  5.449616E-08 $Sm149
                   61151.70c  1.026887E-30 $Pm151
                   62151.70c  1.540346E-07 $Sm151
                   62152.70c  7.618893E-07 $Sm152
                   63153.70c  3.567465E-07 $Eu153
                   63155.70c  3.188094E-08 $Eu155
                   64157.70c  3.258046E-10 $Gd157
mt2192      lwtr.10t
```

```
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  1
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.960810E-02 a/b-cm
m2193
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  1.720620E-06 $ B-10
                  92234.70c  4.994025E-06 $U-234
                  92235.70c  2.805769E-04 $U-235
                  92236.70c  3.982433E-05 $U-236
                  92237.70c  4.623214E-07 $U-237
                  92238.70c  2.929426E-05 $U-238
                  93237.70c  8.982994E-07 $Np237
                  94239.70c  1.157638E-06 $Pu239
                  94240.70c  1.374588E-07 $Pu240
                  94241.70c  6.040187E-08 $Pu241
                  36083.70c  8.606070E-07 $Kr-83
                  42095.70c  5.539168E-07 $Mo-95
                  44101.70c  8.532960E-06 $Ru101
                  45103.70c  1.541594E-06 $Rh103
                  45105.70c  1.599114E-30 $Rh105
                  48113.70c  1.503835E-09 $Cd113
                  54131.70c  3.431507E-06 $Xe131
                  54133.70c  1.262228E-30 $Xe133
                  55133.70c  8.937091E-06 $Cs133
                  54135.70c  1.234343E-30 $Xe135
                  57140.70c  1.199030E-30 $La140
                  58141.70c  1.190542E-30 $Ce141
                  59143.70c  1.173861E-30 $Pr143
                  60143.70c  5.432324E-06 $Nd143
                  60145.70c  6.395892E-06 $Nd145
                  61147.70c  1.141867E-30 $Pm147
                  61149.70c  1.126507E-30 $Pm149
                  62149.70c  5.898897E-08 $Sm149
                  61151.70c  1.111546E-30 $Pm151
                  62151.70c  1.667336E-07 $Sm151
                  62152.70c  8.247016E-07 $Sm152
                  63153.70c  3.861576E-07 $Eu153
                  63155.70c  3.450930E-08 $Eu155
                  64157.70c  3.526648E-10 $Gd157
mt2193      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  1
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.962194E-02 a/b-cm
m2194
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  1.720620E-06 $ B-10
                  92234.70c  5.129963E-06 $U-234
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                    92235.70c  3.020600E-04 $U-235
                    92236.70c  3.602889E-05 $U-236
                    92237.70c  4.138304E-07 $U-237
                    92238.70c  2.949174E-05 $U-238
                    93237.70c  8.040803E-07 $Np237
                    94239.70c  1.036218E-06 $Pu239
                    94240.70c  1.230413E-07 $Pu240
                    94241.70c  5.406656E-08 $Pu241
                    36083.70c  7.703413E-07 $Kr-83
                    42095.70c  4.958187E-07 $Mo-95
                    44101.70c  7.637972E-06 $Ru101
                    45103.70c  1.379902E-06 $Rh103
                    45105.70c  1.431389E-30 $Rh105
                    48113.70c  1.346104E-09 $Cd113
                    54131.70c  3.071589E-06 $Xe131
                    54133.70c  1.129838E-30 $Xe133
                    55133.70c  7.999714E-06 $Cs133
                    54135.70c  1.104878E-30 $Xe135
                    57140.70c  1.073269E-30 $La140
                    58141.70c  1.065671E-30 $Ce141
                    59143.70c  1.050740E-30 $Pr143
                    60143.70c  4.862550E-06 $Nd143
                    60145.70c  5.725053E-06 $Nd145
                    61147.70c  1.022101E-30 $Pm147
                    61149.70c  1.008352E-30 $Pm149
                    62149.70c  5.280186E-08 $Sm149
                    61151.70c  9.949601E-31 $Pm151
                    62151.70c  1.492456E-07 $Sm151
                    62152.70c  7.382019E-07 $Sm152
                    63153.70c  3.456551E-07 $Eu153
                    63155.70c  3.088975E-08 $Eu155
                    64157.70c  3.156752E-10 $Gd157
mt2194      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  1
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.965042E-02 a/b-cm
m2195
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  1.720620E-06 $ B-10
                    92234.70c  5.409632E-06 $U-234
                    92235.70c  3.462548E-04 $U-235
                    92236.70c  2.822156E-05 $U-236
                    92237.70c  3.140824E-07 $U-237
                    92238.70c  2.989815E-05 $U-238
                    93237.70c  6.102681E-07 $Np237
                    94239.70c  7.864521E-07 $Pu239
                    94240.70c  9.338393E-08 $Pu240
                    94241.70c  4.103458E-08 $Pu241
                    36083.70c  5.846614E-07 $Kr-83
                    42095.70c  3.763085E-07 $Mo-95
                    44101.70c  5.796946E-06 $Ru101
                    45103.70c  1.047296E-06 $Rh103
                    45105.70c  1.086373E-30 $Rh105
                    48113.70c  1.021644E-09 $Cd113
                    54131.70c  2.331226E-06 $Xe131
                    54133.70c  8.575064E-31 $Xe133
                    55133.70c  6.071496E-06 $Cs133
                    54135.70c  8.385625E-31 $Xe135
                    57140.70c  8.145722E-31 $La140
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                   58141.70c  8.088060E-31 $Ce141
                   59143.70c  7.974737E-31 $Pr143
                   60143.70c  3.690501E-06 $Nd143
                   60145.70c  4.345110E-06 $Nd145
                   61147.70c  7.757377E-31 $Pm147
                   61149.70c  7.653031E-31 $Pm149
                   62149.70c  4.007471E-08 $Sm149
                   61151.70c  7.551389E-31 $Pm151
                   62151.70c  1.132720E-07 $Sm151
                   62152.70c  5.602688E-07 $Sm152
                   63153.70c  2.623398E-07 $Eu153
                   63155.70c  2.344421E-08 $Eu155
                   64157.70c  2.395861E-10 $Gd157
mt2195      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  1
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.969851E-02 a/b-cm
m2196
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.720620E-06 $ B-10
                   92234.70c  5.882188E-06 $U-234
                   92235.70c  4.209305E-04 $U-235
                   92236.70c  1.502956E-05 $U-236
                   92237.70c  1.455389E-07 $U-237
                   92238.70c  3.058487E-05 $U-238
                   93237.70c  2.827848E-07 $Np237
                   94239.70c  3.644246E-07 $Pu239
                   94240.70c  4.327206E-08 $Pu240
                   94241.70c  1.901452E-08 $Pu241
                   36083.70c  2.709192E-07 $Kr-83
                   42095.70c  1.743731E-07 $Mo-95
                   44101.70c  2.686177E-06 $Ru101
                   45103.70c  4.852939E-07 $Rh103
                   45105.70c  5.034013E-31 $Rh105
                   48113.70c  4.734075E-10 $Cd113
                   54131.70c  1.080239E-06 $Xe131
                   54133.70c  3.973496E-31 $Xe133
                   55133.70c  2.813398E-06 $Cs133
                   54135.70c  3.885714E-31 $Xe135
                   57140.70c  3.774548E-31 $La140
                   58141.70c  3.747829E-31 $Ce141
                   59143.70c  3.695318E-31 $Pr143
                   60143.70c  1.710097E-06 $Nd143
                   60145.70c  2.013428E-06 $Nd145
                   61147.70c  3.594598E-31 $Pm147
                   61149.70c  3.546246E-31 $Pm149
                   62149.70c  1.856974E-08 $Sm149
                   61151.70c  3.499148E-31 $Pm151
                   62151.70c  5.248776E-08 $Sm151
                   62152.70c  2.596162E-07 $Sm152
                   63153.70c  1.215625E-07 $Eu153
                   63155.70c  1.086353E-08 $Eu155
                   64157.70c  1.110189E-10 $Gd157
mt2196      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
```

```
c            Radial Zone No. =  2
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.288951E-02 a/b-cm
m2197
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  7.775408E-06 $U-234
                   92235.70c  5.527204E-04 $U-235
                   92236.70c  2.116705E-05 $U-236
                   92237.70c  2.086550E-07 $U-237
                   92238.70c  4.058865E-05 $U-238
                   93237.70c  4.054207E-07 $Np237
                   94239.70c  5.224654E-07 $Pu239
                   94240.70c  6.203794E-08 $Pu240
                   94241.70c  2.726059E-08 $Pu241
                   36083.70c  3.884094E-07 $Kr-83
                   42095.70c  2.499939E-07 $Mo-95
                   44101.70c  3.851098E-06 $Ru101
                   45103.70c  6.957523E-07 $Rh103
                   45105.70c  7.217125E-31 $Rh105
                   48113.70c  6.787111E-10 $Cd113
                   54131.70c  1.548708E-06 $Xe131
                   54133.70c  5.696692E-31 $Xe133
                   55133.70c  4.033490E-06 $Cs133
                   54135.70c  5.570840E-31 $Xe135
                   57140.70c  5.411465E-31 $La140
                   58141.70c  5.373159E-31 $Ce141
                   59143.70c  5.297875E-31 $Pr143
                   60143.70c  2.451718E-06 $Nd143
                   60145.70c  2.886596E-06 $Nd145
                   61147.70c  5.153475E-31 $Pm147
                   61149.70c  5.084154E-31 $Pm149
                   62149.70c  2.662292E-08 $Sm149
                   61151.70c  5.016631E-31 $Pm151
                   62151.70c  7.525025E-08 $Sm151
                   62152.70c  3.722045E-07 $Sm152
                   63153.70c  1.742807E-07 $Eu153
                   63155.70c  1.557474E-08 $Eu155
                   64157.70c  1.591648E-10 $Gd157
mt2197      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  2
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.285274E-02 a/b-cm
m2198
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  7.414436E-06 $U-234
                   92235.70c  4.956778E-04 $U-235
                   92236.70c  3.124405E-05 $U-236
                   92237.70c  3.374007E-07 $U-237
                   92238.70c  4.006409E-05 $U-238
                   93237.70c  6.555761E-07 $Np237
```

```
                   94239.70c  8.448404E-07 $Pu239
                   94240.70c  1.003170E-07 $Pu240
                   94241.70c  4.408109E-08 $Pu241
                   36083.70c  6.280683E-07 $Kr-83
                   42095.70c  4.042467E-07 $Mo-95
                   44101.70c  6.227328E-06 $Ru101
                   45103.70c  1.125050E-06 $Rh103
                   45105.70c  1.167028E-30 $Rh105
                   48113.70c  1.097494E-09 $Cd113
                   54131.70c  2.504303E-06 $Xe131
                   54133.70c  9.211702E-31 $Xe133
                   55133.70c  6.522260E-06 $Cs133
                   54135.70c  9.008198E-31 $Xe135
                   57140.70c  8.750483E-31 $La140
                   58141.70c  8.688541E-31 $Ce141
                   59143.70c  8.566805E-31 $Pr143
                   60143.70c  3.964493E-06 $Nd143
                   60145.70c  4.667702E-06 $Nd145
                   61147.70c  8.333307E-31 $Pm147
                   61149.70c  8.221213E-31 $Pm149
                   62149.70c  4.304997E-08 $Sm149
                   61151.70c  8.112026E-31 $Pm151
                   62151.70c  1.216817E-07 $Sm151
                   62152.70c  6.018647E-07 $Sm152
                   63153.70c  2.818166E-07 $Eu153
                   63155.70c  2.518478E-08 $Eu155
                   64157.70c  2.573737E-10 $Gd157
mt2198      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  2
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.282410E-02 a/b-cm
m2199
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  7.133161E-06 $U-234
                   92235.70c  4.512292E-04 $U-235
                   92236.70c  3.909621E-05 $U-236
                   92237.70c  4.377214E-07 $U-237
                   92238.70c  3.965534E-05 $U-238
                   93237.70c  8.505012E-07 $Np237
                   94239.70c  1.096040E-06 $Pu239
                   94240.70c  1.301447E-07 $Pu240
                   94241.70c  5.718790E-08 $Pu241
                   36083.70c  8.148143E-07 $Kr-83
                   42095.70c  5.244430E-07 $Mo-95
                   44101.70c  8.078923E-06 $Ru101
                   45103.70c  1.459566E-06 $Rh103
                   45105.70c  1.514025E-30 $Rh105
                   48113.70c  1.423816E-09 $Cd113
                   54131.70c  3.248917E-06 $Xe131
                   54133.70c  1.195065E-30 $Xe133
                   55133.70c  8.461549E-06 $Cs133
                   54135.70c  1.168664E-30 $Xe135
                   57140.70c  1.135230E-30 $La140
                   58141.70c  1.127194E-30 $Ce141
                   59143.70c  1.111401E-30 $Pr143
                   60143.70c  5.143272E-06 $Nd143
                   60145.70c  6.055569E-06 $Nd145
                   61147.70c  1.081108E-30 $Pm147
```

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                  61149.70c  1.066566E-30 $Pm149
                  62149.70c  5.585018E-08 $Sm149
                  61151.70c  1.052401E-30 $Pm151
                  62151.70c  1.578618E-07 $Sm151
                  62152.70c  7.808194E-07 $Sm152
                  63153.70c  3.656103E-07 $Eu153
                  63155.70c  3.267306E-08 $Eu155
                  64157.70c  3.338996E-10 $Gd157
mt2199      lwtr.10t
c
c
c
c
c           ATR Element No. = 10
c           Radial Zone No. =  2
c           Axial  Zone No. =  4
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.281159E-02 a/b-cm
m2200
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  8.573098E-29 $ B-10
                  92234.70c  7.010179E-06 $U-234
                  92235.70c  4.317953E-04 $U-235
                  92236.70c  4.252930E-05 $U-236
                  92237.70c  4.815832E-07 $U-237
                  92238.70c  3.947661E-05 $U-238
                  93237.70c  9.357254E-07 $Np237
                  94239.70c  1.205869E-06 $Pu239
                  94240.70c  1.431858E-07 $Pu240
                  94241.70c  6.291841E-08 $Pu241
                  36083.70c  8.964627E-07 $Kr-83
                  42095.70c  5.769947E-07 $Mo-95
                  44101.70c  8.888471E-06 $Ru101
                  45103.70c  1.605821E-06 $Rh103
                  45105.70c  1.665738E-30 $Rh105
                  48113.70c  1.566490E-09 $Cd113
                  54131.70c  3.574474E-06 $Xe131
                  54133.70c  1.314817E-30 $Xe133
                  55133.70c  9.309438E-06 $Cs133
                  54135.70c  1.285770E-30 $Xe135
                  57140.70c  1.248985E-30 $La140
                  58141.70c  1.240144E-30 $Ce141
                  59143.70c  1.222768E-30 $Pr143
                  60143.70c  5.658653E-06 $Nd143
                  60145.70c  6.662366E-06 $Nd145
                  61147.70c  1.189441E-30 $Pm147
                  61149.70c  1.173441E-30 $Pm149
                  62149.70c  6.144664E-08 $Sm149
                  61151.70c  1.157856E-30 $Pm151
                  62151.70c  1.736803E-07 $Sm151
                  62152.70c  8.590613E-07 $Sm152
                  63153.70c  4.022461E-07 $Eu153
                  63155.70c  3.594706E-08 $Eu155
                  64157.70c  3.673579E-10 $Gd157
mt2200      lwtr.10t
c
c
c
c
c           ATR Element No. = 10
c           Radial Zone No. =  2
c           Axial  Zone No. =  5
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.282881E-02 a/b-cm
m2201
```

```
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  7.179019E-06 $U-234
                    92235.70c  4.584759E-04 $U-235
                    92236.70c  3.781602E-05 $U-236
                    92237.70c  4.213655E-07 $U-237
                    92238.70c  3.972198E-05 $U-238
                    93237.70c  8.187213E-07 $Np237
                    94239.70c  1.055086E-06 $Pu239
                    94240.70c  1.252817E-07 $Pu240
                    94241.70c  5.505101E-08 $Pu241
                    36083.70c  7.843680E-07 $Kr-83
                    42095.70c  5.048466E-07 $Mo-95
                    44101.70c  7.777046E-06 $Ru101
                    45103.70c  1.405028E-06 $Rh103
                    45105.70c  1.457452E-30 $Rh105
                    48113.70c  1.370614E-09 $Cd113
                    54131.70c  3.127518E-06 $Xe131
                    54133.70c  1.150411E-30 $Xe133
                    55133.70c  8.145375E-06 $Cs133
                    54135.70c  1.124996E-30 $Xe135
                    57140.70c  1.092811E-30 $La140
                    58141.70c  1.085075E-30 $Ce141
                    59143.70c  1.069872E-30 $Pr143
                    60143.70c  4.951089E-06 $Nd143
                    60145.70c  5.829296E-06 $Nd145
                    61147.70c  1.040712E-30 $Pm147
                    61149.70c  1.026713E-30 $Pm149
                    62149.70c  5.376328E-08 $Sm149
                    61151.70c  1.013077E-30 $Pm151
                    62151.70c  1.519631E-07 $Sm151
                    62152.70c  7.516433E-07 $Sm152
                    63153.70c  3.519488E-07 $Eu153
                    63155.70c  3.145220E-08 $Eu155
                    64157.70c  3.214231E-10 $Gd157
mt2201      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  2
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.286008E-02 a/b-cm
m2202
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  7.486313E-06 $U-234
                    92235.70c  5.070362E-04 $U-235
                    92236.70c  2.923749E-05 $U-236
                    92237.70c  3.117646E-07 $U-237
                    92238.70c  4.016854E-05 $U-238
                    93237.70c  6.057646E-07 $Np237
                    94239.70c  7.806484E-07 $Pu239
                    94240.70c  9.269481E-08 $Pu240
                    94241.70c  4.073176E-08 $Pu241
                    36083.70c  5.803469E-07 $Kr-83
                    42095.70c  3.735315E-07 $Mo-95
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                   44101.70c  5.754167E-06 $Ru101
                   45103.70c  1.039567E-06 $Rh103
                   45105.70c  1.078356E-30 $Rh105
                   48113.70c  1.014105E-09 $Cd113
                   54131.70c  2.314023E-06 $Xe131
                   54133.70c  8.511786E-31 $Xe133
                   55133.70c  6.026691E-06 $Cs133
                   54135.70c  8.323743E-31 $Xe135
                   57140.70c  8.085611E-31 $La140
                   58141.70c  8.028375E-31 $Ce141
                   59143.70c  7.915889E-31 $Pr143
                   60143.70c  3.663266E-06 $Nd143
                   60145.70c  4.313044E-06 $Nd145
                   61147.70c  7.700132E-31 $Pm147
                   61149.70c  7.596555E-31 $Pm149
                   62149.70c  3.977898E-08 $Sm149
                   61151.70c  7.495665E-31 $Pm151
                   62151.70c  1.124361E-07 $Sm151
                   62152.70c  5.561342E-07 $Sm152
                   63153.70c  2.604038E-07 $Eu153
                   63155.70c  2.327121E-08 $Eu155
                   64157.70c  2.378181E-10 $Gd157
mt2202      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  2
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.290178E-02 a/b-cm
m2203
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  7.895820E-06 $U-234
                   92235.70c  5.717485E-04 $U-235
                   92236.70c  1.780560E-05 $U-236
                   92237.70c  1.657085E-07 $U-237
                   92238.70c  4.076363E-05 $U-238
                   93237.70c  3.219748E-07 $Np237
                   94239.70c  4.149287E-07 $Pu239
                   94240.70c  4.926895E-08 $Pu240
                   94241.70c  2.164966E-08 $Pu241
                   36083.70c  3.084648E-07 $Kr-83
                   42095.70c  1.985387E-07 $Mo-95
                   44101.70c  3.058443E-06 $Ru101
                   45103.70c  5.525487E-07 $Rh103
                   45105.70c  5.731656E-31 $Rh105
                   48113.70c  5.390151E-10 $Cd113
                   54131.70c  1.229945E-06 $Xe131
                   54133.70c  4.524167E-31 $Xe133
                   55133.70c  3.203295E-06 $Cs133
                   54135.70c  4.424219E-31 $Xe135
                   57140.70c  4.297647E-31 $La140
                   58141.70c  4.267226E-31 $Ce141
                   59143.70c  4.207437E-31 $Pr143
                   60143.70c  1.947092E-06 $Nd143
                   60145.70c  2.292461E-06 $Nd145
                   61147.70c  4.092758E-31 $Pm147
                   61149.70c  4.037706E-31 $Pm149
                   62149.70c  2.114324E-08 $Sm149
                   61151.70c  3.984080E-31 $Pm151
                   62151.70c  5.976183E-08 $Sm151
                   62152.70c  2.955953E-07 $Sm152
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                  63153.70c  1.384093E-07 $Eu153
                  63155.70c  1.236906E-08 $Eu155
                  64157.70c  1.264046E-10 $Gd157
mt2203      lwtr.10t
c
c
c
c
c           ATR Element No. = 10
c           Radial Zone No. =  3
c           Axial  Zone No. =  1
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.851893E-02 a/b-cm
m2204
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  1.142268E-06 $ B-10
                  92234.70c  4.098777E-06 $U-234
                  92235.70c  2.725540E-04 $U-235
                  92236.70c  1.778722E-05 $U-236
                  92237.70c  1.929672E-07 $U-237
                  92238.70c  2.221118E-05 $U-238
                  93237.70c  3.749388E-07 $Np237
                  94239.70c  4.831835E-07 $Pu239
                  94240.70c  5.737358E-08 $Pu240
                  94241.70c  2.521098E-08 $Pu241
                  36083.70c  3.592065E-07 $Kr-83
                  42095.70c  2.311979E-07 $Mo-95
                  44101.70c  3.561550E-06 $Ru101
                  45103.70c  6.434417E-07 $Rh103
                  45105.70c  6.674500E-31 $Rh105
                  48113.70c  6.276817E-10 $Cd113
                  54131.70c  1.432268E-06 $Xe131
                  54133.70c  5.268381E-31 $Xe133
                  55133.70c  3.730229E-06 $Cs133
                  54135.70c  5.151993E-31 $Xe135
                  57140.70c  5.004600E-31 $La140
                  58141.70c  4.969174E-31 $Ce141
                  59143.70c  4.899550E-31 $Pr143
                  60143.70c  2.267384E-06 $Nd143
                  60145.70c  2.669565E-06 $Nd145
                  61147.70c  4.766008E-31 $Pm147
                  61149.70c  4.701899E-31 $Pm149
                  62149.70c  2.462125E-08 $Sm149
                  61151.70c  4.639452E-31 $Pm151
                  62151.70c  6.959251E-08 $Sm151
                  62152.70c  3.442201E-07 $Sm152
                  63153.70c  1.611773E-07 $Eu153
                  63155.70c  1.440375E-08 $Eu155
                  64157.70c  1.471978E-10 $Gd157
mt2204      lwtr.10t
c
c
c
c
c           ATR Element No. = 10
c           Radial Zone No. =  3
c           Axial  Zone No. =  2
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.848707E-02 a/b-cm
m2205
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
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                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.142268E-06 $ B-10
                    92234.70c  3.785948E-06 $U-234
                    92235.70c  2.231192E-04 $U-235
                    92236.70c  2.652023E-05 $U-236
                    92237.70c  3.045418E-07 $U-237
                    92238.70c  2.175658E-05 $U-238
                    93237.70c  5.917305E-07 $Np237
                    94239.70c  7.625627E-07 $Pu239
                    94240.70c  9.054728E-08 $Pu240
                    94241.70c  3.978810E-08 $Pu241
                    36083.70c  5.669016E-07 $Kr-83
                    42095.70c  3.648777E-07 $Mo-95
                    44101.70c  5.620858E-06 $Ru101
                    45103.70c  1.015483E-06 $Rh103
                    45105.70c  1.053373E-30 $Rh105
                    48113.70c  9.906107E-10 $Cd113
                    54131.70c  2.260412E-06 $Xe131
                    54133.70c  8.314588E-31 $Xe133
                    55133.70c  5.887066E-06 $Cs133
                    54135.70c  8.130903E-31 $Xe135
                    57140.70c  7.898288E-31 $La140
                    58141.70c  7.842376E-31 $Ce141
                    59143.70c  7.732496E-31 $Pr143
                    60143.70c  3.578397E-06 $Nd143
                    60145.70c  4.213121E-06 $Nd145
                    61147.70c  7.521739E-31 $Pm147
                    61149.70c  7.420562E-31 $Pm149
                    62149.70c  3.885739E-08 $Sm149
                    61151.70c  7.322008E-31 $Pm151
                    62151.70c  1.098313E-07 $Sm151
                    62152.70c  5.432499E-07 $Sm152
                    63153.70c  2.543709E-07 $Eu153
                    63155.70c  2.273207E-08 $Gd157
                    64157.70c  2.323084E-10 $Gd157
mt2205      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  3
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.846358E-02 a/b-cm
m2206
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.142268E-06 $ B-10
                    92234.70c  3.555024E-06 $U-234
                    92235.70c  1.866272E-04 $U-235
                    92236.70c  3.296680E-05 $U-236
                    92237.70c  3.869043E-07 $U-237
                    92238.70c  2.142100E-05 $U-238
                    93237.70c  7.517625E-07 $Np237
                    94239.70c  9.687959E-07 $Pu239
                    94240.70c  1.150356E-07 $Pu240
                    94241.70c  5.054870E-08 $Pu241
                    36083.70c  7.202187E-07 $Kr-83
                    42095.70c  4.635580E-07 $Mo-95
                    44101.70c  7.141005E-06 $Ru101
                    45103.70c  1.290118E-06 $Rh103
                    45105.70c  1.338255E-30 $Rh105
                    48113.70c  1.258519E-09 $Cd113
                    54131.70c  2.871735E-06 $Xe131
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                   54133.70c  1.056325E-30 $Xe133
                   55133.70c  7.479209E-06 $Cs133
                   54135.70c  1.032988E-30 $Xe135
                   57140.70c  1.003436E-30 $La140
                   58141.70c  9.963327E-31 $Ce141
                   59143.70c  9.823730E-31 $Pr143
                   60143.70c  4.546166E-06 $Nd143
                   60145.70c  5.352550E-06 $Nd145
                   61147.70c  9.555974E-31 $Pm147
                   61149.70c  9.427434E-31 $Pm149
                   62149.70c  4.936629E-08 $Sm149
                   61151.70c  9.302227E-31 $Pm151
                   62151.70c  1.395349E-07 $Sm151
                   62152.70c  6.901706E-07 $Sm152
                   63153.70c  3.231649E-07 $Eu153
                   63155.70c  2.887990E-08 $Eu155
                   64157.70c  2.951357E-10 $Gd157
mt2206      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  3
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.845429E-02 a/b-cm
m2207
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.142268E-06 $ B-10
                   92234.70c  3.463750E-06 $U-234
                   92235.70c  1.722036E-04 $U-235
                   92236.70c  3.551487E-05 $U-236
                   92237.70c  4.194588E-07 $U-237
                   92238.70c  2.128837E-05 $U-238
                   93237.70c  8.150166E-07 $Np237
                   94239.70c  1.050311E-06 $Pu239
                   94240.70c  1.247148E-07 $Pu240
                   94241.70c  5.480192E-08 $Pu241
                   36083.70c  7.808187E-07 $Kr-83
                   42095.70c  5.025622E-07 $Mo-95
                   44101.70c  7.741855E-06 $Ru101
                   45103.70c  1.398670E-06 $Rh103
                   45105.70c  1.450857E-30 $Rh105
                   48113.70c  1.364412E-09 $Cd113
                   54131.70c  3.113366E-06 $Xe131
                   54133.70c  1.145205E-30 $Xe133
                   55133.70c  8.108518E-06 $Cs133
                   54135.70c  1.119905E-30 $Xe135
                   57140.70c  1.087866E-30 $La140
                   58141.70c  1.080165E-30 $Ce141
                   59143.70c  1.065031E-30 $Pr143
                   60143.70c  4.928685E-06 $Nd143
                   60145.70c  5.802919E-06 $Nd145
                   61147.70c  1.036002E-30 $Pm147
                   61149.70c  1.022067E-30 $Pm149
                   62149.70c  5.352000E-08 $Sm149
                   61151.70c  1.008493E-30 $Pm151
                   62151.70c  1.512755E-07 $Sm151
                   62152.70c  7.482421E-07 $Sm152
                   63153.70c  3.503563E-07 $Eu153
                   63155.70c  3.130988E-08 $Eu155
                   64157.70c  3.199687E-10 $Gd157
mt2207      lwtr.10t
c
```

```
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  3
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.846721E-02 a/b-cm
m2208
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  1.142268E-06 $ B-10
                  92234.70c  3.590653E-06 $U-234
                  92235.70c  1.922575E-04 $U-235
                  92236.70c  3.197217E-05 $U-236
                  92237.70c  3.741968E-07 $U-237
                  92238.70c  2.147278E-05 $U-238
                  93237.70c  7.270715E-07 $Np237
                  94239.70c  9.369766E-07 $Pu239
                  94240.70c  1.112573E-07 $Pu240
                  94241.70c  4.888847E-08 $Pu241
                  36083.70c  6.965638E-07 $Kr-83
                  42095.70c  4.483328E-07 $Mo-95
                  44101.70c  6.906465E-06 $Ru101
                  45103.70c  1.247745E-06 $Rh103
                  45105.70c  1.294301E-30 $Rh105
                  48113.70c  1.217184E-09 $Cd113
                  54131.70c  2.777416E-06 $Xe131
                  54133.70c  1.021631E-30 $Xe133
                  55133.70c  7.233562E-06 $Cs133
                  54135.70c  9.990608E-31 $Xe135
                  57140.70c  9.704788E-31 $La140
                  58141.70c  9.636091E-31 $Ce141
                  59143.70c  9.501078E-31 $Pr143
                  60143.70c  4.396850E-06 $Nd143
                  60145.70c  5.176749E-06 $Nd145
                  61147.70c  9.242117E-31 $Pm147
                  61149.70c  9.117797E-31 $Pm149
                  62149.70c  4.774489E-08 $Sm149
                  61151.70c  8.996702E-31 $Pm151
                  62151.70c  1.349520E-07 $Sm151
                  62152.70c  6.675024E-07 $Sm152
                  63153.70c  3.125508E-07 $Eu153
                  63155.70c  2.793136E-08 $Eu155
                  64157.70c  2.854422E-10 $Gd157
mt2208      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  3
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.849300E-02 a/b-cm
m2209
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  1.142268E-06 $ B-10
                  92234.70c  3.843982E-06 $U-234
                  92235.70c  2.322898E-04 $U-235
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                    92236.70c  2.490017E-05 $U-236
                    92237.70c  2.838435E-07 $U-237
                    92238.70c  2.184092E-05 $U-238
                    93237.70c  5.515133E-07 $Np237
                    94239.70c  7.107349E-07 $Pu239
                    94240.70c  8.439321E-08 $Pu240
                    94241.70c  3.708389E-08 $Pu241
                    36083.70c  5.283720E-07 $Kr-83
                    42095.70c  3.400787E-07 $Mo-95
                    44101.70c  5.238834E-06 $Ru101
                    45103.70c  9.464655E-07 $Rh103
                    45105.70c  9.817803E-31 $Rh105
                    48113.70c  9.232836E-10 $Cd113
                    54131.70c  2.106783E-06 $Xe131
                    54133.70c  7.749484E-31 $Xe133
                    55133.70c  5.486951E-06 $Cs133
                    54135.70c  7.578283E-31 $Xe135
                    57140.70c  7.361477E-31 $La140
                    58141.70c  7.309367E-31 $Ce141
                    59143.70c  7.206955E-31 $Pr143
                    60143.70c  3.335191E-06 $Nd143
                    60145.70c  3.926776E-06 $Nd145
                    61147.70c  7.010521E-31 $Pm147
                    61149.70c  6.916221E-31 $Pm149
                    62149.70c  3.621644E-08 $Sm149
                    61151.70c  6.824366E-31 $Pm151
                    62151.70c  1.023666E-07 $Sm151
                    62152.70c  5.063278E-07 $Sm152
                    63153.70c  2.370825E-07 $Eu153
                    63155.70c  2.118708E-08 $Eu155
                    64157.70c  2.165195E-10 $Gd157
mt2209      lwtr.10t
c
c
c
c
c            ATR Element No. = 10
c            Radial Zone No. =  3
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.852753E-02 a/b-cm
m2210
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.142268E-06 $ B-10
                    92234.70c  4.183084E-06 $U-234
                    92235.70c  2.858765E-04 $U-235
                    92236.70c  1.543369E-05 $U-236
                    92237.70c  1.628980E-07 $U-237
                    92238.70c  2.233370E-05 $U-238
                    93237.70c  3.165140E-07 $Np237
                    94239.70c  4.078914E-07 $Pu239
                    94240.70c  4.843333E-08 $Pu240
                    94241.70c  2.128248E-08 $Pu241
                    36083.70c  3.032331E-07 $Kr-83
                    42095.70c  1.951714E-07 $Mo-95
                    44101.70c  3.006571E-06 $Ru101
                    45103.70c  5.431773E-07 $Rh103
                    45105.70c  5.634446E-31 $Rh105
                    48113.70c  5.298732E-10 $Cd113
                    54131.70c  1.209084E-06 $Xe131
                    54133.70c  4.447436E-31 $Xe133
                    55133.70c  3.148966E-06 $Cs133
                    54135.70c  4.349183E-31 $Xe135
                    57140.70c  4.224758E-31 $La140
                    58141.70c  4.194852E-31 $Ce141
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                   59143.70c  4.136078E-31 $Pr143
                   60143.70c  1.914068E-06 $Nd143
                   60145.70c  2.253580E-06 $Nd145
                   61147.70c  4.023344E-31 $Pm147
                   61149.70c  3.969225E-31 $Pm149
                   62149.70c  2.078465E-08 $Sm149
                   61151.70c  3.916509E-31 $Pm151
                   62151.70c  5.874825E-08 $Sm151
                   62152.70c  2.905819E-07 $Sm152
                   63153.70c  1.360619E-07 $Eu153
                   63155.70c  1.215928E-08 $Eu155
                   64157.70c  1.242607E-10 $Gd157
mt2210      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  1
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.969562E-02 a/b-cm
m2211
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  3.670657E-06 $ B-10
                   92234.70c  5.845600E-06 $U-234
                   92235.70c  4.151488E-04 $U-235
                   92236.70c  1.605094E-05 $U-236
                   92237.70c  1.453746E-07 $U-237
                   92238.70c  3.054891E-05 $U-238
                   93237.70c  2.204448E-07 $Np237
                   94239.70c  4.246852E-07 $Pu239
                   94240.70c  3.643572E-08 $Pu240
                   94241.70c  1.275155E-08 $Pu241
                   36083.70c  2.957309E-07 $Kr-83
                   42095.70c  1.155466E-07 $Mo-95
                   44101.70c  2.927350E-06 $Ru101
                   45103.70c  4.143219E-07 $Rh103
                   45105.70c  7.425954E-31 $Rh105
                   48113.70c  7.515376E-10 $Cd113
                   54131.70c  1.025512E-06 $Xe131
                   54133.70c  5.861527E-31 $Xe133
                   55133.70c  2.706961E-06 $Cs133
                   54135.70c  5.732034E-31 $Xe135
                   57140.70c  5.568047E-31 $La140
                   58141.70c  5.528633E-31 $Ce141
                   59143.70c  5.451170E-31 $Pr143
                   60143.70c  1.500125E-06 $Nd143
                   60145.70c  2.192857E-06 $Nd145
                   61147.70c  5.302593E-31 $Pm147
                   61149.70c  5.231266E-31 $Pm149
                   62149.70c  2.671007E-08 $Sm149
                   61151.70c  5.161789E-31 $Pm151
                   62151.70c  7.951937E-08 $Sm151
                   62152.70c  2.699588E-07 $Sm152
                   63153.70c  1.142149E-07 $Eu153
                   63155.70c  1.314966E-08 $Eu155
                   64157.70c  1.473473E-10 $Gd157
mt2211      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  1
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c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.966863E-02 a/b-cm
m2212
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  3.670657E-06 $ B-10
                   92234.70c  5.586855E-06 $U-234
                   92235.70c  3.742606E-04 $U-235
                   92236.70c  2.327413E-05 $U-236
                   92237.70c  2.299703E-07 $U-237
                   92238.70c  3.018292E-05 $U-238
                   93237.70c  3.487250E-07 $Np237
                   94239.70c  6.718159E-07 $Pu239
                   94240.70c  5.763821E-08 $Pu240
                   94241.70c  2.017187E-08 $Pu241
                   36083.70c  4.678211E-07 $Kr-83
                   42095.70c  1.827849E-07 $Mo-95
                   44101.70c  4.630819E-06 $Ru101
                   45103.70c  6.554220E-07 $Rh103
                   45105.70c  1.174723E-30 $Rh105
                   48113.70c  1.188869E-09 $Cd113
                   54131.70c  1.622272E-06 $Xe131
                   54133.70c  9.272438E-31 $Xe133
                   55133.70c  4.282182E-06 $Cs133
                   54135.70c  9.067592E-31 $Xe135
                   57140.70c  8.808179E-31 $La140
                   58141.70c  8.745828E-31 $Ce141
                   59143.70c  8.623289E-31 $Pr143
                   60143.70c  2.373070E-06 $Nd143
                   60145.70c  3.468913E-06 $Nd145
                   61147.70c  8.388252E-31 $Pm147
                   61149.70c  8.275419E-31 $Pm149
                   62149.70c  4.225307E-08 $Sm149
                   61151.70c  8.165512E-31 $Pm151
                   62151.70c  1.257929E-07 $Sm151
                   62152.70c  4.270519E-07 $Sm152
                   63153.70c  1.806783E-07 $Eu153
                   63155.70c  2.080164E-08 $Eu155
                   64157.70c  2.330909E-10 $Gd157
mt2212      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  1
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.964972E-02 a/b-cm
m2213
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  3.670657E-06 $ B-10
                   92234.70c  5.405670E-06 $U-234
                   92235.70c  3.456287E-04 $U-235
                   92236.70c  2.833216E-05 $U-236
                   92237.70c  2.892082E-07 $U-237
                   92238.70c  2.992663E-05 $U-238
                   93237.70c  4.385530E-07 $Np237
                   94239.70c  8.448689E-07 $Pu239
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                   94240.70c  7.248522E-08 $Pu240
                   94241.70c  2.536793E-08 $Pu241
                   36083.70c  5.883271E-07 $Kr-83
                   42095.70c  2.298684E-07 $Mo-95
                   44101.70c  5.823670E-06 $Ru101
                   45103.70c  8.242520E-07 $Rh103
                   45105.70c  1.477320E-30 $Rh105
                   48113.70c  1.495109E-09 $Cd113
                   54131.70c  2.040153E-06 $Xe131
                   54133.70c  1.166092E-30 $Xe133
                   55133.70c  5.385228E-06 $Cs133
                   54135.70c  1.140331E-30 $Xe135
                   57140.70c  1.107708E-30 $La140
                   58141.70c  1.099866E-30 $Ce141
                   59143.70c  1.084456E-30 $Pr143
                   60143.70c  2.984349E-06 $Nd143
                   60145.70c  4.362470E-06 $Nd145
                   61147.70c  1.054898E-30 $Pm147
                   61149.70c  1.040708E-30 $Pm149
                   62149.70c  5.313702E-08 $Sm149
                   61151.70c  1.026887E-30 $Pm151
                   62151.70c  1.581958E-07 $Sm151
                   62152.70c  5.370561E-07 $Sm152
                   63153.70c  2.272191E-07 $Eu153
                   63155.70c  2.615993E-08 $Eu155
                   64157.70c  2.931328E-10 $Gd157
mt2213      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  1
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.964210E-02 a/b-cm
m2214
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  3.670657E-06 $ B-10
                   92234.70c  5.332763E-06 $U-234
                   92235.70c  3.341061E-04 $U-235
                   92236.70c  3.036801E-05 $U-236
                   92237.70c  3.130513E-07 $U-237
                   92238.70c  2.982357E-05 $U-238
                   93237.70c  4.747085E-07 $Np237
                   94239.70c  9.145222E-07 $Pu239
                   94240.70c  7.846110E-08 $Pu240
                   94241.70c  2.745933E-08 $Pu241
                   36083.70c  6.368303E-07 $Kr-83
                   42095.70c  2.488194E-07 $Mo-95
                   44101.70c  6.303790E-06 $Ru101
                   45103.70c  8.922056E-07 $Rh103
                   45105.70c  1.599114E-30 $Rh105
                   48113.70c  1.618370E-09 $Cd113
                   54131.70c  2.208349E-06 $Xe131
                   54133.70c  1.262228E-30 $Xe133
                   55133.70c  5.829201E-06 $Cs133
                   54135.70c  1.234343E-30 $Xe135
                   57140.70c  1.199030E-30 $La140
                   58141.70c  1.190542E-30 $Ce141
                   59143.70c  1.173861E-30 $Pr143
                   60143.70c  3.230387E-06 $Nd143
                   60145.70c  4.722123E-06 $Nd145
                   61147.70c  1.141867E-30 $Pm147
                   61149.70c  1.126507E-30 $Pm149
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                  62149.70c  5.751778E-08 $Sm149
                  61151.70c  1.111546E-30 $Pm151
                  62151.70c  1.712379E-07 $Sm151
                  62152.70c  5.813325E-07 $Sm152
                  63153.70c  2.459517E-07 $Eu153
                  63155.70c  2.831662E-08 $Eu155
                  64157.70c  3.172995E-10 $Gd157
mt2214      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  1
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.965256E-02 a/b-cm
m2215
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  3.670657E-06 $ B-10
                  92234.70c  5.433172E-06 $U-234
                  92235.70c  3.499747E-04 $U-235
                  92236.70c  2.756441E-05 $U-236
                  92237.70c  2.802166E-07 $U-237
                  92238.70c  2.996553E-05 $U-238
                  93237.70c  4.249182E-07 $Np237
                  94239.70c  8.186016E-07 $Pu239
                  94240.70c  7.023162E-08 $Pu240
                  94241.70c  2.457923E-08 $Pu241
                  36083.70c  5.700358E-07 $Kr-83
                  42095.70c  2.227217E-07 $Mo-95
                  44101.70c  5.642610E-06 $Ru101
                  45103.70c  7.986257E-07 $Rh103
                  45105.70c  1.431389E-30 $Rh105
                  48113.70c  1.448625E-09 $Cd113
                  54131.70c  1.976724E-06 $Xe131
                  54133.70c  1.129838E-30 $Xe133
                  55133.70c  5.217800E-06 $Cs133
                  54135.70c  1.104878E-30 $Xe135
                  57140.70c  1.073269E-30 $La140
                  58141.70c  1.065671E-30 $Ce141
                  59143.70c  1.050740E-30 $Pr143
                  60143.70c  2.891564E-06 $Nd143
                  60145.70c  4.226838E-06 $Nd145
                  61147.70c  1.022101E-30 $Pm147
                  61149.70c  1.008352E-30 $Pm149
                  62149.70c  5.148498E-08 $Sm149
                  61151.70c  9.949601E-31 $Pm151
                  62151.70c  1.532775E-07 $Sm151
                  62152.70c  5.203588E-07 $Sm152
                  63153.70c  2.201548E-07 $Eu153
                  63155.70c  2.534661E-08 $Eu155
                  64157.70c  2.840191E-10 $Gd157
mt2215      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  1
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.967413E-02 a/b-cm
m2216
                   1001.70c  3.393340E-02 $ H-1
```

```
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  3.670657E-06 $ B-10
                    92234.70c  5.639757E-06 $U-234
                    92235.70c  3.826204E-04 $U-235
                    92236.70c  2.179732E-05 $U-236
                    92237.70c  2.126743E-07 $U-237
                    92238.70c  3.025774E-05 $U-238
                    93237.70c  3.224976E-07 $Np237
                    94239.70c  6.212892E-07 $Pu239
                    94240.70c  5.330328E-08 $Pu240
                    94241.70c  1.865475E-08 $Pu241
                    36083.70c  4.326367E-07 $Kr-83
                    42095.70c  1.690378E-07 $Mo-95
                    44101.70c  4.282538E-06 $Ru101
                    45103.70c  6.061282E-07 $Rh103
                    45105.70c  1.086373E-30 $Rh105
                    48113.70c  1.099455E-09 $Cd113
                    54131.70c  1.500262E-06 $Xe131
                    54133.70c  8.575064E-31 $Xe133
                    55133.70c  3.960122E-06 $Cs133
                    54135.70c  8.385625E-31 $Xe135
                    57140.70c  8.145722E-31 $La140
                    58141.70c  8.088060E-31 $Ce141
                    59143.70c  7.974737E-31 $Pr143
                    60143.70c  2.194593E-06 $Nd143
                    60145.70c  3.208019E-06 $Nd145
                    61147.70c  7.757377E-31 $Pm147
                    61149.70c  7.653031E-31 $Pm149
                    62149.70c  3.907524E-08 $Sm149
                    61151.70c  7.551389E-31 $Pm151
                    62151.70c  1.163321E-07 $Sm151
                    62152.70c  3.949336E-07 $Sm152
                    63153.70c  1.670896E-07 $Eu153
                    63155.70c  1.923716E-08 $Eu155
                    64157.70c  2.155603E-10 $Gd157
mt2216      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  1
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.971054E-02 a/b-cm
m2217
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  3.670657E-06 $ B-10
                    92234.70c  5.988823E-06 $U-234
                    92235.70c  4.377815E-04 $U-235
                    92236.70c  1.205271E-05 $U-236
                    92237.70c  9.854862E-08 $U-237
                    92238.70c  3.075150E-05 $U-238
                    93237.70c  1.494383E-07 $Np237
                    94239.70c  2.878917E-07 $Pu239
                    94240.70c  2.469957E-08 $Pu240
                    94241.70c  8.644203E-09 $Pu241
                    36083.70c  2.004743E-07 $Kr-83
                    42095.70c  7.832837E-08 $Mo-95
                    44101.70c  1.984434E-06 $Ru101
```

```
                   45103.70c  2.808665E-07 $Rh103
                   45105.70c  5.034013E-31 $Rh105
                   48113.70c  5.094631E-10 $Cd113
                   54131.70c  6.951886E-07 $Xe131
                   54133.70c  3.973496E-31 $Xe133
                   55133.70c  1.835034E-06 $Cs133
                   54135.70c  3.885714E-31 $Xe135
                   57140.70c  3.774548E-31 $La140
                   58141.70c  3.747829E-31 $Ce141
                   59143.70c  3.695318E-31 $Pr143
                   60143.70c  1.016926E-06 $Nd143
                   60145.70c  1.486525E-06 $Nd145
                   61147.70c  3.594598E-31 $Pm147
                   61149.70c  3.546246E-31 $Pm149
                   62149.70c  1.810661E-08 $Sm149
                   61151.70c  3.499148E-31 $Pm151
                   62151.70c  5.390573E-08 $Sm151
                   62152.70c  1.830036E-07 $Sm152
                   63153.70c  7.742563E-08 $Eu153
                   63155.70c  8.914077E-09 $Eu155
                   64157.70c  9.988591E-11 $Gd157
mt2217      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  2
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.290397E-02 a/b-cm
m2218
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  7.928286E-06 $U-234
                   92235.70c  5.768793E-04 $U-235
                   92236.70c  1.689922E-05 $U-236
                   92237.70c  1.412864E-07 $U-237
                   92238.70c  4.082754E-05 $U-238
                   93237.70c  2.142456E-07 $Np237
                   94239.70c  4.127423E-07 $Pu239
                   94240.70c  3.541108E-08 $Pu240
                   94241.70c  1.239295E-08 $Pu241
                   36083.70c  2.874144E-07 $Kr-83
                   42095.70c  1.122972E-07 $Mo-95
                   44101.70c  2.845028E-06 $Ru101
                   45103.70c  4.026704E-07 $Rh103
                   45105.70c  7.217125E-31 $Rh105
                   48113.70c  7.304030E-10 $Cd113
                   54131.70c  9.966724E-07 $Xe131
                   54133.70c  5.696692E-31 $Xe133
                   55133.70c  2.630836E-06 $Cs133
                   54135.70c  5.570840E-31 $Xe135
                   57140.70c  5.411465E-31 $La140
                   58141.70c  5.373159E-31 $Ce141
                   59143.70c  5.297875E-31 $Pr143
                   60143.70c  1.457939E-06 $Nd143
                   60145.70c  2.131190E-06 $Nd145
                   61147.70c  5.153475E-31 $Pm147
                   61149.70c  5.084154E-31 $Pm149
                   62149.70c  2.595894E-08 $Sm149
                   61151.70c  5.016631E-31 $Pm151
                   62151.70c  7.728314E-08 $Sm151
                   62152.70c  2.623671E-07 $Sm152
                   63153.70c  1.110030E-07 $Eu153
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                  63155.70c  1.277986E-08 $Eu155
                  64157.70c  1.432037E-10 $Gd157
mt2218      lwtr.10t
c
c
c
c
c           ATR Element No. = 11
c           Radial Zone No. =  2
c           Axial  Zone No. =  2
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.287613E-02 a/b-cm
m2219
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  1.714619E-28 $ B-10
                  92234.70c  7.661645E-06 $U-234
                  92235.70c  5.347432E-04 $U-235
                  92236.70c  2.434286E-05 $U-236
                  92237.70c  2.284639E-07 $U-237
                  92238.70c  4.045038E-05 $U-238
                  93237.70c  3.464408E-07 $Np237
                  94239.70c  6.674154E-07 $Pu239
                  94240.70c  5.726066E-08 $Pu240
                  94241.70c  2.003974E-08 $Pu241
                  36083.70c  4.647568E-07 $Kr-83
                  42095.70c  1.815876E-07 $Mo-95
                  44101.70c  4.600486E-06 $Ru101
                  45103.70c  6.511288E-07 $Rh103
                  45105.70c  1.167028E-30 $Rh105
                  48113.70c  1.181081E-09 $Cd113
                  54131.70c  1.611646E-06 $Xe131
                  54133.70c  9.211702E-31 $Xe133
                  55133.70c  4.254133E-06 $Cs133
                  54135.70c  9.008198E-31 $Xe135
                  57140.70c  8.750483E-31 $La140
                  58141.70c  8.688541E-31 $Ce141
                  59143.70c  8.566805E-31 $Pr143
                  60143.70c  2.357526E-06 $Nd143
                  60145.70c  3.446191E-06 $Nd145
                  61147.70c  8.333307E-31 $Pm147
                  61149.70c  8.221213E-31 $Pm149
                  62149.70c  4.197630E-08 $Sm149
                  61151.70c  8.112026E-31 $Pm151
                  62151.70c  1.249689E-07 $Sm151
                  62152.70c  4.242546E-07 $Sm152
                  63153.70c  1.794948E-07 $Eu153
                  63155.70c  2.066538E-08 $Eu155
                  64157.70c  2.315641E-10 $Gd157
mt2219      lwtr.10t
c
c
c
c
c           ATR Element No. = 11
c           Radial Zone No. =  2
c           Axial  Zone No. =  3
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.285446E-02 a/b-cm
m2220
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
```

```
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  7.453874E-06 $U-234
                   92235.70c  5.019101E-04 $U-235
                   92236.70c  3.014306E-05 $U-236
                   92237.70c  2.963940E-07 $U-237
                   92238.70c  4.015649E-05 $U-238
                   93237.70c  4.494494E-07 $Np237
                   94239.70c  8.658606E-07 $Pu239
                   94240.70c  7.428621E-08 $Pu240
                   94241.70c  2.599823E-08 $Pu241
                   36083.70c  6.029448E-07 $Kr-83
                   42095.70c  2.355798E-07 $Mo-95
                   44101.70c  5.968366E-06 $Ru101
                   45103.70c  8.447315E-07 $Rh103
                   45105.70c  1.514025E-30 $Rh105
                   48113.70c  1.532257E-09 $Cd113
                   54131.70c  2.090843E-06 $Xe131
                   54133.70c  1.195065E-30 $Xe133
                   55133.70c  5.519031E-06 $Cs133
                   54135.70c  1.168664E-30 $Xe135
                   57140.70c  1.135230E-30 $La140
                   58141.70c  1.127194E-30 $Ce141
                   59143.70c  1.111401E-30 $Pr143
                   60143.70c  3.058499E-06 $Nd143
                   60145.70c  4.470860E-06 $Nd145
                   61147.70c  1.081108E-30 $Pm147
                   61149.70c  1.066566E-30 $Pm149
                   62149.70c  5.445728E-08 $Sm149
                   61151.70c  1.052401E-30 $Pm151
                   62151.70c  1.621264E-07 $Sm151
                   62152.70c  5.503999E-07 $Sm152
                   63153.70c  2.328647E-07 $Eu153
                   63155.70c  2.680990E-08 $Eu155
                   64157.70c  3.004160E-10 $Gd157
mt2220      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  2
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.284497E-02 a/b-cm
m2221
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  8.573098E-29 $ B-10
                   92234.70c  7.363030E-06 $U-234
                   92235.70c  4.875547E-04 $U-235
                   92236.70c  3.267900E-05 $U-236
                   92237.70c  3.260940E-07 $U-237
                   92238.70c  4.002797E-05 $U-238
                   93237.70c  4.944863E-07 $Np237
                   94239.70c  9.526241E-07 $Pu239
                   94240.70c  8.173004E-08 $Pu240
                   94241.70c  2.860338E-08 $Pu241
                   36083.70c  6.633626E-07 $Kr-83
                   42095.70c  2.591859E-07 $Mo-95
                   44101.70c  6.566426E-06 $Ru101
                   45103.70c  9.293778E-07 $Rh103
                   45105.70c  1.665738E-30 $Rh105
                   48113.70c  1.685796E-09 $Cd113
                   54131.70c  2.300356E-06 $Xe131
                   54133.70c  1.314817E-30 $Xe133
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                   55133.70c  6.072065E-06 $Cs133
                   54135.70c  1.285770E-30 $Xe135
                   57140.70c  1.248985E-30 $La140
                   58141.70c  1.240144E-30 $Ce141
                   59143.70c  1.222768E-30 $Pr143
                   60143.70c  3.364975E-06 $Nd143
                   60145.70c  4.918862E-06 $Nd145
                   61147.70c  1.189441E-30 $Pm147
                   61149.70c  1.173441E-30 $Pm149
                   62149.70c  5.991416E-08 $Sm149
                   61151.70c  1.157856E-30 $Pm151
                   62151.70c  1.783723E-07 $Sm151
                   62152.70c  6.055526E-07 $Sm152
                   63153.70c  2.561988E-07 $Eu153
                   63155.70c  2.949638E-08 $Eu155
                   64157.70c  3.305191E-10 $Gd157
mt2221      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  2
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.285798E-02 a/b-cm
m2222
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  7.487749E-06 $U-234
                   92235.70c  5.072631E-04 $U-235
                   92236.70c  2.919742E-05 $U-236
                   92237.70c  2.853189E-07 $U-237
                   92238.70c  4.020440E-05 $U-238
                   93237.70c  4.326552E-07 $Np237
                   94239.70c  8.335069E-07 $Pu239
                   94240.70c  7.151042E-08 $Pu240
                   94241.70c  2.502678E-08 $Pu241
                   36083.70c  5.804151E-07 $Kr-83
                   42095.70c  2.267771E-07 $Mo-95
                   44101.70c  5.745353E-06 $Ru101
                   45103.70c  8.131673E-07 $Rh103
                   45105.70c  1.457452E-30 $Rh105
                   48113.70c  1.475002E-09 $Cd113
                   54131.70c  2.012717E-06 $Xe131
                   54133.70c  1.150411E-30 $Xe133
                   55133.70c  5.312807E-06 $Cs133
                   54135.70c  1.124996E-30 $Xe135
                   57140.70c  1.092811E-30 $La140
                   58141.70c  1.085075E-30 $Ce141
                   59143.70c  1.069872E-30 $Pr143
                   60143.70c  2.944214E-06 $Nd143
                   60145.70c  4.303802E-06 $Nd145
                   61147.70c  1.040712E-30 $Pm147
                   61149.70c  1.026713E-30 $Pm149
                   62149.70c  5.242243E-08 $Sm149
                   61151.70c  1.013077E-30 $Pm151
                   62151.70c  1.560684E-07 $Sm151
                   62152.70c  5.298336E-07 $Sm152
                   63153.70c  2.241634E-07 $Eu153
                   63155.70c  2.580812E-08 $Eu155
                   64157.70c  2.891907E-10 $Gd157
mt2222      lwtr.10t
c
c
```

```
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  2
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.288167E-02 a/b-cm
m2223
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  7.714740E-06 $U-234
                   92235.70c  5.431334E-04 $U-235
                   92236.70c  2.286066E-05 $U-236
                   92237.70c  2.111049E-07 $U-237
                   92238.70c  4.052548E-05 $U-238
                   93237.70c  3.201178E-07 $Np237
                   94239.70c  6.167043E-07 $Pu239
                   94240.70c  5.290993E-08 $Pu240
                   94241.70c  1.851709E-08 $Pu241
                   36083.70c  4.294440E-07 $Kr-83
                   42095.70c  1.677903E-07 $Mo-95
                   44101.70c  4.250935E-06 $Ru101
                   45103.70c  6.016552E-07 $Rh103
                   45105.70c  1.078356E-30 $Rh105
                   48113.70c  1.091341E-09 $Cd113
                   54131.70c  1.489191E-06 $Xe131
                   54133.70c  8.511786E-31 $Xe133
                   55133.70c  3.930898E-06 $Cs133
                   54135.70c  8.323743E-31 $Xe135
                   57140.70c  8.085611E-31 $La140
                   58141.70c  8.028375E-31 $Ce141
                   59143.70c  7.915889E-31 $Pr143
                   60143.70c  2.178398E-06 $Nd143
                   60145.70c  3.184345E-06 $Nd145
                   61147.70c  7.700132E-31 $Pm147
                   61149.70c  7.596555E-31 $Pm149
                   62149.70c  3.878689E-08 $Sm149
                   61151.70c  7.495665E-31 $Pm151
                   62151.70c  1.154736E-07 $Sm151
                   62152.70c  3.920192E-07 $Sm152
                   63153.70c  1.658565E-07 $Eu153
                   63155.70c  1.909520E-08 $Eu155
                   64157.70c  2.139696E-10 $Gd157
mt2223      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  2
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.291324E-02 a/b-cm
m2224
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.017233E-06 $U-234
                   92235.70c  5.909348E-04 $U-235
                   92236.70c  1.441620E-05 $U-236
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                    92237.70c  1.122061E-07 $U-237
                    92238.70c  4.095335E-05 $U-238
                    93237.70c  1.701483E-07 $Np237
                    94239.70c  3.277894E-07 $Pu239
                    94240.70c  2.812257E-08 $Pu240
                    94241.70c  9.842166E-09 $Pu241
                    36083.70c  2.282572E-07 $Kr-83
                    42095.70c  8.918357E-08 $Mo-95
                    44101.70c  2.259448E-06 $Ru101
                    45103.70c  3.197906E-07 $Rh103
                    45105.70c  5.731656E-31 $Rh105
                    48113.70c  5.800674E-10 $Cd113
                    54131.70c  7.915318E-07 $Xe131
                    54133.70c  4.524167E-31 $Xe133
                    55133.70c  2.089343E-06 $Cs133
                    54135.70c  4.424219E-31 $Xe135
                    57140.70c  4.297647E-31 $La140
                    58141.70c  4.267226E-31 $Ce141
                    59143.70c  4.207437E-31 $Pr143
                    60143.70c  1.157858E-06 $Nd143
                    60145.70c  1.692536E-06 $Nd145
                    61147.70c  4.092758E-31 $Pm147
                    61149.70c  4.037706E-31 $Pm149
                    62149.70c  2.061593E-08 $Sm149
                    61151.70c  3.984080E-31 $Pm151
                    62151.70c  6.137630E-08 $Sm151
                    62152.70c  2.083653E-07 $Sm152
                    63153.70c  8.815572E-08 $Eu153
                    63155.70c  1.014944E-08 $Eu155
                    64157.70c  1.137287E-10 $Gd157
mt2224      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  3
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.853364E-02 a/b-cm
m2225
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  2.436838E-06 $ B-10
                    92234.70c  4.240162E-06 $U-234
                    92235.70c  2.948964E-04 $U-235
                    92236.70c  1.384028E-05 $U-236
                    92237.70c  1.306637E-07 $U-237
                    92238.70c  2.243211E-05 $U-238
                    93237.70c  1.981373E-07 $Np237
                    94239.70c  3.817100E-07 $Pu239
                    94240.70c  3.274867E-08 $Pu240
                    94241.70c  1.146118E-08 $Pu241
                    36083.70c  2.658049E-07 $Kr-83
                    42095.70c  1.038541E-07 $Mo-95
                    44101.70c  2.631123E-06 $Ru101
                    45103.70c  3.723954E-07 $Rh103
                    45105.70c  6.674500E-31 $Rh105
                    48113.70c  6.754872E-10 $Cd113
                    54131.70c  9.217370E-07 $Xe131
                    54133.70c  5.268381E-31 $Xe133
                    55133.70c  2.433035E-06 $Cs133
                    54135.70c  5.151993E-31 $Xe135
                    57140.70c  5.004600E-31 $La140
                    58141.70c  4.969174E-31 $Ce141
                    59143.70c  4.899550E-31 $Pr143
```

```
                   60143.70c  1.348323E-06 $Nd143
                   60145.70c  1.970955E-06 $Nd145
                   61147.70c  4.766008E-31 $Pm147
                   61149.70c  4.701899E-31 $Pm149
                   62149.70c  2.400720E-08 $Sm149
                   61151.70c  4.639452E-31 $Pm151
                   62151.70c  7.147256E-08 $Sm151
                   62152.70c  2.426408E-07 $Sm152
                   63153.70c  1.026572E-07 $Eu153
                   63155.70c  1.181900E-08 $Eu155
                   64157.70c  1.324368E-10 $Gd157
mt2225      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  3
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.850948E-02 a/b-cm
m2226
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  2.436838E-06 $ B-10
                   92234.70c  4.009083E-06 $U-234
                   92235.70c  2.583801E-04 $U-235
                   92236.70c  2.029114E-05 $U-236
                   92237.70c  2.062141E-07 $U-237
                   92238.70c  2.210525E-05 $U-238
                   93237.70c  3.127014E-07 $Np237
                   94239.70c  6.024168E-07 $Pu239
                   94240.70c  5.168413E-08 $Pu240
                   94241.70c  1.808810E-08 $Pu241
                   36083.70c  4.194948E-07 $Kr-83
                   42095.70c  1.639030E-07 $Mo-95
                   44101.70c  4.152452E-06 $Ru101
                   45103.70c  5.877163E-07 $Rh103
                   45105.70c  1.053373E-30 $Rh105
                   48113.70c  1.066057E-09 $Cd113
                   54131.70c  1.454690E-06 $Xe131
                   54133.70c  8.314588E-31 $Xe133
                   55133.70c  3.839829E-06 $Cs133
                   54135.70c  8.130903E-31 $Xe135
                   57140.70c  7.898288E-31 $La140
                   58141.70c  7.842376E-31 $Ce141
                   59143.70c  7.732496E-31 $Pr143
                   60143.70c  2.127930E-06 $Nd143
                   60145.70c  3.110571E-06 $Nd145
                   61147.70c  7.521739E-31 $Pm147
                   61149.70c  7.420562E-31 $Pm149
                   62149.70c  3.788829E-08 $Sm149
                   61151.70c  7.322008E-31 $Pm151
                   62151.70c  1.127984E-07 $Sm151
                   62152.70c  3.829371E-07 $Sm152
                   63153.70c  1.620141E-07 $Eu153
                   63155.70c  1.865281E-08 $Eu155
                   64157.70c  2.090125E-10 $Gd157
mt2226      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  3
c            Axial  Zone No. =  3
```

```
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.849169E-02 a/b-cm
m2227
                  1001.70c  3.212840E-02 $ H-1
                  8016.70c  1.606420E-02 $ O-16
                 12000.60c  2.399430E-04 $Mg-nat
                 13027.70c  2.958200E-02 $Al-27
                 14000.60c  1.245870E-04 $Si-nat
                 24000.50c  2.243180E-05 $Cr-nat
                 29000.50c  2.294330E-05 $Cu-nat
                  5010.70c  2.436838E-06 $ B-10
                 92234.70c  3.838504E-06 $U-234
                 92235.70c  2.314243E-04 $U-235
                 92236.70c  2.505306E-05 $U-236
                 92237.70c  2.619842E-07 $U-237
                 92238.70c  2.186397E-05 $U-238
                 93237.70c  3.972707E-07 $Np237
                 94239.70c  7.653389E-07 $Pu239
                 94240.70c  6.566197E-08 $Pu240
                 94241.70c  2.297998E-08 $Pu241
                 36083.70c  5.329462E-07 $Kr-83
                 42095.70c  2.082302E-07 $Mo-95
                 44101.70c  5.275472E-06 $Ru101
                 45103.70c  7.466628E-07 $Rh103
                 45105.70c  1.338255E-30 $Rh105
                 48113.70c  1.354370E-09 $Cd113
                 54131.70c  1.848108E-06 $Xe131
                 54133.70c  1.056325E-30 $Xe133
                 55133.70c  4.878301E-06 $Cs133
                 54135.70c  1.032988E-30 $Xe135
                 57140.70c  1.003436E-30 $La140
                 58141.70c  9.963327E-31 $Ce141
                 59143.70c  9.823730E-31 $Pr143
                 60143.70c  2.703423E-06 $Nd143
                 60145.70c  3.951818E-06 $Nd145
                 61147.70c  9.555974E-31 $Pm147
                 61149.70c  9.427434E-31 $Pm149
                 62149.70c  4.813509E-08 $Sm149
                 61151.70c  9.302227E-31 $Pm151
                 62151.70c  1.433044E-07 $Sm151
                 62152.70c  4.865015E-07 $Sm152
                 63153.70c  2.058304E-07 $Eu153
                 63155.70c  2.369742E-08 $Eu155
                 64157.70c  2.655393E-10 $Gd157
mt2227      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  3
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.848465E-02 a/b-cm
m2228
                  1001.70c  3.212840E-02 $ H-1
                  8016.70c  1.606420E-02 $ O-16
                 12000.60c  2.399430E-04 $Mg-nat
                 13027.70c  2.958200E-02 $Al-27
                 14000.60c  1.245870E-04 $Si-nat
                 24000.50c  2.243180E-05 $Cr-nat
                 29000.50c  2.294330E-05 $Cu-nat
                  5010.70c  2.436838E-06 $ B-10
                 92234.70c  3.771083E-06 $U-234
                 92235.70c  2.207700E-04 $U-235
                 92236.70c  2.693526E-05 $U-236
                 92237.70c  2.840278E-07 $U-237
                 92238.70c  2.176861E-05 $U-238
                 93237.70c  4.306975E-07 $Np237
                 94239.70c  8.297353E-07 $Pu239
                 94240.70c  7.118684E-08 $Pu240
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                   94241.70c  2.491353E-08 $Pu241
                   36083.70c  5.777887E-07 $Kr-83
                   42095.70c  2.257509E-07 $Mo-95
                   44101.70c  5.719355E-06 $Ru101
                   45103.70c  8.094877E-07 $Rh103
                   45105.70c  1.450857E-30 $Rh105
                   48113.70c  1.468328E-09 $Cd113
                   54131.70c  2.003609E-06 $Xe131
                   54133.70c  1.145205E-30 $Xe133
                   55133.70c  5.288767E-06 $Cs133
                   54135.70c  1.119905E-30 $Xe135
                   57140.70c  1.087866E-30 $La140
                   58141.70c  1.080165E-30 $Ce141
                   59143.70c  1.065031E-30 $Pr143
                   60143.70c  2.930892E-06 $Nd143
                   60145.70c  4.284327E-06 $Nd145
                   61147.70c  1.036002E-30 $Pm147
                   61149.70c  1.022067E-30 $Pm149
                   62149.70c  5.218521E-08 $Sm149
                   61151.70c  1.008493E-30 $Pm151
                   62151.70c  1.553622E-07 $Sm151
                   62152.70c  5.274362E-07 $Sm152
                   63153.70c  2.231491E-07 $Eu153
                   63155.70c  2.569134E-08 $Eu155
                   64157.70c  2.878821E-10 $Gd157
mt2228      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  3
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.849444E-02 a/b-cm
m2229
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  2.436838E-06 $ B-10
                   92234.70c  3.864822E-06 $U-234
                   92235.70c  2.355833E-04 $U-235
                   92236.70c  2.431836E-05 $U-236
                   92237.70c  2.533796E-07 $U-237
                   92238.70c  2.190120E-05 $U-238
                   93237.70c  3.842227E-07 $Np237
                   94239.70c  7.402020E-07 $Pu239
                   94240.70c  6.350536E-08 $Pu240
                   94241.70c  2.222522E-08 $Pu241
                   36083.70c  5.154420E-07 $Kr-83
                   42095.70c  2.013910E-07 $Mo-95
                   44101.70c  5.102203E-06 $Ru101
                   45103.70c  7.221393E-07 $Rh103
                   45105.70c  1.294301E-30 $Rh105
                   48113.70c  1.309887E-09 $Cd113
                   54131.70c  1.787408E-06 $Xe131
                   54133.70c  1.021631E-30 $Xe133
                   55133.70c  4.718078E-06 $Cs133
                   54135.70c  9.990608E-31 $Xe135
                   57140.70c  9.704788E-31 $La140
                   58141.70c  9.636091E-31 $Ce141
                   59143.70c  9.501078E-31 $Pr143
                   60143.70c  2.614631E-06 $Nd143
                   60145.70c  3.822023E-06 $Nd145
                   61147.70c  9.242117E-31 $Pm147
                   61149.70c  9.117797E-31 $Pm149
                   62149.70c  4.655412E-08 $Sm149
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                  61151.70c  8.996702E-31 $Pm151
                  62151.70c  1.385977E-07 $Sm151
                  62152.70c  4.705227E-07 $Sm152
                  63153.70c  1.990700E-07 $Eu153
                  63155.70c  2.291909E-08 $Eu155
                  64157.70c  2.568179E-10 $Gd157
mt2229      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  3
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.851395E-02 a/b-cm
m2230
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  2.436838E-06 $ B-10
                  92234.70c  4.051950E-06 $U-234
                  92235.70c  2.651542E-04 $U-235
                  92236.70c  1.909444E-05 $U-236
                  92237.70c  1.921987E-07 $U-237
                  92238.70c  2.216589E-05 $U-238
                  93237.70c  2.914485E-07 $Np237
                  94239.70c  5.614734E-07 $Pu239
                  94240.70c  4.817141E-08 $Pu240
                  94241.70c  1.685873E-08 $Pu241
                  36083.70c  3.909837E-07 $Kr-83
                  42095.70c  1.527633E-07 $Mo-95
                  44101.70c  3.870229E-06 $Ru101
                  45103.70c  5.477720E-07 $Rh103
                  45105.70c  9.817803E-31 $Rh105
                  48113.70c  9.936024E-10 $Cd113
                  54131.70c  1.355822E-06 $Xe131
                  54133.70c  7.749484E-31 $Xe133
                  55133.70c  3.578854E-06 $Cs133
                  54135.70c  7.578283E-31 $Xe135
                  57140.70c  7.361477E-31 $La140
                  58141.70c  7.309367E-31 $Ce141
                  59143.70c  7.206955E-31 $Pr143
                  60143.70c  1.983304E-06 $Nd143
                  60145.70c  2.899160E-06 $Nd145
                  61147.70c  7.010521E-31 $Pm147
                  61149.70c  6.916221E-31 $Pm149
                  62149.70c  3.531320E-08 $Sm149
                  61151.70c  6.824366E-31 $Pm151
                  62151.70c  1.051320E-07 $Sm151
                  62152.70c  3.569107E-07 $Sm152
                  63153.70c  1.510027E-07 $Eu153
                  63155.70c  1.738507E-08 $Eu155
                  64157.70c  1.948069E-10 $Gd157
mt2230      lwtr.10t
c
c
c
c
c            ATR Element No. = 11
c            Radial Zone No. =  3
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.854009E-02 a/b-cm
m2231
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
```

```
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  2.436838E-06 $ B-10
                   92234.70c  4.302437E-06 $U-234
                   92235.70c  3.047374E-04 $U-235
                   92236.70c  1.210178E-05 $U-236
                   92237.70c  1.103030E-07 $U-237
                   92238.70c  2.252020E-05 $U-238
                   93237.70c  1.672626E-07 $Np237
                   94239.70c  3.222301E-07 $Pu239
                   94240.70c  2.764561E-08 $Pu240
                   94241.70c  9.675241E-09 $Pu241
                   36083.70c  2.243859E-07 $Kr-83
                   42095.70c  8.767099E-08 $Mo-95
                   44101.70c  2.221128E-06 $Ru101
                   45103.70c  3.143668E-07 $Rh103
                   45105.70c  5.634446E-31 $Rh105
                   48113.70c  5.702293E-10 $Cd113
                   54131.70c  7.781073E-07 $Xe131
                   54133.70c  4.447436E-31 $Xe133
                   55133.70c  2.053907E-06 $Cs133
                   54135.70c  4.349183E-31 $Xe135
                   57140.70c  4.224758E-31 $La140
                   58141.70c  4.194852E-31 $Ce141
                   59143.70c  4.136078E-31 $Pr143
                   60143.70c  1.138220E-06 $Nd143
                   60145.70c  1.663831E-06 $Nd145
                   61147.70c  4.023344E-31 $Pm147
                   61149.70c  3.969225E-31 $Pm149
                   62149.70c  2.026627E-08 $Sm149
                   61151.70c  3.916509E-31 $Pm151
                   62151.70c  6.033534E-08 $Sm151
                   62152.70c  2.048313E-07 $Sm152
                   63153.70c  8.666058E-08 $Eu153
                   63155.70c  9.977306E-09 $Eu155
                   64157.70c  1.117998E-10 $Gd157
mt2231      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  1
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2232
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
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                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2232      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  1
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2233
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
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                  64157.70c  4.387245E-29 $Gd157
mt2233      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  1
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2234
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  1.976748E-05 $ B-10
                  92234.70c  6.286590E-06 $U-234
                  92235.70c  4.851306E-04 $U-235
                  92236.70c  3.636026E-06 $U-236
                  92237.70c  2.904335E-29 $U-237
                  92238.70c  3.115969E-05 $U-238
                  93237.70c  2.904320E-29 $Np237
                  94239.70c  2.879973E-29 $Pu239
                  94240.70c  2.867956E-29 $Pu240
                  94241.70c  2.856023E-29 $Pu241
                  36083.70c  8.303334E-29 $Kr-83
                  42095.70c  7.178626E-29 $Mo-95
                  44101.70c  6.822852E-29 $Ru101
                  45103.70c  6.690253E-29 $Rh103
                  45105.70c  6.562692E-29 $Rh105
                  48113.70c  6.097758E-29 $Cd113
                  54131.70c  5.259260E-29 $Xe131
                  54133.70c  5.180129E-29 $Xe133
                  55133.70c  5.180102E-29 $Cs133
                  54135.70c  5.065689E-29 $Xe135
                  57140.70c  4.920766E-29 $La140
                  58141.70c  4.885933E-29 $Ce141
                  59143.70c  4.817476E-29 $Pr143
                  60143.70c  4.817471E-29 $Nd143
                  60145.70c  4.750891E-29 $Nd145
                  61147.70c  4.686170E-29 $Pm147
                  61149.70c  4.623135E-29 $Pm149
                  62149.70c  4.623132E-29 $Sm149
                  61151.70c  4.561735E-29 $Pm151
                  62151.70c  4.561782E-29 $Sm151
                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2234      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  1
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2235
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
```

```
                     5010.70c  1.976749E-05 $ B-10
                    92234.70c  6.286591E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  1.452167E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  1.452160E-29 $Np237
                    94239.70c  1.439987E-29 $Pu239
                    94240.70c  1.433978E-29 $Pu240
                    94241.70c  1.428012E-29 $Pu241
                    36083.70c  4.151667E-29 $Kr-83
                    42095.70c  3.589313E-29 $Mo-95
                    44101.70c  3.411426E-29 $Ru101
                    45103.70c  3.345127E-29 $Rh103
                    45105.70c  3.281347E-29 $Rh105
                    48113.70c  3.048880E-29 $Cd113
                    54131.70c  2.629630E-29 $Xe131
                    54133.70c  2.590065E-29 $Xe133
                    55133.70c  2.590051E-29 $Cs133
                    54135.70c  2.532845E-29 $Xe135
                    57140.70c  2.460383E-29 $La140
                    58141.70c  2.442967E-29 $Ce141
                    59143.70c  2.408738E-29 $Pr143
                    60143.70c  2.408736E-29 $Nd143
                    60145.70c  2.375446E-29 $Nd145
                    61147.70c  2.343085E-29 $Pm147
                    61149.70c  2.311568E-29 $Pm149
                    62149.70c  2.311566E-29 $Sm149
                    61151.70c  2.280868E-29 $Pm151
                    62151.70c  2.280891E-29 $Sm151
                    62152.70c  2.265881E-29 $Sm152
                    63153.70c  2.251041E-29 $Eu153
                    63155.70c  2.221967E-29 $Eu155
                    64157.70c  2.193623E-29 $Gd157
mt2235      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  1
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2236
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  1.976748E-05 $ B-10
                    92234.70c  6.286590E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
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                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2236      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  1
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2237
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2237      lwtr.10t
c
c
c
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c
c            ATR Element No. = 12
c            Radial Zone No. =  1
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2238
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2238      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  2
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2239
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
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                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
                    60145.70c  1.184740E-29 $Nd145
                    61147.70c  1.168601E-29 $Pm147
                    61149.70c  1.152882E-29 $Pm149
                    62149.70c  1.152881E-29 $Sm149
                    61151.70c  1.137570E-29 $Pm151
                    62151.70c  1.137582E-29 $Sm151
                    62152.70c  1.130095E-29 $Sm152
                    63153.70c  1.122694E-29 $Eu153
                    63155.70c  1.108194E-29 $Eu155
                    64157.70c  1.094057E-29 $Gd157
mt2239      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  2
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2240
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.355541E-06 $U-234
                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
```

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                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2240      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  2
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2241
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2241      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  2
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
```

```
c            Total Number Density   = 8.294866E-02 a/b-cm
m2242
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  8.573098E-29 $ B-10
                   92234.70c  8.355538E-06 $U-234
                   92235.70c  6.447894E-04 $U-235
                   92236.70c  4.832660E-06 $U-236
                   92237.70c  3.621303E-30 $U-237
                   92238.70c  4.141449E-05 $U-238
                   93237.70c  3.621285E-30 $Np237
                   94239.70c  3.590928E-30 $Pu239
                   94240.70c  3.575944E-30 $Pu240
                   94241.70c  3.561065E-30 $Pu241
                   36083.70c  1.035311E-29 $Kr-83
                   42095.70c  8.950752E-30 $Mo-95
                   44101.70c  8.507152E-30 $Ru101
                   45103.70c  8.341818E-30 $Rh103
                   45105.70c  8.182769E-30 $Rh105
                   48113.70c  7.603060E-30 $Cd113
                   54131.70c  6.557568E-30 $Xe131
                   54133.70c  6.458903E-30 $Xe133
                   55133.70c  6.458870E-30 $Cs133
                   54135.70c  6.316213E-30 $Xe135
                   57140.70c  6.135514E-30 $La140
                   58141.70c  6.092082E-30 $Ce141
                   59143.70c  6.006725E-30 $Pr143
                   60143.70c  6.006719E-30 $Nd143
                   60145.70c  5.923703E-30 $Nd145
                   61147.70c  5.843005E-30 $Pm147
                   61149.70c  5.764410E-30 $Pm149
                   62149.70c  5.764405E-30 $Sm149
                   61151.70c  5.687851E-30 $Pm151
                   62151.70c  5.687911E-30 $Sm151
                   62152.70c  5.650478E-30 $Sm152
                   63153.70c  5.613472E-30 $Eu153
                   63155.70c  5.540969E-30 $Eu155
                   64157.70c  5.470287E-30 $Gd157
mt2242      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  2
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2243
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
```

```
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
                    60145.70c  1.184740E-29 $Nd145
                    61147.70c  1.168601E-29 $Pm147
                    61149.70c  1.152882E-29 $Pm149
                    62149.70c  1.152881E-29 $Sm149
                    61151.70c  1.137570E-29 $Pm151
                    62151.70c  1.137582E-29 $Sm151
                    62152.70c  1.130095E-29 $Sm152
                    63153.70c  1.122694E-29 $Eu153
                    63155.70c  1.108194E-29 $Eu155
                    64157.70c  1.094057E-29 $Gd157
mt2243      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  2
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2244
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.355541E-06 $U-234
                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
                    60145.70c  1.184740E-29 $Nd145
                    61147.70c  1.168601E-29 $Pm147
                    61149.70c  1.152882E-29 $Pm149
                    62149.70c  1.152881E-29 $Sm149
                    61151.70c  1.137570E-29 $Pm151
```

```
                  62151.70c  1.137582E-29 $Sm151
                  62152.70c  1.130095E-29 $Sm152
                  63153.70c  1.122694E-29 $Eu153
                  63155.70c  1.108194E-29 $Eu155
                  64157.70c  1.094057E-29 $Gd157
mt2244      lwtr.10t
c
c
c
c
c           ATR Element No. = 12
c           Radial Zone No. =  2
c           Axial  Zone No. =  7
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.294866E-02 a/b-cm
m2245
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  1.714619E-28 $ B-10
                  92234.70c  8.355541E-06 $U-234
                  92235.70c  6.447897E-04 $U-235
                  92236.70c  4.832662E-06 $U-236
                  92237.70c  7.242605E-30 $U-237
                  92238.70c  4.141451E-05 $U-238
                  93237.70c  7.242569E-30 $Np237
                  94239.70c  7.181854E-30 $Pu239
                  94240.70c  7.151887E-30 $Pu240
                  94241.70c  7.122128E-30 $Pu241
                  36083.70c  2.070621E-29 $Kr-83
                  42095.70c  1.790150E-29 $Mo-95
                  44101.70c  1.701430E-29 $Ru101
                  45103.70c  1.668363E-29 $Rh103
                  45105.70c  1.636554E-29 $Rh105
                  48113.70c  1.520612E-29 $Cd113
                  54131.70c  1.311513E-29 $Xe131
                  54133.70c  1.291780E-29 $Xe133
                  55133.70c  1.291774E-29 $Cs133
                  54135.70c  1.263242E-29 $Xe135
                  57140.70c  1.227103E-29 $La140
                  58141.70c  1.218416E-29 $Ce141
                  59143.70c  1.201345E-29 $Pr143
                  60143.70c  1.201344E-29 $Nd143
                  60145.70c  1.184740E-29 $Nd145
                  61147.70c  1.168601E-29 $Pm147
                  61149.70c  1.152882E-29 $Pm149
                  62149.70c  1.152881E-29 $Sm149
                  61151.70c  1.137570E-29 $Pm151
                  62151.70c  1.137582E-29 $Sm151
                  62152.70c  1.130095E-29 $Sm152
                  63153.70c  1.122694E-29 $Eu153
                  63155.70c  1.108194E-29 $Eu155
                  64157.70c  1.094057E-29 $Gd157
mt2245      lwtr.10t
c
c
c
c
c           ATR Element No. = 12
c           Radial Zone No. =  3
c           Axial  Zone No. =  1
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.870346E-02 a/b-cm
m2246
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
```

```
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2246      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  3
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2247
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
```

```
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2247      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  3
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2248
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
```

```
mt2248      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  3
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2249
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  1.966257E-05 $ B-10
                  92234.70c  5.964876E-06 $U-234
                  92235.70c  4.603042E-04 $U-235
                  92236.70c  3.449954E-06 $U-236
                  92237.70c  7.726017E-30 $U-237
                  92238.70c  2.956510E-05 $U-238
                  93237.70c  7.725979E-30 $Np237
                  94239.70c  7.661212E-30 $Pu239
                  94240.70c  7.629244E-30 $Pu240
                  94241.70c  7.597500E-30 $Pu241
                  36083.70c  2.208826E-29 $Kr-83
                  42095.70c  1.909635E-29 $Mo-95
                  44101.70c  1.814993E-29 $Ru101
                  45103.70c  1.779720E-29 $Rh103
                  45105.70c  1.745786E-29 $Rh105
                  48113.70c  1.622106E-29 $Cd113
                  54131.70c  1.399051E-29 $Xe131
                  54133.70c  1.378001E-29 $Xe133
                  55133.70c  1.377994E-29 $Cs133
                  54135.70c  1.347558E-29 $Xe135
                  57140.70c  1.309006E-29 $La140
                  58141.70c  1.299740E-29 $Ce141
                  59143.70c  1.281529E-29 $Pr143
                  60143.70c  1.281528E-29 $Nd143
                  60145.70c  1.263817E-29 $Nd145
                  61147.70c  1.246600E-29 $Pm147
                  61149.70c  1.229832E-29 $Pm149
                  62149.70c  1.229831E-29 $Sm149
                  61151.70c  1.213498E-29 $Pm151
                  62151.70c  1.213511E-29 $Sm151
                  62152.70c  1.205524E-29 $Sm152
                  63153.70c  1.197629E-29 $Eu153
                  63155.70c  1.182161E-29 $Eu155
                  64157.70c  1.167081E-29 $Gd157
mt2249      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  3
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2250
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  1.966257E-05 $ B-10
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```
                    92234.70c  5.964864E-06 $U-234
                    92235.70c  4.603032E-04 $U-235
                    92236.70c  3.449947E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.956504E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
                    45103.70c  3.559438E-29 $Rh103
                    45105.70c  3.491572E-29 $Rh105
                    48113.70c  3.244211E-29 $Cd113
                    54131.70c  2.798102E-29 $Xe131
                    54133.70c  2.756002E-29 $Xe133
                    55133.70c  2.755987E-29 $Cs133
                    54135.70c  2.695116E-29 $Xe135
                    57140.70c  2.618012E-29 $La140
                    58141.70c  2.599480E-29 $Ce141
                    59143.70c  2.563058E-29 $Pr143
                    60143.70c  2.563055E-29 $Nd143
                    60145.70c  2.527633E-29 $Nd145
                    61147.70c  2.493199E-29 $Pm147
                    61149.70c  2.459663E-29 $Pm149
                    62149.70c  2.459661E-29 $Sm149
                    61151.70c  2.426995E-29 $Pm151
                    62151.70c  2.427021E-29 $Sm151
                    62152.70c  2.411048E-29 $Sm152
                    63153.70c  2.395258E-29 $Eu153
                    63155.70c  2.364321E-29 $Eu155
                    64157.70c  2.334161E-29 $Gd157
mt2250      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  3
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2251
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.966257E-05 $ B-10
                    92234.70c  5.964864E-06 $U-234
                    92235.70c  4.603032E-04 $U-235
                    92236.70c  3.449947E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.956504E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
                    45103.70c  3.559438E-29 $Rh103
                    45105.70c  3.491572E-29 $Rh105
                    48113.70c  3.244211E-29 $Cd113
                    54131.70c  2.798102E-29 $Xe131
                    54133.70c  2.756002E-29 $Xe133
                    55133.70c  2.755987E-29 $Cs133
                    54135.70c  2.695116E-29 $Xe135
```

```
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2251      lwtr.10t
c
c
c
c
c            ATR Element No. = 12
c            Radial Zone No. =  3
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2252
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2252      lwtr.10t
c
c
c
c
```

```
c            ATR Element No. = 13
c            Radial Zone No. =  1
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2253
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2253      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  1
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2254
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
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                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
                    60143.70c  4.817471E-29 $Nd143
                    60145.70c  4.750891E-29 $Nd145
                    61147.70c  4.686170E-29 $Pm147
                    61149.70c  4.623135E-29 $Pm149
                    62149.70c  4.623132E-29 $Sm149
                    61151.70c  4.561735E-29 $Pm151
                    62151.70c  4.561782E-29 $Sm151
                    62152.70c  4.531760E-29 $Sm152
                    63153.70c  4.502082E-29 $Eu153
                    63155.70c  4.443934E-29 $Eu155
                    64157.70c  4.387245E-29 $Gd157
mt2254      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  1
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2255
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  1.976748E-05 $ B-10
                    92234.70c  6.286590E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
                    60143.70c  4.817471E-29 $Nd143
                    60145.70c  4.750891E-29 $Nd145
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```
                  61147.70c  4.686170E-29 $Pm147
                  61149.70c  4.623135E-29 $Pm149
                  62149.70c  4.623132E-29 $Sm149
                  61151.70c  4.561735E-29 $Pm151
                  62151.70c  4.561782E-29 $Sm151
                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2255      lwtr.10t
c
c
c
c
c           ATR Element No. = 13
c           Radial Zone No. =  1
c           Axial  Zone No. =  4
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.975780E-02 a/b-cm
m2256
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  1.976749E-05 $ B-10
                  92234.70c  6.286591E-06 $U-234
                  92235.70c  4.851306E-04 $U-235
                  92236.70c  3.636026E-06 $U-236
                  92237.70c  1.452167E-29 $U-237
                  92238.70c  3.115969E-05 $U-238
                  93237.70c  1.452160E-29 $Np237
                  94239.70c  1.439987E-29 $Pu239
                  94240.70c  1.433978E-29 $Pu240
                  94241.70c  1.428012E-29 $Pu241
                  36083.70c  4.151667E-29 $Kr-83
                  42095.70c  3.589313E-29 $Mo-95
                  44101.70c  3.411426E-29 $Ru101
                  45103.70c  3.345127E-29 $Rh103
                  45105.70c  3.281347E-29 $Rh105
                  48113.70c  3.048880E-29 $Cd113
                  54131.70c  2.629630E-29 $Xe131
                  54133.70c  2.590065E-29 $Xe133
                  55133.70c  2.590051E-29 $Cs133
                  54135.70c  2.532845E-29 $Xe135
                  57140.70c  2.460383E-29 $La140
                  58141.70c  2.442967E-29 $Ce141
                  59143.70c  2.408738E-29 $Pr143
                  60143.70c  2.408736E-29 $Nd143
                  60145.70c  2.375446E-29 $Nd145
                  61147.70c  2.343085E-29 $Pm147
                  61149.70c  2.311568E-29 $Pm149
                  62149.70c  2.311566E-29 $Sm149
                  61151.70c  2.280868E-29 $Pm151
                  62151.70c  2.280891E-29 $Sm151
                  62152.70c  2.265881E-29 $Sm152
                  63153.70c  2.251041E-29 $Eu153
                  63155.70c  2.221967E-29 $Eu155
                  64157.70c  2.193623E-29 $Gd157
mt2256      lwtr.10t
c
c
c
c
c           ATR Element No. = 13
c           Radial Zone No. =  1
c           Axial  Zone No. =  5
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.975780E-02 a/b-cm
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m2257
                  1001.70c  3.393340E-02 $ H-1
                  8016.70c  1.696670E-02 $ O-16
                 12000.60c  2.176490E-04 $Mg-nat
                 13027.70c  2.793720E-02 $Al-27
                 14000.60c  1.130110E-04 $Si-nat
                 24000.50c  2.304760E-05 $Cr-nat
                 29000.50c  2.081160E-05 $Cu-nat
                  5010.70c  1.976748E-05 $ B-10
                 92234.70c  6.286590E-06 $U-234
                 92235.70c  4.851306E-04 $U-235
                 92236.70c  3.636026E-06 $U-236
                 92237.70c  2.904335E-29 $U-237
                 92238.70c  3.115969E-05 $U-238
                 93237.70c  2.904320E-29 $Np237
                 94239.70c  2.879973E-29 $Pu239
                 94240.70c  2.867956E-29 $Pu240
                 94241.70c  2.856023E-29 $Pu241
                 36083.70c  8.303334E-29 $Kr-83
                 42095.70c  7.178626E-29 $Mo-95
                 44101.70c  6.822852E-29 $Ru101
                 45103.70c  6.690253E-29 $Rh103
                 45105.70c  6.562692E-29 $Rh105
                 48113.70c  6.097758E-29 $Cd113
                 54131.70c  5.259260E-29 $Xe131
                 54133.70c  5.180129E-29 $Xe133
                 55133.70c  5.180102E-29 $Cs133
                 54135.70c  5.065689E-29 $Xe135
                 57140.70c  4.920766E-29 $La140
                 58141.70c  4.885933E-29 $Ce141
                 59143.70c  4.817476E-29 $Pr143
                 60143.70c  4.817471E-29 $Nd143
                 60145.70c  4.750891E-29 $Nd145
                 61147.70c  4.686170E-29 $Pm147
                 61149.70c  4.623135E-29 $Pm149
                 62149.70c  4.623132E-29 $Sm149
                 61151.70c  4.561735E-29 $Pm151
                 62151.70c  4.561782E-29 $Sm151
                 62152.70c  4.531760E-29 $Sm152
                 63153.70c  4.502082E-29 $Eu153
                 63155.70c  4.443934E-29 $Eu155
                 64157.70c  4.387245E-29 $Gd157
mt2257      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  1
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2258
                  1001.70c  3.393340E-02 $ H-1
                  8016.70c  1.696670E-02 $ O-16
                 12000.60c  2.176490E-04 $Mg-nat
                 13027.70c  2.793720E-02 $Al-27
                 14000.60c  1.130110E-04 $Si-nat
                 24000.50c  2.304760E-05 $Cr-nat
                 29000.50c  2.081160E-05 $Cu-nat
                  5010.70c  1.976748E-05 $ B-10
                 92234.70c  6.286590E-06 $U-234
                 92235.70c  4.851306E-04 $U-235
                 92236.70c  3.636026E-06 $U-236
                 92237.70c  2.904335E-29 $U-237
                 92238.70c  3.115969E-05 $U-238
                 93237.70c  2.904320E-29 $Np237
                 94239.70c  2.879973E-29 $Pu239
                 94240.70c  2.867956E-29 $Pu240
                 94241.70c  2.856023E-29 $Pu241
                 36083.70c  8.303334E-29 $Kr-83
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                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2258      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  1
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2259
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
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                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2259      lwtr.10t
c
c
c
c
c           ATR Element No. = 13
c           Radial Zone No. =  2
c           Axial  Zone No. =  1
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.294866E-02 a/b-cm
m2260
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  1.714619E-28 $ B-10
                  92234.70c  8.355541E-06 $U-234
                  92235.70c  6.447897E-04 $U-235
                  92236.70c  4.832662E-06 $U-236
                  92237.70c  7.242605E-30 $U-237
                  92238.70c  4.141451E-05 $U-238
                  93237.70c  7.242569E-30 $Np237
                  94239.70c  7.181854E-30 $Pu239
                  94240.70c  7.151887E-30 $Pu240
                  94241.70c  7.122128E-30 $Pu241
                  36083.70c  2.070621E-29 $Kr-83
                  42095.70c  1.790150E-29 $Mo-95
                  44101.70c  1.701430E-29 $Ru101
                  45103.70c  1.668363E-29 $Rh103
                  45105.70c  1.636554E-29 $Rh105
                  48113.70c  1.520612E-29 $Cd113
                  54131.70c  1.311513E-29 $Xe131
                  54133.70c  1.291780E-29 $Xe133
                  55133.70c  1.291774E-29 $Cs133
                  54135.70c  1.263242E-29 $Xe135
                  57140.70c  1.227103E-29 $La140
                  58141.70c  1.218416E-29 $Ce141
                  59143.70c  1.201345E-29 $Pr143
                  60143.70c  1.201344E-29 $Nd143
                  60145.70c  1.184740E-29 $Nd145
                  61147.70c  1.168601E-29 $Pm147
                  61149.70c  1.152882E-29 $Pm149
                  62149.70c  1.152881E-29 $Sm149
                  61151.70c  1.137570E-29 $Pm151
                  62151.70c  1.137582E-29 $Sm151
                  62152.70c  1.130095E-29 $Sm152
                  63153.70c  1.122694E-29 $Eu153
                  63155.70c  1.108194E-29 $Eu155
                  64157.70c  1.094057E-29 $Gd157
mt2260      lwtr.10t
c
c
c
c
c           ATR Element No. = 13
c           Radial Zone No. =  2
c           Axial  Zone No. =  2
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.294866E-02 a/b-cm
m2261
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
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                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.355541E-06 $U-234
                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
                    60145.70c  1.184740E-29 $Nd145
                    61147.70c  1.168601E-29 $Pm147
                    61149.70c  1.152882E-29 $Pm149
                    62149.70c  1.152881E-29 $Sm149
                    61151.70c  1.137570E-29 $Pm151
                    62151.70c  1.137582E-29 $Sm151
                    62152.70c  1.130095E-29 $Sm152
                    63153.70c  1.122694E-29 $Eu153
                    63155.70c  1.108194E-29 $Eu155
                    64157.70c  1.094057E-29 $Gd157
mt2261      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  2
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2262
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.355541E-06 $U-234
                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
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                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2262      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  2
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2263
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  8.573098E-29 $ B-10
                   92234.70c  8.355538E-06 $U-234
                   92235.70c  6.447894E-04 $U-235
                   92236.70c  4.832660E-06 $U-236
                   92237.70c  3.621303E-30 $U-237
                   92238.70c  4.141449E-05 $U-238
                   93237.70c  3.621285E-30 $Np237
                   94239.70c  3.590928E-30 $Pu239
                   94240.70c  3.575944E-30 $Pu240
                   94241.70c  3.561065E-30 $Pu241
                   36083.70c  1.035311E-29 $Kr-83
                   42095.70c  8.950752E-30 $Mo-95
                   44101.70c  8.507152E-30 $Ru101
                   45103.70c  8.341818E-30 $Rh103
                   45105.70c  8.182769E-30 $Rh105
                   48113.70c  7.603060E-30 $Cd113
                   54131.70c  6.557568E-30 $Xe131
                   54133.70c  6.458903E-30 $Xe133
                   55133.70c  6.458870E-30 $Cs133
                   54135.70c  6.316213E-30 $Xe135
                   57140.70c  6.135514E-30 $La140
                   58141.70c  6.092082E-30 $Ce141
                   59143.70c  6.006725E-30 $Pr143
                   60143.70c  6.006719E-30 $Nd143
                   60145.70c  5.923703E-30 $Nd145
                   61147.70c  5.843005E-30 $Pm147
                   61149.70c  5.764410E-30 $Pm149
                   62149.70c  5.764405E-30 $Sm149
                   61151.70c  5.687851E-30 $Pm151
                   62151.70c  5.687911E-30 $Sm151
                   62152.70c  5.650478E-30 $Sm152
                   63153.70c  5.613472E-30 $Eu153
                   63155.70c  5.540969E-30 $Eu155
                   64157.70c  5.470287E-30 $Gd157
mt2263      lwtr.10t
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c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  2
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2264
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  1.714619E-28 $ B-10
                  92234.70c  8.355541E-06 $U-234
                  92235.70c  6.447897E-04 $U-235
                  92236.70c  4.832662E-06 $U-236
                  92237.70c  7.242605E-30 $U-237
                  92238.70c  4.141451E-05 $U-238
                  93237.70c  7.242569E-30 $Np237
                  94239.70c  7.181854E-30 $Pu239
                  94240.70c  7.151887E-30 $Pu240
                  94241.70c  7.122128E-30 $Pu241
                  36083.70c  2.070621E-29 $Kr-83
                  42095.70c  1.790150E-29 $Mo-95
                  44101.70c  1.701430E-29 $Ru101
                  45103.70c  1.668363E-29 $Rh103
                  45105.70c  1.636554E-29 $Rh105
                  48113.70c  1.520612E-29 $Cd113
                  54131.70c  1.311513E-29 $Xe131
                  54133.70c  1.291780E-29 $Xe133
                  55133.70c  1.291774E-29 $Cs133
                  54135.70c  1.263242E-29 $Xe135
                  57140.70c  1.227103E-29 $La140
                  58141.70c  1.218416E-29 $Ce141
                  59143.70c  1.201345E-29 $Pr143
                  60143.70c  1.201344E-29 $Nd143
                  60145.70c  1.184740E-29 $Nd145
                  61147.70c  1.168601E-29 $Pm147
                  61149.70c  1.152882E-29 $Pm149
                  62149.70c  1.152881E-29 $Sm149
                  61151.70c  1.137570E-29 $Pm151
                  62151.70c  1.137582E-29 $Sm151
                  62152.70c  1.130095E-29 $Sm152
                  63153.70c  1.122694E-29 $Eu153
                  63155.70c  1.108194E-29 $Eu155
                  64157.70c  1.094057E-29 $Gd157
mt2264      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  2
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2265
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  1.714619E-28 $ B-10
                  92234.70c  8.355541E-06 $U-234
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                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
                    60145.70c  1.184740E-29 $Nd145
                    61147.70c  1.168601E-29 $Pm147
                    61149.70c  1.152882E-29 $Pm149
                    62149.70c  1.152881E-29 $Sm149
                    61151.70c  1.137570E-29 $Pm151
                    62151.70c  1.137582E-29 $Sm151
                    62152.70c  1.130095E-29 $Sm152
                    63153.70c  1.122694E-29 $Eu153
                    63155.70c  1.108194E-29 $Eu155
                    64157.70c  1.094057E-29 $Gd157
mt2265      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  2
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2266
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.355541E-06 $U-234
                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
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                  58141.70c  1.218416E-29 $Ce141
                  59143.70c  1.201345E-29 $Pr143
                  60143.70c  1.201344E-29 $Nd143
                  60145.70c  1.184740E-29 $Nd145
                  61147.70c  1.168601E-29 $Pm147
                  61149.70c  1.152882E-29 $Pm149
                  62149.70c  1.152881E-29 $Sm149
                  61151.70c  1.137570E-29 $Pm151
                  62151.70c  1.137582E-29 $Sm151
                  62152.70c  1.130095E-29 $Sm152
                  63153.70c  1.122694E-29 $Eu153
                  63155.70c  1.108194E-29 $Eu155
                  64157.70c  1.094057E-29 $Gd157
mt2266      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  3
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2267
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  1.966257E-05 $ B-10
                  92234.70c  5.964864E-06 $U-234
                  92235.70c  4.603032E-04 $U-235
                  92236.70c  3.449947E-06 $U-236
                  92237.70c  1.545203E-29 $U-237
                  92238.70c  2.956504E-05 $U-238
                  93237.70c  1.545195E-29 $Np237
                  94239.70c  1.532242E-29 $Pu239
                  94240.70c  1.525848E-29 $Pu240
                  94241.70c  1.519499E-29 $Pu241
                  36083.70c  4.417651E-29 $Kr-83
                  42095.70c  3.819269E-29 $Mo-95
                  44101.70c  3.629985E-29 $Ru101
                  45103.70c  3.559438E-29 $Rh103
                  45105.70c  3.491572E-29 $Rh105
                  48113.70c  3.244211E-29 $Cd113
                  54131.70c  2.798102E-29 $Xe131
                  54133.70c  2.756002E-29 $Xe133
                  55133.70c  2.755987E-29 $Cs133
                  54135.70c  2.695116E-29 $Xe135
                  57140.70c  2.618012E-29 $La140
                  58141.70c  2.599480E-29 $Ce141
                  59143.70c  2.563058E-29 $Pr143
                  60143.70c  2.563055E-29 $Nd143
                  60145.70c  2.527633E-29 $Nd145
                  61147.70c  2.493199E-29 $Pm147
                  61149.70c  2.459663E-29 $Pm149
                  62149.70c  2.459661E-29 $Sm149
                  61151.70c  2.426995E-29 $Pm151
                  62151.70c  2.427021E-29 $Sm151
                  62152.70c  2.411048E-29 $Sm152
                  63153.70c  2.395258E-29 $Eu153
                  63155.70c  2.364321E-29 $Eu155
                  64157.70c  2.334161E-29 $Gd157
mt2267      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
```

```
c            Radial Zone No. =  3
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2268
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2268      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  3
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2269
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
```

```
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2269      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  3
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2270
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964876E-06 $U-234
                   92235.70c  4.603042E-04 $U-235
                   92236.70c  3.449954E-06 $U-236
                   92237.70c  7.726017E-30 $U-237
                   92238.70c  2.956510E-05 $U-238
                   93237.70c  7.725979E-30 $Np237
                   94239.70c  7.661212E-30 $Pu239
                   94240.70c  7.629244E-30 $Pu240
                   94241.70c  7.597500E-30 $Pu241
                   36083.70c  2.208826E-29 $Kr-83
                   42095.70c  1.909635E-29 $Mo-95
                   44101.70c  1.814993E-29 $Ru101
                   45103.70c  1.779720E-29 $Rh103
                   45105.70c  1.745786E-29 $Rh105
                   48113.70c  1.622106E-29 $Cd113
                   54131.70c  1.399051E-29 $Xe131
                   54133.70c  1.378001E-29 $Xe133
                   55133.70c  1.377994E-29 $Cs133
                   54135.70c  1.347558E-29 $Xe135
                   57140.70c  1.309006E-29 $La140
                   58141.70c  1.299740E-29 $Ce141
                   59143.70c  1.281529E-29 $Pr143
                   60143.70c  1.281528E-29 $Nd143
                   60145.70c  1.263817E-29 $Nd145
                   61147.70c  1.246600E-29 $Pm147
```

```
                  61149.70c  1.229832E-29 $Pm149
                  62149.70c  1.229831E-29 $Sm149
                  61151.70c  1.213498E-29 $Pm151
                  62151.70c  1.213511E-29 $Sm151
                  62152.70c  1.205524E-29 $Sm152
                  63153.70c  1.197629E-29 $Eu153
                  63155.70c  1.182161E-29 $Eu155
                  64157.70c  1.167081E-29 $Gd157
mt2270      lwtr.10t
c
c
c
c
c           ATR Element No. = 13
c           Radial Zone No. =  3
c           Axial  Zone No. =  5
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.870346E-02 a/b-cm
m2271
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  1.966257E-05 $ B-10
                  92234.70c  5.964864E-06 $U-234
                  92235.70c  4.603032E-04 $U-235
                  92236.70c  3.449947E-06 $U-236
                  92237.70c  1.545203E-29 $U-237
                  92238.70c  2.956504E-05 $U-238
                  93237.70c  1.545195E-29 $Np237
                  94239.70c  1.532242E-29 $Pu239
                  94240.70c  1.525848E-29 $Pu240
                  94241.70c  1.519499E-29 $Pu241
                  36083.70c  4.417651E-29 $Kr-83
                  42095.70c  3.819269E-29 $Mo-95
                  44101.70c  3.629985E-29 $Ru101
                  45103.70c  3.559438E-29 $Rh103
                  45105.70c  3.491572E-29 $Rh105
                  48113.70c  3.244211E-29 $Cd113
                  54131.70c  2.798102E-29 $Xe131
                  54133.70c  2.756002E-29 $Xe133
                  55133.70c  2.755987E-29 $Cs133
                  54135.70c  2.695116E-29 $Xe135
                  57140.70c  2.618012E-29 $La140
                  58141.70c  2.599480E-29 $Ce141
                  59143.70c  2.563058E-29 $Pr143
                  60143.70c  2.563055E-29 $Nd143
                  60145.70c  2.527633E-29 $Nd145
                  61147.70c  2.493199E-29 $Pm147
                  61149.70c  2.459663E-29 $Pm149
                  62149.70c  2.459661E-29 $Sm149
                  61151.70c  2.426995E-29 $Pm151
                  62151.70c  2.427021E-29 $Sm151
                  62152.70c  2.411048E-29 $Sm152
                  63153.70c  2.395258E-29 $Eu153
                  63155.70c  2.364321E-29 $Eu155
                  64157.70c  2.334161E-29 $Gd157
mt2271      lwtr.10t
c
c
c
c
c           ATR Element No. = 13
c           Radial Zone No. =  3
c           Axial  Zone No. =  6
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.870346E-02 a/b-cm
m2272
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```
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.966257E-05 $ B-10
                    92234.70c  5.964864E-06 $U-234
                    92235.70c  4.603032E-04 $U-235
                    92236.70c  3.449947E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.956504E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
                    45103.70c  3.559438E-29 $Rh103
                    45105.70c  3.491572E-29 $Rh105
                    48113.70c  3.244211E-29 $Cd113
                    54131.70c  2.798102E-29 $Xe131
                    54133.70c  2.756002E-29 $Xe133
                    55133.70c  2.755987E-29 $Cs133
                    54135.70c  2.695116E-29 $Xe135
                    57140.70c  2.618012E-29 $La140
                    58141.70c  2.599480E-29 $Ce141
                    59143.70c  2.563058E-29 $Pr143
                    60143.70c  2.563055E-29 $Nd143
                    60145.70c  2.527633E-29 $Nd145
                    61147.70c  2.493199E-29 $Pm147
                    61149.70c  2.459663E-29 $Pm149
                    62149.70c  2.459661E-29 $Sm149
                    61151.70c  2.426995E-29 $Pm151
                    62151.70c  2.427021E-29 $Sm151
                    62152.70c  2.411048E-29 $Sm152
                    63153.70c  2.395258E-29 $Eu153
                    63155.70c  2.364321E-29 $Gd155
                    64157.70c  2.334161E-29 $Gd157
mt2272      lwtr.10t
c
c
c
c
c            ATR Element No. = 13
c            Radial Zone No. =  3
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2273
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.966257E-05 $ B-10
                    92234.70c  5.964864E-06 $U-234
                    92235.70c  4.603032E-04 $U-235
                    92236.70c  3.449947E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.956504E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
```

```
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2273      lwtr.10t
c
c
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  1
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2274
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
```

```
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2274      lwtr.10t
c
c
c
c
c           ATR Element No. = 14
c           Radial Zone No. =  1
c           Axial  Zone No. =  2
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.975780E-02 a/b-cm
m2275
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  1.976748E-05 $ B-10
                  92234.70c  6.286590E-06 $U-234
                  92235.70c  4.851306E-04 $U-235
                  92236.70c  3.636026E-06 $U-236
                  92237.70c  2.904335E-29 $U-237
                  92238.70c  3.115969E-05 $U-238
                  93237.70c  2.904320E-29 $Np237
                  94239.70c  2.879973E-29 $Pu239
                  94240.70c  2.867956E-29 $Pu240
                  94241.70c  2.856023E-29 $Pu241
                  36083.70c  8.303334E-29 $Kr-83
                  42095.70c  7.178626E-29 $Mo-95
                  44101.70c  6.822852E-29 $Ru101
                  45103.70c  6.690253E-29 $Rh103
                  45105.70c  6.562692E-29 $Rh105
                  48113.70c  6.097758E-29 $Cd113
                  54131.70c  5.259260E-29 $Xe131
                  54133.70c  5.180129E-29 $Xe133
                  55133.70c  5.180102E-29 $Cs133
                  54135.70c  5.065689E-29 $Xe135
                  57140.70c  4.920766E-29 $La140
                  58141.70c  4.885933E-29 $Ce141
                  59143.70c  4.817476E-29 $Pr143
                  60143.70c  4.817471E-29 $Nd143
                  60145.70c  4.750891E-29 $Nd145
                  61147.70c  4.686170E-29 $Pm147
                  61149.70c  4.623135E-29 $Pm149
                  62149.70c  4.623132E-29 $Sm149
                  61151.70c  4.561735E-29 $Pm151
                  62151.70c  4.561782E-29 $Sm151
                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2275      lwtr.10t
c
c
c
c
c           ATR Element No. = 14
c           Radial Zone No. =  1
c           Axial  Zone No. =  3
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.975780E-02 a/b-cm
m2276
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
```

```
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  1.976748E-05 $ B-10
                    92234.70c  6.286590E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
                    60143.70c  4.817471E-29 $Nd143
                    60145.70c  4.750891E-29 $Nd145
                    61147.70c  4.686170E-29 $Pm147
                    61149.70c  4.623135E-29 $Pm149
                    62149.70c  4.623132E-29 $Sm149
                    61151.70c  4.561735E-29 $Pm151
                    62151.70c  4.561782E-29 $Sm151
                    62152.70c  4.531760E-29 $Sm152
                    63153.70c  4.502082E-29 $Eu153
                    63155.70c  4.443934E-29 $Eu155
                    64157.70c  4.387245E-29 $Gd157
mt2276      lwtr.10t
c
c
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  1
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2277
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  1.976749E-05 $ B-10
                    92234.70c  6.286591E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  1.452167E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  1.452160E-29 $Np237
                    94239.70c  1.439987E-29 $Pu239
                    94240.70c  1.433978E-29 $Pu240
                    94241.70c  1.428012E-29 $Pu241
                    36083.70c  4.151667E-29 $Kr-83
                    42095.70c  3.589313E-29 $Mo-95
                    44101.70c  3.411426E-29 $Ru101
                    45103.70c  3.345127E-29 $Rh103
                    45105.70c  3.281347E-29 $Rh105
                    48113.70c  3.048880E-29 $Cd113
                    54131.70c  2.629630E-29 $Xe131
```

```
                   54133.70c  2.590065E-29 $Xe133
                   55133.70c  2.590051E-29 $Cs133
                   54135.70c  2.532845E-29 $Xe135
                   57140.70c  2.460383E-29 $La140
                   58141.70c  2.442967E-29 $Ce141
                   59143.70c  2.408738E-29 $Pr143
                   60143.70c  2.408736E-29 $Nd143
                   60145.70c  2.375446E-29 $Nd145
                   61147.70c  2.343085E-29 $Pm147
                   61149.70c  2.311568E-29 $Pm149
                   62149.70c  2.311566E-29 $Sm149
                   61151.70c  2.280868E-29 $Pm151
                   62151.70c  2.280891E-29 $Sm151
                   62152.70c  2.265881E-29 $Sm152
                   63153.70c  2.251041E-29 $Eu153
                   63155.70c  2.221967E-29 $Eu155
                   64157.70c  2.193623E-29 $Gd157
mt2277      lwtr.10t
c
c
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  1
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2278
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2278      lwtr.10t
c
```

```
c
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  1
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2279
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2279      lwtr.10t
c
c
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  1
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2280
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
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                    92236.70c  3.636026E-06 $U-236
                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
                    60143.70c  4.817471E-29 $Nd143
                    60145.70c  4.750891E-29 $Nd145
                    61147.70c  4.686170E-29 $Pm147
                    61149.70c  4.623135E-29 $Pm149
                    62149.70c  4.623132E-29 $Sm149
                    61151.70c  4.561735E-29 $Pm151
                    62151.70c  4.561782E-29 $Sm151
                    62152.70c  4.531760E-29 $Sm152
                    63153.70c  4.502082E-29 $Eu153
                    63155.70c  4.443934E-29 $Eu155
                    64157.70c  4.387245E-29 $Gd157
mt2280      lwtr.10t
c
c
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  2
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2281
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.355541E-06 $U-234
                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
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```
                  59143.70c  1.201345E-29 $Pr143
                  60143.70c  1.201344E-29 $Nd143
                  60145.70c  1.184740E-29 $Nd145
                  61147.70c  1.168601E-29 $Pm147
                  61149.70c  1.152882E-29 $Pm149
                  62149.70c  1.152881E-29 $Sm149
                  61151.70c  1.137570E-29 $Pm151
                  62151.70c  1.137582E-29 $Sm151
                  62152.70c  1.130095E-29 $Sm152
                  63153.70c  1.122694E-29 $Eu153
                  63155.70c  1.108194E-29 $Eu155
                  64157.70c  1.094057E-29 $Gd157
mt2281      lwtr.10t
c
c
c
c
c           ATR Element No. = 14
c           Radial Zone No. =  2
c           Axial  Zone No. =  2
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.294866E-02 a/b-cm
m2282
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  1.714619E-28 $ B-10
                  92234.70c  8.355541E-06 $U-234
                  92235.70c  6.447897E-04 $U-235
                  92236.70c  4.832662E-06 $U-236
                  92237.70c  7.242605E-30 $U-237
                  92238.70c  4.141451E-05 $U-238
                  93237.70c  7.242569E-30 $Np237
                  94239.70c  7.181854E-30 $Pu239
                  94240.70c  7.151887E-30 $Pu240
                  94241.70c  7.122128E-30 $Pu241
                  36083.70c  2.070621E-29 $Kr-83
                  42095.70c  1.790150E-29 $Mo-95
                  44101.70c  1.701430E-29 $Ru101
                  45103.70c  1.668363E-29 $Rh103
                  45105.70c  1.636554E-29 $Rh105
                  48113.70c  1.520612E-29 $Cd113
                  54131.70c  1.311513E-29 $Xe131
                  54133.70c  1.291780E-29 $Xe133
                  55133.70c  1.291774E-29 $Cs133
                  54135.70c  1.263242E-29 $Xe135
                  57140.70c  1.227103E-29 $La140
                  58141.70c  1.218416E-29 $Ce141
                  59143.70c  1.201345E-29 $Pr143
                  60143.70c  1.201344E-29 $Nd143
                  60145.70c  1.184740E-29 $Nd145
                  61147.70c  1.168601E-29 $Pm147
                  61149.70c  1.152882E-29 $Pm149
                  62149.70c  1.152881E-29 $Sm149
                  61151.70c  1.137570E-29 $Pm151
                  62151.70c  1.137582E-29 $Sm151
                  62152.70c  1.130095E-29 $Sm152
                  63153.70c  1.122694E-29 $Eu153
                  63155.70c  1.108194E-29 $Eu155
                  64157.70c  1.094057E-29 $Gd157
mt2282      lwtr.10t
c
c
c
c
c           ATR Element No. = 14
c           Radial Zone No. =  2
```

```
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2283
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2283      lwtr.10t
c
c
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  2
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2284
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  8.573098E-29 $ B-10
                   92234.70c  8.355538E-06 $U-234
                   92235.70c  6.447894E-04 $U-235
                   92236.70c  4.832660E-06 $U-236
                   92237.70c  3.621303E-30 $U-237
                   92238.70c  4.141449E-05 $U-238
                   93237.70c  3.621285E-30 $Np237
                   94239.70c  3.590928E-30 $Pu239
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                    94240.70c  3.575944E-30 $Pu240
                    94241.70c  3.561065E-30 $Pu241
                    36083.70c  1.035311E-29 $Kr-83
                    42095.70c  8.950752E-30 $Mo-95
                    44101.70c  8.507152E-30 $Ru101
                    45103.70c  8.341818E-30 $Rh103
                    45105.70c  8.182769E-30 $Rh105
                    48113.70c  7.603060E-30 $Cd113
                    54131.70c  6.557568E-30 $Xe131
                    54133.70c  6.458903E-30 $Xe133
                    55133.70c  6.458870E-30 $Cs133
                    54135.70c  6.316213E-30 $Xe135
                    57140.70c  6.135514E-30 $La140
                    58141.70c  6.092082E-30 $Ce141
                    59143.70c  6.006725E-30 $Pr143
                    60143.70c  6.006719E-30 $Nd143
                    60145.70c  5.923703E-30 $Nd145
                    61147.70c  5.843005E-30 $Pm147
                    61149.70c  5.764410E-30 $Pm149
                    62149.70c  5.764405E-30 $Sm149
                    61151.70c  5.687851E-30 $Pm151
                    62151.70c  5.687911E-30 $Sm151
                    62152.70c  5.650478E-30 $Sm152
                    63153.70c  5.613472E-30 $Eu153
                    63155.70c  5.540969E-30 $Eu155
                    64157.70c  5.470287E-30 $Gd157
mt2284      lwtr.10t
c
c
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  2
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2285
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.355541E-06 $U-234
                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
                    60145.70c  1.184740E-29 $Nd145
                    61147.70c  1.168601E-29 $Pm147
                    61149.70c  1.152882E-29 $Pm149
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                  62149.70c  1.152881E-29 $Sm149
                  61151.70c  1.137570E-29 $Pm151
                  62151.70c  1.137582E-29 $Sm151
                  62152.70c  1.130095E-29 $Sm152
                  63153.70c  1.122694E-29 $Eu153
                  63155.70c  1.108194E-29 $Eu155
                  64157.70c  1.094057E-29 $Gd157
mt2285      lwtr.10t
c
c
c
c
c           ATR Element No. = 14
c           Radial Zone No. =  2
c           Axial  Zone No. =  6
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.294866E-02 a/b-cm
m2286
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  1.714619E-28 $ B-10
                  92234.70c  8.355541E-06 $U-234
                  92235.70c  6.447897E-04 $U-235
                  92236.70c  4.832662E-06 $U-236
                  92237.70c  7.242605E-30 $U-237
                  92238.70c  4.141451E-05 $U-238
                  93237.70c  7.242569E-30 $Np237
                  94239.70c  7.181854E-30 $Pu239
                  94240.70c  7.151887E-30 $Pu240
                  94241.70c  7.122128E-30 $Pu241
                  36083.70c  2.070621E-29 $Kr-83
                  42095.70c  1.790150E-29 $Mo-95
                  44101.70c  1.701430E-29 $Ru101
                  45103.70c  1.668363E-29 $Rh103
                  45105.70c  1.636554E-29 $Rh105
                  48113.70c  1.520612E-29 $Cd113
                  54131.70c  1.311513E-29 $Xe131
                  54133.70c  1.291780E-29 $Xe133
                  55133.70c  1.291774E-29 $Cs133
                  54135.70c  1.263242E-29 $Xe135
                  57140.70c  1.227103E-29 $La140
                  58141.70c  1.218416E-29 $Ce141
                  59143.70c  1.201345E-29 $Pr143
                  60143.70c  1.201344E-29 $Nd143
                  60145.70c  1.184740E-29 $Nd145
                  61147.70c  1.168601E-29 $Pm147
                  61149.70c  1.152882E-29 $Pm149
                  62149.70c  1.152881E-29 $Sm149
                  61151.70c  1.137570E-29 $Pm151
                  62151.70c  1.137582E-29 $Sm151
                  62152.70c  1.130095E-29 $Sm152
                  63153.70c  1.122694E-29 $Eu153
                  63155.70c  1.108194E-29 $Eu155
                  64157.70c  1.094057E-29 $Gd157
mt2286      lwtr.10t
c
c
c
c
c           ATR Element No. = 14
c           Radial Zone No. =  2
c           Axial  Zone No. =  7
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.294866E-02 a/b-cm
m2287
                   1001.70c  3.920790E-02 $ H-1
```

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                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.355541E-06 $U-234
                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
                    60145.70c  1.184740E-29 $Nd145
                    61147.70c  1.168601E-29 $Pm147
                    61149.70c  1.152882E-29 $Pm149
                    62149.70c  1.152881E-29 $Sm149
                    61151.70c  1.137570E-29 $Pm151
                    62151.70c  1.137582E-29 $Sm151
                    62152.70c  1.130095E-29 $Sm152
                    63153.70c  1.122694E-29 $Eu153
                    63155.70c  1.108194E-29 $Eu155
                    64157.70c  1.094057E-29 $Gd157
mt2287      lwtr.10t
c
c
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  3
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2288
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.966257E-05 $ B-10
                    92234.70c  5.964864E-06 $U-234
                    92235.70c  4.603032E-04 $U-235
                    92236.70c  3.449947E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.956504E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
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                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2288      lwtr.10t
c
c
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  3
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2289
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
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                  63155.70c  2.364321E-29 $Eu155
                  64157.70c  2.334161E-29 $Gd157
mt2289      lwtr.10t
c
c
c
c
c           ATR Element No. = 14
c           Radial Zone No. =  3
c           Axial  Zone No. =  3
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.870346E-02 a/b-cm
m2290
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
                  29000.50c  2.294330E-05 $Cu-nat
                   5010.70c  1.966257E-05 $ B-10
                  92234.70c  5.964864E-06 $U-234
                  92235.70c  4.603032E-04 $U-235
                  92236.70c  3.449947E-06 $U-236
                  92237.70c  1.545203E-29 $U-237
                  92238.70c  2.956504E-05 $U-238
                  93237.70c  1.545195E-29 $Np237
                  94239.70c  1.532242E-29 $Pu239
                  94240.70c  1.525848E-29 $Pu240
                  94241.70c  1.519499E-29 $Pu241
                  36083.70c  4.417651E-29 $Kr-83
                  42095.70c  3.819269E-29 $Mo-95
                  44101.70c  3.629985E-29 $Ru101
                  45103.70c  3.559438E-29 $Rh103
                  45105.70c  3.491572E-29 $Rh105
                  48113.70c  3.244211E-29 $Cd113
                  54131.70c  2.798102E-29 $Xe131
                  54133.70c  2.756002E-29 $Xe133
                  55133.70c  2.755987E-29 $Cs133
                  54135.70c  2.695116E-29 $Xe135
                  57140.70c  2.618012E-29 $La140
                  58141.70c  2.599480E-29 $Ce141
                  59143.70c  2.563058E-29 $Pr143
                  60143.70c  2.563055E-29 $Nd143
                  60145.70c  2.527633E-29 $Nd145
                  61147.70c  2.493199E-29 $Pm147
                  61149.70c  2.459663E-29 $Pm149
                  62149.70c  2.459661E-29 $Sm149
                  61151.70c  2.426995E-29 $Pm151
                  62151.70c  2.427021E-29 $Sm151
                  62152.70c  2.411048E-29 $Sm152
                  63153.70c  2.395258E-29 $Eu153
                  63155.70c  2.364321E-29 $Eu155
                  64157.70c  2.334161E-29 $Gd157
mt2290      lwtr.10t
c
c
c
c
c           ATR Element No. = 14
c           Radial Zone No. =  3
c           Axial  Zone No. =  4
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.870346E-02 a/b-cm
m2291
                   1001.70c  3.212840E-02 $ H-1
                   8016.70c  1.606420E-02 $ O-16
                  12000.60c  2.399430E-04 $Mg-nat
                  13027.70c  2.958200E-02 $Al-27
                  14000.60c  1.245870E-04 $Si-nat
                  24000.50c  2.243180E-05 $Cr-nat
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                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964876E-06 $U-234
                   92235.70c  4.603042E-04 $U-235
                   92236.70c  3.449954E-06 $U-236
                   92237.70c  7.726017E-30 $U-237
                   92238.70c  2.956510E-05 $U-238
                   93237.70c  7.725979E-30 $Np237
                   94239.70c  7.661212E-30 $Pu239
                   94240.70c  7.629244E-30 $Pu240
                   94241.70c  7.597500E-30 $Pu241
                   36083.70c  2.208826E-29 $Kr-83
                   42095.70c  1.909635E-29 $Mo-95
                   44101.70c  1.814993E-29 $Ru101
                   45103.70c  1.779720E-29 $Rh103
                   45105.70c  1.745786E-29 $Rh105
                   48113.70c  1.622106E-29 $Cd113
                   54131.70c  1.399051E-29 $Xe131
                   54133.70c  1.378001E-29 $Xe133
                   55133.70c  1.377994E-29 $Cs133
                   54135.70c  1.347558E-29 $Xe135
                   57140.70c  1.309006E-29 $La140
                   58141.70c  1.299740E-29 $Ce141
                   59143.70c  1.281529E-29 $Pr143
                   60143.70c  1.281528E-29 $Nd143
                   60145.70c  1.263817E-29 $Nd145
                   61147.70c  1.246600E-29 $Pm147
                   61149.70c  1.229832E-29 $Pm149
                   62149.70c  1.229831E-29 $Sm149
                   61151.70c  1.213498E-29 $Pm151
                   62151.70c  1.213511E-29 $Sm151
                   62152.70c  1.205524E-29 $Sm152
                   63153.70c  1.197629E-29 $Eu153
                   63155.70c  1.182161E-29 $Eu155
                   64157.70c  1.167081E-29 $Gd157
mt2291      lwtr.10t
c
c
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  3
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2292
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
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                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2292      lwtr.10t
c
c
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  3
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2293
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2293      lwtr.10t
c
c
```

```
c
c
c            ATR Element No. = 14
c            Radial Zone No. =  3
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2294
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2294      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  1
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2295
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
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                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
                    60143.70c  4.817471E-29 $Nd143
                    60145.70c  4.750891E-29 $Nd145
                    61147.70c  4.686170E-29 $Pm147
                    61149.70c  4.623135E-29 $Pm149
                    62149.70c  4.623132E-29 $Sm149
                    61151.70c  4.561735E-29 $Pm151
                    62151.70c  4.561782E-29 $Sm151
                    62152.70c  4.531760E-29 $Sm152
                    63153.70c  4.502082E-29 $Eu153
                    63155.70c  4.443934E-29 $Eu155
                    64157.70c  4.387245E-29 $Gd157
mt2295      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  1
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2296
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  1.976748E-05 $ B-10
                    92234.70c  6.286590E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
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                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2296      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  1
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2297
                    1001.70c  3.393340E-02 $ H-1
                    8016.70c  1.696670E-02 $ O-16
                   12000.60c  2.176490E-04 $Mg-nat
                   13027.70c  2.793720E-02 $Al-27
                   14000.60c  1.130110E-04 $Si-nat
                   24000.50c  2.304760E-05 $Cr-nat
                   29000.50c  2.081160E-05 $Cu-nat
                    5010.70c  1.976748E-05 $ B-10
                   92234.70c  6.286590E-06 $U-234
                   92235.70c  4.851306E-04 $U-235
                   92236.70c  3.636026E-06 $U-236
                   92237.70c  2.904335E-29 $U-237
                   92238.70c  3.115969E-05 $U-238
                   93237.70c  2.904320E-29 $Np237
                   94239.70c  2.879973E-29 $Pu239
                   94240.70c  2.867956E-29 $Pu240
                   94241.70c  2.856023E-29 $Pu241
                   36083.70c  8.303334E-29 $Kr-83
                   42095.70c  7.178626E-29 $Mo-95
                   44101.70c  6.822852E-29 $Ru101
                   45103.70c  6.690253E-29 $Rh103
                   45105.70c  6.562692E-29 $Rh105
                   48113.70c  6.097758E-29 $Cd113
                   54131.70c  5.259260E-29 $Xe131
                   54133.70c  5.180129E-29 $Xe133
                   55133.70c  5.180102E-29 $Cs133
                   54135.70c  5.065689E-29 $Xe135
                   57140.70c  4.920766E-29 $La140
                   58141.70c  4.885933E-29 $Ce141
                   59143.70c  4.817476E-29 $Pr143
                   60143.70c  4.817471E-29 $Nd143
                   60145.70c  4.750891E-29 $Nd145
                   61147.70c  4.686170E-29 $Pm147
                   61149.70c  4.623135E-29 $Pm149
                   62149.70c  4.623132E-29 $Sm149
                   61151.70c  4.561735E-29 $Pm151
                   62151.70c  4.561782E-29 $Sm151
                   62152.70c  4.531760E-29 $Sm152
                   63153.70c  4.502082E-29 $Eu153
                   63155.70c  4.443934E-29 $Eu155
                   64157.70c  4.387245E-29 $Gd157
mt2297      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  1
c            Axial  Zone No. =  4
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c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2298
                  1001.70c  3.393340E-02 $ H-1
                  8016.70c  1.696670E-02 $ O-16
                 12000.60c  2.176490E-04 $Mg-nat
                 13027.70c  2.793720E-02 $Al-27
                 14000.60c  1.130110E-04 $Si-nat
                 24000.50c  2.304760E-05 $Cr-nat
                 29000.50c  2.081160E-05 $Cu-nat
                  5010.70c  1.976749E-05 $ B-10
                 92234.70c  6.286591E-06 $U-234
                 92235.70c  4.851306E-04 $U-235
                 92236.70c  3.636026E-06 $U-236
                 92237.70c  1.452167E-29 $U-237
                 92238.70c  3.115969E-05 $U-238
                 93237.70c  1.452160E-29 $Np237
                 94239.70c  1.439987E-29 $Pu239
                 94240.70c  1.433978E-29 $Pu240
                 94241.70c  1.428012E-29 $Pu241
                 36083.70c  4.151667E-29 $Kr-83
                 42095.70c  3.589313E-29 $Mo-95
                 44101.70c  3.411426E-29 $Ru101
                 45103.70c  3.345127E-29 $Rh103
                 45105.70c  3.281347E-29 $Rh105
                 48113.70c  3.048880E-29 $Cd113
                 54131.70c  2.629630E-29 $Xe131
                 54133.70c  2.590065E-29 $Xe133
                 55133.70c  2.590051E-29 $Cs133
                 54135.70c  2.532845E-29 $Xe135
                 57140.70c  2.460383E-29 $La140
                 58141.70c  2.442967E-29 $Ce141
                 59143.70c  2.408738E-29 $Pr143
                 60143.70c  2.408736E-29 $Nd143
                 60145.70c  2.375446E-29 $Nd145
                 61147.70c  2.343085E-29 $Pm147
                 61149.70c  2.311568E-29 $Pm149
                 62149.70c  2.311566E-29 $Sm149
                 61151.70c  2.280868E-29 $Pm151
                 62151.70c  2.280891E-29 $Sm151
                 62152.70c  2.265881E-29 $Sm152
                 63153.70c  2.251041E-29 $Eu153
                 63155.70c  2.221967E-29 $Eu155
                 64157.70c  2.193623E-29 $Gd157
mt2298      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  1
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2299
                  1001.70c  3.393340E-02 $ H-1
                  8016.70c  1.696670E-02 $ O-16
                 12000.60c  2.176490E-04 $Mg-nat
                 13027.70c  2.793720E-02 $Al-27
                 14000.60c  1.130110E-04 $Si-nat
                 24000.50c  2.304760E-05 $Cr-nat
                 29000.50c  2.081160E-05 $Cu-nat
                  5010.70c  1.976748E-05 $ B-10
                 92234.70c  6.286590E-06 $U-234
                 92235.70c  4.851306E-04 $U-235
                 92236.70c  3.636026E-06 $U-236
                 92237.70c  2.904335E-29 $U-237
                 92238.70c  3.115969E-05 $U-238
                 93237.70c  2.904320E-29 $Np237
                 94239.70c  2.879973E-29 $Pu239
                 94240.70c  2.867956E-29 $Pu240
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                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
                    60143.70c  4.817471E-29 $Nd143
                    60145.70c  4.750891E-29 $Nd145
                    61147.70c  4.686170E-29 $Pm147
                    61149.70c  4.623135E-29 $Pm149
                    62149.70c  4.623132E-29 $Sm149
                    61151.70c  4.561735E-29 $Pm151
                    62151.70c  4.561782E-29 $Sm151
                    62152.70c  4.531760E-29 $Sm152
                    63153.70c  4.502082E-29 $Eu153
                    63155.70c  4.443934E-29 $Eu155
                    64157.70c  4.387245E-29 $Gd157
mt2299      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  1
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.975780E-02 a/b-cm
m2300
                     1001.70c  3.393340E-02 $ H-1
                     8016.70c  1.696670E-02 $ O-16
                    12000.60c  2.176490E-04 $Mg-nat
                    13027.70c  2.793720E-02 $Al-27
                    14000.60c  1.130110E-04 $Si-nat
                    24000.50c  2.304760E-05 $Cr-nat
                    29000.50c  2.081160E-05 $Cu-nat
                     5010.70c  1.976748E-05 $ B-10
                    92234.70c  6.286590E-06 $U-234
                    92235.70c  4.851306E-04 $U-235
                    92236.70c  3.636026E-06 $U-236
                    92237.70c  2.904335E-29 $U-237
                    92238.70c  3.115969E-05 $U-238
                    93237.70c  2.904320E-29 $Np237
                    94239.70c  2.879973E-29 $Pu239
                    94240.70c  2.867956E-29 $Pu240
                    94241.70c  2.856023E-29 $Pu241
                    36083.70c  8.303334E-29 $Kr-83
                    42095.70c  7.178626E-29 $Mo-95
                    44101.70c  6.822852E-29 $Ru101
                    45103.70c  6.690253E-29 $Rh103
                    45105.70c  6.562692E-29 $Rh105
                    48113.70c  6.097758E-29 $Cd113
                    54131.70c  5.259260E-29 $Xe131
                    54133.70c  5.180129E-29 $Xe133
                    55133.70c  5.180102E-29 $Cs133
                    54135.70c  5.065689E-29 $Xe135
                    57140.70c  4.920766E-29 $La140
                    58141.70c  4.885933E-29 $Ce141
                    59143.70c  4.817476E-29 $Pr143
                    60143.70c  4.817471E-29 $Nd143
                    60145.70c  4.750891E-29 $Nd145
                    61147.70c  4.686170E-29 $Pm147
                    61149.70c  4.623135E-29 $Pm149
                    62149.70c  4.623132E-29 $Sm149
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                  61151.70c  4.561735E-29 $Pm151
                  62151.70c  4.561782E-29 $Sm151
                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2300      lwtr.10t
c
c
c
c
c           ATR Element No. = 15
c           Radial Zone No. =  1
c           Axial  Zone No. =  7
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 7.975780E-02 a/b-cm
m2301
                   1001.70c  3.393340E-02 $ H-1
                   8016.70c  1.696670E-02 $ O-16
                  12000.60c  2.176490E-04 $Mg-nat
                  13027.70c  2.793720E-02 $Al-27
                  14000.60c  1.130110E-04 $Si-nat
                  24000.50c  2.304760E-05 $Cr-nat
                  29000.50c  2.081160E-05 $Cu-nat
                   5010.70c  1.976748E-05 $ B-10
                  92234.70c  6.286590E-06 $U-234
                  92235.70c  4.851306E-04 $U-235
                  92236.70c  3.636026E-06 $U-236
                  92237.70c  2.904335E-29 $U-237
                  92238.70c  3.115969E-05 $U-238
                  93237.70c  2.904320E-29 $Np237
                  94239.70c  2.879973E-29 $Pu239
                  94240.70c  2.867956E-29 $Pu240
                  94241.70c  2.856023E-29 $Pu241
                  36083.70c  8.303334E-29 $Kr-83
                  42095.70c  7.178626E-29 $Mo-95
                  44101.70c  6.822852E-29 $Ru101
                  45103.70c  6.690253E-29 $Rh103
                  45105.70c  6.562692E-29 $Rh105
                  48113.70c  6.097758E-29 $Cd113
                  54131.70c  5.259260E-29 $Xe131
                  54133.70c  5.180129E-29 $Xe133
                  55133.70c  5.180102E-29 $Cs133
                  54135.70c  5.065689E-29 $Xe135
                  57140.70c  4.920766E-29 $La140
                  58141.70c  4.885933E-29 $Ce141
                  59143.70c  4.817476E-29 $Pr143
                  60143.70c  4.817471E-29 $Nd143
                  60145.70c  4.750891E-29 $Nd145
                  61147.70c  4.686170E-29 $Pm147
                  61149.70c  4.623135E-29 $Pm149
                  62149.70c  4.623132E-29 $Sm149
                  61151.70c  4.561735E-29 $Pm151
                  62151.70c  4.561782E-29 $Sm151
                  62152.70c  4.531760E-29 $Sm152
                  63153.70c  4.502082E-29 $Eu153
                  63155.70c  4.443934E-29 $Eu155
                  64157.70c  4.387245E-29 $Gd157
mt2301      lwtr.10t
c
c
c
c
c           ATR Element No. = 15
c           Radial Zone No. =  2
c           Axial  Zone No. =  1
c           Neutron Cross Sections = 27 C
c           Total Number Density   = 8.294866E-02 a/b-cm
m2302
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
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```
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2302      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  2
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2303
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
```

```
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2303      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  2
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2304
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
```

```
                  64157.70c  1.094057E-29 $Gd157
mt2304      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  2
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2305
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
                   5010.70c  8.573098E-29 $ B-10
                  92234.70c  8.355538E-06 $U-234
                  92235.70c  6.447894E-04 $U-235
                  92236.70c  4.832660E-06 $U-236
                  92237.70c  3.621303E-30 $U-237
                  92238.70c  4.141449E-05 $U-238
                  93237.70c  3.621285E-30 $Np237
                  94239.70c  3.590928E-30 $Pu239
                  94240.70c  3.575944E-30 $Pu240
                  94241.70c  3.561065E-30 $Pu241
                  36083.70c  1.035311E-29 $Kr-83
                  42095.70c  8.950752E-30 $Mo-95
                  44101.70c  8.507152E-30 $Ru101
                  45103.70c  8.341818E-30 $Rh103
                  45105.70c  8.182769E-30 $Rh105
                  48113.70c  7.603060E-30 $Cd113
                  54131.70c  6.557568E-30 $Xe131
                  54133.70c  6.458903E-30 $Xe133
                  55133.70c  6.458870E-30 $Cs133
                  54135.70c  6.316213E-30 $Xe135
                  57140.70c  6.135514E-30 $La140
                  58141.70c  6.092082E-30 $Ce141
                  59143.70c  6.006725E-30 $Pr143
                  60143.70c  6.006719E-30 $Nd143
                  60145.70c  5.923703E-30 $Nd145
                  61147.70c  5.843005E-30 $Pm147
                  61149.70c  5.764410E-30 $Pm149
                  62149.70c  5.764405E-30 $Sm149
                  61151.70c  5.687851E-30 $Pm151
                  62151.70c  5.687911E-30 $Sm151
                  62152.70c  5.650478E-30 $Sm152
                  63153.70c  5.613472E-30 $Eu153
                  63155.70c  5.540969E-30 $Eu155
                  64157.70c  5.470287E-30 $Gd157
mt2305      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  2
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2306
                   1001.70c  3.920790E-02 $ H-1
                   8016.70c  1.960390E-02 $ O-16
                  12000.60c  1.660990E-04 $Mg-nat
                  13027.70c  2.315370E-02 $Al-27
                  14000.60c  8.624450E-05 $Si-nat
                  24000.50c  1.552830E-05 $Cr-nat
                  29000.50c  1.588240E-05 $Cu-nat
```

```
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.355541E-06 $U-234
                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
                    54135.70c  1.263242E-29 $Xe135
                    57140.70c  1.227103E-29 $La140
                    58141.70c  1.218416E-29 $Ce141
                    59143.70c  1.201345E-29 $Pr143
                    60143.70c  1.201344E-29 $Nd143
                    60145.70c  1.184740E-29 $Nd145
                    61147.70c  1.168601E-29 $Pm147
                    61149.70c  1.152882E-29 $Pm149
                    62149.70c  1.152881E-29 $Sm149
                    61151.70c  1.137570E-29 $Pm151
                    62151.70c  1.137582E-29 $Sm151
                    62152.70c  1.130095E-29 $Sm152
                    63153.70c  1.122694E-29 $Eu153
                    63155.70c  1.108194E-29 $Eu155
                    64157.70c  1.094057E-29 $Gd157
mt2306      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  2
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2307
                     1001.70c  3.920790E-02 $ H-1
                     8016.70c  1.960390E-02 $ O-16
                    12000.60c  1.660990E-04 $Mg-nat
                    13027.70c  2.315370E-02 $Al-27
                    14000.60c  8.624450E-05 $Si-nat
                    24000.50c  1.552830E-05 $Cr-nat
                    29000.50c  1.588240E-05 $Cu-nat
                     5010.70c  1.714619E-28 $ B-10
                    92234.70c  8.355541E-06 $U-234
                    92235.70c  6.447897E-04 $U-235
                    92236.70c  4.832662E-06 $U-236
                    92237.70c  7.242605E-30 $U-237
                    92238.70c  4.141451E-05 $U-238
                    93237.70c  7.242569E-30 $Np237
                    94239.70c  7.181854E-30 $Pu239
                    94240.70c  7.151887E-30 $Pu240
                    94241.70c  7.122128E-30 $Pu241
                    36083.70c  2.070621E-29 $Kr-83
                    42095.70c  1.790150E-29 $Mo-95
                    44101.70c  1.701430E-29 $Ru101
                    45103.70c  1.668363E-29 $Rh103
                    45105.70c  1.636554E-29 $Rh105
                    48113.70c  1.520612E-29 $Cd113
                    54131.70c  1.311513E-29 $Xe131
                    54133.70c  1.291780E-29 $Xe133
                    55133.70c  1.291774E-29 $Cs133
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```
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2307      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  2
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 8.294866E-02 a/b-cm
m2308
                    1001.70c  3.920790E-02 $ H-1
                    8016.70c  1.960390E-02 $ O-16
                   12000.60c  1.660990E-04 $Mg-nat
                   13027.70c  2.315370E-02 $Al-27
                   14000.60c  8.624450E-05 $Si-nat
                   24000.50c  1.552830E-05 $Cr-nat
                   29000.50c  1.588240E-05 $Cu-nat
                    5010.70c  1.714619E-28 $ B-10
                   92234.70c  8.355541E-06 $U-234
                   92235.70c  6.447897E-04 $U-235
                   92236.70c  4.832662E-06 $U-236
                   92237.70c  7.242605E-30 $U-237
                   92238.70c  4.141451E-05 $U-238
                   93237.70c  7.242569E-30 $Np237
                   94239.70c  7.181854E-30 $Pu239
                   94240.70c  7.151887E-30 $Pu240
                   94241.70c  7.122128E-30 $Pu241
                   36083.70c  2.070621E-29 $Kr-83
                   42095.70c  1.790150E-29 $Mo-95
                   44101.70c  1.701430E-29 $Ru101
                   45103.70c  1.668363E-29 $Rh103
                   45105.70c  1.636554E-29 $Rh105
                   48113.70c  1.520612E-29 $Cd113
                   54131.70c  1.311513E-29 $Xe131
                   54133.70c  1.291780E-29 $Xe133
                   55133.70c  1.291774E-29 $Cs133
                   54135.70c  1.263242E-29 $Xe135
                   57140.70c  1.227103E-29 $La140
                   58141.70c  1.218416E-29 $Ce141
                   59143.70c  1.201345E-29 $Pr143
                   60143.70c  1.201344E-29 $Nd143
                   60145.70c  1.184740E-29 $Nd145
                   61147.70c  1.168601E-29 $Pm147
                   61149.70c  1.152882E-29 $Pm149
                   62149.70c  1.152881E-29 $Sm149
                   61151.70c  1.137570E-29 $Pm151
                   62151.70c  1.137582E-29 $Sm151
                   62152.70c  1.130095E-29 $Sm152
                   63153.70c  1.122694E-29 $Eu153
                   63155.70c  1.108194E-29 $Eu155
                   64157.70c  1.094057E-29 $Gd157
mt2308      lwtr.10t
c
c
c
```

```
c
c            ATR Element No. = 15
c            Radial Zone No. =  3
c            Axial  Zone No. =  1
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2309
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2309      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  3
c            Axial  Zone No. =  2
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2310
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
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                    92238.70c  2.956504E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
                    45103.70c  3.559438E-29 $Rh103
                    45105.70c  3.491572E-29 $Rh105
                    48113.70c  3.244211E-29 $Cd113
                    54131.70c  2.798102E-29 $Xe131
                    54133.70c  2.756002E-29 $Xe133
                    55133.70c  2.755987E-29 $Cs133
                    54135.70c  2.695116E-29 $Xe135
                    57140.70c  2.618012E-29 $La140
                    58141.70c  2.599480E-29 $Ce141
                    59143.70c  2.563058E-29 $Pr143
                    60143.70c  2.563055E-29 $Nd143
                    60145.70c  2.527633E-29 $Nd145
                    61147.70c  2.493199E-29 $Pm147
                    61149.70c  2.459663E-29 $Pm149
                    62149.70c  2.459661E-29 $Sm149
                    61151.70c  2.426995E-29 $Pm151
                    62151.70c  2.427021E-29 $Sm151
                    62152.70c  2.411048E-29 $Sm152
                    63153.70c  2.395258E-29 $Eu153
                    63155.70c  2.364321E-29 $Eu155
                    64157.70c  2.334161E-29 $Gd157
mt2310      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  3
c            Axial  Zone No. =  3
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2311
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.966257E-05 $ B-10
                    92234.70c  5.964864E-06 $U-234
                    92235.70c  4.603032E-04 $U-235
                    92236.70c  3.449947E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.956504E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
                    45103.70c  3.559438E-29 $Rh103
                    45105.70c  3.491572E-29 $Rh105
                    48113.70c  3.244211E-29 $Cd113
                    54131.70c  2.798102E-29 $Xe131
                    54133.70c  2.756002E-29 $Xe133
                    55133.70c  2.755987E-29 $Cs133
                    54135.70c  2.695116E-29 $Xe135
                    57140.70c  2.618012E-29 $La140
                    58141.70c  2.599480E-29 $Ce141
                    59143.70c  2.563058E-29 $Pr143
                    60143.70c  2.563055E-29 $Nd143
```

```
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2311      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  3
c            Axial  Zone No. =  4
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2312
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964876E-06 $U-234
                   92235.70c  4.603042E-04 $U-235
                   92236.70c  3.449954E-06 $U-236
                   92237.70c  7.726017E-30 $U-237
                   92238.70c  2.956510E-05 $U-238
                   93237.70c  7.725979E-30 $Np237
                   94239.70c  7.661212E-30 $Pu239
                   94240.70c  7.629244E-30 $Pu240
                   94241.70c  7.597500E-30 $Pu241
                   36083.70c  2.208826E-29 $Kr-83
                   42095.70c  1.909635E-29 $Mo-95
                   44101.70c  1.814993E-29 $Ru101
                   45103.70c  1.779720E-29 $Rh103
                   45105.70c  1.745786E-29 $Rh105
                   48113.70c  1.622106E-29 $Cd113
                   54131.70c  1.399051E-29 $Xe131
                   54133.70c  1.378001E-29 $Xe133
                   55133.70c  1.377994E-29 $Cs133
                   54135.70c  1.347558E-29 $Xe135
                   57140.70c  1.309006E-29 $La140
                   58141.70c  1.299740E-29 $Ce141
                   59143.70c  1.281529E-29 $Pr143
                   60143.70c  1.281528E-29 $Nd143
                   60145.70c  1.263817E-29 $Nd145
                   61147.70c  1.246600E-29 $Pm147
                   61149.70c  1.229832E-29 $Pm149
                   62149.70c  1.229831E-29 $Sm149
                   61151.70c  1.213498E-29 $Pm151
                   62151.70c  1.213511E-29 $Sm151
                   62152.70c  1.205524E-29 $Sm152
                   63153.70c  1.197629E-29 $Eu153
                   63155.70c  1.182161E-29 $Eu155
                   64157.70c  1.167081E-29 $Gd157
mt2312      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  3
c            Axial  Zone No. =  5
c            Neutron Cross Sections = 27 C
```

```
c            Total Number Density   = 7.870346E-02 a/b-cm
m2313
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.966257E-05 $ B-10
                    92234.70c  5.964864E-06 $U-234
                    92235.70c  4.603032E-04 $U-235
                    92236.70c  3.449947E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.956504E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
                    36083.70c  4.417651E-29 $Kr-83
                    42095.70c  3.819269E-29 $Mo-95
                    44101.70c  3.629985E-29 $Ru101
                    45103.70c  3.559438E-29 $Rh103
                    45105.70c  3.491572E-29 $Rh105
                    48113.70c  3.244211E-29 $Cd113
                    54131.70c  2.798102E-29 $Xe131
                    54133.70c  2.756002E-29 $Xe133
                    55133.70c  2.755987E-29 $Cs133
                    54135.70c  2.695116E-29 $Xe135
                    57140.70c  2.618012E-29 $La140
                    58141.70c  2.599480E-29 $Ce141
                    59143.70c  2.563058E-29 $Pr143
                    60143.70c  2.563055E-29 $Nd143
                    60145.70c  2.527633E-29 $Nd145
                    61147.70c  2.493199E-29 $Pm147
                    61149.70c  2.459663E-29 $Pm149
                    62149.70c  2.459661E-29 $Sm149
                    61151.70c  2.426995E-29 $Pm151
                    62151.70c  2.427021E-29 $Sm151
                    62152.70c  2.411048E-29 $Sm152
                    63153.70c  2.395258E-29 $Eu153
                    63155.70c  2.364321E-29 $Eu155
                    64157.70c  2.334161E-29 $Gd157
mt2313      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  3
c            Axial  Zone No. =  6
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2314
                     1001.70c  3.212840E-02 $ H-1
                     8016.70c  1.606420E-02 $ O-16
                    12000.60c  2.399430E-04 $Mg-nat
                    13027.70c  2.958200E-02 $Al-27
                    14000.60c  1.245870E-04 $Si-nat
                    24000.50c  2.243180E-05 $Cr-nat
                    29000.50c  2.294330E-05 $Cu-nat
                     5010.70c  1.966257E-05 $ B-10
                    92234.70c  5.964864E-06 $U-234
                    92235.70c  4.603032E-04 $U-235
                    92236.70c  3.449947E-06 $U-236
                    92237.70c  1.545203E-29 $U-237
                    92238.70c  2.956504E-05 $U-238
                    93237.70c  1.545195E-29 $Np237
                    94239.70c  1.532242E-29 $Pu239
                    94240.70c  1.525848E-29 $Pu240
                    94241.70c  1.519499E-29 $Pu241
```

```
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
                   62151.70c  2.427021E-29 $Sm151
                   62152.70c  2.411048E-29 $Sm152
                   63153.70c  2.395258E-29 $Eu153
                   63155.70c  2.364321E-29 $Eu155
                   64157.70c  2.334161E-29 $Gd157
mt2314      lwtr.10t
c
c
c
c
c            ATR Element No. = 15
c            Radial Zone No. =  3
c            Axial  Zone No. =  7
c            Neutron Cross Sections = 27 C
c            Total Number Density   = 7.870346E-02 a/b-cm
m2315
                    1001.70c  3.212840E-02 $ H-1
                    8016.70c  1.606420E-02 $ O-16
                   12000.60c  2.399430E-04 $Mg-nat
                   13027.70c  2.958200E-02 $Al-27
                   14000.60c  1.245870E-04 $Si-nat
                   24000.50c  2.243180E-05 $Cr-nat
                   29000.50c  2.294330E-05 $Cu-nat
                    5010.70c  1.966257E-05 $ B-10
                   92234.70c  5.964864E-06 $U-234
                   92235.70c  4.603032E-04 $U-235
                   92236.70c  3.449947E-06 $U-236
                   92237.70c  1.545203E-29 $U-237
                   92238.70c  2.956504E-05 $U-238
                   93237.70c  1.545195E-29 $Np237
                   94239.70c  1.532242E-29 $Pu239
                   94240.70c  1.525848E-29 $Pu240
                   94241.70c  1.519499E-29 $Pu241
                   36083.70c  4.417651E-29 $Kr-83
                   42095.70c  3.819269E-29 $Mo-95
                   44101.70c  3.629985E-29 $Ru101
                   45103.70c  3.559438E-29 $Rh103
                   45105.70c  3.491572E-29 $Rh105
                   48113.70c  3.244211E-29 $Cd113
                   54131.70c  2.798102E-29 $Xe131
                   54133.70c  2.756002E-29 $Xe133
                   55133.70c  2.755987E-29 $Cs133
                   54135.70c  2.695116E-29 $Xe135
                   57140.70c  2.618012E-29 $La140
                   58141.70c  2.599480E-29 $Ce141
                   59143.70c  2.563058E-29 $Pr143
                   60143.70c  2.563055E-29 $Nd143
                   60145.70c  2.527633E-29 $Nd145
                   61147.70c  2.493199E-29 $Pm147
                   61149.70c  2.459663E-29 $Pm149
                   62149.70c  2.459661E-29 $Sm149
                   61151.70c  2.426995E-29 $Pm151
```

```
                  62151.70c  2.427021E-29 $Sm151
                  62152.70c  2.411048E-29 $Sm152
                  63153.70c  2.395258E-29 $Eu153
                  63155.70c  2.364321E-29 $Eu155
                  64157.70c  2.334161E-29 $Gd157
mt2315      lwtr.10t
c
c
c
c    ************************************************************************
c             NE Flux Trap                  (beginning)
c    ************************************************************************
c
c
c     ---------------------------------------------------------------------------
c        Water                  (1.00276e-01)
m711     8016.70c   3.34253-2
         1001.70c   6.68506-2
mt711    lwtr.10t
c
c     ---------------------------------------------------------------------------
c        Al-6061                (5.98442e-02)
m712    13027.70c   5.83221e-02
         7014.70c   5.80427e-05
        12000.60c   6.68989e-04
        14000.60c   3.47363e-04
        22000.60c   5.09391e-05
        24000.50c   6.09787e-05
        25055.70c   4.43948e-05
        26000.50c   2.03804e-04
        29000.50c   7.03653e-05
        41093.70c   8.75062e-06
        42000.60c   8.47393e-06
c
c     ---------------------------------------------------------------------------
c        Type 304 Stainless     (8.85285e-02)
m714    26000.50c   5.92401e-02
         6000.70c   3.21689e-04
         7014.70c   3.44816e-04
        14000.60c   1.28975e-03
        15031.70c   6.23722e-05
        16032.70c   4.51857e-05
        24000.50c   1.76485e-02
        25055.70c   1.75825e-03
        28000.50c   7.81780e-03
c
c     ---------------------------------------------------------------------------
c      Test material 1               (7.48430e-02)
m732     1001.70c   3.64953e-02
         1002.70c   5.47512e-06
         6000.70c   5.32292e-05
         7014.70c   1.31734e-05
         7015.70c   4.88373e-08
         8016.70c   1.82429e-02
         8017.70c   7.30008e-06
        12000.60c   2.93842e-05
        13027.70c   2.17096e-03
        14000.60c   1.67916e-04
        15031.70c   6.32925e-06
        16000.60c   4.68259e-06
        22000.60c   3.44557e-05
        24000.50c   4.33917e-03
        25055.70c   1.48419e-04
        26000.50c   4.12504e-03
        27059.70c   6.65141e-05
        28000.50c   8.89432e-03
        29000.50c   3.80863e-06
        30000.70c   2.27521e-06
        40000.60c   2.69164e-05
        92235.70c   5.37608e-06
c
```

```
c     ------------------------------------------------------------------------
c
c       Test material 2              (7.21199e-02)
m7410    1001.70c   1.44292e-02
         1002.70c   2.16471e-06
         6000.70c   6.98574e-05
         7014.70c   1.59792e-06
         7015.70c   5.93426e-09
         8016.70c   7.21281e-03
         8017.70c   2.88628e-06
        13027.70c   1.19062e-04
        14000.60c   1.54975e-04
        15031.70c   4.54209e-06
        16000.60c   4.17742e-06
        22000.60c   6.71127e-05
        24000.50c   6.80585e-03
        25055.70c   8.94494e-05
        26000.50c   1.27254e-03
        27059.70c   1.36276e-04
        28000.50c   1.74376e-02
        42000.60c   2.43098e-02
c
c     ------------------------------------------------------------------------
c
c       Test material 3              (7.32218e-02)
m7510    1001.70c   1.41800e-02
         1002.70c   2.12733e-06
         6000.70c   8.25758e-05
         7014.70c   8.38907e-06
         7015.70c   3.11548e-08
         8016.70c   7.08825e-03
         8017.70c   2.83643e-06
        13027.70c   1.19062e-04
        14000.60c   2.05967e-04
        15031.70c   7.31631e-06
        16000.60c   5.96399e-06
        22000.60c   6.71127e-05
        24000.50c   7.50361e-03
        25055.70c   1.58964e-04
        26000.50c   3.62485e-03
        27059.70c   1.36276e-04
        28000.50c   1.77385e-02
        42000.60c   2.22900e-02
c
c
c    ************************************************************************
c              NE Flux Trap                   (beginning)
c    ************************************************************************
c
c
c
c
c
c    ************************************************************************
c              SE Flux Trap                   (beginning)
c    ************************************************************************
c
c
c       SE Experiment           (5.97730e-02)
m621     1001.70c   1.96556e-02
         8016.70c   9.82781e-03
        40000.60c   3.02896e-02
c
c       SE Experiment           (6.20717e-02)
m622     1001.70c   2.20624e-02
         8016.70c   1.10312e-02
        40000.60c   2.89751e-02
        72000.60c   2.31162e-06
        92235.70c   6.58282e-07
c
c       SE Experiment           (6.34367e-02)
```

```
m623     1001.70c   2.35333e-02
         8016.70c   1.17666e-02
        40000.60c   2.79857e-02
        72000.60c   3.49632e-05
        92235.70c   1.16187e-04
c
c       SE Experiment           (6.14161e-02)
m624     1001.70c   2.11265e-02
         8016.70c   1.05632e-02
        40000.60c   2.95404e-02
        72000.60c   4.30539e-05
        92235.70c   1.42957e-04
c
c       SE Experiment           (6.58068e-02)
m625     1001.70c   2.66086e-02
         8016.70c   1.33043e-02
        40000.60c   2.58938e-02
c
c       SE Experiment           (6.76462e-02)
m626     1001.70c   2.88149e-02
         8016.70c   1.44074e-02
        40000.60c   2.44239e-02
c
c       SE Experiment           (6.30308e-02)
m627     1001.70c   2.40013e-02
         8016.70c   1.20006e-02
        40000.60c   2.69963e-02
        72000.60c   3.26516e-05
c
c       SE Experiment           (6.23506e-02)
m628     1001.70c   2.21962e-02
         6000.70c   1.59741e-06
         8016.70c   1.10981e-02
        24000.50c   8.53306e-05
        26000.50c   3.08855e-04
        28000.50c   3.88207e-05
        40000.60c   2.84097e-02
        72000.60c   3.62635e-05
        92235.70c   1.75761e-04
c
c       SE Experiment           (6.70196e-02)
m629     1001.70c   2.68761e-02
         6000.70c   4.17386e-05
         8016.70c   1.34380e-02
        24000.50c   2.22961e-03
        26000.50c   8.07007e-03
        28000.50c   1.01435e-03
        40000.60c   1.53497e-02
c
c       SE Experiment           (6.13722e-02)
m630     1001.70c   2.11265e-02
         8016.70c   1.05632e-02
        40000.60c   2.95404e-02
        72000.60c   2.38386e-05
        92235.70c   1.18271e-04
c
c       SE Experiment           (6.13744e-02
m631     1001.70c   2.11265e-02
         8016.70c   1.05632e-02
        40000.60c   2.95404e-02
        72000.60c   1.87819e-05
        92235.70c   1.25512e-04
c
c       SE Experiment           (6.17268e-02)
m632     1001.70c   2.19287e-02
         8016.70c   1.09644e-02
        40000.60c   2.88337e-02
c
c
c    ***********************************************************************
c              SE Flux Trap                  (end)
```

```
c    ***********************************************************************
c
c
c
c
c
c
c   ***************************************************************************
c
c
mode    n
phys:p  1j 1
cut:p   j 0.010
kcode   50000   1.01  10  200
prdmp   10000000  10000000  1  2  1000000
print   -60 -85 -130 -140
c
c
imp:n   1  857r  0 0 0 0
imp:p   1  857r  0 0 0 0
tmp     2.58510E-08  861r
c
c
vol
        87.47156  2r  174.9431   87.47156  2r
       350.76700  2r  701.5339  350.76700  2r
       164.40990  2r  328.8197  164.40990  2r
        87.47156  2r  174.9431   87.47156  2r
       350.76700  2r  701.5339  350.76700  2r
       164.40990  2r  328.8197  164.40990  2r
        87.47156  2r  174.9431   87.47156  2r
       350.76700  2r  701.5339  350.76700  2r
       164.40990  2r  328.8197  164.40990  2r
        87.47156  2r  174.9431   87.47156  2r
       350.76700  2r  701.5339  350.76700  2r
       164.40990  2r  328.8197  164.40990  2r
        87.47156  2r  174.9431   87.47156  2r
       350.76700  2r  701.5339  350.76700  2r
       164.40990  2r  328.8197  164.40990  2r
        87.47156  2r  174.9431   87.47156  2r
       350.76700  2r  701.5339  350.76700  2r
       164.40990  2r  328.8197  164.40990  2r
        87.47156  2r  174.9431   87.47156  2r
       350.76700  2r  701.5339  350.76700  2r
       164.40990  2r  328.8197  164.40990  2r
        87.47156  2r  174.9431   87.47156  2r
       350.76700  2r  701.5339  350.76700  2r
       164.40990  2r  328.8197  164.40990  2r
        87.47156  2r  174.9431   87.47156  2r
       350.76700  2r  701.5339  350.76700  2r
       164.40990  2r  328.8197  164.40990  2r
        87.47156  2r  174.9431   87.47156  2r
       350.76700  2r  701.5339  350.76700  2r
       164.40990  2r  328.8197  164.40990  2r
c
c
c
ksrc   3.769   -39.625    10.52     $ elem # 6
       9.099   -34.295    10.52     $ elem # 7
       9.099   -26.757    10.52     $ elem # 8
       6.164   -19.032    10.52     $ elem # 9
       6.164   -11.494    10.52     $ elem #10
      11.494    -6.164    10.52     $ elem #11
      19.032    -6.164    10.52     $ elem #12
      26.757    -9.099    10.52     $ elem #13
      34.295    -9.099    10.52     $ elem #14
      39.625    -3.769    10.52     $ elem #15
       3.769   -39.625    26.00     $ elem # 6
       9.099   -34.295    26.00     $ elem # 7
       9.099   -26.757    26.00     $ elem # 8
       6.164   -19.032    26.00     $ elem # 9
```

```
  6.164   -11.494    26.00     $ elem #10
 11.494    -6.164    26.00     $ elem #11
 19.032    -6.164    26.00     $ elem #12
 26.757    -9.099    26.00     $ elem #13
 34.295    -9.099    26.00     $ elem #14
 39.625    -3.769    26.00     $ elem #15
  3.769   -39.625    41.00     $ elem # 6
  9.099   -34.295    41.00     $ elem # 7
  9.099   -26.757    41.00     $ elem # 8
  6.164   -19.032    41.00     $ elem # 9
  6.164   -11.494    41.00     $ elem #10
 11.494    -6.164    41.00     $ elem #11
 19.032    -6.164    41.00     $ elem #12
 26.757    -9.099    41.00     $ elem #13
 34.295    -9.099    41.00     $ elem #14
 39.625    -3.769    41.00     $ elem #15
  3.769   -39.625    63.50     $ elem # 6
  9.099   -34.295    63.50     $ elem # 7
  9.099   -26.757    63.50     $ elem # 8
  6.164   -19.032    63.50     $ elem # 9
  6.164   -11.494    63.50     $ elem #10
 11.494    -6.164    63.50     $ elem #11
 19.032    -6.164    63.50     $ elem #12
 26.757    -9.099    63.50     $ elem #13
 34.295    -9.099    63.50     $ elem #14
 39.625    -3.769    63.50     $ elem #15
  3.769   -39.625    86.00     $ elem # 6
  9.099   -34.295    86.00     $ elem # 7
  9.099   -26.757    86.00     $ elem # 8
  6.164   -19.032    86.00     $ elem # 9
  6.164   -11.494    86.00     $ elem #10
 11.494    -6.164    86.00     $ elem #11
 19.032    -6.164    86.00     $ elem #12
 26.757    -9.099    86.00     $ elem #13
 34.295    -9.099    86.00     $ elem #14
 39.625    -3.769    86.00     $ elem #15
  3.769   -39.625   101.00     $ elem # 6
  9.099   -34.295   101.00     $ elem # 7
  9.099   -26.757   101.00     $ elem # 8
  6.164   -19.032   101.00     $ elem # 9
  6.164   -11.494   101.00     $ elem #10
 11.494    -6.164   101.00     $ elem #11
 19.032    -6.164   101.00     $ elem #12
 26.757    -9.099   101.00     $ elem #13
 34.295    -9.099   101.00     $ elem #14
 39.625    -3.769   101.00     $ elem #15
  3.769   -39.625   116.48     $ elem # 6
  9.099   -34.295   116.48     $ elem # 7
  9.099   -26.757   116.48     $ elem # 8
  6.164   -19.032   116.48     $ elem # 9
  6.164   -11.494   116.48     $ elem #10
 11.494    -6.164   116.48     $ elem #11
 19.032    -6.164   116.48     $ elem #12
 26.757    -9.099   116.48     $ elem #13
 34.295    -9.099   116.48     $ elem #14
 39.625    -3.769   116.48     $ elem #15
c
c
c
```