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DESTRUCTIVE AND NONDESTRUCTIVE
BURNUP DATA FROM NATURAL UO_2 FUEL

D. E. Christensen and R. P. Matsen

May 1971

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DESTRUCTIVE AND NONDESTRUCTIVE BURNUP DATA
FROM NATURAL UO_2 FUEL

by

D. E. Christensen
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Physics and Engineering Division

May 1971

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DESTRUCTIVE AND NONDESTRUCTIVE BURNUP DATA
FROM NATURAL UO_2 FUELS

I. INTRODUCTION

An experimental program to collect destructive and nondestructive burnup data from natural uranium oxide (UO_2) fuels irradiated in the Plutonium Recycle Test Reactor (PRTR) has been completed. During the period from 1962 to 1970, eight PRTR elements have been destructively analyzed and three rods from the last element were nondestructively analyzed by gamma scanning. The experimental data have been collected under the Plutonium Utilization Program for the Atomic Energy Commission by Pacific Northwest Laboratories, Battelle Memorial Institute (Battelle-Northwest).

The purpose of this report is to document the experimental burnup data collected from the UO_2 fuel. Preliminary analysis of the data has been done which included submitting the destructive data to data handling codes to determine burnup parameters and plot the data. As a result of the preliminary steps, the data were available in tabular form and are published in that form in this report. In the sections that follow, a summary of the work accomplished is given first (Section II). Then the dimensions and irradiation history of each fuel element (Section III), the analytical methods used to collect the data (Section IV), a description of the gamma ray data (Section V) and compilations of the data (Appendices A and B) are presented.

II. SUMMARY AND CONCLUSIONS

Burnup samples have been obtained by cutting one inch segments from one tube-in-tube fuel element and seven 19-rod fuel elements irradiated in the PRTR. All the elements initially contained natural UO_2 fuel and accumulated average exposures ranging from 784 to 10,000 MWD/MTM*. A total of 165 spent fuel samples were obtained, 32 from the tube-in-tube element and 133 from various rods of the 19-rod elements (as many as ten rods from a given element were sampled). Each sample was chemically analyzed to obtain total uranium (U) and plutonium (Pu) concentrations, U and Pu isotopic compositions and fission product concentration data. The total U was determined by sample weighing and total Pu was determined by α counting (before 1966) or by isotopic dilution (after 1966). Two methods were also used to determine fission product concentrations: ^{137}Cs determinations (before 1966) and ^{148}Nd determinations (after 1966). The exposures as determined from ^{137}Cs and ^{148}Nd data for the samples ranged from 409 to 15,000 MWD/MTM.

Three fuel rods from the 19-rod element which accumulated the highest exposure were nondestructively analyzed by gamma scanning before burnup samples were cut from them. Experimental methods included both continuous scanning of the fuel rods to obtain axial gamma ray activity profiles and incremental scanning to obtain high resolution gamma ray spectra at selected points. All measurements were made using a Ge(Li)

* MWD/MTM - Megawatt days per metric ton metal

detector and included 20 gamma ray spectra. Ten of the spectra were obtained from positions on the rods which coincided with the positions at which burnup samples were later cut and analyzed. The gamma ray data were not analyzed, other than to plot the data, and were tabulated for this report in raw data form.

The documentation of additional information necessary for complete analyses and correlations of the above experimental data includes detailed dimensional specifications, irradiation and cooling histories and sampling diagrams. Correlation studies between experiment (the data) and theory (burnup codes) are thus possible and desirable using the data presented. Additional analysis to derive effective cross section ratios is also possible as well as correlations between destructive and non-destructive data.

III. FUEL ELEMENT SPECIFICATIONS AND HISTORY

The fuel elements that have been analyzed for burnup data represent natural UO_2 fuels of different geometries and fabrication methods. The basic fuel element design⁽¹⁾ for the PRTR was a 19-rod cluster of 0.5 in. diameter fuel cores that were clad in zircaloy-2 as shown in Figure 1. The fuel cores were loaded using powdered UO_2 and the powder was compacted by cold swaging, hot swaging or vibrational compaction⁽²⁾. The fuel rods were spaced in the 19-rod bundle by unbonded, spirally wrapped zircaloy-2 wires⁽³⁾. The clusters were then either spirally wrapped⁽²⁾ with wire (not shown) or wrapped with wire bands⁽⁴⁾ as shown. The dimensions and fuel element data for the PRTR basic design are listed in Table I. A second fuel element design was a nested tubular fuel element⁽⁵⁾ as shown in Figure 2. The dimensions pertinent to this design are shown in the figure.

The eight UO_2 fuel elements analyzed are identified in Table II. One nested tubular element was analyzed and is listed first. Seven elements were of the basic 19-rod design, three having been fabricated by cold swage compaction⁽¹⁾ and four by vibratory compaction⁽⁶⁾. These seven elements are listed in order of total accumulated exposure which ranged from 784 to 10,028 MWD/MTM. Once fabricated, the elements were charged into the PRTR on the dates shown in Table III. The table indicates the core position into which the elements were charged and subsequent shuffling until each element was finally discharged.

The PRTR is an experimental facility⁽⁷⁾ designed to support the technical development of plutonium fuel cycles in thermal power reactors.

FIGURE 1. 19-Rod Element Basic Design

TABLE I

FUEL ELEMENT SPECIFICATIONS AND DATA

Core composition	Natural UO_2	
Core diameter	0.502 in.	
Core length	88.0 in.	
	<u>Swaged</u>	<u>Vipac</u>
Average core weight (single rod)	5.91 lbs.	6.20 lbs.
Average core weight (19-rod cluster)	112.3 lbs.	117.8 lbs.
Core density	~86% T.D.	89% T.D.
Cladding material	Zircaloy-2	
Cladding inside diameter	0.502 in.	
Cladding outside diameter	0.562 in.	
Cladding thickness (nominal)	0.030 in.	
Wire wrap material (for rods)	Zircaloy-2	
Wire wrap diameter	0.075 in.	
Wire wrap pitch	10 in.	
Wire wrap material (for elements)	Zircaloy-2	
Wire wrap diameter	0.075 in.	
Wire wrap pitch	10.0 in.	
Band material	Zircaloy-2	
Band	3/16 wide x 0.010 thick	
Number of bands per element	4	
Rod length (over-all) regular rods	94 5/16 in.	
Center rod	95 1/6 in.	
Element length (over-all)	100 5/16 in.	
Diameter of six rod ring	1.285 in.	
Diameter of twelve rod ring	2.484 in.

FIGURE 2. Nested Tubular Fuel Element

TABLE II
FUEL ELEMENT IDENTITY, FABRICATION, IRRADIATION, AND SAMPLING DATA

<u>No.</u>	<u>Total Exposure (MWD)</u>	<u>Initial UO₂ Wt. (lbs)</u>	<u>Fabrication Method</u>	<u>Volume (cc)</u>	<u>NUMBER OF RODS SAMPLED</u>			
					<u>Outer Ring Rods-Samples</u>	<u>Middle Ring Rods-Samples</u>	<u>Center Rod-Sample</u>	<u>Total Rods-Samples</u>
1501	77.9	129.80	Vipac		tube -16	tube - 16		2 tubes - 32
1101	39.2	116.70	Vipac	5425	1 - 9	1 - 4	1 - 4	3 - 17
1041	60.3	112.66	Swaged	5425	1 - 6	1 - 3	1 - 3	3 - 15
1006	149.8	111.76	Swaged	5425	6 - 14	3 - 6	1 - 4	10 - 24
1100	151.3	118.60	Vipac	5425	1 - 9			1 - 9
1099	206.6	117.60	Vipac	5425	6 - 14	1 - 9	1 - 9	8 - 32
1097	317.2	118.60	Vipac	5425	3 - 19	1 - 5	1 - 5	5 - 29
1037	501.4	112.66	Swaged	5425	1 - 5	1 - 2	1 - 3	3 - 10

TABLE III
FUEL ELEMENT HISTORY REPORT

FROM MAY 1, 1961 TO JULY 20, 1968

Position 0077 is Cold Storage						Position 0088 is Hot Storage					
Date	Time	F.E.NO.	Position From	Position To	Total Exposure (MWD)	Date	Time	F.E.NO.	Position From	Position To	Total Exposure (MWD)
11-03-61	1600	1501	0077	1954	12.3	05-12-62	2045	1097	0077	1649	130.7
01-17-62	1400	1501	1954	0088		06-29-62	0835	1097	1649	0088	
01-17-62	1415	1501	0088	1653		07-30-62	0530	1097	0088	1649	
06-12-62	0525	1501	1653	0088		09-01-62	1300	1097	1649	0088	
06-13-62	0100	1501	0088	1653		11-30-62	0245	1097	0088	1649	
06-23-62	1020	1501	1653	0088	72.1	12-27-62	0455	1097	1649	0088	317.2
06-23-62	1035	1501	0088	2053		01-01-63	0203	1097	0088	1649	
06-29-62	1820	1501	2053	0088		04-16-63	2030	1097	1649	0088	
07-31-62	0445	1501	0088	2053		04-30-63	0045	1097	0088	1649	
08-31-62	2151	1501	2053	0088		05-29-63	1330	1097	1649	0088	
11-29-62	1340	1501	0088	2053	77.9	05-30-63	0215	1097	0088	1649	
12-31-62	0635	1501	2053	0088		06-13-63	1210	1097	1649	0088	
05-01-61	1200	1041	0077	1053		06-14-63	0030	1097	0088	1649	
05-30-61	0200	1041	1053	0088		09-21-63	0630	1097	1649	0088	
06-27-61	1059	1041	0088	1053		01-28-64	0645	1097	0088	1550	
12-02-61	0745	1041	1053	0088	60.3	03-03-64	0330	1097	1550	0088	
12-03-61	0045	1041	0088	1053		03-04-64	0330	1097	0088	1550	
05-01-62	1430	1041	1053	0088		03-30-64	0350	1097	1550	0088	
05-12-62	2055	1101	0077	1451		03-31-64	0130	1097	0088	1550	
06-16-62	0620	1101	1451	0088		05-03-64	1055	1097	1550	0088	
06-17-62	0110	1101	0088	1451	39.2	06-06-64	0345	1097	0088	1550	
06-29-62	2225	1101	1451	0088		03-06-65	0615	1097	1550	0088	
07-31-62	1015	1101	0088	1451		05-01-61	1200	1037	0077	1447	95.4
08-31-62	1430	1101	1451	0088		05-21-61	0200	1037	1447	0088	
11-30-62	1730	1101	0088	1451		06-25-61	0400	1037	0088	1447	
02-24-63	0055	1101	1451	0088		07-25-61	0800	1037	1447	0088	
						07-27-61	0500	1037	0088	1447	
						05-04-62	1805	1030	1447	0088	

TABLE III (CONTD)

FROM MAY 1, 1961 TO JULY 20, 1968

Position 0077 is Cold Storage						Position 0088 is Hot Storage					
Date	Time	F.E. NO.	Position From	Position To	Total Exposure (MWD)	Date	Time	F.E. NO.	Position From	Position To	Total Exposure (MWD)
05-01-61	1200	1006	0077	1649	103.5	05-04-62	1815	1037	0088	1053	118.0
05-30-61	0200	1006	1649	0088		06-30-62	0530	1037	1053	0088	
06-24-61	1325	1006	0088	1649		07-31-62	2155	1037	0088	1053	
12-01-61	0249	1006	1649	0088		08-31-62	0200	1037	1053	0088	
12-02-61	2255	1006	0088	1649		12-01-62	0055	1037	0088	1053	
05-01-62	1530	1006	1649	0088		02-23-63	1650	1037	1053	0088	
05-04-62	0255	1006	0088	2047		02-26-63	0330	1037	0088	1451	
06-08-62	1530	1006	2047	0088		04-17-63	0925	1037	1451	0088	
06-10-62	0255	1006	0088	2047		04-28-63	1135	1037	0088	1451	
06-23-62	1530	1006	2047	0088		09-21-63	0530	1037	1451	0088	
06-24-62	1355	1006	0088	2047	252.0	11-29-63	2355	1037	0088	1550	211.4
06-29-62	1430	1006	2047	0088		12-13-63	1940	1037	0088	1550	
07-30-62	1725	1006	0088	2047		12-15-63	0450	1037	0088	1550	
09-01-62	0200	1006	2047	0088		01-28-64	0135	1037	0088	1550	
11-30-62	2215	1006	0088	2047		01-28-64	0140	1037	0088	1649	
12-26-62	1145	1006	2047	0088		02-07-64	0320	1037	1649	0088	
01-01-63	0246	1006	0088	2047		02-08-64	1250	1037	0088	1649	
01-13-63	0820	1006	2047	0088		03-02-64	0030	1037	1649	0088	
01-16-63	0930	1006	0088	2047		03-04-64	0200	1037	0088	1649	
02-28-63	0530	1006	2047	0088		05-03-64	1635	1037	1649	0088	341.8
02-28-63	0540	1006	0088	1550	129.5	06-07-64	0445	1037	0088	1649	
03-25-63	1950	1006	1550	0088		10-07-64	0605	1037	0088	1649	
03-26-63	0335	1006	0088	1550		10-14-64	1800	1037	0088	1552	
04-16-63	0850	1006	1550	0088		11-15-64	1650	1037	0088	1552	
						11-19-64	0315	1037	0088	1552	
						01-16-65	2030	1037	1552	0088	
						01-26-65	0250	1037	0088	1552	
						03-06-65	0320	1037	1552	0088	
						03-14-65	0535	1037	0088	1550	
						04-18-65	1000	1037	1550	0088	
05-12-62	2130	1100	0077	1651	405.6						430.9
06-04-62	2205	1100	1651	0088							
06-08-62	0458	1100	0088	1651							
06-29-62	1230	1100	1651	0088							
07-30-62	1300	1100	0088	1651							

TABLE III (CONTD)

FROM MAY 1, 1961 TO JULY 20, 1968

Position 0077 is Cold Storage					Position 0088 is Hot Storage				
Date	Time	F.E. NO.	Position From To	Total Exposure (MWD)	Date	Time	F.E. NO.	Position From To	Total Exposure (MWD)
09-01-62	0635	1100	1651 0088	118.0	04-25-65	2140	1037	0088 1542	452.6
12-01-62	2130	1100	0088 1651		11-01-65		1037	1542 0088	
02-06-63	0145	1100	1651 0088		02-04-67		1037	0088 1441	
02-08-63	0110	1100	0088 1651		02-10-67		1037	1441 0088	
04-17-63	0025	1100	1651 0088		04-01-67		1037	0088 1441	
04-28-63	2335	1100	0088 1651		07-16-67		1037	1441 0088	
05-27-63	0630	1100	1651 0088		07-21-67		1037	0088 1441	
05-28-63	1855	1100	0088 1651		09-12-67		1037	1441 0088	
09-21-63	0610	1100	1651 0088		09-19-67		1037	0088 1441	
03-04-64	0345	1100	0088 1451		01-30-68		1037	1441 0088	
03-30-64	0545	1100	1451 0088		03-17-68		1037	0088 1441	
03-31-64	0105	1100	0088 1451		06-05-68		1037	1441 0088	
05-03-64	1415	1100	1451 0088		06-09-68		1037	0088 1441	
					07-20-68		1037	1441 0088	
05-12-62	2115	1099	0077 1548						501.4
06-12-62	0715	1099	1548 0088						
06-13-62	0315	1099	0088 1548						
06-29-62	0230	1099	1548 0088						
07-29-62	2220	1099	0088 1548						
09-01-62	2230	1099	1548 0088						
11-29-62	1540	1099	0088 1548						
12-04-62	1030	1099	1548 0088						
12-05-62	1900	1099	0088 1548						
12-30-62	0520	1099	1548 0088						
12-31-62	0725	1099	0088 1548						
01-14-63	0540	1099	1548 0088						
01-15-63	0230	1099	0088 1548						
02-06-63	0225	1099	1548 0088						
02-08-63	0050	1099	0088 1548						

TABLE III (CONTD)

FROM MAY 1, 1961 TO JULY 20, 1968

Position 0077 is Cold Stoarge					Position 0088 is Hot Storage						
Date	Time	F.E. NO.	Position From	Position To	Total Exposure (MWD)	Date	Time	F.E. NO.	Position From	Position To	Total Exposure (MWD)
03-07-63	1530	1099	1548	0088	129.6						
03-08-63	0120	1099	0088	1548							
04-16-63	1245	1099	1548	0088							
04-27-63	1340	1099	0088	1548							
09-21-63	0445	1099	1548	0088							
03-31-64	0305	1099	0088	1548							
05-03-64	1445	1099	1552	0088							
06-06-64	1840	1099	0088	1552	206.6						
08-16-64	1435	1099	1552	0088							
08-27-64	0640	1099	0088	1552							
10-07-64	0210	1099	1552	0088							

It operated from November, 1960, through July 14, 1968, in the intermittent manner typical of test reactors. A core diagram indicating the core configuration is shown in Figure 3 and a power histogram covering the operating periods of the PRTR is given in Table IV.

After an element was removed from the reactor, consideration was given as to sampling the elements to obtain burnup samples. In the case of the nested tubular element, the outer and inner tubes were destructively analyzed according to the upper diagram in Figure 4. In the case of the 19-rod assemblies, at least one and as many as 10 rods were selected for destructive analysis. The number of rods sampled from each 19-rod element is listed in Table II. The general procedure was to sample three rods, one outer ring rod, one middle ring rod and the center rod, at a number of axial positions as shown in Figure 4. Generally, more samples were obtained from the outer ring rod than from the middle ring and center rods of an element. The number of samples cut is also indicated in Table II. If more than three rods were sampled, the additional rods were sampled at one position only, which coincided with peak burnup in the rod. The additional rods were selected to provide a more complete power profile within the elements. In the case of element 1006, for example, every other outer ring rod and middle ring rod were sampled. In all cases, the cladding shoulder at the top of a rod was used as a reference point to measure sample position. The position of the samples are thus reported with reference to this point or with reference to the top of the fuel which is the cladding shoulder reference point minus 7/8 in.

FIGURE 3. Plutonium Recycle Test Reactor Core Configuration

FIGURE 4. Cutting Diagrams for PRTR Fuels Elements

IV. ANALYTICAL METHODS

A total of 165 burnup samples were obtained for chemical analysis. Each sample, including cladding, was weighed before fuel dissolution and the cladding was weighed after fuel dissolution. The difference in the two weighings provided the sample weight since the cladding was not measurably affected during fuel dissolution. Chemical procedures to separate U, Pu and a fission product were done for each sample. The U and Pu isotopic compositions were then determined by measurement with a mass spectrometer. To obtain the total Pu concentration for a sample, two methods have been used. Prior to 1966, alpha counting coupled with the mass spectrometer data were used to determine total Pu concentration. Since 1966, isotopic dilution techniques have been used to determine the Pu concentration. Two methods have also been used to measure a fission product concentration. Prior to 1966, the concentration of ^{137}Cs was determined by counting the separated Cs⁽⁸⁾. Since that time, isotopic dilution techniques with Nd have been used to determine the concentration of a fission product. Thus, for every sample, measurements were done to determine the total U and Pu concentrations, U and Pu isotopic compositions and the concentration of a fission product.

Data handling codes have been developed as part of the burnup program which have included provisions to plot the measured data and determine various burnup quantities from the data. New generation codes evolved as the analytical procedures changed and the latest data handling code, ISODIL⁽⁹⁾, reflects the current measurement methods using isotopic dilution techniques.

Most of the UO_2 data were measured before the isotopic dilution techniques were developed and were therefore processed through a different (HADES) code. Only the last ten samples were measured by isotopic dilution techniques and, subsequently, processed through the ISODIL code. In either case, the output from these two codes is much the same.

The measured data from each sample were converted to

- the number of grams of each of the uranium and plutonium isotopes per original gram of uranium.
- the fissions and burnup that occurred in each of the fissionable isotopes.
- other quantities of interest such as the capture to fission ratio for neutrons absorbed in ^{235}U , the amount of ^{239}Pu formed from ^{238}U , etc.

This information along with the input data and various constants used to convert the data were printed on one page of computer output for each sample, Table V. In addition, plots of the data which were used to test the consistency of the data were also part of the output.

The printed output for all samples appear in Appendix A. The format has been designed so that the output is largely self-explanatory. At the top of a page, see Table V, the sample is identified by element and position within the element. The U and Pu isotopic inventories along with the burnup in MWD/MTM of each of the fissionable isotopes are the central part of the output. The one standard deviation uncertainty of each number is printed in parentheses directly after the number. Propagation of error techniques were used to calculate the uncertainties for

TABLE V.
EXAMPLE OF PRINTED OUTPUT FOR EACH BURNUP SAMPLE GIVEN IN APPENDIX A

UO-2 BURNUP DATA						
SAMPLE 75611 FROM ELEMENT 1501 TAKEN 16.00 INCHES FROM TOP OF OUTER TUBE						
I S O T O P I C I N V E N T O R Y						
- - - INPUT DATA - - -			- - - PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWU/MIM
U-234	.4798-04(.22-05)	.0048(.0002)	.4676-04(.22-05)	-.3238-05(.22-05)		
U-235	.5553-02(.37-04)	.5521(.0037)	.5435-02(.37-04)	-.1675-02(.37-04)	.1424-02(.37-04)	1240.0
U-236	.2558-03(.43-05)	.0254(.0004)	.2514-03(.43-05)	-.2514-03(.43-05)		
U-238	.1000+01	99.4177(.0037)	.9912-00(.60-04)	-.1521-02(.60-04)	.8040-04(.81-05)	71.2
U TOTALS			.9971-00(.47-04)	-.2944-02(.47-04)		
PU239	1.0000+00	90.9669(.0286)	.1161-02(.26-04)	.1161-02(.26-04)	.1684-03(.51-04)	150.6
PU240	.8880-01(.53-03)	8.0779(.0279)	.1035-03(.23-05)	.1035-03(.23-05)		
PU241	.9857-02(.89-04)	.9117(.0082)	.1173-04(.28-06)	.1173-04(.28-06)	.1536-05(.59-07)	1.4
PU242	.4790-03(.90-05)	.0436(.0008)	.5630-06(.17-07)	.5630-06(.17-07)		
TOTAL PU			.1277-02(.29-04)	.1277-02(.29-04)		
			TOTAL FISSIONS & BU		.1675-02(.37-04)	1463.1
- - - INPUT - - -			- - - CONSTANTS + ASSUMPTIONS - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML) .1891+09(.38+07)			FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238= 2.60			U-235 .0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)= .348YRS			U-236 .0620(.0040)		206	ALPHA235 OF SAMPLE
			PU239 .0674(.0014)	.0563(.0056)	211	.1758(.0030)
			PU241 .0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML= .6234+17(.12+16)			ALPHA241= .365(.01)			
CS137 IN REACTOR DECAY COR= 1.0137			CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)= .964YRS			PU241 HALF LIFE=14.5(0.4)YEARS			.2355(.0052)
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
GRAMS OF FUEL/ML OF DISSOLVENT= .2709			234/235/236/238=.005/.720/.600/99.275			
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U235
			PU239=1.3616(.0017)	PU240=5.013(.03)		.1447-02(.59-04)GM
			PU241= .0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

those numbers which were not input data such as constants used in the reduction of the data.

Most of the equations used to convert the data are described in the ISODIL document⁽⁹⁾. The exception concerns the samples whose Pu content was determined by alpha counting Pu from a small portion of the dissolved sample. The results of the alpha counting were reported as alpha disintegrations per minute per milliliter of dissolved solution (d/m/ml). Some of the alpha counts came from the relatively short lived ^{238}Pu isotope. Therefore, the percentage of disintegrations coming from ^{238}Pu (designated as % Pu^{238}) was determined separately so that they could be subtracted from the total d/m/ml count. These measurements were converted to Pu content per milliliter of dissolver solution in the HADES code using the specific alpha activities (S^i) and the weight percents (w_{Pu}^i) of the plutonium isotopes according to the formula

$$\text{Pu}(\text{gm/ml}) = \left(\frac{100 - \% \text{Pu}^{238}}{100} \right) \frac{(d/m/ml)}{\sum_i w_{\text{Pu}}^i S^i}$$

$$i = {}^{239}\text{Pu}, {}^{240}\text{Pu}, {}^{241}\text{Pu}, {}^{242}\text{Pu}.$$

Assuming stoichiometric UO_2 (i.e., $\text{U}/\text{UO}_2 = 238/(238+32) = 0.8815$), the U that was originally in the sample per milliliter of the solution is $\text{UO}_2(\text{gm/ml}) = 0.8815 \frac{\text{weight of fuel sample}}{\text{volume of dissolver solution}}$. Thus, the amount of Pu per original gram of U is Pu/U_0 and the amount of each Pu isotope reported under the heading "EOL(GM)" is $\text{Pu}/\text{U}_0 - (\text{Pu}/\text{U}_0) w_{\text{Pu}}^i$. The abbreviations BOL and EOL refer to the sample at "beginning of life" and "end of life", respectively.

Elsewhere on each page of the output is listed the measured input for that sample as well as various constants used in the reduction of the data. Quantities calculated by the code are valid for the time that the fuel was removed from the reactor. Decay correction times are part of the input in order that the ^{137}Cs and ^{241}Pu measurements can be corrected back to this time. Another term, used to correct for the in core decay of ^{137}Cs , is also part of the input. The constant, DEL, referred to for each of the fissionable isotopes is the number of fissions that occur in ^{238}U from the fast neutrons emitted from one fission of the isotope listed. These constants which depend upon the moderator material and core design are incorporated in the code by the user.

The UO_2 data are plotted in Figure 5-14. Data obtained from samples that were cut from an exterior rod of a PRTR cluster are denoted by a square. Data from interior rods are denoted by an octagon. One standard deviation flags are attached to the data. Some plots show a clear separation between the interior and exterior data (especially at high burnup) reflecting the difference in the neutron spectrum that exists within the PRTR 19-rod clusters. A few data points are well removed from the line defined by the majority of the points. Thus, it is possible to identify poorly measured data which should be removed before using the data for further analyses. The last ten ^{241}Pu data points are not aligned with the preceeding points. Since the ^{241}Pu data has been corrected for out of core decays, the discrepancy is best explained by in-core decay effects. These last ten samples were cut from an element whose final

FIGURE 5. $^{236}\text{U}/^{238}\text{U}$ vs. $^{235}\text{U}/^{238}\text{U}$

FIGURE 6. $^{240}\text{Pu}/^{239}\text{Pu}$ vs. $^{235}\text{U}/^{238}\text{U}$

FIGURE 7. $^{241}\text{Pu}/^{239}\text{Pu}$ vs. $^{235}\text{U}/^{238}\text{U}$

FIGURE 8. $^{242}\text{Pu}/^{239}\text{Pu}$ vs. $^{235}\text{U}/^{238}\text{U}$

FIGURE 9. Pu/U Vs. U^{235}/U^{238}

FIGURE 10. Burnup vs. $^{235}\text{U}/^{238}\text{U}$

FIGURE 11. $^{241}\text{Pu}/^{239}\text{Pu}$ vs. $^{240}\text{Pu}/^{239}\text{Pu}$

FIGURE 12. $^{242}\text{Pu}/^{239}\text{Pu}$ vs. $^{240}\text{Pu}/^{239}\text{Pu}$

FIGURE 13. Pu/U vs. $^{240}\text{Pu}/^{239}\text{Pu}$

FIGURE 14. Burnup vs. $^{240}\text{Pu}/^{239}\text{Pu}$

irradiation occurred in a peripheral part of the PRTR where the flux level was low. Thus, the rate of decay as compared to the rate of formation of ^{241}Pu is greater for these samples than for samples from the other elements. Consequently the ^{241}Pu data from the last ten samples falls below that based on an extrapolation of the processing data.

V. GAMMA RAY DATA

In addition to the destructive data discussed, the three rods of element 1037 were nondestructively analyzed by gamma scanning before they were destructively sampled. Experimental procedures in collecting the data included both continuous scanning of the fuel rods to obtain axial gamma ray activity profiles and incremental scanning to obtain high resolution gamma-ray spectra at selected points. The work was carried out in the Underwater Gamma Scan Facility located adjacent to the PRTR fuel storage basin. The facility is similar in design to a previous facility that was located in the fuel storage basin⁽¹⁰⁾. The new facility is shown in Figure 15. A distinct improvement over the previous facility is that the detector housing-carriage-collimator movements in the x - y plane have been automated using a variable drive motor and a lead screw and fuels of interest can be scanned continuously. The dimensions pertaining to source and detector geometry are given in Figure 16. All measurement considered here were made using a Ge(Li) detector (Figure 17). Associated electronic equipment included a high voltage supply, pre-amplifier, amplifier, single channel analyzers, ratemeter, strip chart recorder, a 4096 channel multichannel analyzer and a high speed TALLY punch.

To scan a rod continuously, the rod was mounted on the fuel tray beneath the collimator and through the collimator head guide block, see Figure 15. The collimator was then moved at a constant speed and traversed the length of the rod. All detected gamma rays above 200 Kev were summed using a single channel analyzer. A record of the detected activity

FIGURE 15. Detector Housing, Carriage, Rails, Collimator and Fuel Tray of the Underwater Gamma Scan Facility in the PRTR Fuel Storage Basin.

FIGURE 16. Collimator and Collimator Head Dimensions

FIGURE 17. ORIENTATION OF Ge(Li) DETECTOR ABOVE THE ALUMINUM WINDOW

was made using a ratemeter and strip chart recorder. The resulting axial activity profiles for the center rod, a middle ring rod and an outer ring rod are shown in Figure 18.

The activity profiles were used initially as a guide to selecting the positions on the rods where burnup samples would be cut. Gamma ray spectra at these and other positions were then collected. A summary of the spectra obtained is given in Table VI and those spectra obtained at positions coinciding with burnup samples are so marked. A total of 20 spectra were collected from the three rods, 10 of which coincide with burnup sample positions. The spectra have not been analyzed and are reported in raw form in Appendix B in the same order as listed in Table VI. The order of the spectra is according to position from the top of the fuel and the 11 spectra from the outer ring rod are shown in Figure 19 as a function of position. One spectrum from the center of the rod is shown in Figure 20 where the photopeaks are identified.

FIGURE 18. Axial Gamma Ray Activity Profiles of Three UO₂ Fuel Rods

TABLE VI

HIGH RESOLUTION GAMMA RAY SPECTRA COLLECTED FROM
NATURAL UO_2 FUEL WHICH WAS DISCHARGED FROM
PRTR AFTER SHUTDOWN JULY 14, 1968

Rod Identification	Spectrum Number	Date Taken	Accumulation Live Time	Position From Top of Fuel
1398 Outer Ring Rod	PRTR 49	11/7/69	900 min.	1 in.
	PRTR 50	11/10/69	360 min.	10 in.
	PRTR 48	11/7/69	360 min.	17-3/8 in.*
	PRTR 45	11/5/69	420 min.	23-7/8 in.*
	PRTR 47	11/6/69	420 min.	34-1/8 in.
	PRTR 29	10/7/69	150 min.	42 in.
	PRTR 46	11/6/69	370 min.	53-7/8 in.
	PRTR 42	11/4/69	420 min.	65-3/8 in.*
	PRTR 44	11/5/69	420 min.	70-7/8 in.*
	PRTR 43	11/4/69	900 min.	78 in.
	PRTR 41	11/3/69	900 min.	87 in.
1377 Middle Ring Rod	PRTR 56	11/13/69	360 min.	25-3/8 in.
	PRTR 24	9/29/69	480 min.	42 in.
	PRTR 55	11/12/69	480 min.	59-3/8 in.*
1330 Center Rod	PRTR 54	11/12/69	330 min.	23-1/4 in.
	PRTR 53	11/11/69	480 min.	29-3/8 in.
	PRTR 26	10/1/69	480 min.	42 in. !
	PRTR 30	10/7/69	150 min.	42 in.*
	PRTR 52	11/1/69	360 min.	55-7/8 in.*
	PRTR 51	11/10/69	900 min.	62-7/8 in.*

*Position coincides with position of burnup sample.

!Poor resolution.

FIGURE 19. Gamma Ray Spectra from Outer Ring Rod,
Rod 1398, Plotted as a Function of Rod Position

FIGURE 20. Identification of Gamma Ray Photopeaks

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The authors especially appreciate the work of Elizabeth Reppond who has programmed the data handling codes and has accomplished the compilation of the data using the computer codes. We also recognize the work of Arnie Penttila who collected the gamma-ray data.

The weight data were obtained by R. D. Elder and G. K. Whiting, the radiochemistry data by A. C. Leaf and the mass spectrometer data were obtained by C. R. Lagergrin and J. J. Stoffels. W. Y. Matsumoto and M. W. Goheen contributed in developing isotopic dilution techniques by which the last samples were analyzed. The experiment was begun under the direction of W. A. Reardon and L. W. Brackenbush participated in the analysis of some of the earlier data.

We also acknowledge the cooperation of L. D. Turner who provided the power history of the PRTR.

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APPENDIX A

Destructive Burnup Data

A-1

UO-2 BURNUP DATA

SAMPLE 75611 FROM ELEMENT 1501 TAKEN 16.00 INCHES FROM TOP OF OUTER TUBE

ISOTOPIC INVENTORY

--- INPUT DATA ---			PARAMETERS DETERMINED FROM INPUT			---	
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.4798-04(.22-05)	.0048(.0002)	.4676-04(.22-05)	-.3238-05(.22-05)			
U-235	.5553-02(.37-04)	.5521(.0037)	.5435-02(.37-04)	-.1675-02(.37-04)	.1424-02(.37-04)	1240.0	
U-236	.2558-03(.43-05)	.0254(.0004)	.2514-03(.43-05)	-.2514-03(.43-05)			
U-238	.1000+01	.99.4177(.0037)	.9912-00(.60-04)	-.1521-02(.60-04)	.8040-04(.81-05)	71.2	
U TOTALS			.9971-00(.47-04)	-.2944-02(.47-04)			
PU239	1.0000+00	90.9669(.0286)	.1161-02(.26-04)	.1161-02(.26-04)	.1684-03(.51-04)	150.6	
PU240	.8880-01(.33-03)	8.0779(.0279)	.1035-03(.23-05)	.1035-03(.23-05)			
PU241	.9857-02(.89-04)	.9117(.0082)	.1173-04(.28-06)	.1173-04(.28-06)	.1536-05(.59-07)	1.4	
PU242	.4790-03(.90-05)	.0436(.0008)	.5630-06(.17-07)	.5630-06(.17-07)			
TOTAL PU			.1277-02(.29-04)	.1277-02(.29-04)			
TOTAL FISSIONS & BU					.1675-02(.37-04)	1463.1	

--- INPUT ---			CONSTANTS + ASSUMPTIONS			--- DERIVED FROM DATA ---	
PU DECAYS(D/M/ML)	.1891+09(.38+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	2.60		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.348YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1758(.0030)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.6234+17(.12+16)		ALPHA241=	.365(.01)			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0137		CS HALF LIFE=	30.00(.20)YEARS			.2355(.0052)
TIME OUT OF REACTOR(CS137)=	.964YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.2709		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=.1.3616(.0017)	PU240=.5.013(.03)			.1447-02(.59-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75612 FROM ELEMENT 1501 TAKEN 16.00 INCHES FROM TOP OF OUTER TUBE

ISOTOPIC INVENTORY

--- INPUT DATA ---			PARAMETERS DETERMINED FROM INPUT			---	
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.4886-04(.24-05)	.0049(.0002)	.4761-04(.23-05)	-.2388-05(.23-05)			
U-235	.5603-02(.40-04)	.5570(.0039)	.5483-02(.39-04)	-.1627-02(.39-04)	.1370-02(.39-04)	1193.1	
U-236	.2618-03(.49-05)	.0260(.0005)	.2573-03(.49-05)	-.2573-03(.49-05)			
U-238	.1000+01	.99.4121(.0040)	.9911-00(.62-04)	-.1681-02(.62-04)	.8180-04(.83-05)	72.4	
U TOTALS			.9969-00(.48-04)	-.3051-02(.48-04)			
PU239	1.0000+00	90.9669(.0286)	.1240-02(.28-04)	.1240-02(.28-04)	.2411-03(.54-04)	215.6	
PU240	.8880-01(.33-03)	8.0779(.0279)	.1105-03(.25-05)	.1105-03(.25-05)			
PU241	.9857-02(.89-04)	.9117(.0082)	.1253-04(.30-06)	.1253-04(.30-06)	.1640-05(.63-07)	1.5	
PU242	.4790-03(.90-05)	.0436(.0008)	.6013-06(.18-07)	.6013-06(.18-07)			
TOTAL PU			.1363-02(.31-04)	.1363-02(.31-04)			
TOTAL FISSIONS & BU					.1695-02(.37-04)	1482.6	

--- INPUT ---			CONSTANTS + ASSUMPTIONS			--- DERIVED FROM DATA ---	
PU DECAYS(D/M/ML)	.2020+09(.40+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	2.80		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.348YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1870(.0034)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.6887+17(.14+16)		ALPHA241=	.365(.01)			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0137		CS HALF LIFE=	30.00(.20)YEARS			.2288(.0055)
TIME OUT OF REACTOR(CS137)=	.348YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.2908		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=.1.3616(.0017)	PU240=.5.013(.03)			.1606-02(.62-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75613 FROM ELEMENT 1501 TAKEN 16.00 INCHES FROM TOP OF OUTER TUBE

ISOTOPIC INVENTORY

- - - INPUT DATA - - -		PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4798-04(.22-05)	.0048(.0002)	.4672-04(.22-05)	-.3284-05(.22-05)		
U-235	.5553-02(.37-04)	.5521(.0037)	.5430-02(.37-04)	-.1680-02(.37-04)	.1430-02(.37-04)	1244.9
U-236	.2558-03(.43-05)	.0254(.0004)	.2512-03(.43-05)	.2512-03(.43-05)		
U-238	.1000+01	.99.4177(.0037)	.9902-00(.74-04)	-.2510-02(.74-04)	.1078-03(.11-04)	95.4
U TOTALS			.9961-00(.64-04)	-.3939-02(.64-04)		
PU239	1.0000+00	.90.9649(.0286)	.1599-02(.36-04)	.1599-02(.36-04)	.6516-03(.61-04)	582.6
PU240	.8880-01(.33-03)	.0.0777(.0279)	.1426-03(.32-05)	.1426-03(.32-05)		
PU241	.9857-02(.89-04)	.9138(.0082)	.1620-04(.39-06)	.1620-04(.39-06)	.2116-05(.81-07)	1.9
PU242	.4790-03(.90-05)	.0436(.0008)	.7755-06(.23-07)	.7755-06(.23-07)		
TOTAL PU			.1758-02(.39-04)			
				TOTAL FISSIONS & BU	.2192-02(.50-04)	1924.9

- - - INPUT - - -		- - - CONSTANTS + ASSUMPTIONS - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.2605+09(.52+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	2.60	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.397YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.9587+17(.19+16)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0137	CS HALF LIFE=	30.00(.20) YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.397YRS	PU241 HALF LIFE=	14.510(.4) YEARS		.2363(.0052)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
GRAMS OF FUEL/ML OF DISSOLVER=	.3108	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.2412-02(.73-04)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75614 FROM ELEMENT 1501 TAKEN 16.00 INCHES FROM TOP OF OUTER TUBE

ISOTOPIC INVENTORY

- - - INPUT DATA - - -		PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4886-04(.24-05)	.0049(.0002)	.4767-04(.23-05)	-.2327-05(.23-05)		
U-235	.5603-02(.40-04)	.5570(.0039)	.5490-02(.39-04)	-.1620-02(.39-04)	.1363-02(.39-04)	1186.7
U-236	.2618-03(.49-05)	.0260(.0005)	.2576-03(.49-05)	.2576-03(.49-05)		
U-238	.1000+01	.99.4121(.0040)	.9982-00(.29-04)	-.4251-03(.49-04)	.4516-04(.49-05)	40.0
U TOTALS			.9982-00(.29-04)	-.1787-02(.29-04)		
PU239	1.0000+00	.90.9669(.0286)	.7141-03(.16-04)	.7141-03(.16-04)	.4048-03(.45-04)	361.9
PU240	.8880-01(.33-03)	.0.0779(.0279)	.6368-04(.14-05)	.6368-04(.14-05)		
PU241	.9857-02(.89-04)	.9117(.0082)	.7217-05(.17-06)	.7217-05(.17-06)	.9450-06(.36-07)	.8
PU242	.4790-03(.90-05)	.0436(.0008)	.3464-06(.10-07)	.3464-06(.10-07)		
TOTAL PU			.7854-03(.18-04)	.7854-03(.18-04)		
				TOTAL FISSIONS & BU	.1004-02(.23-04)	865.7

- - - INPUT - - -		- - - CONSTANTS + ASSUMPTIONS - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1163+09(.23+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	2.50	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.348YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.5109+17(.10+16)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0137	CS HALF LIFE=	30.00(.20) YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.348YRS	PU241 HALF LIFE=	14.510(.4) YEARS		.2278(.0055)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
GRAMS OF FUEL/ML OF DISSOLVER=	.3752	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.3815-03(.49-04)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-3

UO-2 BURNUP DATA

SAMPLE 75621 FROM ELEMENT 1501 TAKEN 38.00 INCHES FROM TOP OF OUTER TUBE

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4895-04(.25-05)	.0049(.0002)	.4765-04(.25-05)	-.2325-05(.25-05)		
U-235	.5165-02(.37-04)	.5137(.0037)	.5051-02(.37-04)	-.2059-02(.37-04)	.1735-02(.37-04)	1510.5
U-236	.3312-03(.55-05)	.0329(.0006)	.3253-03(.55-05)	-.3253-03(.55-05)		
U-238	.1000+01	.994485(.0037)	.9904-00(.75-04)	-.2396-02(.75-04)	.1102-03(.11-04)	97.6
U TOTALS			.9959-00(.66-04)	-.4130-02(.66-04)		
PU239	1.0000+00	.88.0068(.0298)	.1644-02(.37-04)	.1644-02(.37-04)	.4212-03(.61-04)	376.6
PU240	.1190+00(.37-03)	.10.4728(.0295)	.1965-03(.44-05)	.1965-03(.44-05)		
PU241	.1589-01(.90-04)	.1.4219(.0080)	.2679-04(.62-06)	.2679-04(.62-06)	.5083-05(.19-06)	4.6
PU242	.1119-02(.17-04)	.0985(.0015)	.1863-05(.51-07)	.1863-05(.51-07)		
TOTAL PU			.1869-02(.42-04)	.1869-02(.42-04)		
				TOTAL FISSIONS & BU	.2272-02(.50-04)	1989.3

- - - - - INPUT - - - - -		- - - - - CONSTANTS + ASSUMPTIONS - - - - -		- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.2904+09(.58+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	3.70	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.348YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.9407+17(.19+16)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0137	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.964YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.2896(.0052)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.3000	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=.1.3616(.0017)	PU240=.5.013(.03)		.2296-02(.74-04)GM
		PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75622 FROM ELEMENT 1501 TAKEN 38.00 INCHES FROM TOP OF OUTER TUBE

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4904-04(.22-05)	.0049(.0002)	.4776-04(.22-05)	-.2239-05(.22-05)		
U-235	.5146-02(.34-04)	.5118(.0033)	.5033-02(.33-04)	-.2077-02(.33-04)	.1748-02(.34-04)	1522.2
U-236	.3356-03(.58-05)	.0334(.0006)	.3296-03(.57-05)	-.3296-03(.57-05)		
U-238	.1000+01	.994500(.0034)	.9905-00(.71-04)	-.2245-02(.71-04)	.1040-03(.10-04)	92.0
U TOTALS			.9960-00(.63-04)	-.3992-02(.63-04)		
PU239	1.0000+00	.88.0068(.0298)	.1625-02(.37-04)	.1625-02(.37-04)	.2978-03(.57-04)	266.3
PU240	.1190+00(.37-03)	.10.4728(.0295)	.1941-03(.44-05)	.1941-03(.44-05)		
PU241	.1589-01(.90-04)	.1.4219(.0080)	.2647-04(.61-06)	.2647-04(.61-06)	.5023-05(.18-06)	4.5
PU242	.1119-02(.17-04)	.0985(.0015)	.1841-05(.50-07)	.1841-05(.50-07)		
TOTAL PU			.1847-02(.41-04)	.1847-02(.41-04)		
				TOTAL FISSIONS & BU	.2155-02(.47-04)	1885.0

- - - - - INPUT - - - - -		- - - - - CONSTANTS + ASSUMPTIONS - - - - -		- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.2870+09(.57+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	3.80	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.348YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.7382+17(.15+16)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0137	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.348YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.2921(.0047)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.2452	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=.1.3616(.0017)	PU240=.5.013(.03)		.2150-02(.71-04)GM
		PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-4

UO-2 BURNUP DATA

SAMPLE 75623 FROM ELEMENT 1501 TAKEN 38.00 INCHES FROM TOP OF OUTER TUBE

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4896-04(.25-05)	.0049(.0002)	.4767-04(.25-05)	-.2331-05(.25-05)		
U-235	.5165-02(.37-04)	.5137(.0037)	.5050-02(.37-04)	-.2060-02(.37-04)	.1736-02(.37-04)	1511.2
U-236	.3312-03(.55-05)	.0329(.0006)	.3252-03(.55-05)	-.3252-03(.55-05)		
U-238	.1000+01	.994485(.0037)	.9902-00(.78-04)	-.2540-02(.78-04)	.1152-03(.11-04)	102.0
U TOTALS			.9957-00(.68-04)	-.4274-02(.68-04)		
PU239	1.0000+00	.88,0039(.0298)	.1690-02(.38-04)	.1690-02(.38-04)	.5083-03(.63-04)	454.5
PU240	.1190+00(.37-03)	10,4725(.0295)	.2019-03(.46-05)	.2019-03(.46-05)		
PU241	.1589-01(.90-04)	1,4252(.0080)	.2760-04(.64-06)	.2760-04(.64-06)	.5224-05(.19-06)	4.7
PU242	.1119-02(.17-04)	.0985(.0015)	.1915-05(.52-07)	.1915-05(.52-07)		
TOTAL PU			.1921-02(.43-04)	.1921-02(.43-04)		
				TOTAL FISSIONS & BU	.2365-02(.53-04)	2072.3

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.2985+09(.60+07)	U-235	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	4.10	U-238	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.397YRS	PU239	.0620(.0040)		208	ALPHA235 OF SAMPLE
		PU241	.0674(.0014)	.0563(.0056)	211	.1866(.0028)
		PU242	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.1074+18(.21+16)	ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0137	CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.397YRS	PU241 HALF LIFE=	14.5(0.4)YEARS			.2897(.0052)
		BOL ATOM PERCENTS FOR NATURAL URANIUM				
		234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.3242	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
		PU239=1.3616(.0017)		PU240=5.013(.03)		.2435-02(.77-04)GM
		PU241=.0576(.0010)		PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75624 FROM ELEMENT 1501 TAKEN 38.00 INCHES FROM TOP OF OUTER TUBE

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4904-04(.22-05)	.0049(.0002)	.4776-04(.22-05)	-.2242-05(.22-05)		
U-235	.5146-02(.34-04)	.5118(.0033)	.5033-02(.33-04)	-.2077-02(.33-04)	.1749-02(.34-04)	1522.4
U-236	.3356-03(.58-05)	.0334(.0006)	.3296-03(.57-05)	-.3296-03(.57-05)		
U-238	.1000+01	.994500(.0034)	.9904-00(.72-04)	-.2300-02(.72-04)	.1065-03(.11-04)	94.2
U TOTALS			.9960-00(.64-04)	-.4048-02(.64-04)		
PU239	1.0000+00	.88,0068(.0298)	.1633-02(.37-04)	.1633-02(.37-04)	.3417-03(.58-04)	305.5
PU240	.1190+00(.37-03)	10,4728(.0295)	.1951-03(.44-05)	.1951-03(.44-05)		
PU241	.1589-01(.90-04)	1,4219(.0080)	.2660-04(.62-06)	.2660-04(.62-06)	.5047-05(.19-06)	4.5
PU242	.1119-02(.17-04)	.0985(.0015)	.1850-05(.50-07)	.1850-05(.50-07)		
TOTAL PU			.1856-02(.42-04)	.1856-02(.42-04)		
				TOTAL FISSIONS & BU	.2202-02(.49-04)	1926.7

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.2884+09(.58+07)	U-235	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	3.90	U-238	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.348YRS	PU239	.0620(.0040)		208	ALPHA235 OF SAMPLE
		PU241	.0674(.0014)	.0563(.0056)	211	.1877(.0027)
		PU242	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.8462+17(.17+16)	ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0137	CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.348YRS	PU241 HALF LIFE=	14.5(0.4)YEARS			.2921(.0047)
		BOL ATOM PERCENTS FOR NATURAL URANIUM				
		234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.2748	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
		PU239=1.3616(.0017)		PU240=5.013(.03)		.2203-02(.71-04)GM
		PU241=.0576(.0010)		PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75631 FROM ELEMENT 1501 TAKEN 60.00 INCHES FROM TOP OF OUTER TUBE

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4792-04(.20-05)	.0048(.0002)	.4665-04(.20-05)	-.3349-05(.20-05)		
U-235	.5415-02(.35-04)	.5384(.0034)	.5294-02(.34-04)	-.1816-02(.34-04)	.1529-02(.35-04)	1330.7
U-236	.2937-03(.69-05)	.0292(.0007)	.2884-03(.69-05)	-.2684-03(.69-05)		
U-238	.1000+01	.99.4276(.0035)	.9901-00(.76-04)	-.2637-02(.76-04)	.1127-03(.11-04)	99.7
U TOTALS			.9956-00(.67-04)	-.4164-02(.67-04)		
PU239	1.0000+00	.90.1028(.0455)	.1695-02(.38-04)	.1695-02(.38-04)	.6494-03(.61-04)	580.6
PU240	.9725-01(.54-03)	.8.7625(.0447)	.1656-03(.38-05)	.1656-03(.38-05)		
PU241	.1176-01(.14-03)	.1.0785(.0123)	.2046-04(.52-06)	.2046-04(.52-06)	.2920-05(.10-06)	2.6
PU242	.6234-03(.76-05)	.0562(.0007)	.1070-05(.27-07)	.1070-05(.27-07)		
TOTAL PU			.1883-02(.42-04)	.1883-02(.42-04)	.2294-02(.52-04)	2013.7
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - DERIVED FROM DATA - - -	
PU DECAYS(D/M/ML)	.2827+09(.57+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238= 1.20		U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)= .370YRS		U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML= .9164+17(.18+16)		CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0137		PU241 HALF LIFE=14.5(0.4)YEARS			.2554(.0048)
TIME OUT OF REACTOR(CS137)= .775YRS		BOL ATOM PERCENTS FOR NATURAL UKANIUM			
		234/235/236/238=.005/.720/.000/99.275			
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER= .2866		PU239=1.3616(.0017)	PU240=5.013(.03)		.2535-02(.74-04)GM
		PU241= .0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75632 FROM ELEMENT 1501 TAKEN 60.00 INCHES FROM TOP OF OUTER TUBE

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5070-04(.26-05)	.0050(.0003)	.4940-04(.26-05)	-.5953-06(.26-05)		
U-235	.5394-02(.34-04)	.5363(.0034)	.5279-02(.34-04)	-.1831-02(.34-04)	.1551-02(.34-04)	1350.6
U-236	.2860-03(.43-05)	.0284(.0004)	.2811-03(.43-05)	-.2811-03(.43-05)		
U-238	.1000+01	.99.4302(.0034)	.9911-00(.61-04)	-.1695-02(.61-04)	.8793-04(.88-05)	77.8
U TOTALS			.9968-00(.51-04)	-.3245-02(.51-04)		
PU239	1.0000+00	.89.9880(.0261)	.1279-02(.29-04)	.1279-02(.29-04)	.1892-03(.52-04)	169.2
PU240	.9876-01(.31-03)	.8.8872(.0254)	.1269-03(.29-05)	.1269-03(.29-05)		
PU241	.1165-01(.86-04)	.1.0685(.0078)	.1531-04(.36-06)	.1531-04(.36-06)	.2211-05(.80-07)	2.0
PU242	.6258-03(.83-05)	.0563(.0007)	.8105-06(.21-07)	.8105-06(.21-07)		
TOTAL PU			.1422-02(.32-04)	.1422-02(.32-04)	.1831-02(.40-04)	1599.6
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - DERIVED FROM DATA - - -	
PU DECAYS(D/M/ML)	.2142+09(.43+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238= 2.90		U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)= .397YRS		U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML= .8372+17(.17+16)		CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0137		PU241 HALF LIFE=14.5(0.4)YEARS			.2576(.0047)
TIME OUT OF REACTOR(CS137)= .858YRS		BOL ATOM PERCENTS FOR NATURAL UKANIUM			
		234/235/236/238=.005/.720/.000/99.275			
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER= .3319		PU239=1.3616(.0017)	PU240=5.013(.03)		.1614-02(.61-04)GM
		PU241= .0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75633 FROM ELEMENT 1501 TAKEN 60.00 INCHES FROM TOP OF OUTER TUBE

ISOTOPIC INVENTORY

- - - - - INPUT DATA - - - - -

- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -

ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4792-04(.20-05)	.0048(.0002)	.4666-04(.20-05)	-.3320-05(.20-05)		
U-235	.5415-02(.35-04)	.5384(.0034)	.5298-02(.34-04)	-.1812-02(.34-04)	.1525-02(.35-04)	1327.7
U-236	.2937-03(.69-05)	.0292(.0007)	.2886-03(.69-05)	.2886-03(.69-05)		
U-238	.1000+01	.99.4276(.0035)	.9907-00(.67-04)	-.2025-02(.67-04)	.9822-04(.98-05)	86.9
U TOTALS			.9965-00(.57-04)	-.3349-02(.57-04)		
PU239	1.0000+00	.89.9823(.0366)	.1382-02(.31-04)	.1382-02(.31-04)	.3958-03(.56-04)	353.9
PU240	.9869-01(.44-03)	.8.8804(.0361)	.1370-03(.31-05)	.1370-03(.31-05)		
PU241	.1180-01(.97-04)	1.0807(.0088)	.1674-04(.40-06)	.1674-04(.40-06)	.2403-05(.90-07)	2.2
PU242	.6294-03(.10-04)	.0566(.0009)	.8808-06(.25-07)	.8808-06(.25-07)		
TOTAL PU			.1537-02(.34-04)	.1537-02(.34-04)		
				TOTAL FISSIONS & BU	.2022-02(.45-04)	1770.8

- - - - - INPUT - - - - -

- - - - - CONSTANTS + ASSUMPTIONS - - - - -

- - - - - DERIVED FROM DATA - - - - -

PU DECAYS(D/M/ML)	PERCENT OF PU DECAYS FROM PU238=	TIME OUT OF REACTOR (PU241)=	FISSION YIELD	DEL	MEV/FIS	ALPHA235 OF SAMPLE	U235 FRACTIONAL DEPLETION	PU239 FORMED FROM U238
.2314+09(.46+07)	3.70	.370YRS	U-235 .0628(.0003)	.0491(.0049)	202	.1884(.0034)		
			U-238 .0620(.0040)		208			
			PU239 .0674(.0014)	.0563(.0056)	211			
			PU241 .0660(.0017)	.0604(.0060)	214			
CS137 ATOMS/ML=	.6639+17(.13+16)		ALPHA241=	.365(.01)				
CS137 IN REACTOR DECAY COR=	1.0137		CS HALF LIFE=	30.00(.20)YEARS				
TIME OUT OF REACTOR(CS137)=	.775YRS		PU241 HALF LIFE=	14.5(0.4)YEARS				
			BOL ATOM PERCENTS FOR NATURAL URANIUM					
GRAMS OF FUEL/ML OF DISSOLVER=	.2367		234/235/236/238=	.005/.720/.000/99.275				
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)					
			PU239=1.3616(.0017)	PU240=5.013(.03)				
			PU241=.0576(.0010)	PU242=.087(.002)				

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75634 FROM ELEMENT 1501 TAKEN 60.00 INCHES FROM TOP OF OUTER TUBE

ISOTOPIC INVENTORY

- - - - - INPUT DATA - - - - -

- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -

ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5070-04(.26-05)	.0050(.0003)	.4938-04(.26-05)	-.6163-06(.26-05)		
U-235	.5394-02(.34-04)	.5363(.0034)	.5276-02(.34-04)	-.1834-02(.34-04)	.1554-02(.34-04)	1352.6
U-236	.2860-03(.43-05)	.0284(.0004)	.2810-03(.43-05)	.2810-03(.43-05)		
U-238	.1000+01	.99.4302(.0034)	.9906-00(.67-04)	-.2117-02(.67-04)	.9863-04(.98-05)	87.3
U TOTALS			.9963-00(.58-04)	-.3669-02(.58-04)		
PU239	1.0000+00	.90.0317(.0291)	.1482-02(.33-04)	.1482-02(.33-04)	.3774-03(.55-04)	337.4
PU240	.9814-01(.35-03)	.8.8357(.0285)	.1460-03(.33-05)	.1460-03(.33-05)		
PU241	.1172-01(.92-04)	1.0740(.0083)	.1782-04(.42-06)	.1782-04(.42-06)	.2664-05(.97-07)	2.4
PU242	.6508-03(.95-05)	.0586(.0009)	.9764-06(.26-07)	.9764-06(.26-07)		
TOTAL PU			.1646-02(.37-04)	.1646-02(.37-04)		
				TOTAL FISSIONS & BU	.2032-02(.45-04)	1779.8

- - - - - INPUT - - - - -

- - - - - CONSTANTS + ASSUMPTIONS - - - - -

- - - - - DERIVED FROM DATA - - - - -

PU DECAYS(D/M/ML)	PERCENT OF PU DECAYS FROM PU238=	TIME OUT OF REACTOR (PU241)=	FISSION YIELD	DEL	MEV/FIS	ALPHA235 OF SAMPLE	U235 FRACTIONAL DEPLETION	PU239 FORMED FROM U238
.2477+09(.50+07)	2.90	.370YRS	U-235 .0628(.0003)	.0491(.0049)	202	.1801(.0026)		
			U-238 .0620(.0040)		208			
			PU239 .0674(.0014)	.0563(.0056)	211			
			PU241 .0660(.0017)	.0604(.0060)	214			
CS137 ATOMS/ML=	.8170+17(.16+16)		ALPHA241=	.365(.01)				
CS137 IN REACTOR DECAY COR=	1.0137		CS HALF LIFE=	30.00(.20)YEARS				
TIME OUT OF REACTOR(CS137)=	.775YRS		PU241 HALF LIFE=	14.5(0.4)YEARS				
			BOL ATOM PERCENTS FOR NATURAL URANIUM					
GRAMS OF FUEL/ML OF DISSOLVER=	.2899		234/235/236/238=	.005/.720/.000/99.275				
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)					
			PU239=1.3616(.0017)	PU240=5.013(.03)				
			PU241=.0576(.0010)	PU242=.087(.002)				

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-7

UO-2 BURNUP DATA

SAMPLE 75641 FROM ELEMENT 1501 TAKEN 72.00 INCHES FROM TOP OF OUTER TUBE

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5025-04(.32-05)	.0050(.0003)	.4896-04(.32-05)	-.1036-05(.32-05)		
U-235	.5760-02(.42-04)	.5726(.0041)	.5639-02(.41-04)	-.1471-02(.41-04)	.1265-02(.42-04)	1101.6
U-236	.2102-03(.62-05)	.0209(.0006)	.2067-03(.61-05)	.2067-03(.61-05)		
U-238	.1000+01	.994016(.0042)	.9914-00(.59-04)	-.1353-02(.59-04)	.6657-04(.64-05)	58.9
U TOTALS			.9974-00(.41-04)	-.2618-02(.41-04)		
PU239	1.0000+00	.924382(.0584)	.1135-02(.26-04)	.1135-02(.26-04)	.6343-04(.51-04)	56.7
PU240	.7405-01(.68-03)	.68451(.0583)	.8436-04(.20-05)	.8436-04(.20-05)		
PU241	.7315-02(.87-04)	.6882(.0082)	.8518-05(.22-06)	.8518-05(.22-06)	.9654-06(.56-07)	.9
PU242	.3080-03(.15-04)	.0285(.0013)	.3536-06(.19-07)	.3536-06(.19-07)		
TOTAL PU			.1226-02(.28-04)	.1226-02(.28-04)		
				TOTAL FISSIONS & BU	.1396-02(.30-04)	1218.1

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1772+09(.35+07)	U-235	FISSION YIELD	DEL	MEV/FIS
PERCENT OF PU DECAYS FROM PU238=	2.00	U-238	.0620(.0040)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.370YRS	PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.6887+17(.14+16)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0137	PU241 HALF LIFE=	14.5(.04)YEARS		.2069(.0058)
TIME OUT OF REACTOR(CS137)=	.775YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
GRAMS OF FUEL/ML OF DISSOLVER=	.3585	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.1292-02(.58-04)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75642 FROM ELEMENT 1501 TAKEN 72.00 INCHES FROM TOP OF OUTER TUBE

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5110-04(.27-05)	.0051(.0003)	.4982-04(.26-05)	-.1791-06(.26-05)		
U-235	.5820-02(.34-04)	.5785(.0034)	.5699-02(.34-04)	-.1411-02(.34-04)	.1194-02(.34-04)	1039.9
U-236	.2215-03(.50-05)	.0220(.0005)	.2178-03(.49-05)	.2178-03(.49-05)		
U-238	.1000+01	.993944(.0034)	.9916-00(.50-04)	-.1169-02(.50-04)	.6105-04(.62-05)	54.0
U TOTALS			.9976-00(.37-04)	-.2362-02(.37-04)		
PU239	1.0000+00	.924382(.0584)	.1001-02(.23-04)	.1001-02(.23-04)	.2816-04(.43-04)	25.2
PU240	.7405-01(.68-03)	.68451(.0583)	.7444-04(.18-05)	.7444-04(.18-05)		
PU241	.7315-02(.87-04)	.6882(.0082)	.7516-05(.19-06)	.7516-05(.19-06)	.8519-06(.49-07)	.8
PU242	.3080-03(.15-04)	.0285(.0013)	.3122-06(.16-07)	.3122-06(.16-07)		
TOTAL PU			.1083-02(.24-04)	.1083-02(.24-04)		
				TOTAL FISSIONS & BU	.1285-02(.28-04)	1119.9

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1564+09(.31+07)	U-235	FISSION YIELD	DEL	MEV/FIS
PERCENT OF PU DECAYS FROM PU238=	2.10	U-238	.0620(.0040)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.370YRS	PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.5086+17(.10+16)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0137	PU241 HALF LIFE=	14.5(.04)YEARS		.1985(.0047)
TIME OUT OF REACTOR(CS137)=	.370YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
GRAMS OF FUEL/ML OF DISSOLVER=	.2854	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.1112-02(.50-04)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-8

UO-2 BURNUP DATA

SAMPLE 75643 FROM ELEMENT 1501 TAKEN 72.00 INCHES FROM TOP OF OUTER TUBE

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -		- - - PARAMETERS DETERMINED FROM INPUT - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5023-04(.32-05)	.0050(.0003)	.4897-04(.32-05)	-.1034-05(.32-05)		
U-235	.5760-02(.42-04)	.5726(.0041)	.5639-02(.41-04)	-.1471-02(.41-04)	.1265-02(.42-04)	1101.4
U-236	.2102-03(.62-05)	.0209(.0006)	.2067-03(.61-05)	.2067-03(.61-05)		
U-238	.1000+01	.99.4016(.0042)	.9914-00(.58-04)	-.1309-02(.58-04)	.6645-04(.69-05)	58.8
U TOTALS			.9974-00(.40-04)	-.2574-02(.40-04)		
PU239	1.0000+00	.92.4382(.0584)	.1095-02(.25-04)	.1095-02(.25-04)	.6161-04(.51-04)	55.1
PU240	.7405-01(.68-03)	.6.8451(.0583)	.8146-04(.19-05)	.8146-04(.19-05)		
PU241	.7315-02(.87-04)	.6882(.0082)	.8225-05(.21-06)	.8225-05(.21-06)	.9322-06(.54-07)	.8
PU242	.3080-03(.15-04)	.0285(.0013)	.3417-06(.18-07)	.3417-06(.18-07)		
TOTAL PU			.1186-02(.27-04)	.1186-02(.27-04)		
				TOTAL FISSIONS & BU	.1394-02(.30-04)	1216.1

- - - INPUT - - -		- - - CONSTANTS + ASSUMPTIONS - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1711+09(.34+07)	FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	2.30	U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.370YRS	U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
		PU239	.0674(.0014)	.0563(.0056)	211	.1627(.0042)
		PU241	.0660(.0017)	.0604(.0060)	214	
		ALPHA241=	.365(.01)			
CS137 ATOMS/ML=	.5311+17(.11+16)	CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0137	PU241 HALF LIFE=	14.5(0.4)YEARS			.2069(.0058)
TIME OUT OF REACTOR(CS137)=	.370YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM				
		234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.2743	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
		PU239=1.3616(.0017)	PU240=5.013(.03)			.1248-02(.58-04)GM
		PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75644 FROM ELEMENT 1501 TAKEN 72.00 INCHES FROM TOP OF OUTER TUBE

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -		- - - PARAMETERS DETERMINED FROM INPUT - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5110-04(.27-05)	.0051(.0003)	.4980-04(.26-05)	-.1952-06(.26-05)		
U-235	.5820-02(.34-04)	.5785(.0034)	.5697-02(.34-04)	-.1413-02(.34-04)	.1196-02(.34-04)	1041.5
U-236	.2215-03(.50-05)	.0220(.0005)	.2177-03(.49-05)	.2177-03(.49-05)		
U-238	.1000+01	.99.3944(.0034)	.9913-00(.54-04)	-.1488-02(.54-04)	.6923-04(.70-05)	61.3
U TOTALS			.9973-00(.42-04)	-.2683-02(.42-04)		
PU239	1.0000+00	.92.4382(.0584)	.1156-02(.26-04)	.1156-02(.26-04)	.1721-03(.46-04)	153.9
PU240	.7405-01(.68-03)	.6.8451(.0583)	.8597-04(.20-05)	.8597-04(.20-05)		
PU241	.7315-02(.87-04)	.6882(.0082)	.8680-05(.22-06)	.8680-05(.22-06)	.9838-06(.57-07)	.9
PU242	.3080-03(.15-04)	.0285(.0013)	.3606-06(.19-07)	.3606-06(.19-07)		
TOTAL PU			.1251-02(.28-04)	.1251-02(.28-04)		
				TOTAL FISSIONS & BU	.1439-02(.32-04)	1257.6

- - - INPUT - - -		- - - CONSTANTS + ASSUMPTIONS - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1806+09(.36+07)	FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	2.00	U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.370YRS	U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
		PU239	.0674(.0014)	.0563(.0056)	211	.1812(.0036)
		PU241	.0660(.0017)	.0604(.0060)	214	
		ALPHA241=	.365(.01)			
CS137 ATOMS/ML=	.5109+17(.10+16)	CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0137	PU241 HALF LIFE=	14.5(0.4)YEARS			.1988(.0047)
TIME OUT OF REACTOR(CS137)=	.370YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM				
		234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.2546	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
		PU239=1.3616(.0017)	PU240=5.013(.03)			.1424-02(.54-04)GM
		PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75611 FROM ELEMENT 1501 TAKEN 16.00 INCHES FROM TOP OF MIDDLE TUBE

ISOTOPIC INVENTORY

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-----INPUT DATA-----
ISOTOPE   EOL MASS RATIO   EOL(A/O)   EOL(GM)   NET PRODUCTION(GM)   FISSIONS(GM)   BU MWD/MTM
U-234     .4650-04(.20-05)   .0046(.0002) .4532-04(.19-05)   -.4684-05(.19-05)   .1195-02(.36-04)   1040.1
U-235     .5827-02(.36-04)   .5792(.0035) .5703-02(.35-04)   -.1407-02(.35-04)   .1195-02(.36-04)   1040.1
U-236     .2168-03(.61-05)   .0216(.0006) .2131-03(.61-05)   .2131-03(.61-05)   .1195-02(.36-04)   1040.1
U-238     .1000+01   .99.3947(.0036) .9912-00(.57-04)   -.1589-02(.57-04)   .9863-04(.10-04)   87.3
U TOTALS
PU239     1.0000+00   91.8868(.0212) .1133-02(.25-04)   .1133-02(.25-04)   .2628-03(.49-04)   235.0
PU240     .7961-01(.25-03)   7.3151(.0209) .9055-04(.20-05)   .9055-04(.20-05)   .1021-05(.42-07)   .9
PU241     .8202-02(.50-04)   .7681(.0046) .9547-05(.22-06)   .9547-05(.22-06)   .1021-05(.42-07)   .9
PU242     .3264-03(.80-05)   .0300(.0007) .3743-06(.12-07)   .3743-06(.12-07)   .1233-02(.28-04)   .1233-02(.28-04)
TOTAL PU
TOTAL FISSIONS & BU   .1557-02(.34-04)   1363.3

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-----INPUT-----
PU DECAYS(D/M/ML)   .1798+09(.36+07)
PERCENT OF PU DECAYS FROM PU238= 3.00
TIME OUT OF REACTOR (PU241)= .397YRS
CS137 ATOMS/ML= .3657+17(.73+15)
CS137 IN REACTOR DECAY COR= 1.0137
TIME OUT OF REACTOR(CS137)= .608YRS
GRAMS OF FUEL/ML OF DISSOLVER= .1689

CONSTANTS + ASSUMPTIONS
FISSION YIELD   DEL   MEV/FIS
U-235   .0628(.0003) .0636(.0064)   202
U-238   .0620(.0040)   208
PU239   .0674(.0014) .0826(.0083)   211
PU241   .0660(.0017) .0855(.0085)   214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL URANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=1.3616(.0017)   PU240=5.013(.03)
PU241=.0576(.0010)   PU242=.087(.002)

DERIVED FROM DATA
ALPHA235 OF SAMPLE   .1777(.0041)
U235 FRACTIONAL DEPLETION   .1979(.0050)
PU239 FORMED FROM U238   .1497-02(.56-04)GM

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75612 FROM ELEMENT 1501 TAKEN 16.00 INCHES FROM TOP OF MIDDLE TUBE

ISOTOPIC INVENTORY

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-----INPUT DATA-----
ISOTOPE   EOL MASS RATIO   EOL(A/O)   EOL(GM)   NET PRODUCTION(GM)   FISSIONS(GM)   BU MWD/MTM
U-234     .5017-04(.22-05)   .0050(.0002) .4889-04(.22-05)   -.1106-05(.22-05)   .1174-02(.36-04)   1022.0
U-235     .5841-02(.36-04)   .5805(.0035) .5716-02(.35-04)   -.1394-02(.35-04)   .1174-02(.36-04)   1022.0
U-236     .2244-03(.44-05)   .0223(.0004) .2206-03(.44-05)   .2206-03(.44-05)   .1012-03(.10-04)   89.6
U-238     .1000+01   .99.3922(.0036) .9911-00(.57-04)   -.1654-02(.57-04)   .1012-03(.10-04)   89.6
U TOTALS
PU239     1.0000+00   91.8868(.0212) .1146-02(.26-04)   .1146-02(.26-04)   .3105-03(.49-04)   277.6
PU240     .7961-01(.25-03)   7.3151(.0209) .9161-04(.21-05)   .9161-04(.21-05)   .1033-05(.43-07)   .9
PU241     .8202-02(.50-04)   .7681(.0046) .9660-05(.22-06)   .9660-05(.22-06)   .1033-05(.43-07)   .9
PU242     .3264-03(.80-05)   .0300(.0007) .3788-06(.13-07)   .3788-06(.13-07)   .1246-02(.28-04)   .1246-02(.28-04)
TOTAL PU
TOTAL FISSIONS & BU   .1587-02(.35-04)   1390.2

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-----INPUT-----
PU DECAYS(D/M/ML)   .1819+09(.36+07)
PERCENT OF PU DECAYS FROM PU238= 3.00
TIME OUT OF REACTOR (PU241)= .397YRS
CS137 ATOMS/ML= .4123+17(.82+15)
CS137 IN REACTOR DECAY COR= 1.0137
TIME OUT OF REACTOR(CS137)= .608YRS
GRAMS OF FUEL/ML OF DISSOLVER= .1866

CONSTANTS + ASSUMPTIONS
FISSION YIELD   DEL   MEV/FIS
U-235   .0628(.0003) .0636(.0064)   202
U-238   .0620(.0040)   208
PU239   .0674(.0014) .0826(.0083)   211
PU241   .0660(.0017) .0855(.0085)   214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL URANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=1.3616(.0017)   PU240=5.013(.03)
PU241=.0576(.0010)   PU242=.087(.002)

DERIVED FROM DATA
ALPHA235 OF SAMPLE   .1871(.0036)
U235 FRACTIONAL DEPLETION   .1960(.0050)
PU239 FORMED FROM U238   .1559-02(.57-04)GM

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75613 FROM ELEMENT 1501 TAKEN 16.00 INCHES FROM TOP OF MIDDLE TUBE

ISOTOPIC INVENTORY

- - - - - INPUT DATA - - - - -

- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -

ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4650-04(.20-05)	.0046(.0002)	.4532-04(.19-05)	-.4681-05(.19-05)		
U-235	.5827-02(.36-04)	.5792(.0035)	.5704-02(.35-04)	-.1406-02(.35-04)	.1194-02(.36-04)	1039.7
U-236	.2168-03(.61-05)	.0216(.0006)	.2131-03(.61-05)	.2131-03(.61-05)		
U-238	.1000+01	.99.3947(.0036)	.9912-00(.56-04)	-.1518-02(.56-04)	.9569-04(.97-05)	84.7
U TOTALS			.9973-00(.43-04)	-.2711-02(.43-04)		

PU239	1.0000+00	.91.8868(.0212)	.1102-02(.25-04)	.1102-02(.25-04)	.2275-03(.48-04)	203.4
PU240	.7961-01(.25-03)	.7.3151(.0209)	.8811-04(.20-05)	.8811-04(.20-05)		
PU241	.8202-02(.50-04)	.7681(.0046)	.9290-05(.22-06)	.9290-05(.22-06)	.9938-06(.41-07)	.9
PU242	.3264-03(.80-05)	.0300(.0007)	.3642-06(.12-07)	.3642-06(.12-07)		
TOTAL PU			.1200-02(.27-04)	.1200-02(.27-04)		
			TOTAL FISSIONS & BU		.1518-02(.33-04)	1328.7

- - - - - INPUT - - - - -

- - - - - CONSTANTS + ASSUMPTIONS - - - - -

- - - - - DERIVED FROM DATA - - - - -

PU DECAYS(D/M/ML) .1749+09(.35+07)
 PERCENT OF PU DECAYS FROM PU238= 2.90
 TIME OUT OF REACTOR (PU241)= .397YRS

FISSION YIELD DEL MEV/FIS
 U-235 .0628(.0003) .0636(.0064) 202
 U-238 .0620(.0040) 208
 PU239 .0674(.0014) .0826(.0083) 211
 PU241 .0660(.0017) .0855(.0085) 214
 ALPHA241= .365(.01)
 CS HALF LIFE= 30.00(.20)YEARS
 PU241 HALF LIFE=14.5(0.4)YEARS
 BOL ATOM PERCENTS FOR NATURAL URANIUM
 234/235/236/238=.005/.720/.000/99.275
 PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
 PU239=1.3616(.0017) PU240=5.013(.03)
 PU241=.0576(.0010) PU242=.0871(.002)

ALPHA235 OF SAMPLE
 .1777(.0092)

U235 FRACTIONAL DEPLETION
 .1978(.0050)

PU239 FORMED FROM U238
 .1428-02(.55-04)GM

GRAMS OF FUEL/ML OF DISSOLVER= .1726

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75614 FROM ELEMENT 1501 TAKEN 16.00 INCHES FROM TOP OF MIDDLE TUBE

ISOTOPIC INVENTORY

- - - - - INPUT DATA - - - - -

- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -

ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5017-04(.22-05)	.0050(.0002)	.4890-04(.22-05)	-.1100-05(.22-05)		
U-235	.5841-02(.36-04)	.5805(.0035)	.5717-02(.35-04)	-.1393-02(.35-04)	.1173-02(.36-04)	1021.4
U-236	.2244-03(.44-05)	.0223(.0004)	.2206-03(.44-05)	.2206-03(.44-05)		
U-238	.1000+01	.99.3922(.0036)	.9912-00(.56-04)	-.1530-02(.56-04)	.9456-04(.96-05)	83.7
U TOTALS			.9973-00(.43-04)	-.2702-02(.43-04)		

PU239	1.0000+00	.91.8868(.0212)	.1112-02(.25-04)	.1112-02(.25-04)	.2301-03(.48-04)	205.8
PU240	.7961-01(.25-03)	.7.3151(.0209)	.8888-04(.20-05)	.8888-04(.20-05)		
PU241	.8202-02(.50-04)	.7681(.0046)	.9371-05(.22-06)	.9371-05(.22-06)	.1003-05(.42-07)	.9
PU242	.3264-03(.80-05)	.0300(.0007)	.3674-06(.12-07)	.3674-06(.12-07)		
TOTAL PU			.1210-02(.27-04)	.1210-02(.27-04)		
			TOTAL FISSIONS & BU		.1499-02(.33-04)	1311.8

- - - - - INPUT - - - - -

- - - - - CONSTANTS + ASSUMPTIONS - - - - -

- - - - - DERIVED FROM DATA - - - - -

PU DECAYS(D/M/ML) .1765+09(.35+07)
 PERCENT OF PU DECAYS FROM PU238= 2.90
 TIME OUT OF REACTOR (PU241)= .397YRS

FISSION YIELD DEL MEV/FIS
 U-235 .0628(.0003) .0636(.0064) 202
 U-238 .0620(.0040) 208
 PU239 .0674(.0014) .0826(.0083) 211
 PU241 .0660(.0017) .0855(.0085) 214
 ALPHA241= .365(.01)
 CS HALF LIFE= 30.00(.20)YEARS
 PU241 HALF LIFE=14.5(0.4)YEARS
 BOL ATOM PERCENTS FOR NATURAL URANIUM
 234/235/236/238=.005/.720/.000/99.275
 PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
 PU239=1.3616(.0017) PU240=5.013(.03)
 PU241=.0576(.0010) PU242=.0871(.002)

ALPHA235 OF SAMPLE
 .1872(.0036)

U235 FRACTIONAL DEPLETION
 .1959(.0050)

PU239 FORMED FROM U238
 .1441-02(.55-04)GM

GRAMS OF FUEL/ML OF DISSOLVER= .3065

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-11

UO-2 BURNUP DATA

SAMPLE 75621 FROM ELEMENT 1501 TAKEN 38.00 INCHES FROM TOP OF MIDDLE TUBE

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5341-04(.38-05)	.0053(.0004)	.5203-04(.38-05)	.2032-05(.38-05)		
U-235	.5541-02(.42-04)	.5509(.0042)	.5421-02(.42-04)	-.1689-02(.42-04)	.1418-02(.42-04)	1234.7
U-236	.2770-03(.70-05)	.0275(.0007)	.2722-03(.69-05)	.2722-03(.69-05)		
U-238	.1000+01	99.4163(.0042)	.9907-00(.69-04)	-.2033-02(.69-04)	.1254-03(.13-04)	111.0
U TOTALS			.9963-00(.55-04)	-.3450-02(.55-04)		
PU239	1.0000+00	89.3063(.0259)	.1341-02(.30-04)	.1341-02(.30-04)	.4110-03(.60-04)	367.5
PU240	.1055+00(.31-03)	9.4218(.0253)	.1420-03(.32-05)	.1420-03(.32-05)		
PU241	.1323-01(.86-04)	1.2044(.0077)	.1823-04(.43-06)	.1823-04(.43-06)	.2799-05(.10-06)	2.5
PU242	.7557-03(.12-04)	.0675(.0011)	.1026-05(.28-07)	.1026-05(.28-07)		
TOTAL PU			.1502-02(.34-04)	.1502-02(.34-04)	.1957-02(.44-04)	1715.7
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.2286+09(.46+07)	U-235	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	3.90	U-238	.0628(.0003)	.0636(.0064)	202	ALPHA235 OF SAMPLE
TIME OUT OF REACTOR (PU241)=	.397YRS	PU239	.0620(.0040)		208	.1911(.0040)
		PU241	.0674(.0014)	.0826(.0083)	211	
			.0660(.0017)	.0855(.0085)	214	
CS137 ATOMS/ML=	.5518+17(.11+16)	ALPHA241=	.365(.01)			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0137	CS HALF LIFE=	30.00(.20)YEARS			.2376(.0058)
TIME OUT OF REACTOR(CS137)=	.638YRS	PU241 HALF LIFE=	14.510(.4)YEARS			
		BOL ATOM PERCENTS FOR NATURAL URANIUM	234/235/236/238=.005/.720/.000/99.275			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.2025	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)	PU239=1.3616(.0017)	PU240=5.013(.03)		.1916-02(.68-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75622 FROM ELEMENT 1501 TAKEN 38.00 INCHES FROM TOP OF MIDDLE TUBE

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4781-04(.23-05)	.0048(.0002)	.4657-04(.23-05)	-.3428-05(.23-05)		
U-235	.5496-02(.43-04)	.5464(.0043)	.5376-02(.43-04)	-.1734-02(.43-04)	.1450-02(.43-04)	1262.1
U-236	.2905-03(.56-05)	.0289(.0006)	.2853-03(.55-05)	.2853-03(.55-05)		
U-238	.1000+01	99.4200(.0043)	.9906-00(.72-04)	-.2146-02(.72-04)	.1318-03(.13-04)	116.7
U TOTALS			.9964-00(.58-04)	-.3595-02(.58-04)		
PU239	1.0000+00	89.3389(.0261)	.1388-02(.31-04)	.1388-02(.31-04)	.4650-03(.62-04)	415.8
PU240	.1052+00(.32-03)	9.4002(.0258)	.1467-03(.33-05)	.1467-03(.33-05)		
PU241	.1312-01(.75-04)	1.1944(.0068)	.1872-04(.43-06)	.1872-04(.43-06)	.2852-05(.11-06)	2.6
PU242	.7436-03(.11-04)	.0664(.0010)	.1045-05(.28-07)	.1045-05(.28-07)		
TOTAL PU			.1555-02(.35-04)	.1555-02(.35-04)		
			TOTAL FISSIONS & BU		.2049-02(.46-04)	1797.2

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.2365+09(.47+07)	U-235	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	3.90	U-238	.0628(.0003)	.0636(.0064)	202	ALPHA235 OF SAMPLE
TIME OUT OF REACTOR (PU241)=	.397YRS	PU239	.0620(.0040)		208	.1960(.0036)
		PU241	.0674(.0014)	.0826(.0083)	211	
			.0660(.0017)	.0855(.0085)	214	
CS137 ATOMS/ML=	.5851+17(.12+16)	ALPHA241=	.365(.01)			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0137	CS HALF LIFE=	30.00(.20)YEARS			.2439(.0060)
TIME OUT OF REACTOR(CS137)=	.638YRS	PU241 HALF LIFE=	14.510(.4)YEARS			
GRAMS OF FUEL/ML OF DISSOLVER=	.2048	BOL ATOM PERCENTS FOR NATURAL URANIUM	234/235/236/238=.005/.720/.000/99.275			PU239 FORMED FROM U238
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)	PU239=1.3616(.0017)	PU240=5.013(.03)		.2023-02(.71-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-12
UO-2 BURNUP DATA

SAMPLE 75623 FROM ELEMENT 1501 TAKEN 38.00 INCHES FROM TOP OF MIDDLE TUBE

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			PARAMETERS DETERMINED FROM INPUT - - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5341-04(.38-05)	.0053(.0004)	.5203-04(.38-05)	.2027-05(.38-05)		
U-235	.5541-02(.42-04)	.5509(.0042)	.5420-02(.42-04)	-.1690-02(.42-04)	.1419-02(.42-04)	1235.2
U-236	.2770-03(.70-05)	.0275(.0007)	.2722-03(.69-05)	.2722-03(.69-05)		
U-238	.1000+01	.99.4163(.0042)	.9906-00(.71-04)	-.2134-02(.71-04)	.1307-03(.13-04)	115.6
U TOTALS			.9964-00(.57-04)	-.3551-02(.57-04)		
PU239	1.0000+00	.89.3063(.0259)	.1369-02(.31-04)	.1369-02(.31-04)	.4748-03(.61-04)	424.6
PU240	.1055+00(.31-03)	.9.4218(.0253)	.1450-03(.33-05)	.1450-03(.33-05)		
PU241	.1323-01(.86-04)	1.2044(.0077)	.1862-04(.44-06)	.1862-04(.44-06)	.2858-05(.11-06)	2.6
PU242	.7557-03(.12-04)	.0675(.0011)	.1048-05(.29-07)	.1048-05(.29-07)		
TOTAL PU			.1534-02(.34-04)	.1534-02(.34-04)		
				TOTAL FISSIONS & BU	.2027-02(.45-04)	1778.0

- - - - INPUT - - - -			CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML) .2334+09(.47+07)			FISSION YIELD DEL MEV/FIS				
PERCENT OF PU DECAYS FROM PU238= 4.10			U-235 .0628(.0003)	.0636(.0064)	202		
TIME OUT OF REACTOR (PU241)= .397YRS			U-238 .0620(.0040)		208	ALPHA235 OF SAMPLE	
			PU239 .0674(.0014)	.0826(.0083)	211	.1910(.0040)	
			PU241 .0660(.0017)	.0855(.0085)	214		
CS137 ATOMS/ML= .8237+17(.16+16)			ALPHA241= .365(.01)			U235 FRACTIONAL DEPLETION	
CS137 IN REACTOR DECAY COR= 1.0137			CS HALF LIFE= 30.00(.20)YEARS			.2377(.0058)	
TIME OUT OF REACTOR(CS137)= .638YRS			PU241 HALF LIFE=14.5(0.4)YEARS				
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
GRAMS OF FUEL/ML OF DISSOLVER= .2914			234/235/236/238=.005/.720/.000/99.275			PU239 FORMED FROM U238	
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			.2011-02(.70-04)GM	
			PU239=1.3616(.0017)	PU240=5.013(.03)			
			PU241= .0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75624 FROM ELEMENT 1501 TAKEN 38.00 INCHES FROM TOP OF MIDDLE TUBE

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			PARAMETERS DETERMINED FROM INPUT - - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4781-04(.23-05)	.0048(.0002)	.4657-04(.23-05)	-.3433-05(.23-05)		
U-235	.5496-02(.43-04)	.5464(.0043)	.5375-02(.43-04)	-.1735-02(.43-04)	.1450-02(.43-04)	1262.7
U-236	.2905-03(.56-05)	.0289(.0006)	.2853-03(.55-05)	.2853-03(.55-05)		
U-238	.1000+01	.99.4200(.0043)	.9905-00(.74-04)	-.2266-02(.74-04)	.1372-03(.14-04)	121.5
U TOTALS			.9963-00(.60-04)	-.3716-02(.60-04)		
PU239	1.0000+00	.89.2945(.0295)	.1433-02(.32-04)	.1433-02(.32-04)	.5297-03(.63-04)	473.6
PU240	.1056+00(.36-03)	.9.4295(.0290)	.1520-03(.34-05)	.1520-03(.34-05)		
PU241	.1327-01(.87-04)	1.2078(.0078)	.1955-04(.46-06)	.1955-04(.46-06)	.3024-05(.11-06)	2.7
PU242	.7638-03(.11-04)	.0682(.0010)	.1108-05(.30-07)	.1108-05(.30-07)		
TOTAL PU			.1606-02(.36-04)	.1606-02(.36-04)		
				TOTAL FISSIONS & BU	.2120-02(.48-04)	1860.5

- - - - INPUT - - - -			CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML) .2444+09(.49+07)			FISSION YIELD DEL MEV/FIS				
PERCENT OF PU DECAYS FROM PU238= 4.00			U-235 .0628(.0003)	.0636(.0064)	202		
TIME OUT OF REACTOR (PU241)= .397YRS			U-238 .0620(.0040)		208	ALPHA235 OF SAMPLE	
			PU239 .0674(.0014)	.0826(.0083)	211	.1959(.0036)	
			PU241 .0660(.0017)	.0855(.0085)	214		
CS137 ATOMS/ML= .6826+17(.14+16)			ALPHA241= .365(.01)			U235 FRACTIONAL DEPLETION	
CS137 IN REACTOR DECAY COR= 1.0137			CS HALF LIFE= 30.00(.20)YEARS			.2440(.0060)	
TIME OUT OF REACTOR(CS137)= .638YRS			PU241 HALF LIFE=14.5(0.4)YEARS				
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
GRAMS OF FUEL/ML OF DISSOLVER= .2307			234/235/236/238=.005/.720/.000/99.275			PU239 FORMED FROM U238	
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			.2138-02(.73-04)GM	
			PU239=1.3616(.0017)	PU240=5.013(.03)			
			PU241= .0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-13
UO-2 BURNUP DATA

SAMPLE 75631 FROM ELEMENT 1501 TAKEN 60.00 INCHES FROM TOP OF MIDDLE TUBE

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/U)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4965-04(.24-05)	.0049(.0002)	.4130-04(.24-05)	-.1620-05(.24-05)		
U-235	.5780-02(.36-04)	.5745(.0036)	.5650-02(.36-04)	-.1454-02(.36-04)	.1223-02(.36-04)	1064.7
U-236	.2357-03(.50-05)	.0234(.0005)	.2317-03(.50-05)	.2317-03(.50-05)		
U-238	.1000+01	.99.3971(.0036)	.9910-00(.59-04)	-.1718-02(.59-04)	.1062-03(.11-04)	94.0
U TOTALS			.9971-00(.47-04)	-.2940-02(.47-04)		
PU239	1.0000+00	.91.5925(.0200)	.1177-02(.26-04)	.1177-02(.26-04)	.3322-03(.51-04)	297.0
PU240	.8235-01(.23-03)	.7.5426(.0197)	.9731-04(.22-05)	.9731-04(.22-05)		
PU241	.8877-02(.54-04)	.8287(.0050)	.1074-04(.25-06)	.1074-04(.25-06)	.1286-05(.51-07)	1.2
PU242	.3957-03(.82-05)	.0362(.0007)	.4715-06(.14-07)	.4715-06(.14-07)		
TOTAL PU			.1285-02(.29-04)	.1285-02(.29-04)		
				TOTAL FISSIONS & BU	.1663-02(.37-04)	1456.8

- - - INPUT - - -			CONSTANTS + ASSUMPTIONS - - -			DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.1882+09(.38+07)		FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	2.90		U-235	.0628(.0003)	.0636(.0064)	202
TIME OUT OF REACTOR (PU241)=	.397YRS		U-238	.0620(.0040)		208
			PU239	.0674(.0014)	.0826(.0083)	211
			PU241	.0660(.0017)	.0855(.0085)	214
CS137 ATOMS/ML=	.3943+17(.79+15)		ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0137		CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.638YRS		PU241 HALF LIFE=	14.510(.4)YEARS		.2045(.0050)
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
			234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.1704		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
			PU239=.1.3616(.0017)	PU240=.5.013(.03)		.1619-02(.58-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75632 FROM ELEMENT 1501 TAKEN 60.00 INCHES FROM TOP OF MIDDLE TUBE

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/U)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5277-04(.33-05)	.0052(.0003)	.5141-04(.33-05)	.1414-05(.33-05)		
U-235	.5870-02(.61-04)	.5834(.0061)	.5744-02(.61-04)	-.1366-02(.61-04)	.1127-02(.61-04)	981.1
U-236	.2448-03(.57-05)	.0243(.0006)	.2405-03(.57-05)	.2405-03(.57-05)		
U-238	.1000+01	.99.3870(.0061)	.9909-00(.78-04)	-.1859-02(.78-04)	.1092-03(.12-04)	96.7
U TOTALS			.9970-00(.48-04)	-.2984-02(.48-04)		
PU239	1.0000+00	.91.5895(.0206)	.1200-02(.27-04)	.1200-02(.27-04)	.4445-03(.71-04)	397.4
PU240	.8242-01(.24-03)	.7.5488(.0203)	.9934-04(.22-05)	.9934-04(.22-05)		
PU241	.8863-02(.48-04)	.8273(.0045)	.1093-04(.25-06)	.1093-04(.25-06)	.1246-05(.44-07)	1.1
PU242	.3759-03(.46-05)	.0344(.0004)	.4568-06(.12-07)	.4568-06(.12-07)		
TOTAL PU			.1311-02(.29-04)	.1311-02(.29-04)		
				TOTAL FISSIONS & BU	.1682-02(.38-04)	1476.3

- - - INPUT - - -			CONSTANTS + ASSUMPTIONS - - -			DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.1920+09(.38+07)		FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	2.90		U-235	.0628(.0003)	.0636(.0064)	202
TIME OUT OF REACTOR (PU241)=	.397YRS		U-238	.0620(.0040)		208
			PU239	.0674(.0014)	.0826(.0083)	211
			PU241	.0660(.0017)	.0855(.0085)	214
CS137 ATOMS/ML=	.4326+17(.87+15)		ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0137		CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.638YRS		PU241 HALF LIFE=	14.510(.4)YEARS		.1922(.0085)
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
			234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.1842		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
			PU239=.1.3616(.0017)	PU240=.5.013(.03)		.1757-02(.77-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-14
UO-2 BURNUP DATA

SAMPLE 75633 FROM ELEMENT 1501 TAKEN 60.00 INCHES FROM TOP OF MIDDLE TUBE

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4965-04(.24-05)	.0049(.0002)	.4838-04(.24-05)	-.1623-05(.24-05)		
U-235	.5780-02(.36-04)	.5745(.0036)	.5656-02(.36-04)	-.1454-02(.36-04)	.1223-02(.36-04)	1065.0
U-236	.2357-03(.50-05)	.0234(.0005)	.2316-03(.50-05)	-.2316-03(.50-05)		
U-238	.1000+01	.99.3971(.0036)	.9910-00(.60-04)	-.1783-02(.60-04)	.1068-03(.11-04)	94.5
U TOTALS			.9970-00(.48-04)	-.3005-02(.48-04)		
PU239	1.0000+00	91.5425(.0286)	.1228-02(.28-04)	.1228-02(.28-04)	.3392-03(.51-04)	303.3
PU240	.8282-01(.34-03)	.7.5815(.0285)	.1022-03(.23-05)	.1022-03(.23-05)		
PU241	.9034-02(.98-04)	.8409(.0054)	.1138-04(.27-06)	.1138-04(.27-06)	.1301-05(.54-07)	1.2
PU242	.3834-03(.95-05)	.0351(.0009)	.4769-06(.16-07)	.4769-06(.16-07)		
TOTAL PU			.1342-02(.30-04)	.1342-02(.30-04)		
			TOTAL FISSIONS & BU		.1671-02(.37-04)	1464.0

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1968+09(.39+07)	FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	2.10	U-235	.0628(.0003)	.0636(.0064)	202	
TIME OUT OF REACTOR (PU241)=	.348YRS	U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
		PU239	.0674(.0014)	.0826(.0083)	211	.1886(.0037)
		PU241	.0660(.0017)	.0855(.0085)	214	
CS137 ATOMS/ML=	.3871+17(.77+15)	ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0137	CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.638YRS	PU241 HALF LIFE=	14.51(0.4)YEARS			.2045(.0050)
		BOL ATOM PERCENTS FOR NATURAL URANIUM				
GRAMS OF FUEL/ML OF DISSOLVER=	.1665	234/235/236/238=	.005/.720/.000/99.275			PU239 FORMED FROM U238
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				.1683-02(.59-04)GM
		PU239=	1.3616(.0017)	PU240=	5.013(.03)	
		PU241=	.0576(.0010)	PU242=	.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75634 FROM ELEMENT 1501 TAKEN 60.00 INCHES FROM TOP OF MIDDLE TUBE

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5277-04(.33-05)	.0052(.0003)	.5142-04(.33-05)	.1417-05(.33-05)		
U-235	.5870-02(.61-04)	.5834(.0061)	.5744-02(.61-04)	-.1366-02(.61-04)	.1127-02(.61-04)	980.8
U-236	.2448-03(.57-05)	.0243(.0006)	.2405-03(.57-05)	-.2405-03(.57-05)		
U-238	.1000+01	.99.3870(.0061)	.9909-00(.77-04)	-.1809-02(.77-04)	.1060-03(.11-04)	93.8
U TOTALS			.9971-00(.47-04)	-.2935-02(.47-04)		
PU239	1.0000+00	91.5547(.0231)	.1194-02(.27-04)	.1194-02(.27-04)	.4051-03(.71-04)	362.2
PU240	.8283-01(.27-03)	.7.5835(.0229)	.9927-04(.22-05)	.9927-04(.22-05)		
PU241	.8850-02(.51-04)	.8270(.0047)	.1087-04(.25-06)	.1087-04(.25-06)	.1254-05(.47-07)	1.1
PU242	.3802-03(.63-05)	.0348(.0006)	.4595-06(.13-07)	.4595-06(.13-07)		
TOTAL PU			.1304-02(.29-04)	.1304-02(.29-04)		
			TOTAL FISSIONS & BU		.1639-02(.37-04)	1437.9

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1912+09(.38+07)	FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	3.10	U-235	.0628(.0003)	.0636(.0064)	202	
TIME OUT OF REACTOR (PU241)=	.427YRS	U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
		PU239	.0674(.0014)	.0826(.0083)	211	.2126(.0060)
		PU241	.0660(.0017)	.0855(.0085)	214	
CS137 ATOMS/ML=	.3020+17(.60+15)	ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0137	CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.638YRS	PU241 HALF LIFE=	14.51(0.4)YEARS			.1921(.0085)
GRAMS OF FUEL/ML OF DISSOLVER=	.1321	BOL ATOM PERCENTS FOR NATURAL URANIUM				
		234/235/236/238=	.005/.720/.000/99.275			PU239 FORMED FROM U238
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				.1710-02(.76-04)GM
		PU239=	1.3616(.0017)	PU240=	5.013(.03)	
		PU241=	.0576(.0010)	PU242=	.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-15
UO-2 BURNUP DATA

SAMPLE 75641 FROM ELEMENT 1501 TAKEN 72.00 INCHES FROM TOP OF MIDDLE TUBE

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			- - - PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5280-04(.21-05)	.0052(.0002)	.5147-04(.21-05)	.1468-05(.21-05)		
U-235	.6132-02(.47-04)	.6093(.0047)	.6003-02(.47-04)	-.1107-02(.47-04)	.9331-03(.47-04)	812.4
U-236	.1773-03(.25-05)	.0176(.0002)	.1743-03(.25-05)	.1743-03(.25-05)		
U-238	.1000+01	.993678(.0047)	.9914-00(.59-04)	-.1303-02(.59-04)	.7761-04(.84-05)	68.7
U TOTALS			.9978-00(.35-04)	-.2235-02(.35-04)		
PU239	1.0000+00	.937174(.0163)	.9531-03(.21-04)	.9531-03(.21-04)	.2126-03(.54-04)	190.1
PU240	.6146-01(.18-03)	.57597(.0161)	.5882-04(.13-05)	.5882-04(.13-05)		
PU241	.5300-02(.30-04)	.5070(.0029)	.5199-05(.12-06)	.5199-05(.12-06)	.4473-06(.16-07)	.4
PU242	.1699-03(.24-05)	.0159(.0002)	.1640-06(.44-08)	.1640-06(.44-08)		
TOTAL PU			.1017-02(.23-04)	.1017-02(.23-04)		
			TOTAL FISSIONS & BU		.1224-02(.27-04)	1071.5

- - - INPUT - - -		- - - CONSTANTS + ASSUMPTIONS - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1434+09(.29+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	2.00	U-235	.0628(.0003)	.0636(.0064)	202
TIME OUT OF REACTOR (PU241)=	.427YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0826(.0083)	211
		PU241	.0660(.0017)	.0855(.0085)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.4362+17(.87+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0137	PU241 HALF LIFE=	14.510(.4)YEARS		.1557(.0066)
TIME OUT OF REACTOR(CS137)=	.638YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.2565	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.1230-02(.58-04)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75642 FROM ELEMENT 1501 TAKEN 72.00 INCHES FROM TOP OF MIDDLE TUBE

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			- - - PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5121-04(.25-05)	.0051(.0002)	.4992-04(.25-05)	-.7557-07(.25-05)		
U-235	.6140-02(.39-04)	.6101(.0039)	.6012-02(.39-04)	-.1098-02(.39-04)	.9262-03(.39-04)	806.4
U-236	.1757-03(.33-05)	.0175(.0003)	.1727-03(.33-05)	.1727-03(.33-05)		
U-238	.1000+01	.993673(.0039)	.9915-00(.51-04)	-.1203-02(.51-04)	.7299-04(.78-05)	64.6
U TOTALS			.9979-00(.34-04)	-.2128-02(.34-04)		
PU239	1.0000+00	.937357(.0150)	.9110-03(.20-04)	.9110-03(.20-04)	.1619-03(.46-04)	144.7
PU240	.6124-01(.17-03)	.57407(.0148)	.5602-04(.13-05)	.5602-04(.13-05)		
PU241	.5311-02(.31-04)	.5081(.0030)	.4979-05(.12-06)	.4979-05(.12-06)	.4180-06(.15-07)	.4
PU242	.1661-03(.25-05)	.0156(.0002)	.1532-06(.42-08)	.1532-06(.42-08)		
TOTAL PU			.9721-03(.22-04)	.9721-03(.22-04)		
			TOTAL FISSIONS & BU		.1162-02(.25-04)	1016.1

- - - INPUT - - -		- - - CONSTANTS + ASSUMPTIONS - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1370+09(.27+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	2.10	U-235	.0628(.0003)	.0636(.0064)	202
TIME OUT OF REACTOR (PU241)=	.427YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0826(.0083)	211
		PU241	.0660(.0017)	.0855(.0085)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.2588+17(.52+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0137	PU241 HALF LIFE=	14.510(.4)YEARS		.1545(.0055)
TIME OUT OF REACTOR(CS137)=	.638YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.1606	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.1134-02(.51-04)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-16
UO-2 BURNUP DATA

SAMPLE 75643 FROM ELEMENT 1501 TAKEN 72.00 INCHES FROM TOP OF MIDDLE TUBE

ISOTOPIC INVENTORY

--- INPUT DATA ---

--- PARAMETERS DETERMINED FROM INPUT ---

ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4847-04(.25-05)	.0048(.0002)	.4726-04(.25-05)	-.2736-05(.25-05)		
U-235	.6067-02(.40-04)	.6029(.0040)	.5941-02(.40-04)	-.1169-02(.40-04)	.9945-03(.40-04)	865.8
U-236	.1784-03(.34-05)	.0177(.0003)	.1754-03(.34-05)	.1754-03(.34-05)		
U-238	.1000+01	.99.3746(.0040)	.9916-00(.52-04)	-.1116-02(.52-04)	.7215-04(.77-05)	63.9
U TOTALS			.9979-00(.33-04)	-.2109-02(.33-04)		
PU239	1.0000+00	.93.7151(.0205)	.8892-03(.20-04)	.8892-03(.20-04)	.9832-04(.47-04)	87.9
PU240	.6147-01(.23-03)	.5.7607(.0204)	.5489-04(.12-05)	.5489-04(.12-05)		
PU241	.5321-02(.37-04)	.5090(.0036)	.4869-05(.11-06)	.4869-05(.11-06)	.3999-06(.18-07)	.4
PU242	.1628-03(.47-05)	.0153(.0004)	.1466-06(.54-08)	.1466-06(.54-08)		
TOTAL PU			.9491-03(.21-04)	.9491-03(.21-04)		
			TOTAL FISSIONS & BU		.1165-02(.25-04)	1017.9

--- INPUT ---

--- CONSTANTS + ASSUMPTIONS ---

--- DERIVED FROM DATA ---

PU DECAYS(D/M/ML)	.1338+09(.27+07)	U-235	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	2.10	U-238	.0628(.0003)	.0636(.0064)	202	
TIME OUT OF REACTOR (PU241)=	.427YRS	PU239	.0674(.0014)	.0826(.0083)	211	ALPHA235 OF SAMPLE
		PU241	.0660(.0017)	.0855(.0085)	214	.1756(.0042)
		ALPHA241=	.365(.01)			
CS137 ATOMS/ML=	.3016+17(.60+15)	CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0137	PU241 HALF LIFE=	14.510(.4)YEARS			.1644(.0056)
TIME OUT OF REACTOR(CS137)=	.638YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM	234/235/236/238=.005/.720/.000/99.275			
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.1871	PU239=	1.3616(.0017)	PU240=	5.013(.03)	.1048-02(.52-04)GM
		PU241=	.0576(.0010)	PU242=	.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75644 FROM ELEMENT 1501 TAKEN 72.00 INCHES FROM TOP OF MIDDLE TUBE

ISOTOPIC INVENTORY

--- INPUT DATA ---

--- PARAMETERS DETERMINED FROM INPUT ---

ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5031-04(.23-05)	.0050(.0002)	.4906-04(.23-05)	-.9448-06(.23-05)		
U-235	.6091-02(.40-04)	.6053(.0039)	.5964-02(.39-04)	-.1146-02(.39-04)	.9694-03(.40-04)	844.0
U-236	.1800-03(.41-05)	.0179(.0004)	.1770-03(.41-05)	.1770-03(.41-05)		
U-238	.1000+01	.99.3718(.0040)	.9916-00(.51-04)	-.1117-02(.51-04)	.7056-04(.76-05)	62.5
U TOTALS			.9979-00(.33-04)	-.2086-02(.33-04)		
PU239	1.0000+00	.93.6742(.0155)	.8919-03(.20-04)	.8919-03(.20-04)	.9853-04(.46-04)	88.1
PU240	.6201-01(.17-03)	.5.8087(.0152)	.5554-04(.13-05)	.5554-04(.13-05)		
PU241	.5251-02(.41-04)	.5020(.0040)	.4820-05(.11-06)	.4820-05(.11-06)	.3955-06(.15-07)	.4
PU242	.1605-03(.27-05)	.0150(.0003)	.1449-06(.41-08)	.1449-06(.41-08)		
TOTAL PU			.9524-03(.21-04)	.9524-03(.21-04)		
			TOTAL FISSIONS & BU		.1139-02(.25-04)	994.9

--- INPUT ---

--- CONSTANTS + ASSUMPTIONS ---

--- DERIVED FROM DATA ---

PU DECAYS(D/M/ML)	.1344+09(.27+07)	U-235	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	2.00	U-238	.0628(.0003)	.0636(.0064)	202	
TIME OUT OF REACTOR (PU241)=	.427YRS	PU239	.0674(.0014)	.0826(.0083)	211	ALPHA235 OF SAMPLE
		PU241	.0660(.0017)	.0855(.0085)	214	.1818(.0046)
		ALPHA241=	.365(.01)			
CS137 ATOMS/ML=	.4384+17(.88+15)	CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0137	PU241 HALF LIFE=	14.510(.4)YEARS			.1611(.0055)
TIME OUT OF REACTOR(CS137)=	.638YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM	234/235/236/238=.005/.720/.000/99.275			
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.2783	PU239=	1.3616(.0017)	PU240=	5.013(.03)	.1051-02(.51-04)GM
		PU241=	.0576(.0010)	PU242=	.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-17
UO-2 BURNUP DATA

SAMPLE 75801 FROM ELEMENT 1101 TAKEN 2.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.521e-04(.25-05)	.0052(.0002)	.5089-04(.25-05)	.4905-06(.25-05)		
U-235	.6748-02(.62-04)	.6702(.0001)	.612-02(.61-04)	-.4900-03(.61-04)	.424e-03(.61-04)	369.7
U-236	.7490-04(.38-05)	.0074(.0004)	.7370-04(.38-05)	.7370-04(.38-05)		
U-238	.1000+01	99.3172(.0061)	.9023-00(.63-04)	-.402e-03(.63-04)	.223e-04(.41-05)	19.8
U TOTALS			.9991-00(.14-04)	-.6805-03(.14-04)		
PU239	1.0000+00	97.4250(.0129)	.4088-03(.92-05)	.4088-03(.92-05)	.2198-04(.62-04)	19.7
PU240	.2545-01(.14-03)	2.4795(.0129)	.1045-04(.24-06)	.1045-04(.24-06)		
PU241	.9300-03(.11-04)	.0928(.0011)	.3926-06(.10-07)	.3926-06(.10-07)	.3162-07(.29-08)	.0
PU242	.2800-04(.24-05)	.0027(.0002)	.1159-07(.10-08)	.1159-07(.10-08)		
TOTAL PU			.4196-03(.94-05)	.4196-03(.94-05)		
				TOTAL FISSIONS & BU	.4690-03(.10-04)	409.2

- - - INPUT - - -			CONSTANTS + ASSUMPTIONS - - -			DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.5483+08(.11+07)		FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	1.90		U-235	.0626(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.507YRS		U-238	.0620(.0040)		208
			PU239	.0674(.0014)	.0563(.0056)	211
			PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.1009+17(.20+15)		ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0075		CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.674YRS		PU241 HALF LIFE=	14.5(0.4)YEARS		.0700(.0086)
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
			234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.1550		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
			PU239=.1361e(.0017)	PU240=.5.013(.03)		.4416-03(.63-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75802 FROM ELEMENT 1101 TAKEN 14.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5266-04(.27-05)	.0052(.0003)	.513e-04(.27-05)	.1363-05(.27-05)		
U-235	.6406-02(.43-04)	.6364(.0003)	.6275-02(.43-04)	-.8350-03(.43-04)	.7025-03(.43-04)	611.6
U-236	.1352-03(.30-05)	.0134(.0003)	.1330-03(.30-05)	.1330-03(.30-05)		
U-238	.1000+01	99.3449(.0043)	.9920-00(.48-04)	-.7496-03(.48-04)	.3633-04(.43-05)	32.2
U TOTALS			.9985-00(.23-04)	-.1452-02(.23-04)		
PU239	1.0000+00	95.6389(.0117)	.6615-03(.15-04)	.6615-03(.15-04)	.2430-04(.46-04)	21.7
PU240	.4276-01(.13-03)	4.0895(.0116)	.2840-04(.64-06)	.2840-04(.64-06)		
PU241	.2642-02(.16-04)	.2589(.0015)	.1806-05(.42-07)	.1806-05(.42-07)	.2432-06(.88-08)	.2
PU242	.1331-03(.18-05)	.0127(.0002)	.8915-07(.23-08)	.8915-07(.23-08)		
TOTAL PU			.6918-03(.15-04)	.6918-03(.15-04)		
				TOTAL FISSIONS & BU	.7634-03(.17-04)	665.7

- - - INPUT - - -			CONSTANTS + ASSUMPTIONS - - -			DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.9393+08(.19+07)		FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	1.30		U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.507YRS		U-238	.0620(.0040)		208
			PU239	.0674(.0014)	.0563(.0056)	211
			PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.2318+17(.46+15)		ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0075		CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.614YRS		PU241 HALF LIFE=	14.5(0.4)YEARS		.1174(.0060)
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
			234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.2187		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
			PU239=.1361e(.0017)	PU240=.5.013(.03)		.7163-03(.48-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-18
UO-2 BURNUP DATA

SAMPLE 75803 FROM ELEMENT 1101 TAKEN 22.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5228-04(.26-05)	.0052(.0003)	.5097-04(.25-05)	.9744-06(.25-05)		
U-235	.6217-02(.60-04)	.6177(.0059)	.6086-02(.59-04)	-.1022-02(.59-04)	.8688-03(.59-04)	756.4
U-236	.1567-03(.36-05)	.0156(.0004)	.1541-03(.36-05)	.1541-03(.36-05)		
U-238	.1000+01	.99.3615(.0059)	.9916-00(.67-04)	-.1106-02(.67-04)	.5148-04(.60-05)	45.6
U TOTALS			.9980-00(.31-04)	-.1976-02(.31-04)		
PU239	1.0000+00	.94.6651(.0177)	.8649-03(.19-04)	.8649-03(.19-04)	.1469-03(.63-04)	131.4
PU240	.5240-01(.20-03)	.4.9604(.0177)	.4551-04(.10-05)	.4551-04(.10-05)		
PU241	.3757-02(.22-04)	.3644(.0021)	.3357-05(.78-07)	.3357-05(.78-07)	.2554-06(.12-07)	.2
PU242	.1069-03(.32-05)	.0101(.0003)	.9362-07(.35-08)	.9362-07(.35-08)		
TOTAL PU			.9136-03(.20-04)	.9136-03(.20-04)		
				TOTAL FISSIONS & BU	.1067-02(.23-04)	933.6

- - - - INPUT - - - -			CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1266+09(.25+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	1.30		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.507YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1766(.0068)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.2633+17(.53+15)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0075		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.614YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.1438(.0083)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=	.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.1766		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=	1.3616(.0017)	PU240=	5.013(.03)	.1061-02(.67-04)GM
			PU241=	.0576(.0010)	PU242=	.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75804 FROM ELEMENT 1101 TAKEN 31.50 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5264-04(.25-05)	.0052(.0002)	.5132-04(.25-05)	.1318-05(.25-05)		
U-235	.6149-02(.45-04)	.6110(.0045)	.6020-02(.45-04)	-.1090-02(.45-04)	.9105-03(.45-04)	792.7
U-236	.1830-03(.41-05)	.0182(.0004)	.1799-03(.41-05)	.1799-03(.41-05)		
U-238	.1000+01	.99.3656(.0045)	.9915-00(.56-04)	-.1248-02(.56-04)	.5593-04(.60-05)	49.5
U TOTALS			.9978-00(.34-04)	-.2158-02(.34-04)		
PU239	1.0000+00	.94.0120(.0157)	.9471-03(.21-04)	.9471-03(.21-04)	.1890-03(.51-04)	169.0
PU240	.5875-01(.17-03)	.5.5232(.0155)	.5588-04(.13-05)	.5588-04(.13-05)		
PU241	.4691-02(.35-04)	.4518(.0034)	.4590-05(.11-06)	.4590-05(.11-06)	.3608-06(.16-07)	.3
PU242	.1379-03(.40-05)	.0130(.0004)	.1322-06(.49-08)	.1322-06(.49-08)		
TOTAL PU			.1008-02(.23-04)	.1008-02(.23-04)		
				TOTAL FISSIONS & BU	.1156-02(.26-04)	1011.6

- - - - INPUT - - - -			CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1414+09(.28+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	1.50		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.507YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1968(.0054)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.3668+17(.73+15)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0075		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.614YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.1533(.0063)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=	.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.2269		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=	1.3616(.0017)	PU240=	5.013(.03)	.1197-02(.56-04)GM
			PU241=	.0576(.0010)	PU242=	.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-19
UO-2 BURNUP DATA

SAMPLE 75605 FROM ELEMENT 1101 TAKEN 42.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			- - - PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5230-04(.26-05)	.0052(.0003)	.5799-04(.26-05)	.9899-06(.26-05)		
U-235	.6110-02(.53-04)	.6071(.0052)	.5782-02(.52-04)	-.1128-02(.52-04)	.9491-03(.52-04)	826.3
U-236	.1622-03(.40-05)	.0181(.0004)	.1792-03(.40-05)	-.1792-03(.40-05)		
U-238	.1000+01	.99.3695(.0052)	.9916-00(.62-04)	-.1183-02(.62-04)	.5347-04(.60-05)	47.3
U TOTALS			.9879-00(.33-04)	-.2133-02(.33-04)		
PU239	1.0000+00	.93.9713(.0157)	.9624-03(.22-04)	.9624-03(.22-04)	.1111-03(.57-04)	99.3
PU240	.5906-01(.18-03)	.5.5499(.0156)	.5708-04(.13-05)	.5708-04(.13-05)		
PU241	.4855-02(.30-04)	.4660(.0029)	.4812-05(.11-06)	.4812-05(.11-06)	.3597-06(.14-07)	.3
PU242	.1353-03(.26-05)	.0127(.0002)	.1316-06(.39-08)	.1316-06(.39-08)		
TOTAL PU			.1024-02(.23-04)	.1024-02(.23-04)	.1114-02(.24-04)	973.3
			TOTAL FISSIONS & BU			

- - - INPUT - - -			- - - CONSTANTS + ASSUMPTIONS - - -			- - DERIVED FROM DATA - -
PU DECAYS(D/M/ML) .1438+09(.29+07)			FISSION YIELD DEL MEV/FIS			
PERCENT OF PU DECAYS FROM PU238= 1.50			U-235 .0626(.0003) .0491(.0049) 202			
TIME OUT OF REACTOR (PU241)= .444YRS			U-238 .0620(.0040) 208			ALPHA235 OF SAMPLE .1880(.0057)
			PU239 .0674(.0014) .0563(.0056) 211			
			PU241 .0660(.0017) .0604(.0060) 214			
CS137 ATOMS/ML= .3563+17(.71+15)			ALPHA241= .365(.01)			
CS137 IN REACTOR DECAY COR= 1.0075			CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION .1586(.0073)
TIME OUT OF REACTOR(CS137)= .674YRS			PU241 HALF LIFE=14.5(0.4)YEARS			
			ROL ATOM PERCENTS FOR NATURAL URANIUM			
			234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER= .2298			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238 .1136-02(.62-04)GM
			PU239=1.3616(.0017) PU240=5.013(.03)			
			PU241=.0576(.0010) PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75606 FROM ELEMENT 1101 TAKEN 52.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			- - - PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5083-04(.22-05)	.0051(.0002)	.4955-04(.22-05)	-.4453-06(.22-05)		
U-235	.6132-02(.41-04)	.6093(.0040)	.6004-02(.40-04)	-.1106-02(.40-04)	.9358-03(.41-04)	814.7
U-236	.1740-03(.38-05)	.0173(.0004)	.1711-03(.37-05)	-.1711-03(.37-05)		
U-238	.1000+01	.99.3683(.0041)	.9915-00(.53-04)	-.1227-02(.53-04)	.5509-04(.58-05)	48.8
U TOTALS			.9978-00(.34-04)	-.2162-02(.34-04)		
PU239	1.0000+00	.96.3951(.0106)	.9873-03(.22-04)	.9873-03(.22-04)	.1520-03(.47-04)	135.9
PU240	.3547-01(.11-03)	.3.4191(.0106)	.3517-04(.79-06)	.3517-04(.79-06)		
PU241	.1853-02(.14-04)	.1830(.0014)	.1890-05(.45-07)	.1890-05(.45-07)	.7856-07(.41-08)	.1
PU242	.2880-04(.12-05)	.0028(.0001)	.2879-07(.13-08)	.2879-07(.13-08)		
TOTAL PU			.1024-02(.23-04)	.1024-02(.23-04)	.1143-02(.25-04)	999.5
			TOTAL FISSIONS & BU			

- - - INPUT - - -			- - - CONSTANTS + ASSUMPTIONS - - -			- - DERIVED FROM DATA - -
PU DECAYS(D/M/ML) .1369+09(.27+07)			FISSION YIELD DEL MEV/FIS			
PERCENT OF PU DECAYS FROM PU238= 1.60			U-235 .0628(.0003) .0491(.0049) 202			
TIME OUT OF REACTOR (PU241)= .507YRS			U-238 .0620(.0040) 208			ALPHA235 OF SAMPLE .1821(.0047)
			PU239 .0674(.0014) .0563(.0056) 211			
			PU241 .0660(.0017) .0604(.0060) 214			
CS137 ATOMS/ML= .4074+17(.81+15)			ALPHA241= .365(.01)			
CS137 IN REACTOR DECAY COR= 1.0075			CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION .1556(.0057)
TIME OUT OF REACTOR(CS137)= .614YRS			PU241 HALF LIFE=14.5(0.4)YEARS			
			ROL ATOM PERCENTS FOR NATURAL URANIUM			
			234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER= .2553			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238 .1176-02(.53-04)GM
			PU239=1.3616(.0017) PU240=5.013(.03)			
			PU241=.0576(.0010) PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-20
UO-2 BURNUP DATA

SAMPLE 75807 FROM ELEMENT 1101 TAKEN 62.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V L N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5310-04(.22-05)	.0053(.0002)	.5170-04(.22-05)	.1761-05(.22-05)		
U-235	.6621-02(.40-04)	.6576(.0039)	.6482-02(.39-04)	-.6283-03(.39-04)	.5131-03(.39-04)	446.7
U-236	.1176-03(.28-05)	.0117(.0003)	.1156-03(.28-05)	.1156-03(.28-05)		
U-238	.1000+01	.99.3254(.0039)	.9914-00(.50-04)	-.1349-02(.50-04)	.4826-04(.52-05)	42.7
U TOTALS			.9981-00(.31-04)	-.1861-02(.31-04)		
PU239	1.0000+00	.95.0859(.0163)	.8565-03(.19-04)	.8565-03(.19-04)	.4049-03(.45-04)	362.1
PU240	.4823-01(.18-03)	.4.5860(.0161)	.4148-04(.94-06)	.4148-04(.94-06)		
PU241	.3304-02(.28-04)	.3209(.0027)	.2915-05(.70-07)	.2915-05(.70-07)	.1796-06(.86-08)	.2
PU242	.7590-04(.26-05)	.0072(.0002)	.6582-07(.27-08)	.6582-07(.27-08)		
TOTAL PU			.9009-03(.20-04)	.9009-03(.20-04)	.9665-03(.23-04)	851.7
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.1237+09(.25+07)		FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	1.20		U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.444YRS		U-238	.0620(.0040)		208
			PU239	.0674(.0014)	.0563(.0056)	211
			PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.2329+17(.47+15)		ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0075		CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.674YRS		PU241 HALF LIFE=	14.5(0.4)YEARS		.0884(.0055)
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
			234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.1701		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)		.1306-02(.49-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75808 FROM ELEMENT 1101 TAKEN 72.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5035-04(.22-05)	.0050(.0002)	.4912-04(.22-05)	-.8789-06(.22-05)		
U-235	.6447-02(.40-04)	.6405(.0040)	.6317-02(.40-04)	-.7934-03(.40-04)	.6736-03(.40-04)	586.4
U-236	.1223-03(.30-05)	.0121(.0003)	.1203-03(.29-05)	.1203-03(.29-05)		
U-238	.1000+01	.99.3424(.0040)	.9922-00(.44-04)	-.5325-03(.44-04)	.3495-04(.41-05)	30.9
U TOTALS			.9988-00(.19-04)	-.1206-02(.19-04)		
PU239	1.0000+00	.96.0853(.0119)	.4553-03(.10-04)	.4553-03(.10-04)	.2566-04(.43-04)	22.9
PU240	.3856-01(.13-03)	.3.7051(.0119)	.1763-04(.40-06)	.1763-04(.40-06)		
PU241	.2092-02(.13-04)	.2053(.0013)	.9811-06(.23-07)	.9811-06(.23-07)	.5610-07(.30-08)	.1
PU242	.4460-04(.19-05)	.0043(.0002)	.2056-07(.98-09)	.2056-07(.98-09)		
TOTAL PU			.4740-03(.11-04)	.4740-03(.11-04)	.7342-03(.16-04)	640.3
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.6379+08(.13+07)		FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	.90		U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.444YRS		U-238	.0620(.0040)		208
			PU239	.0674(.0014)	.0563(.0056)	211
			PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.2237+17(.45+15)		ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0075		CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.674YRS		PU241 HALF LIFE=	14.5(0.4)YEARS		.1116(.0056)
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
			234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.2197		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)		.4997-03(.44-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-21

UO-2 BURNUP DATA

SAMPLE 75809 FROM ELEMENT 1101 TAKEN 06.00 INCHES FROM TOP OF OUTER PING ROD

ISOTOPICT INVENTORY

- - - - INPUT DATA - - - -			PARAMETERS DETERMINED FROM INPUT - - - - -			
ISOTOPE	EOL MASS RATIO	EOL (A/O)	EOL (GM)	NET PRODUCTION (GM)	FISSIONS (GM)	BU MWD/MTM
U-234	.5328-04(.25-05)	.0053(.0002)	.5150-04(.25-05)	.1970-05(.25-05)		
U-235	.6839-02(.50-04)	.6792(.0049)	.6700-02(.49-04)	-.4090-03(.49-04)	.3291-03(.49-04)	286.5
U-236	.8214-04(.23-05)	.8082(.0002)	.8582-04(.23-05)	.8002-04(.23-05)		
U-238	.1000+01	.99.3074(.0040)	.9922-00(.51-04)	-.5077-03(.51-04)	.2350-04(.30-05)	20.9
U TOTALS			.9991-00(.14-04)	-.4905-03(.14-04)		
PU239	1.0000+00	.97.5797(.0097)	.4082-03(.91-05)	.4002-03(.91-05)	.1281-03(.50-04)	114.5
PU240	.2403-01(.10-03)	.2.3448(.0097)	.9450-05(.22-06)	.9050-05(.22-06)		
PU241	.7400-03(.01-05)	.0746(.0006)	.3140-06(.75-08)	.3140-06(.75-08)	.9585-08(.12-08)	.0
PU242	.8500-05(.10-05)	.0006(.0001)	.3513-06(.43-09)	.3513-06(.43-09)		
TOTAL PU			.4184-03(.94-05)	.4184-03(.94-05)		
			TOTAL FISSIONS & BU		.4000-03(.11-04)	421.9

- - - - - INPUT - - - - -		- - - - - CONSTANTS + ASSUMPTIONS - - - - -		- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.5449+08(.11+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	1.00	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.507YRS	U-236	.0620(.0040)		206
		PU239	.0674(.0014)	.0503(.0056)	211
		PU241	.0660(.0017)	.0004(.0000)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.9497+16(.19+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0075	PU241 HALF LIFE=	14.5(0.4)YEARS		.0576(.0069)
TIME OUT OF REACTOR(CS137)=	.614YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.1404	PU235=	1.3610(.0017)	PU240=	5.013(.03)
		PU241=	.0570(.0010)	PU242=	.087(.002)
					.5465-03(.51-04)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75810 FROM ELEMENT 1101 TAKEN 12.00 INCHES FROM TOP OF MIDDLE RING ROD

ISOTOPICT INVENTORY

- - - - INPUT DATA - - - -			PARAMETERS DETERMINED FROM INPUT - - - - -			
ISOTOPE	EOL MASS RATIO	EOL (A/O)	EOL (GM)	NET PRODUCTION (GM)	FISSIONS (GM)	BU MWD/MTM
U-234	.5348-04(.27-05)	.0053(.0003)	.5218-04(.27-05)	.2170-05(.27-05)		
U-235	.6603-02(.53-04)	.6559(.0052)	.6469-02(.52-04)	-.6408-03(.52-04)	.5497-03(.52-04)	478.6
U-236	.9297-04(.30-05)	.0092(.0003)	.9147-04(.30-05)	.9147-04(.30-05)		
U-238	.1000+01	.99.3296(.0053)	.9922-00(.55-04)	-.5732-03(.55-04)	.3496-04(.53-05)	30.9
U TOTALS			.9989-00(.18-04)	-.1123-02(.18-04)		
PU239	1.0000+00	.96.7953(.0084)	.5096-03(.11-04)	.5096-03(.11-04)	.1400-04(.54-04)	12.5
PU240	.3153-01(.09-04)	.3.0518(.0083)	.1613-04(.36-06)	.1613-04(.36-06)		
PU241	.1517-02(.08-05)	.1504(.0009)	.7987-06(.18-07)	.7987-06(.18-07)	.3646-07(.21-08)	.0
PU242	.2590-04(.12-05)	.0025(.0001)	.1336-07(.68-09)	.1336-07(.68-09)		
TOTAL PU			.5265-03(.12-04)	.5265-03(.12-04)		
			TOTAL FISSIONS & BU		.5987-03(.13-04)	522.1

- - - - - INPUT - - - - -		- - - - - CONSTANTS + ASSUMPTIONS - - - - -		- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.6976+08(.14+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	.30	U-235	.0626(.0003)	.0609(.0001)	202
TIME OUT OF REACTOR (PU241)=	.507YRS	U-236	.0620(.0040)		206
		PU239	.0674(.0014)	.0766(.0077)	211
		PU241	.0660(.0017)	.0799(.0080)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.1328+17(.27+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0075	PU241 HALF LIFE=	14.5(0.4)YEARS		.0901(.0074)
TIME OUT OF REACTOR(CS137)=	.674YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.1601	PU235=	1.3610(.0017)	PU240=	5.013(.03)
		PU241=	.0570(.0010)	PU242=	.087(.002)
					.5405-03(.55-04)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-22
UO-2 BURNUP DATA

SAMPLE 75811 FROM ELEMENT 1101 TAKEN 31.50 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			- - - PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5121-04(.26-05)	.0051(.0003)	.4993-04(.26-05)	-.6749-07(.26-05)		
U-235	.6370-02(.38-04)	.6328(.0038)	.6237-02(.38-04)	-.8729-03(.38-04)	.7302-03(.38-04)	635.7
U-236	.1457-03(.31-05)	.0145(.0003)	.1432-03(.30-05)	-.1432-03(.30-05)		
U-238	.1000+01	.99.3476(.0038)	.9916-00(.48-04)	-.1178-02(.48-04)	.6235-04(.67-05)	55.2
U TOTALS			.9981-00(.30-04)	-.1906-02(.30-04)		
PU239	1.0000+00	.95.0236(.0134)	.8482-03(.19-04)	.8482-03(.19-04)	.2272-03(.44-04)	203.1
PU240	.4871-01(.15-03)	.4.6286(.0133)	.4149-04(.94-06)	.4149-04(.94-06)		
PU241	.3492-02(.20-04)	.3400(.0019)	.3060-05(.71-07)	.3060-05(.71-07)	.1940-06(.70-08)	.2
PU242	.8280-04(.11-05)	.0079(.0001)	.7111-07(.19-08)	.7111-07(.19-08)		
TOTAL PU			.8928-03(.20-04)			
				TOTAL FISSIONS & BU	.1020-02(.23-04)	894.2

- - - INPUT - - -			- - - CONSTANTS + ASSUMPTIONS - - -			- - - DERIVED FROM DATA - - -
PU DECAYS(D/M/ML)	.1227+09(.25+07)		FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	1.50		U-235	.0628(.0003)	.0609(.0061)	202
TIME OUT OF REACTOR (PU241)=	.507YRS		U-238	.0620(.0040)		208
			PU239	.0674(.0014)	.0766(.0077)	211
			PU241	.0660(.0017)	.0799(.0080)	214
CS137 ATOMS/ML=	.2071+17(.41+15)		ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0075		CS HALF LIFE=	30.00(.20)YEARS		
TIME OUT OF REACTOR(CS137)=	.767YRS		PU241 HALF LIFE=	14.5(0.4)YEARS		
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
			234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.1453		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			
			PU239=1.3616(.0017)	PU240=5.013(.03)		
			PU241=.0576(.0010)	PU242=.087(.002)		
						U235 FRACTIONAL DEPLETION .1228(.0053)
						PU239 FORMED FROM U238 .1120-02(.48-04)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75812 FROM ELEMENT 1101 TAKEN 52.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			- - - PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5186-04(.26-05)	.0052(.0003)	.5057-04(.26-05)	.5698-06(.26-05)		
U-235	.6241-02(.37-04)	.6201(.0036)	.6111-02(.36-04)	-.9985-03(.36-04)	.8470-03(.36-04)	737.4
U-236	.1548-03(.31-05)	.0154(.0003)	.1522-03(.31-05)	-.1522-03(.31-05)		
U-238	.1000+01	.99.3594(.0036)	.9917-00(.47-04)	-.1070-02(.47-04)	.6275-04(.67-05)	55.5
U TOTALS			.9981-00(.30-04)	-.1916-02(.30-04)		
PU239	1.0000+00	.94.5772(.0177)	.8254-03(.19-04)	.8254-03(.19-04)	.1380-03(.43-04)	123.4
PU240	.5310-01(.20-03)	.5.0220(.0176)	.4401-04(.10-05)	.4401-04(.10-05)		
PU241	.4044-02(.29-04)	.3919(.0028)	.3449-05(.81-07)	.3449-05(.81-07)	.2148-06(.78-08)	.2
PU242	.9419-04(.14-05)	.0089(.0001)	.7873-07(.21-08)	.7873-07(.21-08)		
TOTAL PU			.8730-03(.20-04)	.8730-03(.20-04)		
				TOTAL FISSIONS & BU	.1046-02(.23-04)	916.5

- - - INPUT - - -			- - - CONSTANTS + ASSUMPTIONS - - -			- - - DERIVED FROM DATA - - -
PU DECAYS(D/M/ML)	.1211+09(.24+07)		FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	1.70		U-235	.0628(.0003)	.0609(.0061)	202
TIME OUT OF REACTOR (PU241)=	.507YRS		U-238	.0620(.0040)		208
			PU239	.0674(.0014)	.0766(.0077)	211
			PU241	.0660(.0017)	.0799(.0080)	214
CS137 ATOMS/ML=	.2881+17(.58+15)		ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0075		CS HALF LIFE=	30.00(.20)YEARS		
TIME OUT OF REACTOR(CS137)=	.614YRS		PU241 HALF LIFE=	14.5(0.4)YEARS		
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
			234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.1970		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			
			PU239=1.3616(.0017)	PU240=5.013(.03)		
			PU241=.0576(.0010)	PU242=.087(.002)		
						U235 FRACTIONAL DEPLETION .1404(.0051)
						PU239 FORMED FROM U238 .1011-02(.47-04)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-23
UO-2 BURNUP DATA

SAMPLE 75813 FROM ELEMENT 1101 TAKEN 72.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -		- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5539-04(.33-05)	.0055(.0003)	.5405-04(.33-05)	.4047-05(.33-05)		
U-235	.6626-02(.49-04)	.6581(.0049)	.6493-02(.49-04)	-.6173-03(.49-04)	.5032-03(.49-04)	438.1
U-236	.1165-03(.46-05)	.0116(.0005)	.1146-03(.46-05)	-.1146-03(.46-05)		
U-238	.1000+01	.99.3248(.0049)	.9923-00(.53-04)	-.4250-03(.53-04)	-.4492-05(.58-05)	-4.0
U TOTALS			.9991-00(.22-04)	-.9277-03(.22-04)		
PU239	1.0000+00	.96.1408(.0094)	.8623-03(.19-04)	.8623-03(.19-04)	-.4659-03(.50-04)	-416.6
PU240	.3793-01(.10-03)	.3.6465(.0093)	.3284-04(.74-06)	.3264-04(.74-06)		
PU241	.2125-02(.16-04)	.2087(.0016)	.1887-05(.45-07)	.1887-05(.45-07)	.9863-07(.65-08)	.1
PU242	.4140-04(.23-05)	.0040(.0002)	.3615-07(.22-08)	.3615-07(.22-08)		
TOTAL PU			.8971-03(.20-04)	.8971-03(.20-04)		
TOTAL FISSIONS & BU					.3289-04(.82-05)	17.6

- - - - - INPUT - - - - -		- - - - - CONSTANTS + ASSUMPTIONS - - - - -		- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.1206+09(.24+07)	U-235	FISSION YIELD .0628(.0003)	DEL .0609(.0061)	MEV/FIS 202
PERCENT OF PU DECAYS FROM PU238	1.00	U-238	.0620(.0040)		208
TIME OUT OF REACTOR (PU241)=	.444YRS	PU239	.0674(.0014)	.0766(.0077)	211
		PU241	.0660(.0017)	.0799(.0080)	214
CS137 ATOMS/ML=	.1633+15(.33+13)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0075	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.674YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.0868(.0068)
		BOL ATOM PERCENTS FOR NATURAL UKANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.1623	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=.1.3616(.0017)		PU240=.5.013(.03)	.4313-03(.54-04)GM
		PU241=.0576(.0010)		PU242=.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75814 FROM ELEMENT 1101 TAKEN 12.00 INCHES FROM TOP OF CENTER ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -		- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5148-04(.22-05)	.0051(.0002)	.5022-04(.22-05)	.2250-06(.22-05)		
U-235	.6599-02(.64-04)	.6555(.0063)	.6465-02(.63-04)	-.6449-03(.63-04)	.5488-03(.63-04)	477.8
U-236	.9806-04(.23-05)	.0097(.0002)	.9648-04(.23-05)	.9648-04(.23-05)		
U-238	.1000+01	.99.3297(.0063)	.9922-00(.66-04)	-.5999-03(.66-04)	.3538-04(.59-05)	31.3
U TOTALS			.9989-00(.18-04)	-.1148-02(.18-04)		
PU239	1.0000+00	.96.3424(.0158)	.5266-03(.12-04)	.5266-03(.12-04)	.2019-04(.64-04)	18.1
PU240	.3597-01(.17-03)	.3.4654(.0158)	.1902-04(.43-06)	.1902-04(.43-06)		
PU241	.1910-02(.16-04)	.1885(.0015)	.1039-05(.25-07)	.1039-05(.25-07)	.5485-07(.33-08)	.0
PU242	.3770-04(.19-05)	.0036(.0002)	.2010-07(.11-08)	.2010-07(.11-08)		
TOTAL PU			.5467-03(.12-04)	.5467-03(.12-04)		
TOTAL FISSIONS & BU					.6045-03(.13-04)	527.2

- - - - - INPUT - - - - -		- - - - - CONSTANTS + ASSUMPTIONS - - - - -		- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.7315+08(.15+07)	U-235	FISSION YIELD .0628(.0003)	DEL .0609(.0061)	MEV/FIS 202
PERCENT OF PU DECAYS FROM PU238	1.00	U-238	.0620(.0040)		208
TIME OUT OF REACTOR (PU241)=	.507YRS	PU239	.0674(.0014)	.0766(.0077)	211
		PU241	.0660(.0017)	.0799(.0080)	214
CS137 ATOMS/ML=	.1071+17(.21+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0075	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.614YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.0907(.0089)
		BOL ATOM PERCENTS FOR NATURAL UKANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.1276	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=.1.3616(.0017)		PU240=.5.013(.03)	.5669-03(.66-04)GM
		PU241=.0576(.0010)		PU242=.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-24
UO-2 BURNUP DATA

SAMPLE 75815 FROM ELEMENT 1101 TAKEN 31.50 INCHES FROM TOP OF CENTER ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5093-04(.23-05)	.0051(.0002)	.4960-04(.23-05)	-.3388-06(.23-05)		
U-235	.6303-02(.40-04)	.6262(.0039)	.6173-02(.39-04)	-.9374-03(.39-04)	.7891-03(.39-04)	687.0
U-236	.1515-03(.26-05)	.0150(.0003)	.1490-03(.26-05)	.1490-03(.26-05)		
U-238	.1000+01	.99.3537(.0039)	.9917-00(.48-04)	-.1006-02(.48-04)	.5790-04(.64-05)	51.2
U TOTALS			.9982-00(.28-04)	-.1796-02(.28-04)		
PU239	1.0000+00	.94.8144(.0178)	.7894-03(.18-04)	.7894-03(.18-04)	.1211-03(.44-04)	108.3
PU240	.5077-01(.19-03)	.4.8137(.0175)	.4025-04(.91-06)	.4025-04(.91-06)		
PU241	.3745-02(.38-04)	.3638(.0037)	.3054-05(.75-07)	.3054-05(.75-07)	.1867-06(.12-07)	.2
PU242	.8560-04(.45-05)	.0081(.0004)	.6842-07(.39-08)	.6842-07(.39-08)		
TOTAL PU			.8328-03(.19-04)	.8328-03(.19-04)	.9683-03(.21-04)	846.7
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.1150+09(.23+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	1.80		U-235	.0628(.0003)	.0609(.0061)	202	
TIME OUT OF REACTOR (PU241)=	.507YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0766(.0077)	211	.1880(.0051)
			PU241	.0660(.0017)	.0799(.0080)	214	
CS137 ATOMS/ML=	.2329+17(.47+15)		ALPHA241=	.365(.01)			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0075		CS HALF LIFE=	30.00(.20)YEARS			.1318(.0055)
TIME OUT OF REACTOR(CS137)=	.614YRS		PU241 HALF LIFE=	14.510(.4)YEARS			
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=	.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.1724		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=	1.3616(.0017)	PU240=	5.013(.03)	.9541-03(.48-04)GM
			PU241=	.0576(.0010)	PU242=	.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 75816 FROM ELEMENT 1101 TAKEN 52.00 INCHES FROM TOP OF CENTER ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5527-04(.34-05)	.0055(.0003)	.5388-04(.34-05)	.3882-05(.34-05)		
U-235	.6338-02(.50-04)	.6297(.0049)	.6206-02(.49-04)	-.9044-03(.49-04)	.7609-03(.49-04)	662.4
U-236	.1465-03(.39-05)	.0146(.0004)	.1441-03(.39-05)	.1441-03(.39-05)		
U-238	.1000+01	.99.3503(.0049)	.9915-00(.58-04)	-.1201-02(.58-04)	.6633-04(.74-05)	58.7
U TOTALS			.9980-00(.31-04)	-.1961-02(.31-04)		
PU239	1.0000+00	.94.6697(.0185)	.8373-03(.19-04)	.8373-03(.19-04)	.2545-03(.54-04)	227.5
PU240	.5216-01(.20-03)	.4.9380(.0183)	.4385-04(.99-06)	.4385-04(.99-06)		
PU241	.3921-02(.32-04)	.3803(.0031)	.3392-05(.81-07)	.3392-05(.81-07)	.2942-06(.12-07)	.3
PU242	.1272-03(.32-05)	.0120(.0003)	.1078-06(.37-08)	.1078-06(.37-08)		
TOTAL PU			.8846-03(.20-04)	.8846-03(.20-04)	.1082-02(.24-04)	949.0
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.1225+09(.24+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	1.70		U-235	.0628(.0003)	.0609(.0061)	202	
TIME OUT OF REACTOR (PU241)=	.507YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0766(.0077)	211	.1886(.0068)
			PU241	.0660(.0017)	.0799(.0080)	214	
CS137 ATOMS/ML=	.2386+17(.48+15)		ALPHA241=	.365(.01)			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0075		CS HALF LIFE=	30.00(.20)YEARS			.1272(.0069)
TIME OUT OF REACTOR(CS137)=	.614YRS		PU241 HALF LIFE=	14.510(.4)YEARS			
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=	.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.1571		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=	1.3616(.0017)	PU240=	5.013(.03)	.1139-02(.58-04)GM
			PU241=	.0576(.0010)	PU242=	.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-25
UO-2 BURNUP DATA

SAMPLE 75817 FROM ELEMENT 1101 TAKEN 72.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			- - - PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL (A/O)	EUL (GM)	NET PRODUCTION (GM)	FISSIONS (GM)	BU MWD/MTM
U-234	.5387-04(.31-05)	.0054(.0003)	.5255-04(.31-05)	.2548-05(.31-05)		
U-235	.6602-02(.39-04)	.6558(.0039)	.6467-02(.39-04)	-.6427-03(.39-04)	.5372-03(.39-04)	467.7
U-236	.1077-03(.29-05)	.0107(.0003)	.1059-03(.29-05)	-.1059-03(.29-05)		
U-238	.1000+01	99.3282(.0039)	.9920-00(.43-04)	-.7059-03(.43-04)	.3951-04(.48-05)	35.0
U TOTALS			.9986-00(.20-04)	-.1243-02(.20-04)		
PU239	1.0000+00	94.2807(.0161)	.5518-03(.12-04)	.5518-03(.12-04)	.8362-04(.41-04)	74.8
PU240	.5610-01(.18-03)	5.2892(.0160)	.3109-04(.70-06)	.3109-04(.70-06)		
PU241	.4340-02(.26-04)	.4192(.0025)	.2474-05(.57-07)	.2474-05(.57-07)	.1759-06(.66-08)	.2
PU242	.1154-03(.19-05)	.0109(.0002)	.6448-07(.18-08)	.6448-07(.18-08)		
TOTAL PU			.5854-03(.13-04)	.5854-03(.13-04)		
				TOTAL FISSIONS & BU	.6605-03(.14-04)	577.6

- - - INPUT - - -		- - - CONSTANTS + ASSUMPTIONS - - -		- - DERIVED FROM DATA - -			
		FISSION YIELD		DEL	MEV/FIS		
PU DECAYS(D/M/ML)	.8169+08(.16+07)	U-235	.0626(.0003)	.0609(.0061)	202		
PERCENT OF PU DECAYS FROM PU238=	1.10	U-238	.0620(.0040)		208		
TIME OUT OF REACTOR (PU241)=	.507YRS	PU239	.0674(.0014)	.0766(.0077)	211		
		PU241	.0660(.0017)	.0799(.0080)	214		
		ALPHA241=		.365(.01)			
CS137 ATOMS/ML=	.1339+17(.27+15)	CS HALF LIFE=		30.00(.20)YEARS	U235 FRACTIONAL DEPLETION		
CS137 IN REACTOR DECAY COR=	1.0075	PU241 HALF LIFE=		14.5(0.4)YEARS	.0904(.0054)		
TIME OUT OF REACTOR(CS137)=	.614YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM					
		234/235/236/238=.005/.720/.000/99.275					
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)					
		PU239=		1.3616(.0017)	PU240=	5.013(.03)	
		PU241=		.0576(.0010)	PU242=	.087(.002)	
GRAMS OF FUEL/ML OF DISSOLVER=	.1453					PU239 FORMED FROM U238	.6692-03(.43-04)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-26
UO-2 BURNUP DATA

SAMPLE 36904 FROM ELEMENT 1041 TAKEN 32.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - - INPUT DATA - - - - -			PARAMETERS DETERMINED FROM INPUT - - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5023-04(.24-05)	.0050(.0002)	.4893-04(.24-05)	-.1073-05(.24-05)		
U-235	.5237-02(.34-04)	.5208(.0033)	.5123-02(.33-04)	-.1987-02(.33-04)	.1675-02(.34-04)	1458.4
U-236	.3186-03(.60-05)	.0317(.0006)	.3130-03(.60-05)	.3130-03(.60-05)		
U-238	.1000+01	.99.4425(.0034)	.9907-00(.69-04)	-.2085-02(.69-04)	.1071-03(.11-04)	94.8
U TOTALS			.9962-00(.60-04)	-.3759-02(.60-04)		
PU239	1.0000+00	.88.9001(.0341)	.1389-02(.31-04)	.1389-02(.31-04)	.4202-03(.58-04)	375.7
PU240	.1114+00(.43-03)	.9.9035(.0342)	.1554-03(.35-05)	.1554-03(.35-05)		
PU241	.1241-01(.66-04)	1.1288(.0060)	.1778-04(.41-06)	.1778-04(.41-06)	.2916-05(.10-06)	2.6
PU242	.7600-03(.86-05)	.0676(.0008)	.1069-05(.27-07)	.1069-05(.27-07)		
TOTAL PU			.1563-02(.35-04)	.1563-02(.35-04)		
				TOTAL FISSIONS & BU	.2205-02(.49-04)	1931.5

- - - - - INPUT - - - - -			CONSTANTS + ASSUMPTIONS - - - - -			DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.2405+09(.48+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	4.00		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.479YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1861(.0029)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.3578+17(.72+15)		ALPHA241=	.365(.01)			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0160		CS HALF LIFE=	30.00(.20)YEARS			.2795(.0047)
TIME OUT OF REACTOR(CS137)=	.479YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.1164		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=.1.3616(.0017)	PU240=.5.013(.03)			.1986-02(.68-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 36905 FROM ELEMENT 1041 TAKEN 42.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - - INPUT DATA - - - - -			PARAMETERS DETERMINED FROM INPUT - - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4878-04(.23-05)	.0049(.0002)	.4752-04(.22-05)	-.2484-05(.22-05)		
U-235	.5140-02(.37-04)	.5112(.0036)	.5028-02(.36-04)	-.2082-02(.36-04)	.1773-02(.37-04)	1543.8
U-236	.3153-03(.60-05)	.0314(.0006)	.3098-03(.60-05)	.3098-03(.60-05)		
U-238	.1000+01	.99.4526(.0037)	.9907-00(.71-04)	-.2073-02(.71-04)	.1082-03(.11-04)	95.8
U TOTALS			.9962-00(.61-04)	-.3845-02(.61-04)		
PU239	1.0000+00	.88.8387(.0264)	.1436-02(.32-04)	.1436-02(.32-04)	.3534-03(.60-04)	316.0
PU240	.1117+00(.33-03)	.9.9233(.0261)	.1610-03(.36-05)	.1610-03(.36-05)		
PU241	.1255-01(.68-04)	1.1678(.0064)	.1903-04(.44-06)	.1903-04(.44-06)	.3133-05(.11-06)	2.8
PU242	.7900-03(.88-05)	.0702(.0008)	.1148-05(.29-07)	.1148-05(.29-07)		
TOTAL PU			.1617-02(.36-04)	.1617-02(.36-04)		
				TOTAL FISSIONS & BU	.2238-02(.49-04)	1958.4

- - - - - INPUT - - - - -			CONSTANTS + ASSUMPTIONS - - - - -			DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.2488+09(.50+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	5.40		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.970YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1740(.0028)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.3939+17(.79+15)		ALPHA241=	.365(.01)			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0160		CS HALF LIFE=	30.00(.20)YEARS			.2928(.0051)
TIME OUT OF REACTOR(CS137)=	.970YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.1280		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=.1.3616(.0017)	PU240=.5.013(.03)			.1973-02(.70-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-27
UO-2 BURNUP DATA

SAMPLE 36906 FROM ELEMENT 1041 TAKEN 52.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			PARAMETERS DETERMINED FROM INPUT - - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4770-04(.25-05)	.0047(.0002)	.4647-04(.25-05)	-.3532-05(.25-05)		
U-235	.5306-02(.31-04)	.5276(.0031)	.5191-02(.31-04)	-.1919-02(.31-04)	.1645-02(.32-04)	1431.9
U-236	.2802-03(.60-05)	.0279(.0006)	.2753-03(.60-05)	.2753-03(.60-05)		
U-238	.1000+01	99.4398(.0032)	.9906-00(.66-04)	-.1992-02(.66-04)	.9995-04(.99-05)	88.5
U TOTALS			.9964-00(.58-04)	-.3636-02(.58-04)		
PU239	1.0000+00	89.9053(.0232)	.1417-02(.32-04)	.1417-02(.32-04)	.3206-03(.54-04)	286.7
PU240	.1009+00(.28-03)	9.0714(.0229)	.1436-03(.32-05)	.1436-03(.32-05)		
PU241	.1059-01(.61-04)	.9720(.0056)	.1545-04(.36-06)	.1545-04(.36-06)	.2232-05(.82-07)	2.0
PU242	.5700-03(.88-05)	.0512(.0008)	.8179-06(.22-07)	.8179-06(.22-07)		
TOTAL PU			.1577-02(.35-04)	.1577-02(.35-04)		
				TOTAL FISSIONS & BU	.2068-02(.46-04)	1809.1

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.2386+09(.48+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	1.00	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.433YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.3241+17(.65+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0160	CS HALF LIFE=	30.00(.20)YEARS	U235 FRACTIONAL DEPLETION	.2699(.0044)
TIME OUT OF REACTOR(CS137)=	.433YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
GRAMS OF FUEL/ML OF DISSOLVER=	.1126	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)		PU239 FORMED FROM U238	.1900-02(.65-04)GM
		PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 36907 FROM ELEMENT 1041 TAKEN 62.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			PARAMETERS DETERMINED FROM INPUT - - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5034-04(.26-05)	.0050(.0003)	.4904-04(.26-05)	-.9594-06(.26-05)		
U-235	.5747-02(.35-04)	.5713(.0035)	.5623-02(.35-04)	-.1487-02(.35-04)	.1255-02(.35-04)	1092.8
U-236	.2372-03(.45-05)	.0236(.0004)	.2331-03(.44-05)	.2331-03(.44-05)		
U-238	.1000+01	99.4002(.0035)	.9908-00(.63-04)	-.1963-02(.63-04)	.9539-04(.95-05)	84.4
U TOTALS			.9968-00(.53-04)	-.3218-02(.53-04)		
PU239	1.0000+00	91.7924(.0207)	.1183-02(.27-04)	.1183-02(.27-04)	.5860-03(.55-04)	523.9
PU240	.8131-01(.24-03)	7.4636(.0205)	.9656-04(.22-05)	.9656-04(.22-05)		
PU241	.7390-02(.41-04)	.7137(.0040)	.9272-05(.21-06)	.9272-05(.21-06)	.1078-05(.38-07)	1.0
PU242	.3300-03(.35-05)	.0303(.0003)	.3952-06(.98-08)	.3952-06(.98-08)		
TOTAL PU			.1289-02(.29-04)	.1289-02(.29-04)		
				TOTAL FISSIONS & BU	.1938-02(.44-04)	1702.1

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1886+09(.38+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	1.00	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	1.063YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.2993+17(.60+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0160	CS HALF LIFE=	30.00(.20)YEARS	U235 FRACTIONAL DEPLETION	.2092(.0049)
TIME OUT OF REACTOR(CS137)=	1.063YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
GRAMS OF FUEL/ML OF DISSOLVER=	.1117	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)		PU239 FORMED FROM U238	.1876-02(.63-04)GM
		PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-28

UO-2 BURNUP DATA

SAMPLE 36908 FROM ELEMENT 1041 TAKEN 72.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

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-----INPUT DATA-----
ISOTOPE    EOL MASS RATIO    EOL(A/O)    EOL(GM)    NET PRODUCTION(GM)    FISSIONS(GM)    BU MWD/MTM
U-234      .4989-04(.27-05)    .0050(.0003)    .4866-04(.27-05)    -.1341-05(.27-05)    .9068-03(.34-04)    789.4
U-235      .6174-02(.34-04)    .6135(.0034)    .6047-02(.34-04)    -.1063-02(.34-04)    .4033-04(.44-05)    35.7
U-236      .1590-03(.37-05)    .0158(.0004)    .1564-03(.36-05)    -.1564-03(.36-05)    .8090-03(.43-04)    748.9
U-238      .1000+01    .99.3658(.0034)    .9919-00(.43-04)    -.8090-03(.43-04)    .8571-03(.19-04)    748.9
U TOTALS
PU239      1.0000+00    94.4623(.0147)    .8095-03(.18-04)    .8095-03(.18-04)    .8546-04(.38-04)    -76.4
PU240      .5472-01(.16-03)    5.1690(.0145)    .4448-04(.10-05)    .4448-04(.10-05)    .2303-06(.89-08)    .2
PU241      .3690-02(.25-04)    .3589(.0024)    .3102-05(.73-07)    .3102-05(.73-07)    .8442-07(.25-08)    .8571-03(.19-04)
PU242      .1030-03(.20-05)    .0097(.0002)    .8571-03(.19-04)    .8571-03(.19-04)    .8619-03(.19-04)    748.9
TOTAL PU
TOTAL FISSIONS & BU

```

```

-----INPUT-----
PU DECAYS(D/M/ML)    .1193+09(.24+07)
PERCENT OF PU DECAYS FROM PU238= 1.60
TIME OUT OF REACTOR (PU241)= .614YRS
CS137 ATOMS/ML= .1368+17(.27+15)
CS137 IN REACTOR DECAY COR= 1.0160
TIME OUT OF REACTOR(CS137)= .614YRS
GRAMS OF FUEL/ML OF DISSOLVER= .1161
FISSION YIELD    DEL    MEV/FIS
U-235    .0628(.0003)    .0491(.0049)    202
U-238    .0620(.0040)    .0563(.0056)    208
PU239    .0674(.0014)    .0604(.0060)    211
PU241    .0660(.0017)    .0604(.0060)    214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL URANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=.1.3616(.0017)    PU240=.5.013(.03)
PU241=.0576(.0010)    PU242=.087(.002)
ALPHA235 OF SAMPLE    .1718(.0042)
U235 FRACTIONAL DEPLETION    .1494(.0047)
PU239 FORMED FROM U238    .7719-03(.43-04)GM

```

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 36909 FROM ELEMENT 1041 TAKEN 86.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

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-----INPUT DATA-----
ISOTOPE    EOL MASS RATIO    EOL(A/O)    EOL(GM)    NET PRODUCTION(GM)    FISSIONS(GM)    BU MWD/MTM
U-234      .5248-04(.27-05)    .0052(.0003)    .5120-04(.27-05)    -.1199-05(.27-05)    .5366-03(.40-04)    467.1
U-235      .6610-02(.40-04)    .6566(.0039)    .6476-02(.39-04)    -.6337-03(.39-04)    .2764-04(.35-05)    24.5
U-236      .9915-04(.34-05)    .0098(.0003)    .9756-04(.34-05)    -.9756-04(.34-05)    .1692-04(.41-04)    15.1
U-238      .1000+01    .99.3284(.0040)    .9922-00(.43-04)    -.5333-03(.43-04)    .2366-07(.88-09)    .0
U TOTALS
PU239      1.0000+00    96.9377(.0082)    .4758-03(.11-04)    .4758-03(.11-04)    .5811-03(.13-04)    506.7
PU240      .3050-01(.87-04)    2.9566(.0082)    .1457-04(.33-06)    .1457-04(.33-06)    .5078-03(.43-04)GM
PU241      .1050-02(.73-05)    .1039(.0007)    .5143-06(.12-07)    .5143-06(.12-07)
PU242      .1800-04(.30-06)    .0017(.0000)    .8672-08(.24-09)    .8672-08(.24-09)
TOTAL PU
TOTAL FISSIONS & BU

```

```

-----INPUT-----
PU DECAYS(D/M/ML)    .6491+08(.13+07)
PERCENT OF PU DECAYS FROM PU238= 1.00
TIME OUT OF REACTOR (PU241)= .433YRS
CS137 ATOMS/ML= .9610+16(.19+15)
CS137 IN REACTOR DECAY COR= 1.0160
TIME OUT OF REACTOR(CS137)= .433YRS
GRAMS OF FUEL/ML OF DISSOLVER= .1196
FISSION YIELD    DEL    MEV/FIS
U-235    .0628(.0003)    .0491(.0049)    202
U-238    .0620(.0040)    .0563(.0056)    208
PU239    .0674(.0014)    .0604(.0060)    211
PU241    .0660(.0017)    .0604(.0060)    214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL URANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=.1.3616(.0017)    PU240=.5.013(.03)
PU241=.0576(.0010)    PU242=.087(.002)
ALPHA235 OF SAMPLE    .1811(.0078)
U235 FRACTIONAL DEPLETION    .0891(.0055)
PU239 FORMED FROM U238    .5078-03(.43-04)GM

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-29

UO-2 BURNUP DATA

SAMPLE 36910 FROM ELEMENT 1041 TAKEN 12.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

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- - - - -INPUT DATA- - - - -   - - - - -PARAMETERS DETERMINED FROM INPUT- - - - -
ISOTOPE   EOL MASS RATIO      EOL(A/O)      EOL(GM)      NET PRODUCTION(GM)  FISSIONS(GM)  BU MWD/MTM
U-234     .5079-04(.25-05)    .0050(.0002)  .4952-04(.25-05)  -.4619-06(.25-05)
U-235     .5947-02(.31-04)    .5910(.0030)  .5823-02(.30-04)  -.1287-02(.30-04)  .1101-02(.31-04)  958.3
U-236     .1899-03(.33-05)    .0189(.0003)  .1867-03(.33-05)  -.1867-03(.33-05)
U-238     .1000+01            99.3850(.0031) .9916-00(.46-04)  -.1121-02(.46-04)  .7578-04(.77-05)  67.1
U TOTALS
PU239     1.0000+00            93.1573(.0160) .8812-03(.20-04)  .8812-03(.20-04)  .1034-03(.41-04)  92.4
PU240     .6790-01(.18-03)    6.3254(.0157)  .6008-04(.14-05)  .6008-04(.14-05)
PU241     .5230-02(.36-04)    .5015(.0034)  .4783-05(.11-06)  .4783-05(.11-06)  .4139-06(.17-07)  .4
PU242     .1700-03(.40-05)    .0158(.0004)  .1517-06(.49-08)  .1517-06(.49-08)
TOTAL PU
TOTAL FISSIONS & BU
.1280-02(.28-04)  1118.2

```

```

- - - - -INPUT- - - - -   - - - - -CONSTANTS + ASSUMPTIONS- - - - -   - - - - -DERIVED FROM DATA- - - - -
PU DECAYS(D/M/ML) .1352+09(.27+07)
PERCENT OF PU DECAYS FROM PU238= 1.00
TIME OUT OF REACTOR (PU241)= .603YRS
CS137 ATOMS/ML= .2188+17(.44+15)
CS137 IN REACTOR DECAY COR= 1.0160
TIME OUT OF REACTOR(CS137)= .603YRS
GRAMS OF FUEL/ML OF DISSOLVER= .1238
FISSION YIELD DEL MEV/FIS
U-235 .0628(.0003) .0609(.0061) 202
U-238 .0620(.0040) 208
PU239 .0674(.0014) .0766(.0077) 211
PU241 .0660(.0017) .0799(.0080) 214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL URANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=.1361(.0017) PU240=.5.013(.03)
PU241=.0576(.0010) PU242=.087(.002)
ALPHA235 OF SAMPLE .1689(.0031)
U235 FRACTIONAL DEPLETION .1810(.0043)
PU239 FORMED FROM U238 .1050-02(.46-04)GM

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 36911 FROM ELEMENT 1041 TAKEN 32.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

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- - - - -INPUT DATA- - - - -   - - - - -PARAMETERS DETERMINED FROM INPUT- - - - -
ISOTOPE   EOL MASS RATIO      EOL(A/O)      EOL(GM)      NET PRODUCTION(GM)  FISSIONS(GM)  BU MWD/MTM
U-234     .4805-04(.23-05)    .0048(.0002)  .4682-04(.23-05)  -.3175-05(.23-05)
U-235     .5448-02(.39-04)    .5417(.0039)  .5332-02(.39-04)  -.1778-02(.39-04)  .1506-02(.39-04)  1311.3
U-236     .2780-03(.47-05)    .0276(.0005)  .2732-03(.46-05)  -.2732-03(.46-05)
U-238     .1000+01            99.4259(.0039) .9911-00(.64-04)  -.1672-02(.64-04)  .1077-03(.11-04)  95.3
U TOTALS
PU239     1.0000+00            90.0815(.0311) .1239-02(.28-04)  .1239-02(.28-04)  .1924-03(.55-04)  172.0
PU240     .9910-01(.37-03)    8.9271(.0305)  .1233-03(.28-05)  .1233-03(.28-05)
PU241     .1020-01(.89-04)    .9419(.0081)  .1306-04(.31-06)  .1306-04(.31-06)  .1883-05(.68-07)  1.7
PU242     .5500-03(.74-05)    .0495(.0007)  .6901-06(.18-07)  .6901-06(.18-07)
TOTAL PU
TOTAL FISSIONS & BU
.1376-02(.31-04)  1580.3

```

```

- - - - -INPUT- - - - -   - - - - -CONSTANTS + ASSUMPTIONS- - - - -   - - - - -DERIVED FROM DATA- - - - -
PU DECAYS(D/M/ML) .2077+09(.42+07)
PERCENT OF PU DECAYS FROM PU238= 1.00
TIME OUT OF REACTOR (PU241)= .518YRS
CS137 ATOMS/ML= .2588+17(.52+15)
CS137 IN REACTOR DECAY COR= 1.0160
TIME OUT OF REACTOR(CS137)= .518YRS
GRAMS OF FUEL/ML OF DISSOLVER= .1033
FISSION YIELD DEL MEV/FIS
U-235 .0628(.0003) .0609(.0061) 202
U-238 .0620(.0040) 208
PU239 .0674(.0014) .0766(.0077) 211
PU241 .0660(.0017) .0799(.0080) 214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL URANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=.1361(.0017) PU240=.5.013(.03)
PU241=.0576(.0010) PU242=.087(.002)
ALPHA235 OF SAMPLE .1806(.0030)
U235 FRACTIONAL DEPLETION .2501(.0055)
PU239 FORMED FROM U238 .1571-02(.63-04)GM

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-30
UO-2 BURNUP DATA

SAMPLE 36912 FROM ELEMENT 1041 TAKEN 72.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5359-04(.24-05)	.0053(.0002)	.5226-04(.24-05)	.2258-05(.24-05)		
U-235	.6372-02(.40-04)	.6330(.0040)	.6240-02(.40-04)	-.8696-03(.40-04)	.7349-03(.40-04)	639.8
U-236	.1375-03(.32-05)	.0137(.0003)	.1352-03(.32-05)	.1352-03(.32-05)		
U-238	.1000+01	.993480(.0040)	.9918-00(.48-04)	-.9652-03(.48-04)	.5514-04(.62-05)	48.8
U TOTALS			.9983-00(.27-04)	-.1700-02(.27-04)		
PU239	1.0000+00	.953455(.0168)	.7482-03(.17-04)	.7482-03(.17-04)	.1289-03(.45-04)	115.2
PU240	.4590-01(.18-03)	.43764(.0167)	.3449-04(.78-06)	.3449-04(.78-06)		
PU241	.2770-02(.26-04)	.2718(.0026)	.2151-05(.52-07)	.2151-05(.52-07)	.1364-06(.65-08)	.1
PU242	.6600-04(.22-05)	.0063(.0002)	.5000-07(.20-08)	.5000-07(.20-08)		
TOTAL PU			.7849-03(.18-04)	.7849-03(.18-04)		
				TOTAL FISSIONS & BU	.9191-03(.20-04)	804.0

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.1073+09(.21+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	1.40	U-235	.0628(.0003)	.0609(.0061)	202
TIME OUT OF REACTOR (PU241)=	.603YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0766(.0077)	211
		PU241	.0660(.0017)	.0799(.0080)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.1488+17(.30+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0160	PU241 HALF LIFE=	14.5(0.4)YEARS		.1223(.0056)
TIME OUT OF REACTOR(CS137)=	.603YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
GRAMS OF FUEL/ML OF DISSOLVER=	.1169	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 36913 FROM ELEMENT 1041 TAKEN 12.00 INCHES FROM TOP OF CENTER ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4979-04(.21-05)	.0049(.0002)	.4853-04(.21-05)	-.1469-05(.21-05)		
U-235	.6057-02(.42-04)	.6019(.0041)	.5929-02(.41-04)	-.1181-02(.41-04)	.1008-02(.41-04)	877.9
U-236	.1761-03(.36-05)	.0175(.0004)	.1731-03(.35-05)	.1731-03(.35-05)		
U-238	.1000+01	.993756(.0041)	.9913-00(.56-04)	-.1411-02(.56-04)	.7373-04(.79-05)	65.3
U TOTALS			.9976-00(.38-04)	-.2419-02(.38-04)		
PU239	1.0000+00	.936102(.0199)	.1157-02(.26-04)	.1157-02(.26-04)	.1065-03(.48-04)	95.3
PU240	.6340-01(.22-03)	.59349(.0197)	.7366-04(.17-05)	.7366-04(.17-05)		
PU241	.4600-02(.37-04)	.4422(.0036)	.5511-05(.13-06)	.5511-05(.13-06)	.4347-06(.20-07)	.4
PU242	.1360-03(.43-05)	.0127(.0004)	.1593-06(.62-08)	.1593-06(.62-08)		
TOTAL PU			.1236-02(.28-04)	.1236-02(.28-04)		
				TOTAL FISSIONS & BU	.1189-02(.26-04)	1038.8

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.1751+09(.35+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	2.00	U-235	.0628(.0003)	.0636(.0064)	202
TIME OUT OF REACTOR (PU241)=	.553YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0826(.0083)	211
		PU241	.0660(.0017)	.0855(.0085)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.2073+17(.41+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0160	PU241 HALF LIFE=	14.5(0.4)YEARS		.1661(.0058)
TIME OUT OF REACTOR(CS137)=	.553YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
GRAMS OF FUEL/ML OF DISSOLVER=	.1261	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-31

UO-2 BURNUP DATA

SAMPLE 36914 FROM ELEMENT 1041 TAKEN 32.00 INCHES FROM TOP OF CENTER ROD

ISOTOPIC INVENTORY

- - - INPUT DATA - - -			PARAMETERS DETERMINED FROM INPUT - - -		
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)
U-234	.4907-04(.22-05)	.0049(.0002)	.4781-04(.22-05)	-.2190-05(.22-05)	
U-235	.5615-02(.37-04)	.5582(.0037)	.5494-02(.37-04)	-.1616-02(.37-04)	.1377-02(.37-04)
U-236	.2442-03(.52-05)	.0243(.0005)	.2400-03(.52-05)	.2400-03(.52-05)	
U-238	.1000+01	.99.4126(.0037)	.9908-00(.64-04)	-.1935-02(.64-04)	.1113-03(.11-04)
U TOTALS			.9967-00(.52-04)	-.3312-02(.52-04)	
PU239	1.0000+00	.90.8733(.0291)	.1414-02(.32-04)	.1414-02(.32-04)	.2739-03(.53-04)
PU240	.9110-01(.35-03)	.8.2786(.0291)	.1293-03(.29-05)	.1293-03(.29-05)	
PU241	.8710-02(.51-04)	.8127(.0048)	.1275-04(.30-06)	.1275-04(.30-06)	.1523-05(.55-07)
PU242	.3900-03(.56-05)	.0354(.0005)	.5582-06(.15-07)	.5582-06(.15-07)	
TOTAL PU			.1556-02(.35-04)	.1556-02(.35-04)	
				TOTAL FISSIONS & BU	.1764-02(.39-04)
					1543.9

- - - INPUT - - -			CONSTANTS + ASSUMPTIONS - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.2317+09(.46+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238	= 3.10		U-235	.0628(.0003)	.0636(.0064)	202	
TIME OUT OF REACTOR (PU241)=	.553YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0826(.0083)	211	.1735(.0034)
			PU241	.0660(.0017)	.0855(.0085)	214	
CS137 ATOMS/ML	.3196+17(.64+15)		ALPHA241	.365(.01)			
CS137 IN REACTOR DECAY COR	= 1.0160		CS HALF LIFE	= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.553YRS		PU241 HALF LIFE	= 14.5(0.4)YEARS			.2273(.0052)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238	= .005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER	= .1305		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239	= 1.3616(.0017)	PU240	= 5.013(.03)	.1832-02(.63-04)GM
			PU241	= .0576(.0010)	PU242	= .087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 36915 FROM ELEMENT 1041 TAKEN 72.00 INCHES FROM TOP OF CENTER ROD

ISOTOPIC INVENTORY

- - - INPUT DATA - - -			PARAMETERS DETERMINED FROM INPUT - - -		
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)
U-234	.5328-04(.23-05)	.0053(.0002)	.5196-04(.23-05)	.1959-05(.23-05)	
U-235	.6482-02(.35-04)	.6439(.0035)	.6348-02(.35-04)	-.7619-03(.35-04)	.6432-03(.35-04)
U-236	.1211-03(.26-05)	.0120(.0003)	.1192-03(.26-05)	.1192-03(.26-05)	
U-238	.1000+01	.99.3388(.0035)	.9918-00(.43-04)	-.9641-03(.43-04)	.5011-04(.56-05)
U TOTALS			.9984-00(.25-04)	-.1607-02(.25-04)	
PU239	1.0000+00	.95.7231(.0138)	.7772-03(.17-04)	.7772-03(.17-04)	.1056-03(.39-04)
PU240	.4226-01(.15-03)	.4.0453(.0137)	.3298-04(.75-06)	.3298-04(.75-06)	
PU241	.2311-02(.20-04)	.2271(.0020)	.1860-05(.45-07)	.1860-05(.45-07)	.1020-06(.48-08)
PU242	.4750-04(.16-05)	.0045(.0001)	.3738-07(.15-08)	.3738-07(.15-08)	
TOTAL PU			.8121-03(.18-04)	.8121-03(.18-04)	
				TOTAL FISSIONS & BU	.7991-03(.18-04)
					698.9

- - - INPUT - - -			CONSTANTS + ASSUMPTIONS - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.1102+09(.22+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238	= 1.30		U-235	.0628(.0003)	.0636(.0064)	202	
TIME OUT OF REACTOR (PU241)=	.553YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0826(.0083)	211	.1845(.0056)
			PU241	.0660(.0017)	.0855(.0085)	214	
CS137 ATOMS/ML	.1395+17(.28+15)		ALPHA241	.365(.01)			
CS137 IN REACTOR DECAY COR	= 1.0160		CS HALF LIFE	= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.553YRS		PU241 HALF LIFE	= 14.5(0.4)YEARS			.1072(.0049)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238	= .005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER	= .1260		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239	= 1.3616(.0017)	PU240	= 5.013(.03)	.9178-03(.43-04)GM
			PU241	= .0576(.0010)	PU242	= .087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-32
UO-2 BURNUP DATA

SAMPLE 76001 FROM ELEMENT 1006 TAKEN 2.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4848-04(.26-05)	.0048(.0003)	.4723-04(.26-05)	-.2769-05(.26-05)		
U-235	.5393-02(.36-04)	.5362(.0035)	.5277-02(.35-04)	-.1833-02(.35-04)	.1553-02(.36-04)	1352.1
U-236	.2865-03(.60-05)	.0285(.0006)	.2815-03(.60-05)	-.2815-03(.60-05)		
U-238	.1000+01	.99.4305(.0036)	.9908-00(.66-04)	-.1916-02(.66-04)	.9645-04(.96-05)	85.4
U TOTALS			.9965-00(.55-04)	-.3468-02(.55-04)		
PU239	1.0000+00	.89.8533(.0245)	.1334-02(.30-04)	.1334-02(.30-04)	.3397-03(.56-04)	303.7
PU240	.1013+00(.30-03)	.9.1021(.0241)	.1357-03(.31-05)	.1357-03(.31-05)		
PU241	.1086-01(.68-04)	.9932(.0061)	.1487-04(.35-06)	.1487-04(.35-06)	.2106-05(.81-07)	1.9
PU242	.5714-03(.11-04)	.0513(.0010)	.7720-06(.23-07)	.7720-06(.23-07)		
TOTAL PU			.1486-02(.33-04)	.1486-02(.33-04)		
				TOTAL FISSIONS & BU	.1991-02(.44-04)	1743.1

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - - DERIVED FROM DATA - - -	
PU DECAYS(D/M/ML)	.2249+09(.45+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	2.70		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.370YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1805(.0031)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.1355+17(.27+15)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0257		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.671YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.2579(.0049)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
GRAMS OF FUEL/ML OF DISSOLVER=	.0496		234/235/236/238=.005/.720/.000/99.275				
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.1827-02(.65-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 76002 FROM ELEMENT 1006 TAKEN 12.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5383-04(.46-05)	.0054(.0005)	.5236-04(.46-05)	.2356-05(.46-05)		
U-235	.4570-02(.30-04)	.4547(.0030)	.4464-02(.30-04)	-.2646-02(.30-04)	.2278-02(.52-04)	1982.9
U-236	.3770-03(.42-04)	.0375(.0042)	.3698-03(.42-04)	-.3698-03(.42-04)		
U-238	.1000+01	.99.5024(.0052)	.9892-00(.11-03)	-.3551-02(.11-03)	.1699-03(.17-04)	150.4
U TOTALS			.9942-00(.95-04)	-.5828-02(.95-04)		
PU239	1.0000+00	.84.2598(.0329)	.2011-02(.45-04)	.2011-02(.45-04)	.9943-03(.92-04)	889.1
PU240	.1579-00(.44-03)	.13.3046(.0320)	.3188-03(.72-05)	.3188-03(.72-05)		
PU241	.2604-01(.15-03)	.2.2333(.0124)	.5375-04(.12-05)	.5375-04(.12-05)	.1334-04(.47-06)	12.0
PU242	.2401-02(.28-04)	.2023(.0024)	.4888-05(.12-06)	.4888-05(.12-06)		
TOTAL PU			.2388-02(.54-04)	.2388-02(.54-04)		
				TOTAL FISSIONS & BU	.3455-02(.78-04)	3034.4

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - - DERIVED FROM DATA - - -	
PU DECAYS(D/M/ML)	.3907+09(.78+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	5.40		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.370YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1617(.0118)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.2723+17(.54+15)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0257		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.671YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.3722(.0042)
GRAMS OF FUEL/ML OF DISSOLVER=	.0570		BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.3396-02(.11-03)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-33
UO-2 BURNUP DATA

SAMPLE 76003 FROM ELEMENT 1006 TAKEN 22.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4536-04(.21-05)	.0045(.0002)	.4409-04(.21-05)	-.5911-05(.21-05)		
U-235	.4054-02(.30-04)	.4035(.0030)	.3957-02(.30-04)	-.3153-02(.30-04)	.2655-02(.31-04)	2311.2
U-236	.5100-03(.98-05)	.0508(.0010)	.5700-03(.97-05)	.5000-03(.97-05)		
U-238	.1000+01	.995412(.0031)	.9885-00(.12-03)	-.4215-02(.12-03)	.2078-03(.20-04)	183.9
U TOTALS			.9931-00(.11-03)	-.6868-02(.11-03)		
PU239	1.0000+00	.80.7373(.0370)	.2159-02(.49-04)	.2159-02(.49-04)	.1321-02(.98-04)	1181.4
PU240	.1959-00(.53-03)	.15.8164(.0360)	.4246-03(.96-05)	.4246-03(.96-05)		
PU241	.3746-01(.20-03)	.3.0784(.0161)	.8299-04(.19-05)	.8299-04(.19-05)	.2717-04(.96-06)	24.4
PU242	.4556-02(.52-04)	.3678(.0042)	.9958-05(.25-06)	.9958-05(.25-06)		
TOTAL PU			.2676-02(.60-04)	.2676-02(.60-04)	.4211-02(.96-04)	3700.9
				TOTAL FISSIONS & BU		

- - - INPUT - - -			- - - CONSTANTS + ASSUMPTIONS - - -			- - DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.4568+09(.91+07)		FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	8.10		U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.370YRS		U-238	.0620(.0040)		208
			PU239	.0674(.0014)	.0563(.0056)	211
			PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.4344+17(.87+15)		ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0257		CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.597YRS		PU241 HALF LIFE=	14.5(0.4)YEARS		.4434(.0042)
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
			234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0744		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)		.4024-02(.12-03)GM
			PU241= .0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 76004 FROM ELEMENT 1006 TAKEN 32.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -			PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4558-04(.24-05)	.0045(.0002)	.4428-04(.24-05)	-.5716-05(.24-05)		
U-235	.3673-02(.22-04)	.3657(.0022)	.3584-02(.22-04)	-.3526-02(.22-04)	.2988-02(.24-04)	2601.3
U-236	.5513-03(.89-05)	.0549(.0009)	.5402-03(.88-05)	.5402-03(.88-05)		
U-238	.1000+01	.995748(.0024)	.9881-00(.13-03)	-.4635-02(.13-03)	.2368-03(.23-04)	209.6
U TOTALS			.9924-00(.13-03)	-.7621-02(.13-03)		
PU239	1.0000+00	.78.1351(.0403)	.2222-02(.50-04)	.2222-02(.50-04)	.1528-02(.11-03)	1366.2
PU240	.2259-00(.60-03)	.17.6507(.0388)	.5041-03(.11-04)	.5041-03(.11-04)		
PU241	.4639-01(.26-03)	.3.6893(.0197)	.1058-03(.25-05)	.1058-03(.25-05)	.4124-04(.15-05)	37.1
PU242	.6717-02(.82-04)	.5248(.0064)	.1511-04(.39-06)	.1511-04(.39-06)		
TOTAL PU			.2847-02(.64-04)	.2847-02(.64-04)	.4794-02(.11-03)	4214.3
				TOTAL FISSIONS & BU		

- - - INPUT - - -			- - - CONSTANTS + ASSUMPTIONS - - -			- - DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.5007+09(.10+08)		FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	9.90		U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.370YRS		U-238	.0620(.0040)		208
			PU239	.0674(.0014)	.0563(.0056)	211
			PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.4276+17(.86+15)		ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0257		CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.597YRS		PU241 HALF LIFE=	14.5(0.4)YEARS		.4959(.0031)
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
			234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0643		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)		.4416-02(.13-03)GM
			PU241= .0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-34
UO-2 BURNUP DATA

SAMPLE 76005 FROM ELEMENT 1006 TAKEN 42.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4974-04(.28-05)	.0050(.0003)	.4829-04(.27-05)	-.1705-05(.27-05)		
U-235	.3709-02(.23-04)	.3693(.0023)	.3617-02(.23-04)	-.3493-02(.23-04)	.2938-02(.25-04)	2557.4
U-236	.5697-03(.11-04)	.0567(.0011)	.5579-03(.11-04)	.5579-03(.11-04)		
U-238	.1000+01	99.5690(.0025)	.9875-00(.14-03)	-.5263-02(.14-03)	.2571-03(.25-04)	227.6
U TOTALS			.9918-00(.14-03)	-.8198-02(.14-03)		
PU239	1.0000+00	77.5706(.1589)	.2364-02(.55-04)	.2364-02(.55-04)	.1929-02(.12-03)	1725.2
PU240	.2329-00(.26-02)	18.0662(.1643)	.5530-03(.13-04)	.5530-03(.13-04)		
PU241	.4836-01(.53-03)	3.8182(.0412)	.1174-03(.30-05)	.1174-03(.30-05)	.4589-04(.18-05)	41.3
PU242	.7025-02(.12-03)	.5449(.0096)	.1682-04(.49-06)	.1682-04(.49-06)		
TOTAL PU			.3052-02(.69-04)	.3052-02(.69-04)	.5170-02(.12-03)	4551.5
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.5402+09(.11+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	9.80	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.370YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.4411+17(.88+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0257	CS HALF LIFE=	30.00(.20)YEARS		
TIME OUT OF REACTOR(CS137)=	.597YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0614	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			
		PU239=1.3616(.0017)	PU240=5.013(.03)		
		PU241=.0576(.0010)	PU242=.087(.002)		
		U235 FRACTIONAL DEPLETION			
		.4913(.0032)			
		PU239 FORMED FROM U238			
		.5027-02(.14-03)GM			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 76006 FROM ELEMENT 1006 TAKEN 52.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4716-04(.24-05)	.0047(.0002)	.4580-04(.24-05)	-.4200-05(.24-05)		
U-235	.3779-02(.27-04)	.3763(.0027)	.3686-02(.27-04)	-.3424-02(.27-04)	.2896-02(.29-04)	2521.4
U-236	.5412-03(.11-04)	.0539(.0011)	.5301-03(.11-04)	.5301-03(.11-04)		
U-238	.1000+01	99.5652(.0029)	.9877-00(.14-03)	-.5042-02(.14-03)	.2448-03(.24-04)	216.6
U TOTALS			.9921-00(.13-03)	-.7936-02(.13-03)		
PU239	1.0000+00	79.0970(.0381)	.2390-02(.54-04)	.2390-02(.54-04)	.1753-02(.11-03)	1567.3
PU240	.2144-00(.56-03)	16.9584(.0371)	.5147-03(.12-04)	.5147-03(.12-04)		
PU241	.4317-01(.22-03)	3.4755(.0173)	.1059-03(.25-05)	.1059-03(.25-05)	.3916-04(.14-05)	35.2
PU242	.5930-02(.62-04)	.4690(.0049)	.1435-04(.36-06)	.1435-04(.36-06)		
TOTAL PU			.3025-02(.68-04)	.3025-02(.68-04)	.4933-02(.11-03)	4340.6
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.5260+09(.11+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	8.90	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.370YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.3984+17(.80+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0257	CS HALF LIFE=	30.00(.20)YEARS		
TIME OUT OF REACTOR(CS137)=	.671YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0582	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			
		PU239=1.3616(.0017)	PU240=5.013(.03)		
		PU241=.0576(.0010)	PU242=.087(.002)		
		U235 FRACTIONAL DEPLETION			
		.4816(.0038)			
		PU239 FORMED FROM U238			
		.4817-02(.13-03)GM			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 76007 FROM ELEMENT 1006 TAKEN 62.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

--- INPUT DATA ---			--- PARAMETERS DETERMINED FROM INPUT ---			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4175-04(.20-05)	.0042(.0002)	.4058-04(.20-05)	-.9421-05(.20-05)		
U-235	.4150-02(.23-04)	.4131(.0023)	.4051-02(.23-04)	-.3059-02(.23-04)	.2590-02(.24-04)	2254.7
U-236	.4806-03(.83-05)	.0478(.0008)	.4711-03(.83-05)	-.4711-03(.83-05)		
U-238	.1000+01	.99.5349(.0025)	.9885-00(.12-03)	-.4249-02(.12-03)	.2087-03(.20-04)	184.7
U TOTALS			.9932-00(.11-03)	-.6837-02(.11-03)		
PU239	1.0000+00	81.7751(.0356)	.2154-02(.49-04)	.2154-02(.49-04)	.1398-02(.97-04)	1250.0
PU240	.1839-00(.50-03)	15.0384(.0345)	.3978-03(.90-05)	.3978-03(.90-05)		
PU241	.3447-01(.19-03)	2.8691(.0152)	.7621-04(.18-05)	.7621-04(.18-05)	.2310-04(.81-06)	20.8
PU242	.3881-02(.43-04)	.3174(.0035)	.8466-05(.21-06)	.8466-05(.21-06)		
TOTAL PU			.2637-02(.59-04)	.2637-02(.59-04)	.4220-02(.97-04)	3710.1
			TOTAL FISSIONS & BU			

--- INPUT ---		--- CONSTANTS + ASSUMPTIONS ---		--- DERIVED FROM DATA ---	
PU DECAYS(D/M/ML)	.4441+09(.89+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	7.50	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.370YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.3713+17(.74+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0257	PU241 HALF LIFE=	14.5(0.4)YEARS		.4303(.0032)
TIME OUT OF REACTOR(CS137)=	.671YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0635	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 76008 FROM ELEMENT 1006 TAKEN 72.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

--- INPUT DATA ---			--- PARAMETERS DETERMINED FROM INPUT ---			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4308-04(.22-05)	.0043(.0002)	.4182-04(.22-05)	-.8181-05(.22-05)		
U-235	.3676-02(.29-04)	.3660(.0029)	.3584-02(.29-04)	-.3526-02(.29-04)	.2970-02(.32-04)	2585.6
U-236	.5705-03(.13-04)	.0568(.0012)	.5585-03(.12-04)	-.5585-03(.12-04)		
U-238	.1000+01	.99.5729(.0032)	.9873-00(.15-03)	-.5499-02(.15-03)	.2625-03(.26-04)	232.3
U TOTALS			.9915-00(.14-03)	-.8467-02(.14-03)		
PU239	1.0000+00	81.5310(.0400)	.2620-02(.59-04)	.2620-02(.59-04)	.2015-02(.12-03)	1801.8
PU240	.1880-00(.57-03)	15.3278(.0393)	.4946-03(.11-04)	.4946-03(.11-04)		
PU241	.3407-01(.19-03)	2.8273(.0154)	.9161-04(.21-05)	.9161-04(.21-05)	.2786-04(.98-06)	25.1
PU242	.3849-02(.43-04)	.3138(.0035)	.1021-04(.26-06)	.1021-04(.26-06)		
TOTAL PU			.3216-02(.72-04)	.3216-02(.72-04)	.5275-02(.12-03)	4644.7
			TOTAL FISSIONS & BU			

--- INPUT ---		--- CONSTANTS + ASSUMPTIONS ---		--- DERIVED FROM DATA ---	
PU DECAYS(D/M/ML)	.5450+09(.11+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	8.40	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.370YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.4445+17(.89+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0257	PU241 HALF LIFE=	14.5(0.4)YEARS		.4960(.0041)
TIME OUT OF REACTOR(CS137)=	.671YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0607	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 76009 FROM ELEMENT 1006 TAKEN 86.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

--- INPUT DATA ---			PARAMETERS DETERMINED FROM INPUT			--- DERIVED FROM DATA ---	
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.4903-04(.24-05)	.0049(.0002)	.4776-04(.24-05)	-.2241-05(.24-05)			
U-235	.5347-02(.37-04)	.5317(.0037)	.5231-02(.37-04)	-.1879-02(.37-04)	.1603-02(.37-04)	1395.9	
U-236	.2820-03(.63-05)	.0280(.0006)	.2770-03(.63-05)	-.2770-03(.63-05)			
U-238	.1000+01	.99.4354(.0037)	.9907-00(.69-04)	-.2084-02(.69-04)	.1002-03(.10-04)	88.7	
U TOTALS			.9963-00(.59-04)	-.3886-02(.59-04)			
PU239	1.0000+00	89.6919(.0243)	.1459-02(.33-04)	.1459-02(.33-04)	.3613-03(.58-04)	323.0	
PU240	.1014+00(.27-03)	9.0948(.0223)	.1486-03(.33-05)	.1486-03(.33-05)			
PU241	.1261-01(.13-03)	1.1528(.0116)	.1892-04(.47-06)	.1892-04(.47-06)	.2717-05(.98-07)	2.4	
PU242	.6740-03(.88-05)	.0605(.0008)	.9960-06(.26-07)	.9960-06(.26-07)			
TOTAL PU			.1628-02(.37-04)	.1628-02(.37-04)			
				TOTAL FISSIONS & BU	.2068-02(.46-04)	1810.0	

--- INPUT ---			CONSTANTS + ASSUMPTIONS			--- DERIVED FROM DATA ---	
PU DECAYS(D/M/ML)	.2461+09(.49+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	3.30		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.400YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1721(.0032)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.2071+17(.41+15)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0257		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.630YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.2643(.0052)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.0729		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.1992-02(.68-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

*****QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS*****

UO-2 BURNUP DATA

SAMPLE 56204 FROM ELEMENT 1006 TAKEN 32.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

--- INPUT DATA ---			PARAMETERS DETERMINED FROM INPUT			--- DERIVED FROM DATA ---	
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.4837-04(.27-05)	.0048(.0003)	.4701-04(.27-05)	-.2993-05(.27-05)			
U-235	.4117-02(.31-04)	.4098(.0030)	.4018-02(.30-04)	-.3092-02(.30-04)	.2608-02(.31-04)	2270.6	
U-236	.4955-03(.84-05)	.0493(.0008)	.4857-03(.84-05)	-.4857-03(.84-05)			
U-238	.1000+01	.99.5361(.0032)	.9884-00(.12-03)	-.4373-02(.12-03)	.2116-03(.21-04)	187.3	
U TOTALS			.9930-00(.12-03)	-.6980-02(.12-03)			
PU239	1.0000+00	80.5718(.0433)	.2191-02(.49-04)	.2191-02(.49-04)	.1430-02(.10-03)	1278.4	
PU240	.1991-00(.64-03)	16.0418(.0432)	.4381-03(.99-05)	.4381-03(.99-05)			
PU241	.3682-01(.19-03)	3.0196(.0151)	.8281-04(.19-05)	.8281-04(.19-05)	.2756-04(.97-06)	24.8	
PU242	.4552-02(.47-04)	.3668(.0038)	.1010-04(.25-06)	.1010-04(.25-06)			
TOTAL PU			.2722-02(.61-04)	.2722-02(.61-04)			
				TOTAL FISSIONS & BU	.4277-02(.98-04)	3761.1	

--- INPUT ---			CONSTANTS + ASSUMPTIONS			--- DERIVED FROM DATA ---	
PU DECAYS(D/M/ML)	.4669+09(.93+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	9.30		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.370YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1855(.0022)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.3961+17(.79+15)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0257		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.671YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.4349(.0043)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.0669		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.4179-02(.12-03)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

*****QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS*****

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UO-2 BURNUP DATA

SAMPLE 57704 FROM ELEMENT 1006 TAKEN 32.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4745-04(.27-05)	.0047(.0003)	.4615-04(.27-05)	-.3846-05(.27-05)		
U-235	.4774-02(.33-04)	.4749(.0033)	.4663-02(.33-04)	-.2447-02(.33-04)	.2071-02(.34-04)	1802.6
U-236	.3848-03(.79-05)	.0383(.0008)	.3775-03(.78-05)	.3775-03(.78-05)		
U-238	.1000+01	99.4821(.0034)	.9893-00(.97-04)	-.3499-02(.97-04)	.1607-03(.16-04)	142.2
U TOTALS			.9944-00(.91-04)	-.5569-02(.91-04)		
PU239	1.0000+00	85.9266(.0336)	.1997-02(.45-04)	.1997-02(.45-04)	.1017-02(.80-04)	909.3
PU240	.1393-00(.43-03)	11.9696(.0325)	.2794-03(.63-05)	.2794-03(.63-05)		
PU241	.2228-01(.15-03)	1.9486(.0127)	.4567-04(.11-05)	.4567-04(.11-05)	.9965-05(.36-06)	9.0
PU242	.1806-02(.23-04)	.1552(.0019)	.3652-05(.94-07)	.3652-05(.94-07)		
TOTAL PU			.2326-02(.52-04)	.2326-02(.52-04)		
				TOTAL FISSIONS & BU	.3258-02(.74-04)	2863.1

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.3712+09(.74+07)	FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	5.50	U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.370YRS	U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
		PU239	.0674(.0014)	.0563(.0056)	211	.1816(.0027)
		PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.2251+17(.45+15)	ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0257	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION	
TIME OUT OF REACTOR(CS137)=	.671YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.3441(.0046)	
		BOL ATOM PERCENTS FOR NATURAL URANIUM				
		234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.0499	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238	
		PU239=1.3616(.0017)	PU240=5.013(.03)		.3353-02(.95-04)GM	
		PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 55104 FROM ELEMENT 1006 TAKEN 32.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4841-04(.23-05)	.0048(.0002)	.4700-04(.23-05)	-.2997-05(.23-05)		
U-235	.3991-02(.30-04)	.3972(.0030)	.3892-02(.30-04)	-.3218-02(.30-04)	.2461-02(.33-04)	2142.9
U-236	.7762-03(.15-04)	.0772(.0015)	.7601-03(.15-04)	.7601-03(.15-04)		
U-238	.1000+01	99.5207(.0033)	.9875-00(.14-03)	-.5281-02(.14-03)	.2375-03(.23-04)	210.3
U TOTALS			.9923-00(.13-03)	-.7740-02(.13-03)		
PU239	1.0000+00	80.8406(.0366)	.2436-02(.55-04)	.2436-02(.55-04)	.2019-02(.11-03)	1805.2
PU240	.1947-00(.52-03)	15.7397(.0353)	.4762-03(.11-04)	.4762-03(.11-04)		
PU241	.3709-01(.20-03)	3.0519(.0162)	.9272-04(.21-05)	.9272-04(.21-05)	.3062-04(.11-05)	27.5
PU242	.4551-02(.55-04)	.3679(.0044)	.1122-04(.29-06)	.1122-04(.29-06)		
TOTAL PU			.3016-02(.68-04)	.3016-02(.68-04)		
				TOTAL FISSIONS & BU	.4749-02(.11-03)	4185.9

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.5141+09(.10+08)	FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	8.50	U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.370YRS	U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
		PU239	.0674(.0014)	.0563(.0056)	211	.3076(.0029)
		PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.4276+17(.86+15)	ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0257	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION	
TIME OUT OF REACTOR(CS137)=	.671YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.4527(.0042)	
		BOL ATOM PERCENTS FOR NATURAL URANIUM				
		234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.0647	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238	
		PU239=1.3616(.0017)	PU240=5.013(.03)		.5065-02(.13-03)GM	
		PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

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UO-2 BURNUP DATA

SAMPLE 57004 FROM ELEMENT 1006 TAKEN 32.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

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- - - - -INPUT DATA- - - - -      - - - - -PARAMETERS DETERMINED FROM INPUT- - - - -
ISOTOPE  EOL MASS RATIO      EOL(A/O)      EOL(GM)      NET PRODUCTION(GM)      FISSIONS(GM)      BU MWD/MTM
U-234    .4515-04(.21-05)    .0045(.0002)  .4384-04(.21-05)  -.6184-05(.21-05)  .3022-02(.31-04)  2631.0
U-235    .3632-02(.29-04)    .3617(.0029)  .3540-02(.29-04)  -.3576-02(.29-04)  .2729-03(.27-04)  241.5
U-236    .5622-03(.10-04)    .0560(.0010)  .5503-03(.10-04)  -.5503-03(.10-04)  .2127-02(.13-03)  1901.9
U-238    .1000+01              99.5779(.0031) .9870-00(.15-03)  -.5773-02(.15-03)  .5340-04(.19-05)  48.0
U TOTALS              .995779(.0031) .9912-00(.15-03)  -.8793-02(.15-03)

PU239    1.0000+00            77.9173(.0402)  .2602-02(.59-04)  .2602-02(.59-04)  .5475-02(.15-03)  4822.4
PU240    .2274-00(.00-03)     17.7184(.0389)  .5941-03(.13-04)  .5941-03(.13-04)
PU241    .4773-01(.25-03)     3.7853(.0195)  .1275-03(.30-05)  .1275-03(.30-05)
PU242    .7430-02(.79-04)     .5789(.0061)   .1957-04(.49-06)  .1957-04(.49-06)
TOTAL PU              .3343-02(.75-04)
TOTAL FISSIONS & BU

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- - - - -INPUT- - - - -      - - - - -CONSTANTS + ASSUMPTIONS- - - - -      - - - - -DERIVED FROM DATA- - - - -
PU DECAYS(D/M/ML)    .5879+09(.12+08)  U-235 .0628(.0003) .0491(.0049)  202
PERCENT OF PU DECAYS FROM PU238=10.20  U-238 .0620(.0040)  208
TIME OUT OF REACTOR (PU241)= .370YRS  PU239 .0674(.0014) .0563(.0056)  211
                                           PU241 .0660(.0017) .0604(.0060)  214
                                           ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS  U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY CORE= 1.0257  PU241 HALF LIFE=14.5(0.4)YEARS  .5021(.0041)
TIME OUT OF REACTOR(CS137)= .671YRS  BOL ATOM PERCENTS FOR NATURAL URANIUM
                                           234/235/236/238=.005/.720/.000/99.275
GRAMS OF FUEL/ML OF DISSOLVER= .0506  PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)  PU239 FORMED FROM U238
                                           PU239=1.3616(.0017)  PU240=.5013(.03)  .5523-02(.15-03)GM
                                           PU241=.0576(.0010)  PU242=.087(.002)

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 55004 FROM ELEMENT 1006 TAKEN 32.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

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- - - - -INPUT DATA- - - - -      - - - - -PARAMETERS DETERMINED FROM INPUT- - - - -
ISOTOPE  EOL MASS RATIO      EOL(A/O)      EOL(GM)      NET PRODUCTION(GM)      FISSIONS(GM)      BU MWD/MTM
U-234    .4640-04(.25-05)    .0046(.0002)  .4504-04(.25-05)  -.4961-05(.25-05)  .2986-02(.31-04)  2600.0
U-235    .3659-02(.29-04)    .3643(.0029)  .3567-02(.29-04)  -.3543-02(.29-04)
U-236    .5708-03(.11-04)    .0568(.0011)  .5588-03(.11-04)  -.5588-03(.11-04)
U-238    .1000+01              99.5742(.0031) .9872-00(.15-03)  -.5545-02(.15-03)  .2679-03(.26-04)  237.1
U TOTALS              .995742(.0031) .9915-00(.14-03)  -.8530-02(.14-03)

PU239    1.0000+00            77.9220(.0472)  .2472-02(.56-04)  .2472-02(.56-04)  .5378-02(.13-03)  4736.6
PU240    .2289-00(.72-03)     17.8363(.0462)  .5682-03(.13-04)  .5682-03(.13-04)
PU241    .4675-01(.28-03)     3.7078(.0218)  .1186-03(.28-05)  .1186-03(.28-05)
PU242    .6851-02(.71-04)     .5338(.0055)   .1715-04(.43-06)  .1715-04(.43-06)
TOTAL PU              .3176-02(.72-04)
TOTAL FISSIONS & BU

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- - - - -INPUT- - - - -      - - - - -CONSTANTS + ASSUMPTIONS- - - - -      - - - - -DERIVED FROM DATA- - - - -
PU DECAYS(D/M/ML)    .5603+09(.11+08)  U-235 .0628(.0003) .0491(.0049)  202
PERCENT OF PU DECAYS FROM PU238=10.20  U-238 .0620(.0040)  208
TIME OUT OF REACTOR (PU241)= .370YRS  PU239 .0674(.0014) .0563(.0056)  211
                                           PU241 .0660(.0017) .0604(.0060)  214
                                           ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS  U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY CORE= 1.0257  PU241 HALF LIFE=14.5(0.4)YEARS  .4983(.0041)
TIME OUT OF REACTOR(CS137)= .671YRS  BOL ATOM PERCENTS FOR NATURAL URANIUM
                                           234/235/236/238=.005/.720/.000/99.275
GRAMS OF FUEL/ML OF DISSOLVER= .0500  PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)  PU239 FORMED FROM U238
                                           PU239=1.3616(.0017)  PU240=.5013(.03)  .5300-02(.14-03)GM
                                           PU241=.0576(.0010)  PU242=.087(.002)

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

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UO-2 BURNUP DATA

SAMPLE 76012 FROM ELEMENT 1006 TAKEN 12.00 INCHES FROM TOP OF MIDDLE RING ROD

ISOTOPIC INVENTORY

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-----INPUT DATA-----
ISOTOPE    EOL MASS RATIO    EOL(A/O)    EOL(GM)    NET PRODUCTION(GM)    FISSIONS(GM)    BU MWD/MTM
U-234      .4990-04(.27-05)    .0050(.0003)    .4856-04(.26-05)    -.1441-05(.26-05)
U-235      .4826-02(.36-04)    .4801(.0036)    .4716-02(.36-04)    -.2394-02(.36-04)    .2007-02(.37-04)    1747.3
U-236      .3956-03(.73-05)    .0394(.0007)    .3882-03(.73-05)    .3882-03(.73-05)
U-238      .1000+01    99.4756(.0037)    .9897-00(.91-04)    -.3070-02(.91-04)    .1885-03(.18-04)    166.9
U TOTALS
PU239      1.0000+00    85.0391(.0312)    .1738-02(.39-04)    .1738-02(.39-04)    .8400-03(.76-04)    751.1
PU240      .1498-00(.41-03)    12.7423(.0304)    .2614-03(.59-05)    .2614-03(.59-05)
PU241      .2370-01(.13-03)    2.0516(.0112)    .4227-04(.98-06)    .4227-04(.98-06)    .9433-05(.34-06)    8.5
PU242      .1965-02(.24-04)    .1671(.0020)    .3457-05(.88-07)    .3457-05(.88-07)
TOTAL PU
TOTAL FISSIONS & BU    .3045-02(.69-04)    2673.7

```

```

-----INPUT-----
PU DECAYS(D/M/ML)    .3313+09(.66+07)
PERCENT OF PU DECAYS FROM PU238= 5.90
TIME OUT OF REACTOR (PU241)= .370YRS

CS137 ATOMS/ML= .2656+17(.53+15)
CS137 IN REACTOR DECAY COR= 1.0257
TIME OUT OF REACTOR(CS137)= .767YRS

GRAMS OF FUEL/ML OF DISSOLVER= .0633

-----CONSTANTS + ASSUMPTIONS-----
FISSION YIELD    DEL    MEV/FIS
U-235    .0628(.0003)    .0609(.0061)    202
U-238    .0620(.0040)    .0766(.0077)    208
PU239    .0674(.0014)    .0799(.0080)    211
PU241    .0660(.0017)    .0799(.0080)    214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL URANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=1.3616(.0017)    PU240=5.013(.03)
PU241= .0576(.0010)    PU242=.087(.002)

-----DERIVED FROM DATA-----
ALPHA235 OF SAMPLE    .1927(.0027)
U235 FRACTIONAL DEPLETION    .3367(.0050)
PU239 FORMED FROM U238    .2894-02(.89-04)GM

```

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 76014 FROM ELEMENT 1006 TAKEN 32.00 INCHES FROM TOP OF MIDDLE RING ROD

ISOTOPIC INVENTORY

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-----INPUT DATA-----
ISOTOPE    EOL MASS RATIO    EOL(A/O)    EOL(GM)    NET PRODUCTION(GM)    FISSIONS(GM)    BU MWD/MTM
U-234      .4818-04(.27-05)    .0048(.0003)    .4677-04(.27-05)    -.3228-05(.27-05)
U-235      .3612-02(.25-04)    .3597(.0025)    .3521-02(.25-04)    -.3589-02(.25-04)    .3041-02(.27-04)    2647.2
U-236      .5620-03(.11-04)    .0560(.0011)    .5502-03(.11-04)    .5502-03(.11-04)
U-238      .1000+01    99.5796(.0027)    .9872-00(.15-03)    -.5522-02(.15-03)    .3395-03(.33-04)    300.5
U TOTALS
PU239      1.0000+00    78.1544(.0802)    .2507-02(.57-04)    .2507-02(.57-04)    .1946-02(.12-03)    1739.9
PU240      .2254-00(.12-02)    17.6160(.0801)    .5675-03(.13-04)    .5675-03(.13-04)
PU241      .4652-01(.42-03)    3.7006(.0321)    .1197-03(.29-05)    .1197-03(.29-05)    .4688-04(.17-05)    42.2
PU242      .6768-02(.88-04)    .5289(.0069)    .1718-04(.45-06)    .1718-04(.45-06)
TOTAL PU
TOTAL FISSIONS & BU    .5373-02(.12-03)    4729.8

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```

-----INPUT-----
PU DECAYS(D/M/ML)    .5643+09(.11+08)
PERCENT OF PU DECAYS FROM PU238= 9.80
TIME OUT OF REACTOR (PU241)= .370YRS

CS137 ATOMS/ML= .4771+17(.95+15)
CS137 IN REACTOR DECAY COR= 1.0257
TIME OUT OF REACTOR(CS137)= .589YRS

GRAMS OF FUEL/ML OF DISSOLVER= .0639

-----CONSTANTS + ASSUMPTIONS-----
FISSION YIELD    DEL    MEV/FIS
U-235    .0628(.0003)    .0609(.0061)    202
U-238    .0620(.0040)    .0766(.0077)    208
PU239    .0674(.0014)    .0799(.0080)    211
PU241    .0660(.0017)    .0799(.0080)    214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL URANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=1.3616(.0017)    PU240=5.013(.03)
PU241= .0576(.0010)    PU242=.087(.002)

-----DERIVED FROM DATA-----
ALPHA235 OF SAMPLE    .1803(.0022)
U235 FRACTIONAL DEPLETION    .5048(.0035)
PU239 FORMED FROM U238    .5204-02(.14-03)GM

```

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-40

UO-2 BURNUP DATA

SAMPLE 76016 FROM ELEMENT 1006 TAKEN 52.00 INCHES FROM TOP OF MIDDLE RING ROD

ISOTOPIC INVENTORY

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- - - - -INPUT DATA- - - - -      - - - - -PARAMETERS DETERMINED FROM INPUT- - - - -
ISOTOPE    EOL MASS RATIO          EOL(A/O)          EOL(GM)          NET PRODUCTION(GM)    FISSIONS(GM)    BU MWD/MTM
U-234      .4950-04(.25-05)        .0049(.0002)        .4821-04(.25-05)    -.1791-05(.25-05)    .2470-02(.28-04)    2150.6
U-235      .4255-02(.26-04)        .4245(.0026)        .4163-02(.26-04)    -.2947-02(.26-04)    .2470-02(.28-04)    2150.6
U-236      .4883-03(.11-04)        .0486(.0011)        .4787-03(.11-04)    -.4787-03(.11-04)    .2623-03(.25-04)    232.2
U-238      .1000+01                  99.5220(.0028)      .9985-00(.12-03)    -.4286-02(.12-03)    .2623-03(.25-04)    232.2
U TOTALS
PU239      1.0000+00                81.4743(.0483)      .2110-02(.48-04)    .2110-02(.48-04)    .1420-02(.97-04)    1269.9
PU240      .1890-00(.70-03)        15.3962(.0480)      .4004-03(.91-05)    .4004-03(.91-05)    .2248-04(.61-06)    20.2
PU241      .3395-01(.20-03)        2.8154(.0165)      .7353-04(.17-05)    .7353-04(.17-05)    .2248-04(.61-06)    20.2
PU242      .3856-02(.50-04)        .3142(.0041)        .8239-05(.21-06)    .8239-05(.21-06)    .4175-02(.96-04)    3672.9
TOTAL PU
TOTAL FISSIONS & BU

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- - - - -INPUT- - - - -      - - - - -CONSTANTS + ASSUMPTIONS- - - - -      - - - - -DERIVED FROM DATA- - - - -
PU DECAYS(D/M/ML)          .4399+09(.88+07)    U-235      .0628(.0003)    .0609(.0061)    202
PERCENT OF PU DECAYS FROM PU238= 5.70    U-238      .0620(.0040)    .0766(.0077)    208    ALPHA235 OF SAMPLE
TIME OUT OF REACTOR (PU241)= .370YRS      PU239      .0674(.0014)    .0799(.0080)    211    .1930(.0027)
                                           PU241      .0660(.0017)    .0799(.0080)    214
                                           ALPHA241= .365(.01)
CS137 ATOMS/ML= .3848+17(.77+15)          CS HALF LIFE= 30.00(.20)YEARS    U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY CORE= 1.0257        PU241 HALF LIFE=14.5(0.4)YEARS    .4145(.0036)
TIME OUT OF REACTOR(CS137)= .671YRS        BOL ATOM PERCENTS FOR NATURAL URANIUM
GRAMS OF FUEL/ML OF DISSOLVER= .0665        234/235/236/238=.005/.720/.000/99.275
                                           PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)    PU239 FORMED FROM U238
                                           PU239=1.3616(.0017)    PU240=5.013(.03)    .4035-02(.11-03)GM
                                           PU241= .0576(.0010)    PU242=.087(.002)

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 76018 FROM ELEMENT 1006 TAKEN 72.00 INCHES FROM TOP OF MIDDLE RING ROD

ISOTOPIC INVENTORY

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- - - - -INPUT DATA- - - - -      - - - - -PARAMETERS DETERMINED FROM INPUT- - - - -
ISOTOPE    EOL MASS RATIO          EOL(A/O)          EOL(GM)          NET PRODUCTION(GM)    FISSIONS(GM)    BU MWD/MTM
U-234      .4843-04(.22-05)        .0048(.0002)        .4716-04(.22-05)    -.2842-05(.22-05)    .1819-02(.31-04)    1583.4
U-235      .5082-02(.30-04)        .5054(.0030)        .4970-02(.30-04)    -.2140-02(.30-04)    .1819-02(.31-04)    1583.4
U-236      .3289-03(.52-05)        .0327(.0005)        .3230-03(.52-05)    -.3230-03(.52-05)    .1496-03(.15-04)    132.4
U-238      .1000+01                  99.4570(.0031)      .9903-00(.75-04)    -.2448-02(.75-04)    .1496-03(.15-04)    132.4
U TOTALS
PU239      1.0000+00                87.3852(.0277)      .1587-02(.36-04)    .1587-02(.36-04)    .4859-03(.61-04)    434.4
PU240      .1243+00(.34-03)        10.8602(.0269)      .1980-03(.45-05)    .1980-03(.45-05)    .5577-05(.20-06)    5.0
PU241      .1845-01(.11-03)        1.6434(.0096)      .3009-04(.70-06)    .3009-04(.70-06)    .5577-05(.20-06)    5.0
PU242      .1272-02(.14-04)        .1112(.0012)        .2044-05(.51-07)    .2044-05(.51-07)    .2460-02(.55-04)    2155.2
TOTAL PU
TOTAL FISSIONS & BU

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```

- - - - -INPUT- - - - -      - - - - -CONSTANTS + ASSUMPTIONS- - - - -      - - - - -DERIVED FROM DATA- - - - -
PU DECAYS(D/M/ML)          .2841+09(.57+07)    U-235      .0628(.0003)    .0609(.0061)    202
PERCENT OF PU DECAYS FROM PU238= 5.20    U-238      .0620(.0040)    .0766(.0077)    208    ALPHA235 OF SAMPLE
TIME OUT OF REACTOR (PU241)= .400YRS      PU239      .0674(.0014)    .0799(.0080)    211    .1769(.0023)
                                           PU241      .0660(.0017)    .0799(.0080)    214
                                           ALPHA241= .365(.01)
CS137 ATOMS/ML= .1942+17(.39+15)          CS HALF LIFE= 30.00(.20)YEARS    U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY CORE= 1.0257        PU241 HALF LIFE=14.5(0.4)YEARS    .3010(.0042)
TIME OUT OF REACTOR(CS137)= .630YRS        BOL ATOM PERCENTS FOR NATURAL URANIUM
GRAMS OF FUEL/ML OF DISSOLVER= .0574        234/235/236/238=.005/.720/.000/99.275
                                           PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)    PU239 FORMED FROM U238
                                           PU239=1.3616(.0017)    PU240=5.013(.03)    .2308-02(.73-04)GM
                                           PU241= .0576(.0010)    PU242=.087(.002)

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-41

UO-2 BURNUP DATA

SAMPLE 56104 FROM ELEMENT 1006 TAKEN 32.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

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- - - - -INPUT DATA- - - - -   - - - - -PARAMETERS DETERMINED FROM INPUT- - - - -
ISOTOPE   EOL MASS RATIO      EOL(A/O)      EOL(GM)      NET PRODUCTION(GM)      FISSIONS(GM)      BU MWD/MTM
U-234     .4723-04(.29-05)    .0047(.0003)   .4584-04(.29-05)   -.4121-05(.29-05)      .2633-02(.28-04)   2292.4
U-235     .4089-02(.26-04)    .4070(.0026)   .3989-02(.26-04)   -.3121-02(.26-04)      .2901-03(.28-04)   256.8
U-236     .4997-03(.97-05)    .0497(.0010)   .4896-03(.97-05)   -.4771-02(.13-03)      .2901-03(.28-04)   256.8
U-238     .1000+01            99.5385(.0028) .9880-00(.13-03)   -.4771-02(.13-03)      .2901-03(.28-04)   256.8
U TOTALS                                     .9926-00(.12-03)   -.7402-02(.12-03)

PU239     1.0000+00            80.4565(.0421)   .2271-02(.51-04)   .2271-02(.51-04)      .1646-02(.11-03)   1471.8
PU240     .2006-00(.58-03)    16.1396(.0396)   .4574-03(.10-04)   .4574-03(.10-04)      .2890-04(.10-05)   26.0
PU241     .3704-01(.27-03)    3.0333(.0217)   .8632-04(.20-05)   .8632-04(.20-05)      .1059-04(.27-06)
PU242     .4607-02(.57-04)    .3707(.0046)    .1059-04(.27-06)   .1059-04(.27-06)      .2825-02(.64-04)
TOTAL PU                                     .2825-02(.64-04)   .2825-02(.64-04)
                                           TOTAL FISSIONS & BU      .4598-02(.11-03)   4047.0

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```

- - - - -INPUT- - - - -   - - - - -CONSTANTS + ASSUMPTIONS- - - - -   - - - - -DERIVED FROM DATA- - - - -
PU DECAYS(D/M/ML)      .4854+09(.97+07)   U-235   FISSION YIELD      DEL      MEV/FIS
PERCENT OF PU DECAYS FROM PU238= 9.90   U-238   .0628(.0003)   .0609(.0061)   202
TIME OUT OF REACTOR (PU241)= .370YRS   PU239   .0620(.0040)   .0766(.0077)   208
                                           PU241   .0674(.0014)   .0799(.0080)   211
                                           PU241   .0660(.0017)   .0799(.0080)   214
                                           ALPHA241= .365(.01)
CS137 ATOMS/ML= .3826+17(.77+15)   CS HALF LIFE= 30.00(.20)YEARS   U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0257   PU241 HALF LIFE=14.5(0.4)YEARS   .4389(.0037)
TIME OUT OF REACTOR(CS137)= .671YRS   BOL ATOM PERCENTS FOR NATURAL URANIUM
GRAMS OF FUEL/ML OF DISSOLVER= .0600   234/235/236/238=.005/.720/.000/99.275
                                           PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)   PU239 FORMED FROM U238
                                           PU239=1.3616(.0017)   PU240=5.013(.03)   .4500-02(.12-03)GM
                                           PU241= .0576(.0010)   PU242=.087(.002)

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 55604 FROM ELEMENT 1006 TAKEN 32.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

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- - - - -INPUT DATA- - - - -   - - - - -PARAMETERS DETERMINED FROM INPUT- - - - -
ISOTOPE   EOL MASS RATIO      EOL(A/O)      EOL(GM)      NET PRODUCTION(GM)      FISSIONS(GM)      BU MWD/MTM
U-234     .4714-04(.22-05)    .0047(.0002)   .4581-04(.22-05)   -.4187-05(.22-05)      .2661-02(.27-04)   2317.1
U-235     .4071-02(.25-04)    .4052(.0025)   .3973-02(.25-04)   -.3137-02(.25-04)      .2748-03(.27-04)   243.2
U-236     .4869-03(.10-04)    .0485(.0010)   .4772-03(.10-04)   -.4394-02(.12-03)      .2748-03(.27-04)   243.2
U-238     .1000+01            99.5416(.0027) .9884-00(.12-03)   -.4394-02(.12-03)      .2748-03(.27-04)   243.2
U TOTALS                                     .9929-00(.12-03)   -.7053-02(.12-03)

PU239     1.0000+00            80.4423(.0438)   .2158-02(.49-04)   .2158-02(.49-04)      .1424-02(.10-03)   1272.9
PU240     .2008-00(.64-03)    16.1528(.0435)   .4352-03(.98-05)   .4352-03(.98-05)      .2710-04(.96-06)   24.4
PU241     .3712-01(.20-03)    3.0393(.0162)   .8223-04(.19-05)   .8223-04(.19-05)      .2710-04(.96-06)   24.4
PU242     .4545-02(.54-04)    .3656(.0043)   .9933-05(.25-06)   .9933-05(.25-06)      .2686-02(.61-04)
TOTAL PU                                     .2686-02(.61-04)   .2686-02(.61-04)
                                           TOTAL FISSIONS & BU      .4387-02(.10-03)   3857.6

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- - - - -INPUT- - - - -   - - - - -CONSTANTS + ASSUMPTIONS- - - - -   - - - - -DERIVED FROM DATA- - - - -
PU DECAYS(D/M/ML)      .4616+09(.92+07)   U-235   FISSION YIELD      DEL      MEV/FIS
PERCENT OF PU DECAYS FROM PU238= 9.10   U-238   .0628(.0003)   .0609(.0061)   202
TIME OUT OF REACTOR (PU241)= .370YRS   PU239   .0620(.0040)   .0766(.0077)   208
                                           PU241   .0674(.0014)   .0799(.0080)   211
                                           PU241   .0660(.0017)   .0799(.0080)   214
                                           ALPHA241= .365(.01)
CS137 ATOMS/ML= .3556+17(.71+15)   CS HALF LIFE= 30.00(.20)YEARS   U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0257   PU241 HALF LIFE=14.5(0.4)YEARS   .4412(.0035)
TIME OUT OF REACTOR(CS137)= .597YRS   BOL ATOM PERCENTS FOR NATURAL URANIUM
GRAMS OF FUEL/ML OF DISSOLVER= .0585   234/235/236/238=.005/.720/.000/99.275
                                           PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)   PU239 FORMED FROM U238
                                           PU239=1.3616(.0017)   PU240=5.013(.03)   .4136-02(.12-03)GM
                                           PU241= .0576(.0010)   PU242=.087(.002)

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-42

UO-2 BURNUP DATA

SAMPLE 76022 FROM ELEMENT 1006 TAKEN 12.00 INCHES FROM TOP OF CENTER ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5109-04(.24-05)	.0051(.0002)	.4974-04(.24-05)	-.2029-06(.24-05)		
U-235	.4980-02(.34-04)	.4953(.0033)	.4860-02(.33-04)	-.2242-02(.33-04)	.1890-02(.34-04)	1645.6
U-236	.3593-03(.65-05)	.0357(.0006)	.3520-03(.64-05)	.3520-03(.64-05)		
U-238	.1000+01	.99.4639(.0034)	.9900-00(.83-04)	-.2740-02(.83-04)	.1840-03(.18-04)	162.9
U TOTALS			.9954-00(.76-04)	-.4029-02(.76-04)		
PU239	1.0000+00	.86.2638(.0297)	.1560-02(.35-04)	.1560-02(.35-04)	.7502-03(.71-04)	670.7
PU240	.1368-00(.38-03)	.11.8000(.0289)	.2143-03(.48-05)	.2143-03(.48-05)		
PU241	.2051-01(.12-03)	.1.8009(.0102)	.3284-04(.76-06)	.3284-04(.76-06)	.6758-05(.24-06)	6.1
PU242	.1568-02(.22-04)	.1353(.0019)	.2477-05(.66-07)	.2477-05(.66-07)		
TOTAL PU			.1810-02(.41-04)	.1810-02(.41-04)		
				TOTAL FISSIONS & BU	.2831-02(.64-04)	2485.3

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.2882+09(.58+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	9.00	U-235	.0628(.0003)	.0636(.0064)	202
TIME OUT OF REACTOR (PU241)=	.370YRS	U-238	.0620(.0040)		206
		PU239	.0674(.0014)	.0826(.0083)	211
		PU241	.0660(.0017)	.0855(.0085)	214
CS137 ATOMS/ML=	.2111+17(.42+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0257	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.671YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.3153(.0047)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0541	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=.1.3616(.0017)	PU240=.5.013(.03)		.2566-02(.81-04)GM
		PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 76024 FROM ELEMENT 1006 TAKEN 32.00 INCHES FROM TOP OF CENTER ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4592-04(.22-05)	.0046(.0002)	.4465-04(.22-05)	-.5355-05(.22-05)		
U-235	.4284-02(.28-04)	.4263(.0027)	.4183-02(.27-04)	-.2927-02(.27-04)	.2453-02(.29-04)	2135.9
U-236	.4854-03(.99-05)	.0483(.0010)	.4759-03(.98-05)	.4759-03(.98-05)		
U-238	.1000+01	.99.5208(.0029)	.9887-00(.11-03)	-.4032-02(.11-03)	.2665-03(.26-04)	235.9
U TOTALS			.9935-00(.11-03)	-.6484-02(.11-03)		
PU239	1.0000+00	.81.2180(.0401)	.1998-02(.45-04)	.1998-02(.45-04)	.1297-02(.94-04)	1159.8
PU240	.1919-00(.57-03)	.15.5874(.0391)	.3851-03(.87-05)	.3851-03(.87-05)		
PU241	.3473-01(.20-03)	.2.8713(.0162)	.7123-04(.17-05)	.7123-04(.17-05)	.2197-04(.79-06)	19.8
PU242	.3981-02(.51-04)	.3233(.0041)	.8054-05(.21-06)	.8054-05(.21-06)		
TOTAL PU			.2462-02(.55-04)	.2462-02(.55-04)		
				TOTAL FISSIONS & BU	.4039-02(.93-04)	3551.4

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.4192+09(.84+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	9.20	U-235	.0628(.0003)	.0636(.0064)	202
TIME OUT OF REACTOR (PU241)=	.370YRS	U-238	.0620(.0040)		206
		PU239	.0674(.0014)	.0826(.0083)	211
		PU241	.0660(.0017)	.0855(.0085)	214
CS137 ATOMS/ML=	.2813+17(.56+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0257	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.597YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.4117(.0039)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0503	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=.1.3616(.0017)	PU240=.5.013(.03)		.3781-02(.11-03)GM
		PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

ISOTOPIC INVENTORY

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- - - - -INPUT - - - - -      - - - - -CONSTANTS + ASSUMPTIONS - - - - -      - - - - -DERIVED FROM DATA - - - - -
      FISSIION YIELD      DEL      MEV/FIS
PU DECAYS(D/M/ML)      .4327+09(.87+07)      U-235      .0628(.0003)      .0636(.0064)      202
PERCENT OF PU DECAYS FROM PU238= 9.00      U-238      .0620(.0040)      208      ALPHA235 OF SAMPLE
TIME OUT OF REACTOR (PU241)= .370YRS      PU239      .0674(.0014)      .0826(.0083)      211      .1658(.0028)
      PU241      .0660(.0017)      .0855(.0085)      214
      ALPHA241= .365(.01)
CS137 ATOMS/ML= .3173+17(.63+15)      CS HALF LIFE= 30.00(.20)YEARS      U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0257      PU241 HALF LIFE=14.5(0.4)YEARS      .4033(.0054)
TIME OUT OF REACTOR(CS137)= .671YRS      BOL ATOM PERCENTS FOR NATURAL URANIUM
      234/235/236/238=.005/.720/.000799.275
      PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)      PU239 FORMED FROM U238
      PU239=.13616(.0017)      PU240=.013(.03)      .3968-02(.11-03)GM
      PU241=.0576(.0010)      PU242=.087(.02)
GRAMS OF FUEL/ML OF DISSOLVER= .0561

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

ISOTOPIC INVENTORY

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- - - - - INPUT - - - - -      - - - - - CONSTANTS + ASSUMPTIONS - - - - -      - - - - - DERIVED FROM DATA - - - - -

      PU DECAYS(D/M/ML)      .2564+09(.51+07)      U-235      FISSIION YIELD      DEL      MEV/FIS      202
      PERCENT OF PU DECAYS FROM PU238= 5.40      U-238      .0628(.0003)      .0636(.0064)      208      ALPHA235 OF SAMPLE
      TIME OUT OF REACTOR (PU241)= .370YRS      PU239      .0620(.0040)      .0826(.0083)      211      .1902(.0038)
      PU241      .0674(.0014)      .0855(.0085)      214
      .0660(.0017)
      ALPHA241= .365(.01)
      CS137 ATOMS/ML= .2476+17(.50+15)      CS HALF LIFE= 30.00(.20)YEARS      U235 FRACTIONAL DEPLETION
      CS137 IN REACTOR DECAY CUR= 1.0257      PU241 HALF LIFE=14.5(0.4)YEARS      .2697(.0072)
      TIME OUT OF REACTOR(CS137)= .597YRS      BOL ATOM PERCENTS FOR NATURAL UKANIUM
      234/235/236/238=.005/.720/.00099/.275
      PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)      PU239 FORMED FROM U238
      PU239=1.361b(.0017)      PU240=.013(.03)      .2828-02(.82-04)GM
      PU241=.057b(.0010)      PU242=.087(.02)
      GRAMS OF FUEL/ML OF DISSOLVER= .0749

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77301 FROM ELEMENT 1100 TAKEN 3.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4996-04(.21-05)	.0050(.0002)	.4368-04(.21-05)	-.1319-05(.21-05)		
U-235	.5245-02(.33-04)	.5216(.0032)	.5133-02(.32-04)	-.1977-02(.32-04)	.1680-02(.33-04)	1462.6
U-236	.3034-03(.52-05)	.0302(.0005)	.2082-03(.52-05)	-.2902-03(.52-05)		
U-238	.1000+01	.99.4432(.0033)	.9910-00(.63-04)	-.1756-02(.63-04)	.0477-04(.94-05)	83.9
U TOTALS			.9960-00(.54-04)	-.3434-02(.54-04)		
PU239	1.0000+00	89.2347(.0504)	.1310-02(.29-04)	.1310-02(.29-04)	.1968-03(.53-04)	175.9
PU240	.1066+00(.62-03)	9.5097(.0504)	.1402-03(.32-05)	.1402-03(.32-05)		
PU241	.1284-01(.97-04)	1.1893(.0090)	.1760-04(.42-06)	.1760-04(.42-06)	.2685-05(.12-06)	2.4
PU242	.7420-03(.22-04)	.0662(.0019)	.9840-06(.36-07)	.9840-06(.36-07)		
TOTAL PU			.1468-02(.33-04)	.1468-02(.33-04)		
				TOTAL FISSIONS & BU	.1974-02(.43-04)	1724.8

- - - - - INPUT - - - - -		- - - - - CONSTANTS + ASSUMPTIONS - - - - -		- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.2239+09(.45+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	3.40	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.773YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.1841+17(.37+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0194	PU241 HALF LIFE=	14.5(0.4)YEARS		.2780(.0045)
TIME OUT OF REACTOR(CS137)=	.773YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0679	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77302 FROM ELEMENT 1100 TAKEN 13.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4790-04(.24-05)	.0048(.0002)	.4660-04(.23-05)	-.3398-05(.23-05)		
U-235	.4376-02(.29-04)	.4355(.0029)	.4276-02(.29-04)	-.2834-02(.29-04)	.2415-02(.30-04)	2102.7
U-236	.4288-03(.77-05)	.0427(.0008)	.4208-03(.77-05)	-.4208-03(.77-05)		
U-238	.1000+01	.99.5171(.0030)	.9895-00(.96-04)	-.3279-02(.96-04)	.1621-03(.16-04)	143.4
U TOTALS			.9943-00(.92-04)	-.5692-02(.92-04)		
PU239	1.0000+00	83.4919(.0406)	.1989-02(.45-04)	.1989-02(.45-04)	.7299-03(.78-04)	652.6
PU240	.1633-00(.55-03)	13.6317(.0400)	.3261-03(.74-05)	.3261-03(.74-05)		
PU241	.3038-01(.16-03)	2.6315(.0141)	.6321-04(.15-05)	.6321-04(.15-05)	.1611-04(.57-06)	14.5
PU242	.2933-02(.35-04)	.2449(.0029)	.5906-05(.15-06)	.5906-05(.15-06)		
TOTAL PU			.2384-02(.54-04)	.2384-02(.54-04)		
				TOTAL FISSIONS & BU	.3323-02(.74-04)	2913.2

- - - - - INPUT - - - - -		- - - - - CONSTANTS + ASSUMPTIONS - - - - -		- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.3914+09(.78+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	6.60	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.773YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.2813+17(.56+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0194	PU241 HALF LIFE=	14.5(0.4)YEARS		.3986(.0041)
TIME OUT OF REACTOR(CS137)=	.773YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0613	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-45
UO-2 BURNUP DATA

SAMPLE 77303 FROM ELEMENT 1100 TAKEN 24.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5300-04(.28-05)	.0053(.0003)	.5150-04(.28-05)	.1502-05(.28-05)		
U-235	.3846-02(.27-04)	.3829(.0027)	.3753-02(.27-04)	-.3357-02(.27-04)	.2835-02(.29-04)	2468.4
U-236	.5341-03(.11-04)	.0532(.0011)	.5234-03(.11-04)	.5234-03(.11-04)		
U-238	.1000+01	.99.5586(.0029)	.9883-00(.12-03)	-.4457-02(.12-03)	.2175-03(.21-04)	192.5
U TOTALS			.9927-00(.12-03)	-.7290-02(.12-03)		
PU239	1.0000+00	.79.4865(.0444)	.2301-02(.52-04)	.2301-02(.52-04)	.1322-02(.10-03)	1182.3
PU240	.2060-00(.65-03)	.16.3766(.0432)	.4760-03(.11-04)	.4760-03(.11-04)		
PU241	.4448-01(.25-03)	.3.6686(.0205)	.1071-03(.25-05)	.1071-03(.25-05)	.3745-04(.13-05)	33.7
PU242	.5892-02(.66-04)	.4683(.0052)	.1373-04(.35-06)	.1373-04(.35-06)		
TOTAL PU			.2898-02(.65-04)	.2898-02(.65-04)		
				TOTAL FISSIONS & BU	.4413-02(.10-03)	3876.9

- - - - - INPUT - - - - -		- - - - - CONSTANTS + ASSUMPTIONS - - - - -		- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.4976+09(.10+08)	U-235	FISSION YIELD DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	9.50	U-238	.0628(.0003) .0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.773YRS	PU239	.0620(.0040)	208	ALPHA235 OF SAMPLE
		PU241	.0674(.0014) .0563(.0056)	211	.1839(.0025)
		PU242	.0660(.0017) .0604(.0060)	214	
CS137 ATOMS/ML=	.4254+17(.85+15)	ALPHA241=	.365(.01)		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0194	CS HALF LIFE=	30.00(.20)YEARS		.4721(.0038)
TIME OUT OF REACTOR(CS137)=	.773YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		
		BOL ATOM PERCENTS FOR NATURAL URANIUM	234/235/236/238=.005/.720/.000/99.275		PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0695	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)	PU239=1.3616(.0017) PU240=5.013(.03)		.4257-02(.12-03)GM
		PU241=	.0576(.0010) PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77304 FROM ELEMENT 1100 TAKEN 36.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4490-04(.23-05)	.0045(.0002)	.4361-04(.23-05)	-.6393-05(.23-05)		
U-235	.3558-02(.24-04)	.3543(.0024)	.3470-02(.24-04)	-.3640-02(.24-04)	.3089-02(.26-04)	2689.2
U-236	.5643-03(.91-05)	.0562(.0009)	.5527-03(.91-05)	.5527-03(.91-05)		
U-238	.1000+01	.99.5850(.0026)	.9878-00(.14-03)	-.4998-02(.14-03)	.2457-03(.24-04)	217.4
U TOTALS			.9919-00(.13-03)	-.8085-02(.13-03)		
PU239	1.0000+00	.77.5921(.0421)	.2431-02(.55-04)	.2431-02(.55-04)	.1585-02(.11-03)	1417.1
PU240	.2278-00(.63-03)	.17.6732(.0406)	.5559-03(.13-04)	.5559-03(.13-04)		
PU241	.5146-01(.27-03)	.4.1380(.0214)	.1307-03(.30-05)	.1307-03(.30-05)	.5164-04(.18-05)	46.4
PU242	.7690-02(.84-04)	.5967(.0065)	.1893-04(.47-06)	.1893-04(.47-06)		
TOTAL PU			.3136-02(.71-04)	.3136-02(.71-04)		
				TOTAL FISSIONS & BU	.4971-02(.11-03)	4370.2

- - - - - INPUT - - - - -		- - - - - CONSTANTS + ASSUMPTIONS - - - - -		- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.5497+09(.11+08)	U-235	FISSION YIELD DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	11.00	U-238	.0628(.0003) .0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.745YRS	PU239	.0620(.0040)	208	ALPHA235 OF SAMPLE
		PU241	.0674(.0014) .0563(.0056)	211	.1783(.0019)
		PU242	.0660(.0017) .0604(.0060)	214	
CS137 ATOMS/ML=	.4434+17(.89+15)	ALPHA241=	.365(.01)		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0194	CS HALF LIFE=	30.00(.20)YEARS		.5119(.0034)
TIME OUT OF REACTOR(CS137)=	.745YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		
		BOL ATOM PERCENTS FOR NATURAL URANIUM	234/235/236/238=.005/.720/.000/99.275		PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0642	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)	PU239=1.3616(.0017) PU240=5.013(.03)		.4772-02(.13-03)GM
		PU241=	.0576(.0010) PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-46

UO-2 BURNUP DATA

SAMPLE 77305 FROM ELEMENT 1100 TAKEN 45.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4720-04(.21-05)	.0047(.0002)	.4591-04(.21-05)	-.4085-05(.21-05)		
U-235	.3562-02(.23-04)	.3547(.0022)	.3474-02(.22-04)	-.3630-02(.22-04)	.3094-02(.24-04)	2693.4
U-236	.5558-03(.87-05)	.0553(.0009)	.5444-03(.87-05)	-.5444-03(.87-05)		
U-238	.1000+01	.99.5852(.0024)	.9877-00(.14-03)	-.5082-02(.14-03)	.2490-03(.24-04)	220.4
U TOTALS			.9918-00(.14-03)	-.8174-02(.14-03)		
PU239	1.0000+00	.77.5084(.0857)	.2449-02(.56-04)	.2449-02(.56-04)	.1638-02(.11-03)	1464.7
PU240	.2281-00(.13-02)	.17.6797(.0856)	.5609-03(.13-04)	.5609-03(.13-04)		
PU241	.5221-01(.47-03)	.4.2028(.0365)	.1339-03(.33-05)	.1339-03(.33-05)	.5316-04(.19-05)	47.6
PU242	.7858-02(.11-03)	.6091(.0081)	.1948-04(.51-06)	.1948-04(.51-06)		
TOTAL PU			.3163-02(.71-04)	.3163-02(.71-04)		
				TOTAL FISSIONS * BU	.5034-02(.12-03)	4426.2

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.5542+09(.11+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	10.70	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.792YRS	U-238	.0620(.0040)		206
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.4951+17(.99+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0194	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.792YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.5114(.0032)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0708	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=.1.3616(.0017)	PU240=.5.013(.03)		.4854-02(.13-03)GM
		PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77306 FROM ELEMENT 1100 TAKEN 55.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4514-04(.19-05)	.0045(.0002)	.4385-04(.19-05)	-.6151-05(.19-05)		
U-235	.3705-02(.23-04)	.3689(.0022)	.3615-02(.22-04)	-.3495-02(.22-04)	.2954-02(.25-04)	2571.7
U-236	.5549-03(.11-04)	.0553(.0011)	.5437-03(.11-04)	-.5437-03(.11-04)		
U-238	.1000+01	.99.5713(.0025)	.9880-00(.13-03)	-.4793-02(.13-03)	.2332-03(.23-04)	206.4
U TOTALS			.9923-00(.13-03)	-.7745-02(.13-03)		
PU239	1.0000+00	.78.6840(.0433)	.2394-02(.54-04)	.2394-02(.54-04)	.1490-02(.11-03)	1332.0
PU240	.2148-00(.63-03)	.16.9005(.0412)	.5164-03(.12-04)	.5164-03(.12-04)		
PU241	.4764-01(.29-03)	.3.8931(.0230)	.1194-03(.28-05)	.1194-03(.28-05)	.4390-04(.16-05)	39.5
PU242	.6638-02(.77-04)	.5223(.0060)	.1609-04(.41-06)	.1609-04(.41-06)		
TOTAL PU			.3046-02(.69-04)	.3046-02(.69-04)		
				TOTAL FISSIONS * BU	.4721-02(.11-03)	4149.6

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.5273+09(.11+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	9.70	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.792YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML=	.3556+17(.71+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0194	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.792YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.4916(.0032)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0543	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=.1.3616(.0017)	PU240=.5.013(.03)		.4579-02(.13-03)GM
		PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-47
UO-2 BURNUP DATA

SAMPLE 77307 FROM ELEMENT 1100 TAKEN 65.00 INCHES FROM TOP OF OUTER PING ROD

I S O T O P I C I N V E N T O R Y

- - - - - INPUT DATA - - - - -			- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.4730-04(.23-05)	.0047(.0002)	.4597-04(.23-05)	-.4027-05(.23-05)			
U-235	.4111-02(.27-04)	.4092(.0026)	.4013-02(.26-04)	-.3097-02(.26-04)	.2631-02(.28-04)	2290.8	
U-236	.4771-03(.93-05)	.0475(.0009)	.4677-03(.93-05)	-.4677-03(.93-05)			
U-238	.1000+01	99.5386(.0026)	.9285-00(.12-03)	-.4247-02(.12-03)	.2039-03(.20-04)	180.5	
U TOTALS			.9931-00(.11-03)	-.6877-02(.11-03)			
PU239	1.0000+00	80.9630(.0393)	.2233-02(.50-04)	.2233-02(.50-04)	.1271-02(.96-04)	1136.3	
PU240	.1896-00(.55-03)	15.3482(.0380)	.4251-03(.96-05)	.4251-03(.96-05)			
PU241	.3939-01(.21-03)	3.3122(.0176)	.9213-04(.21-05)	.9213-04(.21-05)	.2870-04(.10-05)	25.8	
PU242	.4652-02(.54-04)	.3766(.0043)	.1052-04(.27-06)	.1052-04(.27-06)			
TOTAL PU			.2761-02(.62-04)	.2761-02(.62-04)			
				TOTAL FISSIONS & BU	.4135-02(.94-04)	3633.4	

- - - - - INPUT - - - - -			- - - - - CONSTANTS + ASSUMPTIONS - - - - -			- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.4662+09(.93+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	9.00		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.792YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1770(.0024)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.4164+17(.83+15)		ALPHA241=	.365(.01)			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0194		CS HALF LIFE=	30.00(.20)YEARS			.4356(.0037)
TIME OUT OF REACTOR(CS137)=	.792YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.0726		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.4060-02(.11-03)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77308 FROM ELEMENT 1100 TAKEN 75.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - - INPUT DATA - - - - -			- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.5723-04(.26-05)	.0057(.0003)	.5568-04(.26-05)	.5684-05(.26-05)			
U-235	.4528-02(.35-04)	.4505(.0035)	.4425-02(.35-04)	-.2685-02(.35-04)	.2263-02(.36-04)	1969.9	
U-236	.4324-03(.79-05)	.0430(.0008)	.4243-03(.79-05)	.4243-03(.79-05)			
U-238	.1000+01	99.5007(.0036)	.9896-00(.94-04)	-.3171-02(.94-04)	.1531-03(.15-04)	135.5	
U TOTALS			.9946-00(.87-04)	-.5432-02(.87-04)			
PU239	1.0000+00	84.6246(.0427)	.1953-02(.44-04)	.1953-02(.44-04)	.7079-03(.77-04)	633.0	
PU240	.1508-00(.56-03)	12.7639(.0410)	.2959-03(.67-05)	.2959-03(.67-05)			
PU241	.2738-01(.20-03)	2.4064(.0172)	.5601-04(.13-05)	.5601-04(.13-05)	.1308-04(.55-06)	11.8	
PU242	.2424-02(.62-04)	.2051(.0052)	.4794-05(.16-06)	.4794-05(.16-06)			
TOTAL PU			.2310-02(.52-04)	.2310-02(.52-04)			
				TOTAL FISSIONS & BU	.3137-02(.70-04)	2750.2	

- - - - - INPUT - - - - -			- - - - - CONSTANTS + ASSUMPTIONS - - - - -			- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.3734+09(.75+07)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	5.80		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.792YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1868(.0025)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.2408+17(.48+15)		ALPHA241=	.365(.01)			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0194		CS HALF LIFE=	30.00(.20)YEARS			.3777(.0049)
TIME OUT OF REACTOR(CS137)=	.792YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.0556		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.3031-02(.93-04)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-48
UO-2 BURNUP DATA

SAMPLE 77309 FROM ELEMENT 1100 TAKEN 65.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -		- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWDM/MTM
U-234	.5100-04(.34-05)	.0051(.0003)	.4968-04(.34-05)	-.3212-06(.34-05)		
U-235	.5251-02(.41-04)	.5222(.0041)	.5137-02(.41-04)	-.1973-02(.41-04)	.1685-02(.42-04)	1467.3
U-236	.2940-03(.10-04)	.0292(.0010)	.2988-03(.10-04)	.2888-03(.10-04)		
U-238	.1000+01	99.4435(.0042)	.9007-00(.73-04)	-.2058-02(.73-04)	.1013-03(.10-04)	89.7
U TOTALS			.9963-00(.59-04)	-.3743-02(.59-04)		
PU239	1.0000+00	89.4940(.0262)	.1480-02(.33-04)	.1460-02(.33-04)	.3083-03(.62-04)	275.7
PU240	.1031+00(.31-03)	9.2295(.0253)	.1532-03(.35-05)	.1532-03(.35-05)		
PU241	.1304-01(.93-04)	1.2118(.0086)	.2020-04(.48-06)	.2020-04(.48-06)	.2951-03(.11-06)	2.7
PU242	.7220-03(.13-04)	.0646(.0012)	.1082-05(.31-07)	.1082-05(.31-07)		
TOTAL PU			.1654-02(.37-04)	.1654-02(.37-04)		
			TOTAL FISSIONS & BU		.2096-02(.46-04)	1835.3

- - - - - INPUT - - - - -		- - - - - CONSTANTS + ASSUMPTIONS - - - - -		- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.2507+09(.50+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	3.00	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.792YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.1425+17(.28+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0194	PU241 HALF LIFE=	14.510(.4)YEARS		.2775(.0058)
TIME OUT OF REACTOR(CS137)=	.792YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0494	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.1965-02(.72-04)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77401 FROM ELEMENT 1099 TAKEN 3.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.5470-04(.37-05)	.0054(.0004)	.5320-04(.37-05)	.3257-05(.37-05)			
U-235	.4984-02(.44-04)	.4957(.0043)	.4373-02(.43-04)	-.2237-02(.43-04)	.1888-02(.44-04)	1643.2	
U-236	.3570-03(.77-05)	.0355(.0008)	.3506-03(.76-05)	.3506-03(.76-05)			
U-238	.1000+01	.99.4633(.0044)	.9902-00(.84-04)	-.2531-02(.84-04)	.1269-03(.13-04)	112.3	
U TOTALS			.9950-00(.71-04)	-.4417-02(.71-04)			
PU239	1.0000+00	.87.2170(.0337)	.1592-02(.36-04)	.1592-02(.36-04)	.5821-03(.71-04)	520.5	
PU240	.1272-00(.42-03)	.11.0940(.0329)	.2033-03(.46-05)	.2033-03(.46-05)			
PU241	.1774-01(.13-03)	.1.5808(.0112)	.2910-04(.69-06)	.2910-04(.69-06)	.5453-05(.20-06)	4.9	
PU242	.1240-02(.19-04)	.1081(.0016)	.1999-05(.54-07)	.1999-05(.54-07)			
TOTAL PU			.1826-02(.41-04)	.1826-02(.41-04)			
			TOTAL FISSIONS & BU		.2602-02(.58-04)	2281.0	

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
			FISSION YIELD	DEL	MEV/FIS		
PU DECAYS(D/M/ML)	.2871+09(.57+07)		U-235 .0628(.0003)	.0491(.0049)	202		
PERCENT OF PU DECAYS FROM PU238=	4.20		U-238 .0620(.0040)		208	ALPHA235 OF SAMPLE	
TIME OUT OF REACTOR (PU241)=	.449YRS		PU239 .0674(.0014)	.0563(.0056)	211	.1850(.0032)	
			PU241 .0660(.0017)	.0604(.0060)	214		
			ALPHA241=	.365(.01)			
CS137 ATOMS/ML=	.2436+17(.49+15)		CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION	
CS137 IN REACTOR DECAY COR=	1.0233		PU241 HALF LIFE=	14.5(0.4)YEARS		.3146(.0061)	
TIME OUT OF REACTOR(CS137)=	.449YRS		BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=	.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0675		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238	
			PU239=1.3616(.0017)	PU240=5.013(.03)		.2414-02(.82-04)GM	
			PU241= .0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77402 FROM ELEMENT 1099 TAKEN 13.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.4370-04(.24-05)	.0044(.0002)	.4246-04(.24-05)	-.7541-05(.24-05)			
U-235	.4014-02(.24-04)	.3996(.0024)	.3917-02(.24-04)	-.3193-02(.24-04)	.2711-02(.26-04)	2360.2	
U-236	.4940-03(.88-05)	.0492(.0009)	.4841-03(.87-05)	.4841-03(.87-05)			
U-238	.1000+01	.99.5469(.0026)	.9881-00(.12-03)	-.4600-02(.12-03)	.2209-03(.22-04)	195.6	
U TOTALS			.9927-00(.12-03)	-.7310-02(.12-03)			
PU239	1.0000+00	.80.3497(.0373)	.2301-02(.52-04)	.2301-02(.52-04)	.1500-02(.10-03)	1341.0	
PU240	.1976-00(.53-03)	.15.8771(.0361)	.4565-03(.10-04)	.4565-03(.10-04)			
PU241	.4098-01(.21-03)	.3.3642(.0168)	.9713-04(.22-05)	.9713-04(.22-05)	.3235-04(.12-05)	29.1	
PU242	.5090-02(.66-04)	.4090(.0052)	.1186-04(.31-06)	.1186-04(.31-06)			
TOTAL PU			.2866-02(.65-04)	.2866-02(.65-04)			
			TOTAL FISSIONS & BU		.4464-02(.10-03)	3925.9	

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
			FISSION YIELD	DEL	MEV/FIS		
PU DECAYS(D/M/ML)	.4887+09(.98+07)		U-235 .0628(.0003)	.0491(.0049)	202		
PERCENT OF PU DECAYS FROM PU238=	9.20		U-238 .0620(.0040)		208	ALPHA235 OF SAMPLE	
TIME OUT OF REACTOR (PU241)=	.449YRS		PU239 .0674(.0014)	.0563(.0056)	211	.1779(.0021)	
			PU241 .0660(.0017)	.0604(.0060)	214		
			ALPHA241=	.365(.01)			
CS137 ATOMS/ML=	.3843+17(.77+15)		CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION	
CS137 IN REACTOR DECAY COR=	1.0233		PU241 HALF LIFE=	14.5(0.4)YEARS		.4491(.0034)	
TIME OUT OF REACTOR(CS137)=	.449YRS		BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=	.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0617		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238	
			PU239=1.3616(.0017)	PU240=5.013(.03)		.4398-02(.12-03)GM	
			PU241= .0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-50

UO-2 BURNUP DATA

SAMPLE 77403 FROM ELEMENT 1099 TAKEN 24.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - INPUT DATA - - -		- - - PARAMETERS DETERMINED FROM INPUT - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5760-04(.40-05)	.0057(.0004)	.5590-04(.40-05)	.5897-05(.40-05)		
U-235	.3376-02(.25-04)	.3362(.0024)	.3290-02(.24-04)	-.3820-02(.24-04)	.3205-02(.27-04)	2789.8
U-236	.6310-03(.12-04)	.0628(.0012)	.6176-03(.12-04)	.6176-03(.12-04)		
U-238	.1000+01	.99.5952(.0027)	.9870-00(.15-03)	-.5776-04(.15-03)	.2781-03(.27-04)	246.2
U TOTALS			.9910-00(.15-03)	-.8979-02(.15-03)		
PU239	1.0000+00	.76.1179(.0501)	.2593-02(.59-04)	.2593-02(.59-04)	.2044-02(.13-03)	1827.1
PU240	.2449-00(.77-03)	.18.6413(.0480)	.6376-03(.14-04)	.6376-03(.14-04)		
PU241	.5814-01(.37-03)	.4.5216(.0279)	.1553-03(.36-05)	.1553-03(.36-05)	.6769-04(.24-05)	60.9
PU242	.9450-02(.10-03)	.7193(.0078)	.2481-04(.62-06)	.2481-04(.62-06)		
TOTAL PU			.3410-02(.77-04)	.3410-02(.77-04)		
					TOTAL FISSIONS & BU	.5594-02(.13-03) 4924.0

- - - INPUT - - -		- - - CONSTANTS + ASSUMPTIONS - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.6067+09(.12+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=12.50		U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)= .449YRS		U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241= .365(.01)			
CS137 ATOMS/ML= .4805+17(.96+15)		CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0233		PU241 HALF LIFE=14.5(0.4)YEARS			.5372(.0034)
TIME OUT OF REACTOR(CS137)= .449YRS		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER= .0614		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=1.3616(.0017)	PU240=5.013(.03)		.5521-02(.15-03)GM
		PU241= .0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77404 FROM ELEMENT 1099 TAKEN 36.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - INPUT DATA - - -		- - - PARAMETERS DETERMINED FROM INPUT - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.6380-04(.44-05)	.0064(.0004)	.6189-04(.44-05)	.1189-04(.44-05)		
U-235	.3107-02(.22-04)	.3095(.0022)	.3027-02(.22-04)	-.4083-02(.22-04)	.3426-02(.26-04)	2983.0
U-236	.6740-03(.14-04)	.0671(.0014)	.6594-03(.14-04)	.6594-03(.14-04)		
U-238	.1000+01	.99.6170(.0026)	.9865-00(.17-03)	-.6224-02(.17-03)	.3023-03(.30-04)	267.5
U TOTALS			.9904-00(.16-03)	-.9648-02(.16-03)		
PU239	1.0000+00	.74.0149(.0788)	.2664-02(.60-04)	.2664-02(.60-04)	.2253-02(.14-03)	2014.4
PU240	.2706-00(.13-02)	.20.0284(.0775)	.7238-03(.16-04)	.7238-03(.16-04)		
PU241	.6674-01(.58-03)	.5.0470(.0420)	.1832-03(.45-05)	.1832-03(.45-05)	.9044-04(.33-05)	81.3
PU242	.1229-01(.17-03)	.9096(.0122)	.3315-04(.88-06)	.3315-04(.88-06)		
TOTAL PU			.3604-02(.82-04)	.3604-02(.82-04)		
					TOTAL FISSIONS & BU	.6072-02(.14-03) 5346.3

- - - INPUT - - -		- - - CONSTANTS + ASSUMPTIONS - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.6545+09(.13+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=13.90		U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)= .449YRS		U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241= .365(.01)			
CS137 ATOMS/ML= .5238+17(.10+16)		CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0233		PU241 HALF LIFE=14.5(0.4)YEARS			.5743(.0031)
TIME OUT OF REACTOR(CS137)= .449YRS		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER= .0617		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=1.3616(.0017)	PU240=5.013(.03)		.5947-02(.16-03)GM
		PU241= .0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-51
UO-2 BURNUP DATA

SAMPLE 77405 FROM ELEMENT 1099 TAKEN 45.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -		- - - PARAMETERS DETERMINED FROM INPUT - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4440-04(.23-05)	.0044(.0002)	.4305-04(.22-05)	-.6947-05(.22-05)		
U-235	.3129-02(.20-04)	.3117(.0020)	.3047-02(.20-04)	-.4063-02(.20-04)	.3445-02(.22-04)	2999.4
U-236	.6340-03(.10-04)	.0632(.0010)	.6200-03(.10-04)	.6200-03(.10-04)		
U-238	.1000+01	.99.6207(.0022)	.9862-00(.17-03)	-.6560-02(.17-03)	.3170-03(.31-04)	280.6
U TOTALS			.9900-00(.17-03)	-.1002-01(.17-03)		
PU239	1.0000+00	73.8735(.0477)	.2729-02(.62-04)	.2729-02(.62-04)	.2495-02(.15-03)	2231.3
PU240	.2722-00(.77-03)	20.1084(.0457)	.7461-03(.17-04)	.7461-03(.17-04)		
PU241	.6749-01(.39-03)	5.0940(.0280)	.1898-03(.44-05)	.1898-03(.44-05)	.9433-04(.33-05)	84.8
PU242	.1251-01(.14-03)	.9242(.0100)	.3458-04(.87-06)	.3458-04(.87-06)		
TOTAL PU			.3700-02(.84-04)	.3700-02(.84-04)		
				TOTAL FISSIONS & BU	.6352-02(.15-03)	5596.1

- - - INPUT - - -		- - - CONSTANTS + ASSUMPTIONS - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.6727+09(.13+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=14.50		U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)= .449YRS		U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML= .5317+17(.11+16)		ALPHA241= .365(.01)			
CS137 IN REACTOR DECAY COR= 1.0233		CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)= .449YRS		PU241 HALF LIFE=14.5(0.4)YEARS			.5714(.0027)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER= .0598		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=1.3616(.0017)	PU240=5.013(.03)		.6289-02(.17-03)GM
		PU241= .0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77406 FROM ELEMENT 1099 TAKEN 55.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - INPUT DATA - - -		- - - PARAMETERS DETERMINED FROM INPUT - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5590-04(.36-05)	.0056(.0004)	.5422-04(.36-05)	.4216-05(.36-05)		
U-235	.3394-02(.22-04)	.3380(.0022)	.3306-02(.22-04)	-.3804-02(.22-04)	.3160-02(.26-04)	2751.1
U-236	.6610-03(.14-04)	.0658(.0014)	.6466-03(.14-04)	.6466-03(.14-04)		
U-238	.1000+01	.99.5906(.0026)	.9864-00(.16-03)	-.6354-02(.16-03)	.2985-03(.29-04)	264.2
U TOTALS			.9905-00(.16-03)	-.9512-02(.16-03)		
PU239	1.0000+00	75.1268(.0483)	.2677-02(.61-04)	.2677-02(.61-04)	.2435-02(.14-03)	2177.5
PU240	.2568-00(.78-03)	19.2926(.0474)	.6903-03(.16-04)	.6903-03(.16-04)		
PU241	.6229-01(.33-03)	4.7813(.0242)	.1718-03(.40-05)	.1718-03(.40-05)	.7869-04(.28-05)	70.8
PU242	.1064-01(.13-03)	.7993(.0098)	.2884-04(.74-06)	.2884-04(.74-06)		
TOTAL PU			.3568-02(.81-04)	.3568-02(.81-04)		
				TOTAL FISSIONS & BU	.5973-02(.14-03)	5263.6

- - - INPUT - - -		- - - CONSTANTS + ASSUMPTIONS - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.6409+09(.13+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=13.80		U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)= .449YRS		U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML= .5362+17(.11+16)		ALPHA241= .365(.01)			
CS137 IN REACTOR DECAY COR= 1.0233		CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)= .449YRS		PU241 HALF LIFE=14.5(0.4)YEARS			.5350(.0031)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER= .0641		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=1.3616(.0017)	PU240=5.013(.03)		.6081-02(.16-03)GM
		PU241= .0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77407 FROM ELEMENT 1099 TAKEN 65.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.6440-04(.44-05)	.0064(.0004)	.6252-04(.43-05)	.1252-04(.43-05)		
U-235	.3620-02(.39-04)	.3605(.0039)	.3529-02(.39-04)	-.3501-02(.39-04)	.3011-02(.40-04)	2621.4
U-236	.5840-03(.11-04)	.0582(.0011)	.5718-03(.11-04)	.5718-03(.11-04)		
U-238	.1000+01	.99.5750(.0041)	.9873-00(.15-03)	-.5409-02(.15-03)	.2589-03(.25-04)	229.2
U TOTALS			.9916-00(.14-03)	-.8418-02(.14-03)		
PU239	1.0000+00	.77.7002(.0449)	.2507-02(.57-04)	.2507-02(.57-04)	.1889-02(.12-03)	1688.7
PU240	.2263-00(.68-03)	.17.5836(.0440)	.5698-03(.13-04)	.5698-03(.13-04)		
PU241	.5196-01(.27-03)	.4.1250(.0210)	.1342-03(.31-05)	.1342-03(.31-05)	.5271-04(.19-05)	47.4
PU242	.7610-02(.86-04)	.5913(.0066)	.1932-04(.49-06)	.1932-04(.49-06)		
TOTAL PU			.3231-02(.73-04)	.3231-02(.73-04)	.5211-02(.12-03)	4586.7
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.5654+09(.11+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	11.50	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.449YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.3252+17(.65+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0233	PU241 HALF LIFE=	14.5(0.4)YEARS		.5036(.0055)
TIME OUT OF REACTOR(CS137)=	.449YRS	BOL ATOM PERCENTS FOR NATURAL UKANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0446	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.5172-02(.14-03)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77408 FROM ELEMENT 1099 TAKEN 75.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5180-04(.28-05)	.0052(.0003)	.5035-04(.28-05)	.3479-06(.28-05)		
U-235	.4133-02(.31-04)	.4114(.0030)	.4034-02(.30-04)	-.3076-02(.30-04)	.2601-02(.32-04)	2264.5
U-236	.4860-03(.83-05)	.0484(.0008)	.4764-03(.82-05)	.4764-03(.82-05)		
U-238	.1000+01	.99.5351(.0032)	.9885-00(.12-03)	-.4222-02(.12-03)	.2015-03(.20-04)	178.3
U TOTALS			.9932-00(.11-03)	-.6821-02(.11-03)		
PU239	1.0000+00	.81.4202(.0807)	.2240-02(.51-04)	.2240-02(.51-04)	.1257-02(.96-04)	1123.7
PU240	.1850-00(.11-02)	.15.0627(.0731)	.4162-03(.95-05)	.4162-03(.95-05)		
PU241	.3810-01(.60-03)	.3.1695(.0481)	.8795-04(.24-05)	.8795-04(.24-05)	.2643-04(.11-05)	23.8
PU242	.4270-02(.92-04)	.3477(.0074)	.9687-05(.30-06)	.9687-05(.30-06)		
TOTAL PU			.2754-02(.62-04)	.2754-02(.62-04)	.4086-02(.93-04)	3590.3
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.4631+09(.93+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	8.20	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.449YRS	U-238	.0620(.0040)		206
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.3021+17(.60+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0233	PU241 HALF LIFE=	14.5(0.4)YEARS		.4326(.0043)
TIME OUT OF REACTOR(CS137)=	.449YRS	BOL ATOM PERCENTS FOR NATURAL UKANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0531	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.4037-02(.11-03)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77409 FROM ELEMENT 1099 TAKEN 85.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4910-04(.28-05)	.0049(.0003)	.4781-04(.28-05)	-.2165-05(.28-05)		
U-235	.5007-02(.32-04)	.4980(.0032)	.4897-02(.32-04)	-.2213-02(.32-04)	.1883-02(.33-04)	1638.9
U-236	.3380-03(.77-05)	.0336(.0008)	.3320-03(.77-05)	.3320-03(.77-05)		
U-238	.1000+01	.994635(.0033)	.9904-00(.75-04)	-.2337-02(.75-04)	.1195-03(.12-04)	105.7
U TOTALS			.9958-00(.67-04)	-.4218-02(.67-04)		
PU239	1.0000+00	87.2429(.0372)	.1541-02(.35-04)	.1541-02(.35-04)	.4538-03(.62-04)	405.8
PU240	.1258-00(.46-03)	10.9752(.0360)	.1947-03(.44-05)	.1947-03(.44-05)		
PU241	.1867-01(.15-03)	1.6642(.0132)	.2064-04(.71-06)	.2964-04(.71-06)	.5747-05(.21-06)	5.2
PU242	.1350-02(.18-04)	.1178(.0015)	.2106-05(.55-07)	.2106-05(.55-07)		
TOTAL PU			.1767-02(.40-04)	.1767-02(.40-04)		
				TOTAL FISSIONS & BU	.2462-02(.55-04)	2155.6

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.2770+09(.55+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	5.00	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.449YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.1576+17(.32+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0233	PU241 HALF LIFE=	14.5(0.4)YEARS		.3113(.0045)
TIME OUT OF REACTOR(CS137)=	.449YRS	BOL ATOM PERCENTS FOR NATURAL UKANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0463	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=1.3616(.0017)	PU240=5.013(.03)		.2227-02(.74-04)GM
		PU241= .0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77428 FROM ELEMENT 1099 TAKEN 36.00 INCHES FROM TOP OF OUTER RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4070-04(.19-05)	.0041(.0002)	.3951-04(.19-05)	-.1049-04(.19-05)		
U-235	.3134-02(.21-04)	.3122(.0021)	.3055-02(.21-04)	-.4055-02(.21-04)	.3448-02(.23-04)	3001.8
U-236	.6220-03(.11-04)	.0620(.0011)	.6090-03(.11-04)	.6090-03(.11-04)		
U-238	.1000+01	.996218(.0023)	.9873-00(.15-03)	-.5492-02(.15-03)	.2827-03(.28-04)	250.2
U TOTALS			.9911-00(.15-03)	-.8936-02(.15-03)		
PU239	1.0000+00	74.2630(.0485)	.2414-02(.55-04)	.2414-02(.55-04)	.1896-02(.13-03)	1695.2
PU240	.2669-00(.79-03)	19.8208(.0475)	.6471-03(.15-04)	.6471-03(.15-04)		
PU241	.6616-01(.35-03)	5.0199(.0255)	.1646-03(.38-05)	.1646-03(.38-05)	.8051-04(.28-05)	72.4
PU242	.1207-01(.13-03)	.8964(.0095)	.2951-04(.74-06)	.2951-04(.74-06)		
TOTAL PU			.3255-02(.74-04)	.3255-02(.74-04)		
				TOTAL FISSIONS & BU	.5707-02(.13-03)	5019.6

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.5892+09(.12+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	14.60	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.449YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.3877+17(.78+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0233	PU241 HALF LIFE=	14.5(0.4)YEARS		.5703(.0029)
TIME OUT OF REACTOR(CS137)=	.449YRS	BOL ATOM PERCENTS FOR NATURAL UKANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0487	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=1.3616(.0017)	PU240=5.013(.03)		.5231-02(.15-03)GM
		PU241= .0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-54

UO-2 BURNUP DATA

SAMPLE 77429 FROM ELEMENT 1099 TAKEN 36.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4370-04(.22-05)	.0044(.0002)	.4241-04(.22-05)	-.7592-05(.22-05)		
U-235	.3158-02(.22-04)	.3146(.0022)	.3070-02(.22-04)	-.4032-02(.22-04)	.3414-02(.24-04)	2972.2
U-236	.6340-03(.11-04)	.0632(.0011)	.6205-03(.11-04)	-.6205-03(.11-04)		
U-238	.1000+01	99.6179(.0024)	.9870-00(.16-03)	-.5767-02(.16-03)	.2880-03(.28-04)	255.5
U TOTALS			.9908-00(.15-03)	-.9199-02(.15-03)		
PU239	1.0000+00	74.1520(.0550)	.2525-02(.57-04)	.2525-02(.57-04)	.2028-02(.13-03)	1813.1
PU240	.2687-00(.88-03)	19.9247(.0526)	.6814-03(.15-04)	.6814-03(.15-04)		
PU241	.6635-01(.45-03)	5.0268(.0327)	.1726-03(.41-05)	.1726-03(.41-05)	.8434-04(.30-05)	75.9
PU242	.1209-01(.14-03)	.8965(.0100)	.3091-04(.78-06)	.3091-04(.78-06)		
TOTAL PU			.3410-02(.77-04)	.3410-02(.77-04)		
				TOTAL FISSIONS & BU	.5815-02(.13-03)	5116.6

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.6183+09(.12+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	14.30	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.449YRS	U-238	.0620(.0040)		206
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.5475+17(.11+16)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0233	PU241 HALF LIFE=	14.510(.4)YEARS		.5671(.0030)
TIME OUT OF REACTOR(CS137)=	.449YRS	ROL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0674	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.5521-02(.15-03)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77430 FROM ELEMENT 1099 TAKEN 36.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4810-04(.29-05)	.0048(.0003)	.4671-04(.29-05)	-.3268-05(.29-05)		
U-235	.3113-02(.18-04)	.3101(.0018)	.3036-02(.18-04)	-.4074-02(.18-04)	.3447-02(.22-04)	3001.3
U-236	.6420-03(.12-04)	.0640(.0012)	.6288-03(.12-04)	-.6288-03(.12-04)		
U-238	.1000+01	99.6211(.0022)	.9877-00(.14-03)	-.5067-02(.14-03)	.2610-03(.26-04)	231.0
U TOTALS			.9915-00(.14-03)	-.8513-02(.14-03)		
PU239	1.0000+00	74.1147(.0490)	.2396-02(.54-04)	.2396-02(.54-04)	.1507-02(.12-03)	1347.9
PU240	.2686-00(.78-03)	19.9072(.0469)	.6463-03(.15-04)	.6463-03(.15-04)		
PU241	.6679-01(.40-03)	5.0576(.0288)	.1649-03(.39-05)	.1649-03(.39-05)	.8222-04(.29-05)	73.9
PU242	.1242-01(.13-03)	.9205(.0096)	.3014-04(.75-06)	.3014-04(.75-06)		
TOTAL PU			.3238-02(.73-04)	.3238-02(.73-04)		
				TOTAL FISSIONS & BU	.5298-02(.12-03)	4654.1

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.5866+09(.12+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	14.60	U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)=	.449YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0563(.0056)	211
		PU241	.0660(.0017)	.0604(.0060)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.5593+17(.11+16)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0233	PU241 HALF LIFE=	14.510(.4)YEARS		.5730(.0025)
TIME OUT OF REACTOR(CS137)=	.449YRS	ROL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0758	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.4827-02(.14-03)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-55

UO-2 BURNUP DATA

SAMPLE 77431 FROM ELEMENT 1099 TAKEN 36.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

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-----INPUT DATA-----
ISOTOPE   EOL MASS RATIO   EOL(A/O)   EOL(GM)   NET PRODUCTION(GM)   FISSIONS(GM)   BU MWD/MTM
U-234     .4190-04(.20-05)   .0042(.0002)   .4065-04(.20-05)   -.9345-05(.20-05)
U-235     .3080-02(.16-04)   .3069(.0016)   .3001-02(.16-04)   -.4109-02(.16-04)   .3502-02(.19-04)   3049.1
U-236     .6220-03(.96-05)   .0620(.0010)   .6087-03(.95-05)   -.6087-03(.95-05)
U-238     .1000+01   99.6270(.0019)   .9868-00(.16-03)   -.5949-02(.16-03)   .2917-03(.29-04)   258.2
U TOTALS
PU239     1.0000+00   74.1586(.0514)   .2662-02(.60-04)   .2662-02(.60-04)   .1997-02(.13-03)   1785.1
PU240     .2683-00(.84-03)   19.8968(.0504)   .7173-03(.16-04)   .7173-03(.16-04)
PU241     .6637-01(.37-03)   5.0288(.0272)   .1820-03(.42-05)   .1820-03(.42-05)   .9084-04(.32-05)   81.7
PU242     .1235-01(.13-03)   .9159(.0094)   .3329-04(.83-06)   .3329-04(.83-06)
TOTAL PU
TOTAL FISSIONS & BU
.5881-02(.14-03)   5174.1

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-----INPUT-----
PU DECAYS(D/M/ML) .6514+09(.13+08)
PERCENT OF PU DECAYS FROM PU238=14.90
TIME OUT OF REACTOR (PU241)= .449YRS
CS137 ATOMS/ML= .5441+17(.11+16)
CS137 IN REACTOR DECAY COR= 1.0233
TIME OUT OF REACTOR(CS137)= .449YRS
GRAMS OF FUEL/ML OF DISSOLVER= .0663

CONSTANTS + ASSUMPTIONS
FISSION YIELD DEL MEV/FIS
U-235 .0628(.0003) .0491(.0049) 202
U-238 .0620(.0040) 208
PU239 .0674(.0014) .0563(.0056) 211
PU241 .0660(.0017) .0604(.0060) 214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL URANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=1.3616(.0017) PU240=5.013(.03)
PU241=.0576(.0010) PU242=.087(.002)

DERIVED FROM DATA
ALPHA235 OF SAMPLE .1731(.0017)
U235 FRACTIONAL DEPLETION .5779(.0023)
PU239 FORMED FROM U238 .5682-02(.16-03)GM

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77432 FROM ELEMENT 1099 TAKEN 36.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

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-----INPUT DATA-----
ISOTOPE   EOL MASS RATIO   EOL(A/O)   EOL(GM)   NET PRODUCTION(GM)   FISSIONS(GM)   BU MWD/MTM
U-234     .4250-04(.19-05)   .0042(.0002)   .4125-04(.19-05)   -.8746-05(.19-05)
U-235     .3146-02(.22-04)   .3134(.0022)   .3067-02(.22-04)   -.4043-02(.22-04)   .3417-02(.24-04)   2974.8
U-236     .6420-03(.10-04)   .0640(.0010)   .6285-03(.10-04)   -.6285-03(.10-04)
U-238     .1000+01   99.6184(.0024)   .9872-00(.15-03)   -.5527-02(.15-03)   .2757-03(.27-04)   244.0
U TOTALS
PU239     1.0000+00   74.3015(.0497)   .2519-02(.57-04)   .2519-02(.57-04)   .1796-02(.13-03)   1605.6
PU240     .2667-00(.81-03)   19.8162(.0484)   .6747-03(.15-04)   .6747-03(.15-04)
PU241     .6577-01(.37-03)   4.9929(.0271)   .1707-03(.40-05)   .1707-03(.40-05)   .8331-04(.29-05)   74.9
PU242     .1197-01(.13-03)   .8894(.0094)   .3054-04(.76-06)   .3054-04(.76-06)
TOTAL PU
TOTAL FISSIONS & BU
.5572-02(.13-03)   4899.3

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-----INPUT-----
PU DECAYS(D/M/ML) .6146+09(.12+08)
PERCENT OF PU DECAYS FROM PU238=14.50
TIME OUT OF REACTOR (PU241)= .449YRS
CS137 ATOMS/ML= .5311+17(.11+16)
CS137 IN REACTOR DECAY COR= 1.0233
TIME OUT OF REACTOR(CS137)= .449YRS
GRAMS OF FUEL/ML OF DISSOLVER= .0663

CONSTANTS + ASSUMPTIONS
FISSION YIELD DEL MEV/FIS
U-235 .0628(.0003) .0491(.0049) 202
U-238 .0620(.0040) 208
PU239 .0674(.0014) .0563(.0056) 211
PU241 .0660(.0017) .0604(.0060) 214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL URANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=1.3616(.0017) PU240=5.013(.03)
PU241=.0576(.0010) PU242=.087(.002)

DERIVED FROM DATA
ALPHA235 OF SAMPLE .1832(.0019)
U235 FRACTIONAL DEPLETION .5687(.0030)
PU239 FORMED FROM U238 .5274-02(.15-03)GM

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

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UO-2 BURNUP DATA

SAMPLE 77410 FROM ELEMENT 1099 TAKEN 3.00 INCHES FROM TOP OF MIDDLE RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.6200-04(.38-05)	.0062(.0004)	.6044-04(.38-05)	.1044-04(.38-05)		
U-235	.5193-02(.53-04)	.5164(.0053)	.5084-02(.53-04)	-.2020-02(.53-04)	.1712-02(.53-04)	1490.4
U-236	.3210-03(.65-05)	.0319(.0007)	.3156-03(.65-05)	.3150-03(.65-05)		
U-238	.1000+01	.99.4455(.0053)	.9014-00(.72-04)	-.1340-02(.72-04)	.1038-03(.11-04)	91.9
U TOTALS			.9764-00(.48-04)	-.3050-02(.48-04)		
PU239	1.0000+00	.88.3752(.0425)	.1116-02(.25-04)	.1110-02(.25-04)	-.2554-04(.65-04)	-22.8
PU240	.1151+00(.52-03)	10.1720(.0416)	.1290-03(.29-05)	.1290-03(.29-05)		
PU241	.1518-01(.14-03)	1.3707(.0128)	.1746-04(.43-06)	.1740-04(.43-06)	.2868-05(.11-06)	2.6
PU242	.9300-03(.20-04)	.0822(.0017)	.1051-05(.32-07)	.1051-05(.32-07)		
TOTAL PU			.1264-02(.28-04)	.1264-02(.28-04)		
				TOTAL FISSIONS & BU	.1793-02(.39-04)	1562.0

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.1952+09(.39+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	4.70	U-235	.0628(.0003)	.0609(.0061)	202
TIME OUT OF REACTOR (PU241)=	.449YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0766(.0077)	211
		PU241	.0660(.0017)	.0799(.0080)	214
CS137 ATOMS/ML=	.1092+17(.22+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0233	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.449YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.2850(.0074)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0445	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=1.3616(.0017)	PU240=5.013(.03)		.1241-02(.71-04)GM
		PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77411 FROM ELEMENT 1099 TAKEN 13.00 INCHES FROM TOP OF MIDDLE RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -		- - - - PARAMETERS DETERMINED FROM INPUT - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5520-04(.30-05)	.0055(.0003)	.5368-04(.30-05)	.3679-05(.30-05)		
U-235	.4366-02(.29-04)	.4345(.0029)	.4264-02(.29-04)	-.2846-02(.29-04)	.2407-02(.29-04)	2095.9
U-236	.4490-03(.75-05)	.0447(.0007)	.4404-03(.74-05)	.4404-03(.74-05)		
U-238	.1000+01	.99.5153(.0030)	.9890-00(.10-03)	-.3722-02(.10-03)	.2281-03(.22-04)	201.9
U TOTALS			.9939-00(.10-03)	-.6128-02(.10-03)		
PU239	1.0000+00	.82.6133(.0503)	.2035-02(.46-04)	.2035-02(.46-04)	.1026-02(.86-04)	916.9
PU240	.1733-00(.70-03)	14.3169(.0499)	.3541-03(.80-05)	.3541-03(.80-05)		
PU241	.3311-01(.21-03)	2.7947(.0175)	.6940-04(.16-05)	.6940-04(.16-05)	.1872-04(.67-06)	16.8
PU242	.3330-02(.41-04)	.2751(.0034)	.6860-05(.18-06)	.6860-05(.18-06)		
TOTAL PU			.2465-02(.56-04)	.2465-02(.56-04)		
				TOTAL FISSIONS & BU	.3680-02(.83-04)	3231.5

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.4097+09(.82+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	8.70	U-235	.0628(.0003)	.0609(.0061)	202
TIME OUT OF REACTOR (PU241)=	.449YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0766(.0077)	211
		PU241	.0660(.0017)	.0799(.0080)	214
CS137 ATOMS/ML=	.1535+17(.31+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0233	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.449YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.4003(.0040)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0300	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=1.3616(.0017)	PU240=5.013(.03)		.3509-02(.10-03)GM
		PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

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UO-2 BURNUP DATA

SAMPLE 77412 FROM ELEMENT 1099 TAKEN 24.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - - - INPUT DATA - - - - -			- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.5240-04(.21-05)	.0052(.0002)	.5085-04(.21-05)	.8549-06(.21-05)			
U-235	.3823-02(.30-04)	.3806(.0030)	.3720-02(.30-04)	-.3384-02(.30-04)	.2855-02(.30-04)	2485.8	
U-236	.5420-03(.11-04)	.0540(.0011)	.5305-03(.11-04)	.5305-03(.11-04)			
U-238	.1000+01	.99.5602(.0032)	.9870-00(.15-03)	-.5700-02(.15-03)	.3361-03(.33-04)	297.5	
U TOTALS			.9914-00(.14-03)	-.8554-02(.14-03)			
PU239	1.0000+00	.78.5172(.1023)	.2579-02(.59-04)	.2579-02(.59-04)	.2052-02(.12-03)	1834.8	
PU240	.2198-00(.14-02)	.17.2581(.0923)	.5693-03(.13-04)	.5693-03(.13-04)			
PU241	.4632-01(.83-03)	.3.7159(.0643)	.1231-03(.36-05)	.1231-03(.36-05)	.4618-04(.22-05)	41.5	
PU242	.6480-02(.22-03)	.5088(.0176)	.1692-04(.70-06)	.1692-04(.70-06)			
TOTAL PU			.3289-02(.74-04)	.3289-02(.74-04)			
					TOTAL FISSIONS & BU	.5290-02(.12-03)	4659.7

- - - - - INPUT - - - - -			- - - - - CONSTANTS + ASSUMPTIONS - - - - -			- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.5740+09(.11+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	11.70		U-235	.0628(.0003)	.0609(.0061)	202	
TIME OUT OF REACTOR (PU241)=	.449YRS		U-238	.0620(.0040)		206	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0766(.0077)	211	.1851(.0025)
			PU241	.0660(.0017)	.0799(.0080)	214	
CS137 ATOMS/ML=	.3443+17(.69+15)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0233		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.449YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.4759(.0042)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.0465		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.5387-02(.14-03)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77413 FROM ELEMENT 1099 TAKEN 36.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - - - INPUT DATA - - - - -			- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.4940-04(.29-05)	.0049(.0003)	.4795-04(.29-05)	-.2052-05(.29-05)			
U-235	.3541-02(.23-04)	.3526(.0023)	.3452-02(.23-04)	-.3658-02(.23-04)	.3095-02(.25-04)	2694.2	
U-236	.5780-03(.11-04)	.0576(.0011)	.5658-03(.11-04)	.5658-03(.11-04)			
U-238	.1000+01	.99.5849(.0025)	.9872-00(.15-03)	-.5600-02(.15-03)	.3422-03(.33-04)	302.9	
U TOTALS			.9913-00(.15-03)	-.8692-02(.15-03)			
PU239	1.0000+00	.76.6342(.0667)	.2523-02(.57-04)	.2523-02(.57-04)	.1927-02(.12-03)	1722.6	
PU240	.2425-00(.10-02)	.18.5838(.0642)	.6143-03(.14-04)	.6143-03(.14-04)			
PU241	.5297-01(.47-03)	.4.1474(.0354)	.1377-03(.33-05)	.1377-03(.33-05)	.5771-04(.21-05)	51.9	
PU242	.8280-02(.11-03)	.6345(.0084)	.2115-04(.56-06)	.2115-04(.56-06)			
TOTAL PU			.3296-02(.74-04)	.3296-02(.74-04)			
					TOTAL FISSIONS & BU	.5421-02(.13-03)	4771.6

- - - - - INPUT - - - - -			- - - - - CONSTANTS + ASSUMPTIONS - - - - -			- - - - - DERIVED FROM DATA - - - - -	
PU DECAYS(D/M/ML)	.5874+09(.12+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	13.40		U-235	.0628(.0003)	.0609(.0061)	202	
TIME QMT OF REACTOR (PU241)=	.449YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0766(.0077)	211	.1821(.0022)
			PU241	.0660(.0017)	.0799(.0080)	214	
CS137 ATOMS/ML=	.4180+17(.84+15)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0233		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.449YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.5145(.0032)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.0552		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.5280-02(.14-03)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-58
UO-2 BURNUP DATA

SAMPLE 77414 FROM ELEMENT 1099 TAKEN 45.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			- - - - DERIVED FROM DATA - - - -	
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.5750-04(.41-05)	.0057(.0004)	.5581-04(.41-05)	.5813-05(.41-05)			
U-235	.3510-02(.19-04)	.3495(.0019)	.3422-02(.19-04)	-.3688-02(.19-04)	.3119-02(.21-04)	2715.2	
U-236	.5840-03(.93-05)	.0582(.0009)	.5717-03(.92-05)	.5717-03(.92-05)			
U-238	.1000+01	.99.5866(.0021)	.9872-00(.15-03)	-.5539-02(.15-03)	.3403-03(.33-04)	301.2	
U TOTALS			.9913-00(.15-03)	-.8656-02(.15-03)			
PU239	1.0000+00	.76.4702(.0472)	.2506-02(.57-04)	.2506-02(.57-04)	.1881-02(.12-03)	1681.9	
PU240	.2443-00(.74-03)	.18.6817(.0462)	.6149-03(.14-04)	.6149-03(.14-04)			
PU241	.5381-01(.30-03)	.4.2042(.0229)	.1390-03(.32-05)	.1390-03(.32-05)	.5830-04(.20-05)	52.4	
PU242	.8420-02(.89-04)	.6439(.0067)	.2137-04(.53-06)	.2137-04(.53-06)			
TOTAL PU			.3282-02(.74-04)	.3282-02(.74-04)			
				TOTAL FISSIONS & BU	.5399-02(.12-03)	4750.8	

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.5857+09(.12+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	13.40		U-235	.0628(.0003)	.0609(.0061)	202	
TIME OUT OF REACTOR (PU241)=	.449YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0766(.0077)	211	.1826(.0019)
			PU241	.0660(.0017)	.0799(.0080)	214	
CS137 ATOMS/ML=	.4985+17(.10+16)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0233		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.449YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.5188(.0026)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=	.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0661		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=	1.3616(.0017)	PU240=	5.013(.03)	.5221-02(.14-03)GM
			PU241=	.0576(.0010)	PU242=	.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77415 FROM ELEMENT 1099 TAKEN 55.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			- - - - DERIVED FROM DATA - - - -	
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.4920-04(.30-05)	.0049(.0003)	.4775-04(.29-05)	-.2252-05(.29-05)			
U-235	.3724-02(.31-04)	.3708(.0031)	.3430-02(.31-04)	-.3480-02(.31-04)	.2945-02(.32-04)	2564.0	
U-236	.5490-03(.98-05)	.0547(.0010)	.5374-03(.97-05)	.5374-03(.97-05)			
U-238	.1000+01	.99.5696(.0032)	.9870-00(.15-03)	-.5730-02(.15-03)	.3398-03(.33-04)	300.8	
U TOTALS			.9913-00(.15-03)	-.8673-02(.15-03)			
PU239	1.0000+00	.77.6259(.1609)	.2589-02(.60-04)	.2589-02(.60-04)	.2023-02(.13-03)	1808.8	
PU240	.2298-00(.25-02)	.17.8384(.1588)	.5974-03(.14-04)	.5974-03(.14-04)			
PU241	.5020-01(.95-03)	.3.9814(.0730)	.1339-03(.40-05)	.1339-03(.40-05)	.5106-04(.21-05)	45.9	
PU242	.7140-02(.16-03)	.5542(.0126)	.1872-04(.61-06)	.1872-04(.61-06)			
TOTAL PU			.3339-02(.76-04)	.3339-02(.76-04)			
				TOTAL FISSIONS & BU	.5359-02(.13-03)	4719.5	

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.5879+09(.12+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	12.70		U-235	.0628(.0003)	.0609(.0061)	202	
TIME OUT OF REACTOR (PU241)=	.449YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0766(.0077)	211	.1818(.0022)
			PU241	.0660(.0017)	.0799(.0080)	214	
CS137 ATOMS/ML=	.4394+17(.88+15)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0233		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.449YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.4895(.0043)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=	.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0586		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=	1.3616(.0017)	PU240=	5.013(.03)	.5412-02(.15-03)GM
			PU241=	.0576(.0010)	PU242=	.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-59

UO-2 BURNUP DATA

SAMPLE 77416 FROM ELEMENT 1099 TAKEN 65.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5500-04(.30-05)	.0055(.0003)	.5347-04(.30-05)	.3466-05(.30-05)		
U-235	.4043-02(.34-04)	.4024(.0034)	.3947-02(.34-04)	-.3163-02(.34-04)	.2667-02(.35-04)	2321.6
U-236	.5080-03(.94-05)	.0506(.0009)	.4781-03(.93-05)	.4981-03(.93-05)		
U-238	.1000+01	.99.5415(.0035)	.9987-00(.12-03)	-.4039-02(.12-03)	.2544-03(.25-04)	225.2
U TOTALS			.9933-00(.11-03)	-.6704-02(.11-03)		
PU239	1.0000+00	.80.4638(.0455)	.2107-02(.48-04)	.2107-02(.48-04)	.1151-02(.97-04)	1029.0
PU240	.1967-00(.61-03)	.15.8272(.0413)	.4162-03(.94-05)	.4162-03(.94-05)		
PU241	.4027-01(.34-03)	.3.3106(.0271)	.8742-04(.21-05)	.8742-04(.21-05)	.2882-04(.11-05)	25.9
PU242	.4950-02(.77-04)	.3983(.0062)	.1056-04(.29-06)	.1056-04(.29-06)		
TOTAL PU			.2621-02(.59-04)	.2621-02(.59-04)		
				TOTAL FISSIONS & BU	.4101-02(.93-04)	3601.7

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.4467+09(.89+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	10.70	U-235	.0628(.0003)	.0609(.0061)	202
TIME OUT OF REACTOR (PU241)=	.449YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0766(.0077)	211
		PU241	.0660(.0017)	.0799(.0080)	214
CS137 ATOMS/ML=	.3280+17(.66+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0233	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.449YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.4448(.0048)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
GRAMS OF FUEL/ML OF DISSOLVER=	.0575	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.3801-02(.11-03)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77417 FROM ELEMENT 1099 TAKEN 75.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5160-04(.24-05)	.0051(.0002)	.5020-04(.24-05)	.1986-06(.24-05)		
U-235	.4706-02(.55-04)	.4682(.0054)	.4598-02(.54-04)	-.2512-02(.54-04)	.2103-02(.55-04)	1830.6
U-236	.4190-03(.77-05)	.0417(.0008)	.4111-03(.77-05)	.4111-03(.77-05)		
U-238	.1000+01	.99.4850(.0055)	.9894-00(.10-03)	-.3333-02(.10-03)	.1991-03(.20-04)	176.3
U TOTALS			.9946-00(.88-04)	-.5434-02(.88-04)		
PU239	1.0000+00	.83.6320(.0412)	.1868-02(.42-04)	.1868-02(.42-04)	.8964-03(.89-04)	801.5
PU240	.1620-00(.56-03)	.13.5484(.0406)	.3039-03(.69-05)	.3039-03(.69-05)		
PU241	.3018-01(.17-03)	.2.5788(.0144)	.5808-04(.13-05)	.5808-04(.13-05)	.1486-04(.53-06)	13.4
PU242	.2880-02(.35-04)	.2409(.0029)	.5448-05(.14-06)	.5448-05(.14-06)		
TOTAL PU			.2235-02(.50-04)	.2235-02(.50-04)		
				TOTAL FISSIONS & BU	.3213-02(.73-04)	2821.8

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.3665+09(.73+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	8.00	U-235	.0628(.0003)	.0609(.0061)	202
TIME OUT OF REACTOR (PU241)=	.449YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0766(.0077)	211
		PU241	.0660(.0017)	.0799(.0080)	214
CS137 ATOMS/ML=	.2346+17(.47+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0233	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.449YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.3533(.0076)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
GRAMS OF FUEL/ML OF DISSOLVER=	.0525	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)
					.3147-02(.10-03)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-60

UO-2 BURNUP DATA

SAMPLE 77418 FROM ELEMENT 1099 TAKEN 85.00 INCHES FROM TOP OF MIDDLE RING ROD

ISOTOPIC INVENTORY

- - - - - INPUT DATA - - - - -

ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5560-04(.36-05)	.0055(.0004)	.5417-04(.36-05)	.4168-05(.36-05)		
U-235	.5292-02(.47-04)	.5262(.0047)	.5178-02(.47-04)	-.1932-02(.47-04)	.1627-02(.47-04)	1416.4
U-236	.3120-03(.72-05)	.0310(.0007)	.3066-03(.71-05)	.3066-03(.71-05)		
U-238	.1000+01	.994372(.0047)	.9908-00(.73-04)	-.1902-02(.73-04)	.1218-03(.12-04)	107.9
U TOTALS			.9965-00(.56-04)	-.3526-02(.56-04)		
PU239	1.0000+00	.885185(.0353)	.1332-02(.30-04)	.1332-02(.30-04)	.2791-03(.64-04)	249.5
PU240	.1129+00(.42-03)	.99937(.0338)	.1510-03(.34-05)	.1510-03(.34-05)		
PU241	.1552-01(.14-03)	.14036(.0129)	.2130-04(.52-06)	.2130-04(.52-06)	.3496-05(.17-06)	3.1
PU242	.9500-03(.35-04)	.0841(.0031)	.1281-05(.55-07)	.1281-05(.55-07)		
TOTAL PU			.1506-02(.34-04)	.1506-02(.34-04)		
			TOTAL FISSIONS & BU		.2031-02(.45-04)	1776.9

- - - - - INPUT - - - - -

- - - - - CONSTANTS + ASSUMPTIONS - - - - -

- - - - - DERIVED FROM DATA - - - - -

PU DECAYS(D/M/ML)	PERCENT OF PU DECAYS FROM PU238=	TIME OUT OF REACTOR (PU241)=	FISSION YIELD	DEL	MEV/FIS	ALPHA235 OF SAMPLE	U235 FRACTIONAL DEPLETION	PU239 FORMED FROM U238
.2316+09(.46+07)	4.50	.449YRS	.0628(.0003)	.0609(.0061)	202	.1877(.0038)	.2718(.0066)	.1788-02(.72-04)GM
CS137 ATOMS/ML=	1.0233		.0620(.0040)		208			
CS137 IN REACTOR DECAY COR=	.449YRS		.0674(.0014)	.0766(.0077)	211			
GRAMS OF FUEL/ML OF DISSOLVER=	.0622		.0660(.0017)	.0799(.0080)	214			
			ALPHA241=	.365(.01)				
			CS HALF LIFE=	30.00(.20)YEARS				
			PU241 HALF LIFE=	14.5(10.4)YEARS				
			BOL ATOM PERCENTS FOR NATURAL URANIUM					
			234/235/236/238=	.005/.720/.000/99.275				
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)					
			PU239=	1.3616(.0017)	PU240=	5.013(.03)		
			PU241=	.0576(.0010)	PU242=	.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77419 FROM ELEMENT 1099 TAKEN 3.00 INCHES FROM TOP OF CENTER ROD

ISOTOPIC INVENTORY

- - - - - INPUT DATA - - - - -

ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4630-04(.24-05)	.0046(.0002)	.4511-04(.24-05)	-.4892-05(.24-05)		
U-235	.5410-02(.34-04)	.5379(.0034)	.5293-02(.34-04)	-.1817-02(.34-04)	.1535-02(.34-04)	1336.2
U-236	.2880-03(.60-05)	.0286(.0006)	.2830-03(.59-05)	.2830-03(.59-05)		
U-238	.1000+01	.994289(.0034)	.9909-00(.64-04)	-.1888-02(.64-04)	.1257-03(.12-04)	111.2
U TOTALS			.9966-00(.54-04)	-.3422-02(.54-04)		
PU239	1.0000+00	.879511(.0295)	.1269-02(.29-04)	.1269-02(.29-04)	.3225-03(.54-04)	288.4
PU240	.1196+00(.37-03)	.105189(.0290)	.1524-03(.34-05)	.1524-03(.34-05)		
PU241	.1593-01(.94-04)	.14315(.0084)	.2082-04(.48-06)	.2082-04(.48-06)	.3926-05(.15-06)	3.5
PU242	.1120-02(.20-04)	.0985(.0017)	.1439-05(.41-07)	.1439-05(.41-07)		
TOTAL PU			.1443-02(.32-04)	.1443-02(.32-04)		
			TOTAL FISSIONS & BU		.1987-02(.44-04)	1739.4

- - - - - INPUT - - - - -

- - - - - CONSTANTS + ASSUMPTIONS - - - - -

- - - - - DERIVED FROM DATA - - - - -

PU DECAYS(D/M/ML)	PERCENT OF PU DECAYS FROM PU238=	TIME OUT OF REACTOR (PU241)=	FISSION YIELD	DEL	MEV/FIS	ALPHA235 OF SAMPLE	U235 FRACTIONAL DEPLETION	PU239 FORMED FROM U238
.2245+09(.45+07)	4.40	.449YRS	.0628(.0003)	.0636(.0064)	202	.1836(.0031)	.2555(.0047)	.1770-02(.63-04)GM
CS137 ATOMS/ML=	1.0233		.0620(.0040)		208			
CS137 IN REACTOR DECAY COR=	.449YRS		.0674(.0014)	.0826(.0083)	211			
GRAMS OF FUEL/ML OF DISSOLVER=	.0580		.0660(.0017)	.0855(.0085)	214			
			ALPHA241=	.365(.01)				
			CS HALF LIFE=	30.00(.20)YEARS				
			PU241 HALF LIFE=	14.5(10.4)YEARS				
			BOL ATOM PERCENTS FOR NATURAL URANIUM					
			234/235/236/238=	.005/.720/.000/99.275				
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)					
			PU239=	1.3616(.0017)	PU240=	5.013(.03)		
			PU241=	.0576(.0010)	PU242=	.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

ISOTOPIC INVENTORY

- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -

- - - - - INPUT - - - - - - - - CONSTANTS + ASSUMPTIONS - - - - - DERIVED FROM DATA - -

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

ISOTOPIC INVENTORY

- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -

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=====INPUT===== - - - - -CONSTANTS + ASSUMPTIONS - - - - -DERIVED FROM DATA - -

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77603 FROM ELEMENT 1097 TAKEN 13.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -			PARAMETERS DETERMINED FROM INPUT - - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5220-04(.32-05)	.0052(.0003)	.5064-04(.32-05)	.6374-06(.32-05)		
U-235	.3065-02(.23-04)	.3053(.0023)	.2986-02(.23-04)	-.4124-02(.23-04)	.3463-02(.26-04)	3015.0
U-236	.6780-03(.12-04)	.0675(.0012)	.6633-03(.12-04)	.6633-03(.12-04)		
U-238	.1000+01	.99.6219(.0026)	.9866-00(.16-03)	-.6155-02(.16-03)	.2990-03(.29-04)	264.7
U TOTALS			.9904-00(.16-03)	-.9616-02(.16-03)		
PU239	1.0000+00	.73.3495(.0453)	.2658-02(.60-04)	.2658-02(.60-04)	.2155-02(.14-03)	1927.2
PU240	.2779-00(.73-03)	.20.3838(.0431)	.7417-03(.17-04)	.7417-03(.17-04)		
PU241	.7040-01(.38-03)	.5.2911(.0277)	.1933-03(.45-05)	.1933-03(.45-05)	.9765-04(.34-05)	87.8
PU242	.1330-01(.14-03)	.9755(.0104)	.3579-04(.90-06)	.3579-04(.90-06)		
TOTAL PU			.3629-02(.82-04)	.3629-02(.82-04)		
				TOTAL FISSIONS & BU	.6015-02(.14-03)	5294.7

- - - - INPUT - - - - -			CONSTANTS + ASSUMPTIONS - - - -			DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.6619+09(.13+08)	U-235	.0628(.0003)	.0491(.0049)	202	
PERCENT OF PU DECAYS FROM PU238=15.40		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
TIME OUT OF REACTOR (PU241)= .510YRS		PU239	.0674(.0014)	.0563(.0056)	211	.1908(.0022)
		PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML= .4495+17(.90+15)		ALPHA241= .365(.01)				U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0337		CS HALF LIFE= 30.00(.20)YEARS				.5800(.0033)
TIME OUT OF REACTOR(CS137)= .510YRS		PU241 HALF LIFE=14.5(0.4)YEARS				
		BOL ATOM PERCENTS FOR NATURAL URANIUM				
		234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER= .0541		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
		PU239=.1.3616(.0017)		PU240=.5.013(.03)		.5881-02(.16-03)GM
		PU241=.0576(.0010)		PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77604 FROM ELEMENT 1097 TAKEN 18.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -			PARAMETERS DETERMINED FROM INPUT - - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4750-04(.26-05)	.0047(.0003)	.4636-04(.26-05)	-.3640-05(.26-05)		
U-235	.2668-02(.30-04)	.2655(.0030)	.2611-02(.30-04)	-.4499-02(.30-04)	.3833-02(.32-04)	3336.8
U-236	.6790-03(.13-04)	.0677(.0013)	.6684-03(.13-04)	.6684-03(.13-04)		
U-238	.1000+01	.99.6621(.0032)	.9926-00(.77-04)	-.1188-03(.77-04)	.1131-03(.11-04)	100.1
U TOTALS			.9961-00(.70-04)	-.3950-02(.70-04)		
PU239	1.0000+00	.70.6493(.0485)	.9813-03(.22-04)	.9813-03(.22-04)	-.1435-02(.69-04)	-1283.0
PU240	.3122-00(.83-03)	.22.0567(.0464)	.3076-03(.70-05)	.3076-03(.70-05)		
PU241	.8280-01(.45-03)	.5.9940(.0312)	.8395-04(.20-05)	.8395-04(.20-05)	.4988-04(.18-05)	44.9
PU242	.1840-01(.20-03)	.1.2999(.0137)	.1828-04(.46-06)	.1828-04(.46-06)		
TOTAL PU			.1391-02(.31-04)	.1391-02(.31-04)		
				TOTAL FISSIONS & BU	.2561-02(.63-04)	2198.8

- - - - INPUT - - - - -			CONSTANTS + ASSUMPTIONS - - - -			DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.2597+09(.52+07)	U-235	.0628(.0003)	.0491(.0049)	202	
PERCENT OF PU DECAYS FROM PU238=18.60		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
TIME OUT OF REACTOR (PU241)= .510YRS		PU239	.0674(.0014)	.0563(.0056)	211	.1737(.0022)
		PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML= .2235+17(.45+15)		ALPHA241= .365(.01)				U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0337		CS HALF LIFE= 30.00(.20)YEARS				.6327(.0042)
TIME OUT OF REACTOR(CS137)= .510YRS		PU241 HALF LIFE=14.5(0.4)YEARS				
		BOL ATOM PERCENTS FOR NATURAL URANIUM				
		234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER= .0665		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
		PU239=.1.3616(.0017)		PU240=.5.013(.03)		.5632-05(.76-04)GM
		PU241=.0576(.0010)		PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77605 FROM ELEMENT 1097 TAKEN 23.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPI C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			- - - - DERIVED FROM DATA - - - -	
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.4580-04(.24-05)	.0046(.0002)	.4437-04(.24-05)	-.5633-05(.24-05)			
U-235	.2431-02(.24-04)	.2423(.0024)	.2365-02(.24-04)	-.4745-02(.24-04)	.4031-02(.28-04)	3509.6	
U-236	.7330-03(.14-04)	.0731(.0014)	.7162-03(.14-04)	.7162-03(.14-04)			
U-238	.1000+01	.99.6800(.0028)	.9852-00(.20-03)	-.7528-02(.20-03)	.3709-03(.36-04)	328.3	
U TOTALS			.9884-00(.20-03)	-.1156-01(.20-03)			
PU239	1.0000+00	.68.5847(.0556)	.2851-02(.65-04)	.2851-02(.65-04)	.2842-02(.17-03)	2541.3	
PU240	.3397-00(.10-02)	.23.2982(.0539)	.9725-03(.22-04)	.9725-03(.22-04)			
PU241	.9280-01(.55-03)	.6.5259(.0364)	.2735-03(.64-05)	.2735-03(.64-05)	.1827-03(.64-05)	164.3	
PU242	.2320-01(.25-03)	1.5912(.0168)	.6697-04(.17-05)	.6697-04(.17-05)			
TOTAL PU			.4164-02(.94-04)	.4164-02(.94-04)			
				TOTAL FISSIONS & BU	.7427-02(.17-03)	6543.5	

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.7904+09(.16+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	19.40		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.523YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1770(.0022)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.7465+17(.15+16)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY CORE=	1.0337		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.523YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.6674(.0034)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
GRAMS OF FUEL/ML OF DISSOLVER=	.0727		234/235/236/238=	.005/.720/.000/99.275			
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=	1.3616(.0017)	PU240=	5.013(.03)	.7187-02(.19-03)GM
			PU241=	.0576(.0010)	PU242=	.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77606 FROM ELEMENT 1097 TAKEN 29.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPI C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			- - - - DERIVED FROM DATA - - - -	
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.5080-04(.38-05)	.0051(.0004)	.4917-04(.38-05)	-.8296-06(.38-05)			
U-235	.2248-02(.21-04)	.2241(.0021)	.2185-02(.21-04)	-.4925-02(.21-04)	.4183-02(.25-04)	3641.3	
U-236	.7630-03(.14-04)	.0761(.0014)	.7449-03(.14-04)	.7449-03(.14-04)			
U-238	.1000+01	.99.6948(.0025)	.9844-00(.22-03)	-.8337-02(.22-03)	.4091-03(.40-04)	362.1	
U TOTALS			.9875-00(.22-03)	-.1252-01(.22-03)			
PU239	1.0000+00	.67.1127(.0515)	.2944-02(.67-04)	.2944-02(.67-04)	.3344-02(.19-03)	2990.1	
PU240	.3600-00(.97-03)	.24.1606(.0503)	.1064-02(.24-04)	.1064-02(.24-04)			
PU241	.9990-01(.51-03)	.6.8744(.0335)	.3041-03(.71-05)	.3041-03(.71-05)	.2245-03(.79-05)	201.9	
PU242	.2760-01(.29-03)	1.8523(.0190)	.8227-04(.21-05)	.8227-04(.21-05)			
TOTAL PU			.4395-02(.10-03)	.4395-02(.10-03)			
				TOTAL FISSIONS & BU	.8160-02(.19-03)	7195.3	

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.8435+09(.17+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	21.70		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.523YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1775(.0021)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.8530+17(.17+16)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY CORE=	1.0337		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.523YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.6927(.0030)
GRAMS OF FUEL/ML OF DISSOLVER=	.0754		BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=	.005/.720/.000/99.275			
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=	1.3616(.0017)	PU240=	5.013(.03)	.7961-02(.21-03)GM
			PU241=	.0576(.0010)	PU242=	.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

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UO-2 BURNUP DATA

SAMPLE 77607 FROM ELEMENT 1097 TAKEN 34.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -			PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4720-04(.31-05)	.0047(.0003)	.4569-04(.31-05)	-.4314-05(.31-05)		
U-235	.2177-02(.24-04)	.2171(.0024)	.2116-02(.24-04)	-.4994-02(.24-04)	.4276-02(.27-04)	3722.5
U-236	.7380-03(.12-04)	.0736(.0012)	.7204-03(.12-04)	.7204-03(.12-04)		
U-238	.1000+01	.99.7047(.0027)	.9844-00(.22-03)	-.8336-02(.22-03)	.4147-03(.41-04)	367.1
U TOTALS			.9874-00(.22-03)	-.1261-01(.22-03)		
PU239	1.0000+00	.66.3423(.0590)	.2894-02(.66-04)	.2894-02(.66-04)	.3349-02(.19-03)	2994.1
PU240	.3710-00(.11-02)	.24.6130(.0574)	.1078-02(.24-04)	.1078-02(.24-04)		
PU241	.1040+00(.63-03)	.7.0744(.0407)	.3112-03(.73-05)	.3112-03(.73-05)	.2375-03(.84-05)	213.6
PU242	.2970-01(.33-03)	.1.9704(.0218)	.8704-04(.22-05)	.8704-04(.22-05)		
TOTAL PU			.4371-02(.99-04)	.4371-02(.99-04)	.8277-02(.19-03)	7297.2
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -			CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.8438+09(.17+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=22.50			U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)= .523YRS			U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1679(.0018)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML= .7205+17(.14+16)			ALPHA241= .365(.01)				U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0337			CS HALF LIFE= 30.00(.20)YEARS				.7024(.0034)
TIME OUT OF REACTOR(CS137)= .523YRS			PU241 HALF LIFE=14.5(0.4)YEARS				
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER= .0628			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.7955-02(.21-03)6M
			PU241= .0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77608 FROM ELEMENT 1097 TAKEN 39.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -			PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4200-04(.23-05)	.0042(.0002)	.4064-04(.23-05)	-.9358-05(.23-05)		
U-235	.2134-02(.20-04)	.2128(.0020)	.2074-02(.20-04)	-.5036-02(.20-04)	.4315-02(.23-04)	3756.2
U-236	.7420-03(.11-04)	.0740(.0011)	.7242-03(.11-04)	.7242-03(.11-04)		
U-238	.1000+01	.99.7090(.0023)	.9841-00(.23-03)	-.8617-02(.23-03)	.4329-03(.42-04)	383.2
U TOTALS			.9871-00(.23-03)	-.1293-01(.23-03)		
PU239	1.0000+00	.64.1160(.0525)	.2782-02(.63-04)	.2782-02(.63-04)	.3611-02(.20-03)	3228.4
PU240	.4173-00(.11-02)	.26.7556(.0527)	.1166-02(.26-04)	.1166-02(.26-04)		
PU241	.1055+00(.54-03)	.6.9356(.0337)	.3034-03(.71-05)	.3034-03(.71-05)	.2628-03(.92-05)	236.3
PU242	.3420-01(.35-03)	.2.1928(.0218)	.9632-04(.24-05)	.9632-04(.24-05)		
TOTAL PU			.4347-02(.99-04)	.4347-02(.99-04)	.8621-02(.20-03)	7604.0
			TOTAL FISSIONS & BU			

- - - - INPUT - - - -			CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.8695+09(.17+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=23.10			U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)= .523YRS			U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1673(.0017)
			PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML= .7690+17(.15+16)			ALPHA241= .365(.01)				U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0337			CS HALF LIFE= 30.00(.20)YEARS				.7083(.0028)
TIME OUT OF REACTOR(CS137)= .523YRS			PU241 HALF LIFE=14.5(0.4)YEARS				
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER= .0643			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.8218-02(.22-03)6M
			PU241= .0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

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UO-2 BURNUP DATA

SAMPLE 77609 FROM ELEMENT 1097 TAKEN 44.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

--- INPUT DATA ---

--- PARAMETERS DETERMINED FROM INPUT ---

ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4610-04(.24-05)	.0046(.0002)	.4460-04(.24-05)	-.5401-05(.24-05)		
U-235	.2138-02(.33-04)	.2132(.0033)	.2077-02(.33-04)	-.5033-02(.33-04)	.4277-02(.37-04)	3723.7
U-236	.7770-03(.16-04)	.0775(.0016)	.7581-03(.16-04)	-.7581-03(.16-04)		
U-238	.1000+01	.99.7048(.0037)	.9839-00(.23-03)	-.8826-02(.23-03)	.4317-03(.42-04)	382.1
U TOTALS			.9869-00(.23-03)	-.1310-01(.23-03)		
PU239	1.0000+00	66.2016(.0521)	.3004-02(.68-04)	.3004-02(.68-04)	.3637-02(.20-03)	3252.0
PU240	.3736-00(.98-03)	24.7329(.0501)	.1127-02(.26-04)	.1127-02(.26-04)		
PU241	.1042+00(.58-03)	7.0794(.0371)	.3239-03(.76-05)	.3239-03(.76-05)	.2490-03(.87-05)	223.9
PU242	.3000-01(.31-03)	1.9860(.0200)	.9125-04(.23-05)	.9125-04(.23-05)		
TOTAL PU			.4546-02(.10-03)	.4546-02(.10-03)		
				TOTAL FISSIONS & BU	.8595-02(.20-03)	7581.7

--- INPUT ---

--- CONSTANTS + ASSUMPTIONS ---

--- DERIVED FROM DATA ---

PU DECAYS(D/M/ML)	.8794+09(.18+08)	U-235	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	22.50	U-238	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.542YRS	PU239	.0620(.0040)		208	ALPHA235 OF SAMPLE
		PU241	.0674(.0014)	.0563(.0056)	211	.1766(.0024)
		PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.7643+17(.15+16)	ALPHA241=	.365(.01)			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0337	CS HALF LIFE=	30.00(.20)YEARS			.7078(.0046)
TIME OUT OF REACTOR(CS137)=	.542YRS	PU241 HALF LIFE=	14.5(0.4)YEARS			
		BOL ATOM PERCENTS FOR NATURAL URANIUM	234/235/236/238=.005/.720/.000/99.275			
GRAMS OF FUEL/ML OF DISSOLVER=	.0642	PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)	PU239=1.3616(.0017)	PU240=5.013(.03)		PU239 FORMED FROM U238
		PU241=	.0576(.0010)	PU242=.087(.002)		.8430-02(.23-03)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77610 FROM ELEMENT 1097 TAKEN 49.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

--- INPUT DATA ---

--- PARAMETERS DETERMINED FROM INPUT ---

ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4140-04(.18-05)	.0041(.0002)	.4007-04(.18-05)	-.9927-05(.18-05)		
U-235	.2239-02(.25-04)	.2232(.0025)	.2177-02(.25-04)	-.4933-02(.25-04)	.4190-02(.28-04)	3648.0
U-236	.7640-03(.13-04)	.0762(.0013)	.7459-03(.13-04)	-.7459-03(.13-04)		
U-238	.1000+01	.99.6965(.0028)	.9844-00(.22-03)	-.8315-02(.22-03)	.4108-03(.40-04)	363.6
U TOTALS			.9875-00(.22-03)	-.1250-01(.22-03)		
PU239	1.0000+00	66.5695(.0534)	.2889-02(.66-04)	.2889-02(.66-04)	.3359-02(.19-03)	3003.2
PU240	.3680-00(.10-02)	24.4976(.0531)	.1068-02(.24-04)	.1068-02(.24-04)		
PU241	.1024+00(.52-03)	6.9958(.0337)	.3062-03(.71-05)	.3062-03(.71-05)	.2323-03(.82-05)	208.9
PU242	.2910-01(.30-03)	1.9372(.0196)	.8513-04(.21-05)	.8513-04(.21-05)		
TOTAL PU			.4348-02(.98-04)	.4348-02(.98-04)		
				TOTAL FISSIONS & BU	.8192-02(.19-03)	7223.6

--- INPUT ---

--- CONSTANTS + ASSUMPTIONS ---

--- DERIVED FROM DATA ---

PU DECAYS(D/M/ML)	.8384+09(.17+08)	U-235	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	22.30	U-238	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.542YRS	PU239	.0620(.0040)		208	ALPHA235 OF SAMPLE
		PU241	.0674(.0014)	.0563(.0056)	211	.1774(.0020)
		PU241	.0660(.0017)	.0604(.0060)	214	
CS137 ATOMS/ML=	.8125+17(.16+16)	ALPHA241=	.365(.01)			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0337	CS HALF LIFE=	30.00(.20)YEARS			.6939(.0036)
TIME OUT OF REACTOR(CS137)=	.542YRS	PU241 HALF LIFE=	14.5(0.4)YEARS			
GRAMS OF FUEL/ML OF DISSOLVER=	.0716	BOL ATOM PERCENTS FOR NATURAL URANIUM	234/235/236/238=.005/.720/.000/99.275			
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)	PU239=1.3616(.0017)	PU240=5.013(.03)		PU239 FORMED FROM U238
		PU241=	.0576(.0010)	PU242=.087(.002)		.7937-02(.21-03)GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

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UO-2 BURNUP DATA

SAMPLE 77611 FROM ELEMENT 1097 TAKEN 54.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - INPUT DATA - - -			- - - PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5070-04(.26-05)	.0051(.0003)	.4909-04(.25-05)	-.9065-06(.25-05)		
U-235	.2303-02(.19-04)	.2296(.0019)	.2240-02(.19-04)	-.4870-02(.19-04)	.4130-02(.25-04)	3595.4
U-236	.7610-03(.16-04)	.0759(.0016)	.7432-03(.16-04)	.7432-03(.16-04)		
U-238	.1000+01	.99.6895(.0025)	.9848-00(.21-03)	-.7936-02(.21-03)	.3916-03(.38-04)	346.6
U TOTALS			.9879-00(.21-03)	-.1207-01(.21-03)		
PU239	1.0000+00	.67.4732(.0501)	.2879-02(.65-04)	.2879-02(.65-04)	.3096-02(.18-03)	2767.9
PU240	.3554-00(.93-03)	.23.9800(.0488)	.1027-02(.23-04)	.1027-02(.23-04)		
PU241	.9780-01(.50-03)	.6.7722(.0329)	.2914-03(.68-05)	.2914-03(.68-05)	.2092-03(.73-05)	188.1
PU242	.2630-01(.27-03)	.1.7745(.0177)	.7667-04(.19-05)	.7667-04(.19-05)		
TOTAL PU			.4275-02(.97-04)	.4275-02(.97-04)		
				TOTAL FISSIONS & BU	.7826-02(.18-03)	6898.0

- - - INPUT - - -			- - - CONSTANTS + ASSUMPTIONS - - -			- - DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.8189+09(.16+08)		FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=21.00			U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)= .542YRS			U-238	.0620(.0040)		208
			PU239	.0674(.0014)	.0563(.0056)	211
			PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML= .8753+17(.18+16)			ALPHA241= .365(.01)			
CS137 IN REACTOR DECAY COR= 1.0337			CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)= .542YRS			PU241 HALF LIFE=14.5(0.4)YEARS			.6850(.0026)
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
GRAMS OF FUEL/ML OF DISSOLVER= .0808			234/235/236/238=.005/.720/.000/99.275			PU239 FORMED FROM U238
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			.7578-02(.20-03)GM
			PU239=1.3616(.0017)	PU240=5.013(.03)		
			PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77612 FROM ELEMENT 1097 TAKEN 59.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - INPUT DATA - - -			- - - PARAMETERS DETERMINED FROM INPUT - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4850-04(.30-05)	.0048(.0003)	.4698-04(.29-05)	-.3023-05(.29-05)		
U-235	.2423-02(.14-04)	.2415(.0014)	.2357-02(.14-04)	-.4753-02(.14-04)	.4054-02(.23-04)	3529.4
U-236	.7180-03(.18-04)	.0716(.0018)	.7014-03(.18-04)	.7014-03(.18-04)		
U-238	.1000+01	.99.6821(.0023)	.9851-00(.20-03)	-.7641-02(.20-03)	.3772-03(.37-04)	333.8
U TOTALS			.9883-00(.20-03)	-.1169-01(.20-03)		
PU239	1.0000+00	.68.5057(.0572)	.2859-02(.65-04)	.2859-02(.65-04)	.2930-02(.17-03)	2620.1
PU240	.3412-00(.11-02)	.23.3741(.0570)	.9794-03(.22-04)	.9794-03(.22-04)		
PU241	.9260-01(.51-03)	.6.5103(.0341)	.2739-03(.64-05)	.2739-03(.64-05)	.1856-03(.65-05)	166.9
PU242	.2350-01(.25-03)	.1.6099(.0167)	.6802-04(.17-05)	.6802-04(.17-05)		
TOTAL PU			.4180-02(.95-04)	.4180-02(.95-04)		
				TOTAL FISSIONS & BU	.7547-02(.18-03)	6650.3

- - - INPUT - - -			- - - CONSTANTS + ASSUMPTIONS - - -			- - DERIVED FROM DATA - -
PU DECAYS(D/M/ML)	.7945+09(.16+08)		FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=19.70			U-235	.0628(.0003)	.0491(.0049)	202
TIME OUT OF REACTOR (PU241)= .542YRS			U-238	.0620(.0040)		208
			PU239	.0674(.0014)	.0563(.0056)	211
			PU241	.0660(.0017)	.0604(.0060)	214
CS137 ATOMS/ML= .6443+17(.13+16)			ALPHA241= .365(.01)			
CS137 IN REACTOR DECAY COR= 1.0337			CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)= .542YRS			PU241 HALF LIFE=14.5(0.4)YEARS			.6685(.0020)
			BOL ATOM PERCENTS FOR NATURAL URANIUM			
GRAMS OF FUEL/ML OF DISSOLVER= .0617			234/235/236/238=.005/.720/.000/99.275			PU239 FORMED FROM U238
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			.7294-02(.20-03)GM
			PU239=1.3616(.0017)	PU240=5.013(.03)		
			PU241=.0576(.0010)	PU242=.087(.002)		

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

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UO-2 BURNUP DATA

SAMPLE 77613 FROM ELEMENT 1097 TAKEN 65.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4760-04(.27-05)	.0047(.0003)	.4616-04(.27-05)	-.3835-05(.27-05)		
U-235	.2622-02(.24-04)	.2613(.0024)	.2554-02(.24-04)	-.4556-02(.24-04)	.3875-02(.27-04)	3373.4
U-236	.6990-03(.13-04)	.0697(.0013)	.6837-03(.13-04)	.6837-03(.13-04)		
U-238	.1000+01	99.6643(.0027)	.9864-00(.17-03)	-.6377-02(.17-03)	.3240-03(.32-04)	286.8
U TOTALS			.9897-00(.17-03)	-.1025-01(.17-03)		
PU239	1.0000+00	70.5425(.0540)	.2641-02(.60-04)	.2641-02(.60-04)	.2192-02(.15-03)	1959.6
PU240	.3132-00(.95-03)	22.0939(.0527)	.8306-03(.19-04)	.8306-03(.19-04)		
PU241	.8320-01(.47-03)	6.0233(.0322)	.2274-03(.53-05)	.2274-03(.53-05)	.1386-03(.49-05)	124.7
PU242	.1900-01(.22-03)	1.3403(.0153)	.5081-04(.13-05)	.5081-04(.13-05)		
TOTAL PU			.3750-02(.85-04)	.3750-02(.85-04)		
				TOTAL FISSIONS & BU	.6529-02(.15-03)	5744.5

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.7003+09(.14+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	18.40		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.542YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1758(.0022)
			PU241	.0660(.0017)	.0604(.0060)	214	
			ALPHA241=	.365(.01)			
CS137 ATOMS/ML=	.5957+17(.12+16)		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0337		PU241 HALF LIFE=	14.5(0.4)YEARS			.6408(.0033)
TIME OUT OF REACTOR(CS137)=	.542YRS		BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.0662		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.6079-02(.17-03)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77614 FROM ELEMENT 1097 TAKEN 70.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4550-04(.23-05)	.0045(.0002)	.4413-04(.23-05)	-.5873-05(.23-05)		
U-235	.2908-02(.32-04)	.2898(.0032)	.2832-02(.32-04)	-.4278-02(.32-04)	.3645-02(.35-04)	3173.5
U-236	.6490-03(.14-04)	.0647(.0014)	.6348-03(.14-04)	.6348-03(.14-04)		
U-238	.1000+01	99.6410(.0035)	.9863-00(.17-03)	-.6415-02(.17-03)	.3134-03(.31-04)	277.4
U TOTALS			.9899-00(.17-03)	-.1006-01(.17-03)		
PU239	1.0000+00	72.6992(.0481)	.2745-02(.62-04)	.2745-02(.62-04)	.2235-02(.15-03)	1998.7
PU240	.2854-00(.80-03)	20.7484(.0468)	.7866-03(.18-04)	.7866-03(.18-04)		
PU241	.7350-01(.38-03)	5.4838(.0275)	.2088-03(.48-05)	.2088-03(.48-05)	.1115-03(.39-05)	100.2
PU242	.1470-01(.15-03)	1.0687(.0111)	.4085-04(.10-05)	.4085-04(.10-05)		
TOTAL PU			.3781-02(.85-04)	.3781-02(.85-04)		
				TOTAL FISSIONS & BU	.6305-02(.15-03)	5549.8

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.6930+09(.14+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	16.10		U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)=	.542YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1735(.0025)
			PU241	.0660(.0017)	.0604(.0060)	214	
			ALPHA241=	.365(.01)			
CS137 ATOMS/ML=	.5235+17(.10+16)		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0337		PU241 HALF LIFE=	14.5(0.4)YEARS			.6016(.0045)
TIME OUT OF REACTOR(CS137)=	.542YRS		BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.0601		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.6127-02(.17-03)GM
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77615 FROM ELEMENT 1097 TAKEN 75.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			- - - - DERIVED FROM DATA - - - -	
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.5090-04(.30-05)	.0051(.0003)	.4940-04(.29-05)	-.5968-06(.29-05)			
U-235	.3265-02(.31-04)	.3252(.0030)	.3183-02(.30-04)	-.3927-02(.30-04)	.3314-02(.34-04)	2885.2	
U-236	.6290-03(.15-04)	.0627(.0015)	.6157-03(.15-04)	.6157-03(.15-04)			
U-238	.1000+01	.99.6071(.0034)	.9871-00(.15-03)	-.5620-02(.15-03)	.2740-03(.27-04)	242.5	
U TOTALS			.9911-00(.15-03)	-.8932-02(.15-03)			
PU239	1.0000+00	.75.3618(.0464)	.2580-02(.58-04)	.2580-02(.58-04)	.1865-02(.13-03)	1667.4	
PU240	.2532-00(.73-03)	.19.0816(.0446)	.6561-03(.15-04)	.6561-03(.15-04)			
PU241	.6150-01(.34-03)	.4.7578(.0257)	.1643-03(.38-05)	.1643-03(.38-05)	.7557-04(.27-05)	68.0	
PU242	.1060-01(.11-03)	.7988(.0086)	.2770-04(.69-06)	.2770-04(.69-06)			
TOTAL PU			.3428-02(.77-04)	.3428-02(.77-04)			
				TOTAL FISSIONS & BU	.5528-02(.13-03)	4863.0	

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.6136+09(.12+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=13.70			U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)= .548YRS			U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1851(.0028)
			PU241	.0660(.0017)	.0604(.0060)	214	
			ALPHA241= .365(.01)				
CS137 ATOMS/ML= .4207+17(.84+15)			CS HALF LIFE= 30.00(.20)YEARS				U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0337			PU241 HALF LIFE=14.5(0.4)YEARS				.5524(.0043)
TIME OUT OF REACTOR(CS137)= .548YRS			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER= .0552			PU239=1.3616(.0017)	PU240=5.013(.03)			.5368-02(.15-03)GM
			PU241= .0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77617 FROM ELEMENT 1097 TAKEN 80.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			- - - - DERIVED FROM DATA - - - -	
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM	
U-234	.4770-04(.33-05)	.0047(.0003)	.4636-04(.33-05)	-.3645-05(.33-05)			
U-235	.3747-02(.43-04)	.3731(.0043)	.3657-02(.43-04)	-.3453-02(.43-04)	.2943-02(.44-04)	2562.4	
U-236	.5220-03(.90-05)	.0520(.0009)	.5116-03(.89-05)	.5116-03(.89-05)			
U-238	.1000+01	.99.5702(.0044)	.9884-00(.13-03)	-.4382-02(.13-03)	.2179-03(.21-04)	192.9	
U TOTALS			.9927-00(.12-03)	-.7323-02(.12-03)			
PU239	1.0000+00	.78.7681(.0422)	.2290-02(.52-04)	.2290-02(.52-04)	.1230-02(.11-03)	1099.4	
PU240	.2146-00(.63-03)	.16.9036(.0411)	.4935-03(.11-04)	.4935-03(.11-04)			
PU241	.4710-01(.25-03)	.3.8084(.0194)	.1116-03(.26-05)	.1116-03(.26-05)	.4175-04(.15-05)	37.5	
PU242	.6600-02(.78-04)	.5199(.0061)	.1530-04(.39-06)	.1530-04(.39-06)			
TOTAL PU			.2910-02(.66-04)	.2910-02(.66-04)			
				TOTAL FISSIONS & BU	.4433-02(.10-03)	3892.2	

- - - - INPUT - - - -			- - - - CONSTANTS + ASSUMPTIONS - - - -			- - - - DERIVED FROM DATA - - - -	
PU DECAYS(D/M/ML)	.5042+09(.10+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=10.70			U-235	.0628(.0003)	.0491(.0049)	202	
TIME OUT OF REACTOR (PU241)= .548YRS			U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0563(.0056)	211	.1732(.0023)
			PU241	.0660(.0017)	.0604(.0060)	214	
			ALPHA241= .365(.01)				
CS137 ATOMS/ML= .4450+17(.89+15)			CS HALF LIFE= 30.00(.20)YEARS				U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR= 1.0337			PU241 HALF LIFE=14.5(0.4)YEARS				.4857(.0060)
TIME OUT OF REACTOR(CS137)= .548YRS			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER= .0731			PU239=1.3616(.0017)	PU240=5.013(.03)			.4181-02(.13-03)GM
			PU241= .0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

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UO-2 BURNUP DATA

SAMPLE 77616 FROM ELEMENT 1097 TAKEN 85.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

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-----INPUT DATA-----
ISOTOPE    EOL MASS RATIO    EOL(A/O)    EOL(GM)    NET PRODUCTION(GM)    FISSIONS(GM)    BU MWD/MTM
U-234      .4590-04(.26-05)    .0046(.0003) .4465-04(.26-05)    -.5340-05(.26-05)    .2520-02(.33-04)    2193.9
U-235      .4235-02(.33-04)    .4215(.0032) .4138-02(.32-04)    -.2972-02(.32-04)    .4543-03(.76-05)    150.9
U-236      .4630-03(.77-05)    .0461(.0008) .9894-00(.10-03)    -.3362-02(.10-03)    .1705-03(.17-04)    701.3
U-238      .1000+01    99.5279(.0033) .9941-00(.95-04)    -.5680-02(.95-04)    .3494-02(.78-04)    3063.7
U TOTALS
PU239      1.0000+00    82.1970(.0383) .1972-02(.44-04)    .1972-02(.44-04)    .7843-03(.83-04)    17.6
PU240      .1786-00(.50-03)    14.6804(.0349) .3537-03(.80-05)    .3537-03(.80-05)    .1961-04(.69-06)
PU241      .3350-01(.26-03)    2.8267(.0218) .6838-04(.16-05)    .6838-04(.16-05)
PU242      .3600-02(.39-04)    .2959(.0032) .7188-05(.18-06)    .7188-05(.18-06)
TOTAL PU    .2401-02(.54-04)    .2401-02(.54-04)
TOTAL FISSIONS & BU

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-----INPUT-----
PU DECAYS(D/M/ML)    .4018+09(.80+07)
PERCENT OF PU DECAYS FROM PU238= 7.40
TIME OUT OF REACTOR (PU241)= .548YRS
CS137 ATOMS/ML= .3383+17(.68+15)
CS137 IN REACTOR DECAY COR= 1.0337
TIME OUT OF REACTOR(CS137)= .548YRS
GRAMS OF FUEL/ML OF DISSOLVER= .0707

-----CONSTANTS + ASSUMPTIONS-----
FISSION YIELD    DEL    MEV/FIS
U-235    .0628(.0003)    .0491(.0049)    202
U-238    .0620(.0040)    .0563(.0056)    208
PU239    .0674(.0014)    .0604(.0060)    211
PU241    .0660(.0017)    .0604(.0060)    214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL URANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=1.3616(.0017)    PU240=5.013(.03)
PU241= .0576(.0010)    PU242=.087(.002)

-----DERIVED FROM DATA-----
ALPHA235 OF SAMPLE    .1796(.0022)
U235 FRACTIONAL DEPLETION    .4181(.0046)
PU239 FORMED FROM U238    .3205-02(.99-04)GM

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77628 FROM ELEMENT 1097 TAKEN 44.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

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-----INPUT DATA-----
ISOTOPE    EOL MASS RATIO    EOL(A/O)    EOL(GM)    NET PRODUCTION(GM)    FISSIONS(GM)    BU MWD/MTM
U-234      .4550-04(.18-05)    .0045(.0002) .4402-04(.18-05)    -.5980-05(.18-05)    .4276-02(.15-04)    3722.8
U-235      .2160-02(.11-04)    .2154(.0011) .2099-02(.11-04)    -.5011-02(.11-04)    .7377-03(.11-04)    387.2
U-236      .7560-03(.11-04)    .0754(.0011) .9840-00(.23-03)    -.8795-02(.23-03)    .1307-01(.23-03)
U-238      .1000+01    99.7047(.0015) .9869-00(.23-03)    -.1307-01(.23-03)
U TOTALS
PU239      1.0000+00    66.3023(.0492) .2915-02(.66-04)    .2915-02(.66-04)    .3747-02(.20-03)    3350.2
PU240      .3713-00(.43-03)    24.6181(.0475) .1087-02(.25-04)    .1087-02(.25-04)    .2437-03(.85-05)    219.1
PU241      .1027+00(.51-03)    7.0733(.0339) .3136-03(.73-05)    .3136-03(.73-05)
PU242      .3026-01(.30-03)    2.0063(.0197) .8931-04(.22-05)    .8931-04(.22-05)
TOTAL PU    .4404-02(.10-03)    .4404-02(.10-03)
TOTAL FISSIONS & BU

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-----INPUT-----
PU DECAYS(D/M/ML)    .8502+09(.17+08)
PERCENT OF PU DECAYS FROM PU238=26.40
TIME OUT OF REACTOR (PU241)= .792YRS
CS137 ATOMS/ML= .7537+17(.15+16)
CS137 IN REACTOR DECAY COR= 1.0337
TIME OUT OF REACTOR(CS137)= .792YRS
GRAMS OF FUEL/ML OF DISSOLVER= .0628

-----CONSTANTS + ASSUMPTIONS-----
FISSION YIELD    DEL    MEV/FIS
U-235    .0628(.0003)    .0491(.0049)    202
U-238    .0620(.0040)    .0563(.0056)    208
PU239    .0674(.0014)    .0604(.0060)    211
PU241    .0660(.0017)    .0604(.0060)    214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL URANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=1.3616(.0017)    PU240=5.013(.03)
PU241= .0576(.0010)    PU242=.087(.002)

-----DERIVED FROM DATA-----
ALPHA235 OF SAMPLE    .1719(.0016)
U235 FRACTIONAL DEPLETION    .7048(.0015)
PU239 FORMED FROM U238    .8393-02(.22-03)GM

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77629 FROM ELEMENT 1097 TAKEN 44.00 INCHES FROM TOP OF OUTER RING ROD

ISOTOPIC INVENTORY

- - - - - INPUT DATA - - - - -

- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -

ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4420-04(.18-05)	.0044(.0002)	.4276-04(.18-05)	-.7236-05(.18-05)		
U-235	.2170-02(.11-04)	.2164(.0011)	.2108-02(.11-04)	-.5002-02(.11-04)	.4235-02(.15-04)	3687.1
U-236	.7881-03(.11-04)	.0786(.0011)	.7690-03(.11-04)	-.7690-03(.11-04)		
U-238	.1000+01	.99.7007(.0016)	.9840-00(.23-03)	-.8769-02(.23-03)	.4342-03(.43-04)	384.4
U TOTALS			.9870-00(.23-03)	-.1300-01(.23-03)		
PU239	1.0000+00	.66.6493(.0489)	.2929-02(.66-04)	.2929-02(.66-04)	.3732-02(.20-03)	3337.1
PU240	.3669-00(.92-03)	.24.4503(.0472)	.1079-02(.24-04)	.1079-02(.24-04)		
PU241	.1003+00(.50-03)	.6.9442(.0333)	.3077-03(.72-05)	.3077-03(.72-05)	.2375-03(.83-05)	213.6
PU242	.2935-01(.29-03)	.1.9562(.0192)	.8704-04(.22-05)	.8704-04(.22-05)		
TOTAL PU			.4403-02(.10-03)	.4403-02(.10-03)		
			TOTAL FISSIONS & BU		.8639-02(.21-03)	7622.1

- - - - - INPUT - - - - -

- - - - - CONSTANTS + ASSUMPTIONS - - - - -

- - - - - DERIVED FROM DATA - - - - -

PU DECAYS(D/M/ML)	PERCENT OF PU DECAYS FROM PU238=26.40	TIME OUT OF REACTOR (PU241)= .792YRS	FISSION YIELD DEL	MEV/FIS	ALPHA235 OF SAMPLE	U235 FRACTIONAL DEPLETION	PU239 FORMED FROM U238
.8484+09(.17+08)			.0628(.0003)	.0491(.0049)	.1809(.0016)		
			.0620(.0040)				
			.0674(.0014)	.0563(.0056)			
			.0660(.0017)	.0604(.0060)			
			ALPHA241= .365(.01)				
CS137 ATOMS/ML= .6482+17(.13+16)			CS HALF LIFE= 30.00(.20)YEARS				
CS137 IN REACTOR DECAY COR= 1.0337			PU241 HALF LIFE=14.5(0.4)YEARS				
TIME OUT OF REACTOR(CS137)= .792YRS			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER= .0544			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				
			PU239=1.3616(.0017)	PU240=5.013(.03)			
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77618 FROM ELEMENT 1097 TAKEN 8.00 INCHES FROM TOP OF MIDDLE RING ROD

ISOTOPIC INVENTORY

- - - - - INPUT DATA - - - - -

- - - - - PARAMETERS DETERMINED FROM INPUT - - - - -

ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4960-04(.25-05)	.0049(.0003)	.4821-04(.25-05)	-.1786-05(.25-05)		
U-235	.3905-02(.23-04)	.3888(.0023)	.3812-02(.23-04)	-.3298-02(.23-04)	.2792-02(.25-04)	2430.6
U-236	.5180-03(.89-05)	.0516(.0009)	.5078-03(.88-05)	-.5078-03(.88-05)		
U-238	.1000+01	.99.5547(.0025)	.9886-00(.12-03)	-.4123-02(.12-03)	.2583-03(.25-04)	228.6
U TOTALS			.9931-00(.11-03)	-.6914-02(.11-03)		
PU239	1.0000+00	.79.2038(.0378)	.2178-02(.49-08)	.2178-02(.49-04)	.1094-02(.94-08)	978.4
PU240	.2120-00(.55-03)	.16.7912(.0364)	.4637-03(.10-04)	.4637-03(.10-04)		
PU241	.4370-01(.23-03)	.3.5535(.0182)	.9855-04(.23-05)	.9855-04(.23-05)	.3430-04(.12-05)	30.8
PU242	.5700-02(.62-04)	.4515(.0049)	.1257-04(.31-06)	.1257-04(.31-06)		
TOTAL PU			.2753-02(.62-04)	.2753-02(.62-04)		
			TOTAL FISSIONS & BU		.4179-02(.94-04)	3668.5

- - - - - INPUT - - - - -

- - - - - CONSTANTS + ASSUMPTIONS - - - - -

- - - - - DERIVED FROM DATA - - - - -

PU DECAYS(D/M/ML)	PERCENT OF PU DECAYS FROM PU238=10.90	TIME OUT OF REACTOR (PU241)= .551YRS	FISSION YIELD DEL	MEV/FIS	ALPHA235 OF SAMPLE	U235 FRACTIONAL DEPLETION	PU239 FORMED FROM U238
.4770+09(.95+07)			.0628(.0003)	.0609(.0061)	.1812(.0021)		
			.0620(.0040)				
			.0674(.0014)	.0766(.0077)			
			.0660(.0017)	.0799(.0080)			
			ALPHA241= .365(.01)				
CS137 ATOMS/ML= .3538+17(.71+15)			CS HALF LIFE= 30.00(.20)YEARS				
CS137 IN REACTOR DECAY COR= 1.0337			PU241 HALF LIFE=14.5(0.4)YEARS				
TIME OUT OF REACTOR(CS137)= .551YRS			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER= .0617			PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				
			PU239=1.3616(.0017)	PU240=5.013(.03)			
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77619 FROM ELEMENT 1097 TAKEN 23.00 INCHES FROM TOP OF MIDDLE RING ROD

ISOTOPIC INVENTORY

- - - INPUT DATA - - -			PARAMETERS DETERMINED FROM INPUT - - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4310-04(.28-05)	.0043(.0003)	.4183-04(.28-05)	-.8174-05(.28-05)		
U-235	.2861-02(.16-04)	.2851(.0016)	.2788-02(.16-04)	-.4322-02(.16-04)	.3697-02(.20-04)	3218.2
U-236	.6410-03(.12-04)	.0639(.0012)	.6274-03(.12-04)	.6274-03(.12-04)		
U-238	.1000+01	.99.6467(.0021)	.9870-00(.16-03)	-.5777-02(.16-03)	.3744-03(.36-04)	331.4
U TOTALS			.9905-00(.16-03)	-.9472-02(.16-03)		
PU239	1.0000+00	71.3116(.0501)	.2498-02(.57-04)	.2498-02(.57-04)	.1809-02(.13-03)	1617.2
PU240	.3100-00(.86-03)	22.1066(.0484)	.7777-03(.18-04)	.7777-03(.18-04)		
PU241	.7450-01(.43-03)	5.4551(.0305)	.1927-03(.45-05)	.1927-03(.45-05)	.1091-03(.39-05)	98.1
PU242	.1580-01(.17-03)	1.1267(.0123)	.3997-04(.10-05)	.3997-04(.10-05)		
TOTAL PU			.3509-02(.79-04)	.3509-02(.79-04)		
				TOTAL FISSIONS & BU	.5989-02(.14-03)	5264.9

- - - INPUT - - - - -			- - - CONSTANTS + ASSUMPTIONS - - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.6587+09(.13+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	18.40		U-235	.0628(.0003)	.0609(.0061)	202	
TIME OUT OF REACTOR (PU241)=	.553YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0766(.0077)	211	.1691(.0021)
			PU241	.0660(.0017)	.0799(.0080)	214	
CS137 ATOMS/ML=	.6815+17(.14+16)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0337		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.553YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.6078(.0023)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.0827		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.5426-02(.16-03)6M
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77620 FROM ELEMENT 1097 TAKEN 44.00 INCHES FROM TOP OF MIDDLE RING ROD

ISOTOPIC INVENTORY

- - - INPUT DATA - - -			PARAMETERS DETERMINED FROM INPUT - - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4310-04(.25-05)	.0043(.0002)	.4175-04(.24-05)	-.8251-05(.24-05)		
U-235	.2572-02(.20-04)	.2563(.0020)	.2502-02(.20-04)	-.4608-02(.20-04)	.3907-02(.23-04)	3401.4
U-236	.7200-03(.12-04)	.0718(.0012)	.7034-03(.12-04)	.7034-03(.12-04)		
U-238	.1000+01	.99.6676(.0023)	.9852-00(.20-03)	-.7594-02(.20-03)	.4707-03(.46-04)	416.7
U TOTALS			.9885-00(.20-03)	-.1150-01(.20-03)		
PU239	1.0000+00	69.1745(.0544)	.2862-02(.65-04)	.2862-02(.65-04)	.2852-02(.17-03)	2550.1
PU240	.3403-00(.99-03)	23.5401(.0532)	.9781-03(.22-04)	.9781-03(.22-04)		
PU241	.8320-01(.49-03)	5.9088(.0335)	.2465-03(.58-05)	.2465-03(.58-05)	.1574-03(.56-05)	141.5
PU242	.1990-01(.22-03)	1.3766(.0149)	.5768-04(.15-05)	.5768-04(.15-05)		
TOTAL PU			.4145-02(.94-04)	.4145-02(.94-04)		
				TOTAL FISSIONS & BU	.7387-02(.17-03)	6509.8

- - - INPUT - - - - -			- - - CONSTANTS + ASSUMPTIONS - - - - -			- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.7942+09(.16+08)		FISSION YIELD	DEL	MEV/FIS		
PERCENT OF PU DECAYS FROM PU238=	20.60		U-235	.0628(.0003)	.0609(.0061)	202	
TIME OUT OF REACTOR (PU241)=	.551YRS		U-238	.0620(.0040)		208	ALPHA235 OF SAMPLE
			PU239	.0674(.0014)	.0766(.0077)	211	.1794(.0019)
			PU241	.0660(.0017)	.0799(.0080)	214	
CS137 ATOMS/ML=	.6985+17(.14+16)		ALPHA241=	.365(.01)			
CS137 IN REACTOR DECAY COR=	1.0337		CS HALF LIFE=	30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.551YRS		PU241 HALF LIFE=	14.5(0.4)YEARS			.6481(.0028)
			BOL ATOM PERCENTS FOR NATURAL URANIUM				
			234/235/236/238=.005/.720/.000/99.275				
GRAMS OF FUEL/ML OF DISSOLVER=	.0684		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)				PU239 FORMED FROM U238
			PU239=1.3616(.0017)	PU240=5.013(.03)			.7153-02(.19-03)6M
			PU241=.0576(.0010)	PU242=.087(.002)			

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-76
UO-2 BURNUP DATA

SAMPLE 77621 FROM ELEMENT 1097 TAKEN 65.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.3810-04(.22-05)	.0038(.0002)	.3694-04(.22-05)	-.1306-04(.22-05)		
U-235	.3184-02(.32-04)	.3172(.0032)	.3101-02(.32-04)	-.4009-02(.32-04)	.3414-02(.34-04)	2972.2
U-236	.6110-03(.10-04)	.0609(.0010)	.5976-03(.10-04)	.5976-03(.10-04)		
U-238	.1000+01	.99.6182(.0034)	.9862-00(.18-03)	-.6556-02(.18-03)	.4153-03(.40-04)	367.6
U TOTALS			.9900-00(.17-03)	-.9970-02(.17-03)		
PU239	1.0000+00	.73.9899(.0469)	.2575-02(.58-04)	.2575-02(.58-04)	.2601-02(.15-03)	2325.7
PU240	.2747-00(.77-03)	.20.3250(.0460)	.7104-03(.16-04)	.7104-03(.16-04)		
PU241	.6330-01(.33-03)	.4.8268(.0244)	.1694-03(.39-05)	.1694-03(.39-05)	.8253-04(.29-05)	74.2
PU242	.1160-01(.13-03)	.8583(.0094)	.3025-04(.76-06)	.3025-04(.76-06)		
TOTAL PU			.3485-02(.79-04)	.3485-02(.79-04)		
				TOTAL FISSIONS & BU	.6513-02(.15-03)	5739.7

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - DERIVED FROM DATA - - -	
PU DECAYS(D/M/ML)	.6375+09(.13+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=18.00		U-235	.0628(.0003)	.0609(.0061)	202
TIME OUT OF REACTOR (PU241)= .630YRS		U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0766(.0077)	211
		PU241	.0660(.0017)	.0799(.0080)	214
CS137 ATOMS/ML= .6570+17(.13+16)		ALPHA241= .365(.01)			
CS137 IN REACTOR DECAY COR= 1.0337		CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)= .630YRS		PU241 HALF LIFE=14.5(0.4)YEARS			.5639(.0045)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
GRAMS OF FUEL/ML OF DISSOLVER= .0731		234/235/236/238=.005/.720/.000/99.275			PU239 FORMED FROM U238
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			.6168-02(.17-03)GM
		PU239=1.3616(.0017)		PU240=5.013(.03)	
		PU241= .0576(.0010)		PU242=.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77622 FROM ELEMENT 1097 TAKEN 80.00 INCHES FROM TOP OF MIDDLE RING ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.5090-04(.29-05)	.0051(.0003)	.4949-04(.29-05)	-.5067-06(.29-05)		
U-235	.4218-02(.33-04)	.4198(.0033)	.4119-02(.33-04)	-.2991-02(.33-04)	.2537-02(.34-04)	2208.5
U-236	.4650-03(.80-05)	.0463(.0008)	.4560-03(.80-05)	.4560-03(.80-05)		
U-238	.1000+01	.99.5288(.0034)	.9889-00(.11-03)	-.3818-02(.11-03)	.2438-03(.24-04)	215.8
U TOTALS			.9936-00(.10-03)	-.6353-02(.10-03)		
PU239	1.0000+00	.81.9955(.0432)	.2002-02(.45-04)	.2002-02(.45-04)	.1125-02(.93-04)	1005.5
PU240	.1803-00(.61-03)	.14.7838(.0429)	.3625-03(.82-05)	.3625-03(.82-05)		
PU241	.3440-01(.18-03)	.2.9092(.0153)	.7163-04(.17-05)	.7163-04(.17-05)	.2102-04(.75-06)	18.9
PU242	.3800-02(.46-04)	.3116(.0037)	.7703-05(.20-06)	.7703-05(.20-06)		
TOTAL PU			.2444-02(.55-04)	.2444-02(.55-04)		
				TOTAL FISSIONS & BU	.3926-02(.89-04)	3448.6

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - DERIVED FROM DATA - - -	
PU DECAYS(D/M/ML)	.4095+09(.82+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=10.30		U-235	.0628(.0003)	.0609(.0061)	202
TIME OUT OF REACTOR (PU241)= .647YRS		U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0766(.0077)	211
		PU241	.0660(.0017)	.0799(.0080)	214
CS137 ATOMS/ML= .4030+17(.81+15)		ALPHA241= .365(.01)			
CS137 IN REACTOR DECAY COR= 1.0337		CS HALF LIFE= 30.00(.20)YEARS			U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)= .647YRS		PU241 HALF LIFE=14.5(0.4)YEARS			.4207(.0046)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
GRAMS OF FUEL/ML OF DISSOLVER= .0749		234/235/236/238=.005/.720/.000/99.275			PU239 FORMED FROM U238
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			.3589-02(.11-03)GM
		PU239=1.3616(.0017)		PU240=5.013(.03)	
		PU241= .0576(.0010)		PU242=.087(.002)	

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-77

UO-2 BURNUP DATA

SAMPLE 77623 FROM ELEMENT 1097 TAKEN 8.00 INCHES FROM TOP OF CENTER ROD

ISOTOPIC INVENTORY

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-----INPUT DATA-----
ISOTOPE   EOL MASS RATIO   EOL(A/O)   EOL(GM)   NET PRODUCTION(GM)   FISSIONS(GM)   BU MWD/MTM
U-234     .4610-04(.24-05)   .0046(.0002)   .4485-04(.24-05)   -.5149-03(.24-05)   .2694-02(.28-04)   2345.8
U-235     .4025-02(.26-04)   .4007(.0026)   .3933-02(.26-04)   -.3177-02(.26-04)   .2694-02(.28-04)   2345.8
U-236     .4940-03(.11-04)   .0492(.0011)   .4847-03(.11-04)   .4647-03(.11-04)   .2405-03(.23-04)   212.9
U-238     .1000+01   99.5456(.0028)   .9940-00(.97-04)   -.5900-02(.97-04)   .2405-03(.23-04)   212.9
U TOTALS

PU239     1.0000+00   80.1298(.0385)   .1789-02(.40-04)   .1789-02(.40-04)   .7895-03(.85-04)   705.9
PU240     .2012-00(.55-03)   16.1221(.0371)   .3614-03(.82-05)   .3614-03(.82-05)   .2421-04(.85-06)   21.8
PU241     .4060-01(.22-03)   3.3554(.0181)   .7552-04(.18-05)   .7552-04(.18-05)   .2421-04(.85-06)   21.8
PU242     .4900-02(.54-04)   .3926(.0043)   .8874-05(.22-06)   .8874-05(.22-06)   .2234-02(.50-04)   3286.3
TOTAL PU

TOTAL FISSIONS & BU   .3749-02(.83-04)

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-----INPUT-----
PU DECAYS(D/M/ML)   .3829+09(.77+07)
PERCENT OF PU DECAYS FROM PU238=11.60
TIME OUT OF REACTOR (PU241)= .647YRS

CS137 ATOMS/ML= .3752+17(.75+15)
CS137 IN REACTOR DECAY COR= 1.0337
TIME OUT OF REACTOR(CS137)= .647YRS

GRAMS OF FUEL/ML OF DISSOLVER= .0733

-----CONSTANTS + ASSUMPTIONS-----
FISSION YIELD   DEL   MEV/FIS
U-235   .0628(.0003)   .0636(.0064)   202
U-238   .0620(.0040)   .0620(.0040)   208
PU239   .0674(.0014)   .0826(.0083)   211
PU241   .0660(.0017)   .0855(.0085)   214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL UKANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=1.3616(.0017)   PU240=5.013(.03)
PU241= .0576(.0010)   PU242=.087(.002)

-----DERIVED FROM DATA-----
ALPHA235 OF SAMPLE   .1792(.0026)
U235 FRACTIONAL DEPLETION   .4469(.0037)
PU239 FORMED FROM U238   .3048-02(.99-04)GM

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77624 FROM ELEMENT 1097 TAKEN 23.00 INCHES FROM TOP OF CENTER ROD

ISOTOPIC INVENTORY

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-----INPUT DATA-----
ISOTOPE   EOL MASS RATIO   EOL(A/O)   EOL(GM)   NET PRODUCTION(GM)   FISSIONS(GM)   BU MWD/MTM
U-234     .4460-04(.18-05)   .0044(.0002)   .4308-04(.18-05)   -.6921-05(.18-05)   .3522-02(.40-04)   3065.8
U-235     .3069-02(.29-04)   .3058(.0029)   .2977-02(.29-04)   -.4133-02(.29-04)   .3522-02(.40-04)   3065.8
U-236     .6300-03(.28-04)   .0628(.0027)   .6137-03(.27-04)   .6137-03(.27-04)   .4535-03(.44-04)   401.4
U-238     .1000+01   99.6270(.0040)   .9823-00(.23-03)   -.1041-01(.23-03)   .4535-03(.44-04)   401.4
U TOTALS

PU239     1.0000+00   81.7410(.0369)   .5915-02(.13-03)   .5915-02(.13-03)   .2656-02(.16-03)   2374.6
PU240     .1820-00(.51-03)   14.8769(.0358)   .1081-02(.24-04)   .1081-02(.24-04)   .9804-04(.35-05)   88.2
PU241     .3430-01(.18-03)   2.8917(.0152)   .2110-03(.49-05)   .2110-03(.49-05)   .3593-04(.92-06)   5930.0
PU242     .6000-02(.74-04)   .4904(.0060)   .7243-02(.16-03)   .7243-02(.16-03)   .6729-02(.16-03)   5930.0
TOTAL PU

TOTAL FISSIONS & BU   .6729-02(.16-03)

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-----INPUT-----
PU DECAYS(D/M/ML)   .1214+10(.24+08)
PERCENT OF PU DECAYS FROM PU238=12.80
TIME OUT OF REACTOR (PU241)= .647YRS

CS137 ATOMS/ML= .6512+17(.13+16)
CS137 IN REACTOR DECAY COR= 1.0337
TIME OUT OF REACTOR(CS137)= .647YRS

GRAMS OF FUEL/ML OF DISSOLVER= .0702

-----CONSTANTS + ASSUMPTIONS-----
FISSION YIELD   DEL   MEV/FIS
U-235   .0628(.0003)   .0636(.0064)   202
U-238   .0620(.0040)   .0620(.0040)   208
PU239   .0674(.0014)   .0826(.0083)   211
PU241   .0660(.0017)   .0855(.0085)   214
ALPHA241= .365(.01)
CS HALF LIFE= 30.00(.20)YEARS
PU241 HALF LIFE=14.5(0.4)YEARS
BOL ATOM PERCENTS FOR NATURAL UKANIUM
234/235/236/238=.005/.720/.000/99.275
PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)
PU239=1.3616(.0017)   PU240=5.013(.03)
PU241= .0576(.0010)   PU242=.087(.002)

-----DERIVED FROM DATA-----
ALPHA235 OF SAMPLE   .1736(.0049)
U235 FRACTIONAL DEPLETION   .5813(.0041)
PU239 FORMED FROM U238   .9990-02(.23-03)GM

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-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-78
UO-2 BURNUP DATA

SAMPLE 77625 FROM ELEME IT 1097 TAKEN 44.00INCHES FROM TOP OF CENTER ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.7050-04(.38-05)	.0070(.0004)	.6789-04(.38-05)	.1789-04(.38-05)		
U-235	.6221-02(.42-04)	.6178(.0042)	.6016-02(.42-04)	-.1094-02(.42-04)	.4205-03(.43-04)	366.1
U-236	.6960-03(.12-04)	.0691(.0012)	.6760-03(.12-04)	.6760-03(.12-04)		
U-238	.1000+01	.993061(.0044)	.9794-00(.26-03)	-.1335-01(.26-03)	.5364-03(.52-04)	474.8
U TOTALS			.9862-00(.25-03)	-.1377-01(.25-03)		
PU239	1.0000+00	.78,6330(.0430)	.5248-02(.12-03)	.5248-02(.12-03)	.6056-02(.20-03)	5415.1
PU240	.2157-00(.64-03)	.16,9611(.0420)	.1137-02(.26-04)	.1137-02(.26-04)		
PU241	.4560-01(.25-03)	.3,6982(.0195)	.2489-03(.58-05)	.2489-03(.58-05)	.1305-03(.46-05)	117.3
PU242	.9000-02(.93-04)	.7077(.0073)	.4783-04(.12-05)	.4783-04(.12-05)		
TOTAL PU			.6682-02(.15-03)	.6682-02(.15-03)		
			TOTAL FISSIONS & BU		.7144-02(.21-03)	6373.3

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - DERIVED FROM DATA - - -	
PU DECAYS(D/M/ML)	.1158+10(.23+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	16.10	U-235	.0628(.0003)	.0636(.0064)	202
TIME OUT OF REACTOR (PU241)=	.647YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0826(.0083)	211
		PU241	.0660(.0017)	.0855(.0085)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.6963+17(.14+16)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0337	PU241 HALF LIFE=	14,510(.4)YEARS		.1538(.0059)
TIME OUT OF REACTOR(CS137)=	.647YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0690	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

UO-2 BURNUP DATA

SAMPLE 77626 FROM ELEMENT 1097 TAKEN 65.00INCHES FROM TOP OF CENTER ROD

I S O T O P I C I N V E N T O R Y

- - - - INPUT DATA - - - -			- - - - PARAMETERS DETERMINED FROM INPUT - - - -			
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4380-04(.23-05)	.0044(.0002)	.4242-04(.23-05)	-.7579-05(.23-05)		
U-235	.3314-02(.20-04)	.3301(.0020)	.3223-02(.20-04)	-.3887-02(.20-04)	.5300-02(.23-04)	2872.8
U-236	.6030-03(.11-04)	.0601(.0011)	.5890-03(.11-04)	.5890-03(.11-04)		
U-238	.1000+01	.99,6055(.0023)	.9850-00(.18-03)	-.7748-02(.18-03)	.3813-03(.37-04)	337.5
U TOTALS			.9890-00(.18-03)	-.1105-01(.18-03)		
PU239	1.0000+00	.79,4055(.0456)	.4243-02(.96-04)	.4243-02(.96-04)	.1958-02(.13-03)	1750.7
PU240	.2069-00(.68-03)	.16,4290(.0450)	.8816-03(.20-04)	.8816-03(.20-04)		
PU241	.4330-01(.22-03)	.3,5462(.0181)	.1911-03(.44-05)	.1911-03(.44-05)	.9144-04(.33-05)	82.2
PU242	.7800-02(.10-03)	.6194(.0082)	.3351-04(.88-06)	.3351-04(.88-06)		
TOTAL PU			.5349-02(.12-03)	.5349-02(.12-03)		
			TOTAL FISSIONS & BU		.5731-02(.13-03)	5043.2

- - - - INPUT - - - -		- - - - CONSTANTS + ASSUMPTIONS - - - -		- - - DERIVED FROM DATA - - -	
PU DECAYS(D/M/ML)	.9194+09(.18+08)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	15.40	U-235	.0628(.0003)	.0636(.0064)	202
TIME OUT OF REACTOR (PU241)=	.647YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0826(.0083)	211
		PU241	.0660(.0017)	.0855(.0085)	214
		ALPHA241=	.365(.01)		
CS137 ATOMS/ML=	.4748+17(.95+15)	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
CS137 IN REACTOR DECAY COR=	1.0337	PU241 HALF LIFE=	14,510(.4)YEARS		.5466(.0028)
TIME OUT OF REACTOR(CS137)=	.647YRS	BOL ATOM PERCENTS FOR NATURAL URANIUM			
		234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
GRAMS OF FUEL/ML OF DISSOLVER=	.0602	PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-79

UO-2 BURNUP DATA

SAMPLE 77627 FROM ELEMENT 1097 TAKEN 80.00 INCHES FROM TOP OF CENTER ROD

ISOTOPIC INVENTORY

- - - INPUT DATA - - -		- - - PARAMETERS DETERMINED FROM INPUT - - -				
ISOTOPE	EOL MASS RATIO	EOL(A/O)	EOL(GM)	NET PRODUCTION(GM)	FISSIONS(GM)	BU MWD/MTM
U-234	.4476-04(.25-05)	.0044(.0002)	.4346-04(.25-05)	-.6536-05(.25-05)		
U-235	.4288-02(.27-04)	.4268(.0026)	.4187-02(.26-04)	-.2923-02(.26-04)	.2491-02(.28-04)	2168.6
U-236	.4420-03(.78-05)	.0440(.0008)	.4335-03(.77-05)	.4335-03(.77-05)		
U-238	.1000+01	99.5248(.0028)	.9989-00(.10-03)	-.3834-02(.10-03)	.2305-03(.22-04)	204.1
U TOTALS			.9937-00(.10-03)	-.6323-02(.10-03)		
PU239	1.0030+00	82.5058(.0361)	.2281-02(.51-04)	.2281-02(.51-04)	.8295-03(.82-04)	741.6
PU240	.1744-00(.49-03)	14.3890(.0348)	.3994-03(.90-05)	.3994-03(.90-05)		
PU241	.3300-01(.19-03)	2.8082(.0156)	.7827-04(.18-05)	.7827-04(.18-05)	.2268-04(.81-06)	20.4
PU242	.3600-02(.44-04)	.2970(.0036)	.8313-05(.21-06)	.8313-05(.21-06)		
TOTAL PU			.2767-02(.62-04)	.2767-02(.62-04)		
				TOTAL FISSIONS & BU	.3574-02(.80-04)	3134.7

- - - INPUT - - -		- - - CONSTANTS + ASSUMPTIONS - - -		- - DERIVED FROM DATA - -	
PU DECAYS(D/M/ML)	.4603+09(.92+07)	FISSION YIELD	DEL	MEV/FIS	
PERCENT OF PU DECAYS FROM PU238=	9.40	U-235	.0628(.0003)	.0636(.0064)	202
TIME OUT OF REACTOR (PU241)=	.647YRS	U-238	.0620(.0040)		208
		PU239	.0674(.0014)	.0826(.0083)	211
		PU241	.0660(.0017)	.0855(.0085)	214
CS137 ATOMS/ML=	.3408+17(.68+15)	ALPHA241=	.365(.01)		
CS137 IN REACTOR DECAY COR=	1.0337	CS HALF LIFE=	30.00(.20)YEARS		U235 FRACTIONAL DEPLETION
TIME OUT OF REACTOR(CS137)=	.647YRS	PU241 HALF LIFE=	14.5(0.4)YEARS		.4111(.0037)
		BOL ATOM PERCENTS FOR NATURAL URANIUM			
GRAMS OF FUEL/ML OF DISSOLVER=	.0698	234/235/236/238=	.005/.720/.000/99.275		
		PU SPECIFIC ACTIVITIES(10**11 DECAYS/GM)			PU239 FORMED FROM U238
		PU239=	1.3616(.0017)	PU240=	5.013(.03)
		PU241=	.0576(.0010)	PU242=	.087(.002)

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

A-80

PRTR ELEMENT 1037 ROD 133 (CENTER) NATURAL UO2 THE SAMPLE WAS CUT 62.2 INCHES FROM THE TOP OF THE FUEL
 INPUT DATA--- TIME OUT OF REACTOR=1.833YRS BOL PU241 DECAY CORRECTION TIME= -.000YRS OXIDE FUEL= .31286GM/ML
 SPIKE--ND42/50 .3056-02(.24-03) ND50/42 .1103-02(.30-01)--SAMPLE--ND50/46 .4900-00(.10-02) MIXTURE--ND42/50 .1496-01(.00-04)

ISOTOPIIC DILUTION ANALYSIS
 ATOMS/ML IN SPIKE SPIKE SPIKE VOL(ML) SAMPLE VOL(ML) MIXTURE ATOMS/ML IN SAMPLE
 PU242 .4981+17(.20+15) PU9/2 .1038-01(.66-05) .2000-00(.10-02) .2403-02(.12-04) PU9/2 .4930-00(.15-02) PU239 .2054+19(.26+17)
 ND150 .7840+16(.78+14) ND8/0 .8679-01(.16-03) .3997-00(.20-02) .4925-02(.25-04) ND8/0 .1911-00(.60-03) ND148 .1143+18(.14+16)
 BOL U+PU=.2757(.0028)GM/ML AS CALCULATED BY FUEL WEIGHT AND SOLUTION VOLUME .95% SAMPLE--ND CONTAMINATION--MIXTURE .97

ISOTOPE	BOL (GM)	EOL MASS RATIO	EOL (A/O)	EOL (GM)	NET PRODUCTION (GM)
U-234	.5605-04(.496-06)	.1200-01(.200-05)	.0042(.0002)	.4000-04(.199-05)	-.1545-04(.206-05)
U-235	.7113-02(.690-05)	.1930-02(.200-01)	.1925(.0020)	.1874-02(.199-04)	-.5239-02(.211-04)
U-236	.0000(.0000)	.1300-03(.100-01)	.0828(.0010)	.8002-03(.996-05)	.8092-03(.996-05)
U-238	.9928-00(.692-05)	1.000	.99.7206(.0023)	.9832-00(.192-03)	-.9661-02(.192-03)
TOTALS	.1000+01(.0000)			.9859-00(.0000)	-.1409-01(.191-03)

ISOTOPE	BOL (A/O)	EOL MASS RATIO	EOL (A/O)	EOL (GM)	BOL (GM)	NET PRODUCTION (GM)
PU238	.0000(.0000)	.5334-02(.580-04)	.3708(.0037)	.1718-04(.325-06)	.0000(.0000)	.1718-04(.325-06)
PU239	100.0000(.0000)	1.0000	63.5606(.0580)	.2957-02(.477-04)	.0000(.0000)	.2957-02(.477-04)
PU240	.0000(.0000)	.4351-00(.130-02)	27.6552(.0607)	.1292-02(.212-04)	.0000(.0000)	.1292-02(.212-04)
PU241	.0000(.0000)	.8330-01(.400-03)	6.1957(.0301)	.2906-03(.492-05)	.0000(.0000)	.2906-03(.492-05)
PU242	.0000(.0000)	.3489-01(.350-03)	2.2176(.0218)	.1045-03(.199-05)	.0000(.0000)	.1045-03(.199-05)
TOTALS				.4661-02(.753-04)	-.0000(.0000)	.4661-02(.753-04)

ISOTOPE	FISSIONS (GM)	BURNUP (%D/MTH)	FISSION YIELD	DEL	MEV/FISSION
U-235	.4434-02(.2330-04)	4249.8	.0169(.0001)	.0636(.0004)	201.7
U-238	.6482-03(.6174-04)	434.1	.0193(.0010)		208.5
PU239	.4116-02(.1782-03)	4035.3	.0170(.0003)	.0826(.0083)	210.7
PU241	.2850-03(.8887-05)	281.2	.0189(.0005)	.0855(.0085)	213.8
TOTALS	.9403-02(.1752-03)	920.4			

U235/U238BOL=.263(.003) ALPHA235=.1817(.0028) ALPHA239=.4763(.0221) U238 INTO PU239=.9050-02(.19-03)GM U236 INTO NP237=.525-07GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

PRTR ELEMENT 1037 ROD 133 (CENTER) NATURAL UO2 THE SAMPLE WAS CUT 55.9 INCHES FROM THE TOP OF THE FUEL
 INPUT DATA--- TIME OUT OF REACTOR=1.833YRS BOL PU241 DECAY CORRECTION TIME= -.000YRS OXIDE FUEL= .30876GM/ML
 SPIKE--ND42/50 .8056-02(.24-03) ND50/42 .8460+01(.30-01)--SAMPLE--ND50/48 .4990-00(.10-02) MIXTURE--ND42/50 .1764-01(.90-04)

ISOTOPIIC DILUTION ANALYSIS
 ATOMS/ML IN SPIKE SPIKE SPIKE VOL(ML) SAMPLE VOL(ML) MIXTURE ATOMS/ML IN SAMPLE
 PU242 .4981+17(.20+15) PU9/2 .1030-03(.66-05) .2000-00(.10-02) .2463-02(.12-04) PU9/2 .5010-00(.15-02) PU239 .2074+19(.26+17)
 ND150 .7840+16(.78+14) ND8/0 .8679-01(.16-03) .3997-00(.20-02) .4925-02(.25-04) ND8/0 .1911-00(.60-03) ND148 .1268+18(.16+16)
 BOL U+PU=.2721(.0027)GM/ML AS CALCULATED BY FUEL WEIGHT AND SOLUTION VOLUME 1.26% SAMPLE--ND CONTAMINATION--MIXTURE 1.20%

ISOTOPE	BOL (GM)	EOL MASS RATIO	EOL (A/O)	EOL (GM)	NET PRODUCTION (GM)
U-234	.5605-04(.496-06)	.4100-04(.400-05)	.0041(.0004)	.3958-04(.399-05)	-.1647-04(.402-05)
U-235	.7113-02(.690-05)	.1610-02(.200-01)	.1606(.0020)	.1561-02(.199-04)	-.5552-02(.211-04)
U-236	.0000(.0000)	.8800-03(.100-01)	.0878(.0010)	.8568-03(.997-05)	.8568-03(.997-05)
U-238	.9928-00(.692-05)	1.0000	.99.7475(.0024)	.9819-00(.217-03)	-.1094-01(.217-03)
TOTALS	.1000+01(.0000)			.9844-00(.0000)	-.1564-01(.215-03)

ISOTOPE	BOL (A/O)	EOL MASS RATIO	EOL (A/O)	EOL (GM)	BOL (GM)	NET PRODUCTION (GM)
PU238	.0000(.0000)	.7643-02(.760-04)	.4623(.0046)	.2303-04(.436-06)	.0000(.0000)	.2303-04(.436-06)
PU239	100.0000(.0000)	1.0000	60.4855(.0621)	.3026-02(.488-04)	.0000(.0000)	.3026-02(.488-04)
PU240	.0000(.0000)	.4847-00(.150-02)	29.3173(.0657)	.1473-02(.242-04)	.0000(.0000)	.1473-02(.242-04)
PU241	.0000(.0000)	.1051+00(.500-03)	6.9392(.0351)	.3500-03(.595-05)	.0000(.0000)	.3500-03(.595-05)
PU242	.0000(.0000)	.4622-01(.500-03)	2.7956(.0295)	.1416-03(.277-05)	.0000(.0000)	.1416-03(.277-05)
TOTALS				.5013-02(.810-04)	-.0000(.0000)	.5013-02(.810-04)

ISOTOPE	FISSIONS (GM)	BURNUP (%D/MTH)	FISSION YIELD	DEL	MEV/FISSION
U-235	.4699-02(.2332-04)	4104.0	.0169(.0001)	.0636(.0004)	201.7
U-238	.7352-03(.7004-04)	719.3	.0193(.0010)		208.5
PU239	.4862-02(.2026-03)	4766.9	.0170(.0003)	.0826(.0083)	210.7
PU241	.3864-03(.1216-03)	381.2	.0189(.0005)	.0855(.0085)	213.8
TOTALS	.1068-01(.1997-03)	1337.4			

U235/U238BOL=.219(.003) ALPHA235=.1814(.0028) ALPHA239=.4806(.0216) U238 INTO PU239=.1025-01(.22-03)GM U236 INTO NP237=.646-07GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

PORT ELEMENT 1037 ROD 133 (CLINTON) NATURAL UO2 THE SAMPLE WAS CUT 42.4 INCHES FROM THE TOP OF THE FUEL

INPUT DATA---- TIME OUT OF REACTOR=1.83YRS BOL PU241 DECAY CORRECTION TIME= -.000YRS OXIDE FUEL=.2776GM/ML
SPIKE=-ND42/50 .8056-02(.24-03) ND50/42 .7118-01(.27-01)--SAMPLE=-ND50/48 .8056-00(.20-02) MIXTURE=-ND42/50 .1761-01(.90-04)

ISOTOPIC DILUTION ANALYSIS

ATOMS/ML IN SPIKE	SPIKE	SPIKE VOL(ML)	SAMPLE VOL(ML)	MIXTURE	ATOMS/ML IN SAMPLE
PU242 .4981+17(.50+15)	PU9/2 .1030-01(.66-05)	.2070-00(.10-02)	.2463-02(.12-04)	PU9/2 .4561-00(.14-02)	PU239 .1897+19(.24+17)
ND150 .7640+16(.78+14)	ND8/0 .8679-02(.16-03)	.3997-00(.20-02)	.4925-02(.25-04)	ND8/0 .1866-00(.60-03)	ND148 .1507+18(.17+16)

BOL U+PU=.2450(.0024)GM/ML AS CALCULATED BY FUEL WEIGHT AND SOLUTION VOLUME 1.42% SAMPLE---NO CONTAMINATION---MIXTURE 1.10%

ISOTOPIC INVENTORY

ISOTOPE	BOL (GM)	FOL MASS RATIO	EOL (A/O)	EOL (GM)	NET PRODUCTION (GM)
U-234	.5605-04(.496-06)	.4700-04(.510-05)	.0047(.0005)	.4530-04(.499-05)	-.1075-04(.501-05)
U-235	.7113-02(.690-05)	.1250-02(.200-01)	.1277(.0020)	.1239-02(.199-04)	-.5874-02(.211-04)
U-236	.0000(.000)	.0100-00(.100-01)	.0908(.0010)	.8846-03(.997-05)	.8846-03(.997-05)
U-238	.9923-00(.692-05)	1.0000	.99.7768(.0024)	.98.3-00(.248-03)	-.1255-01(.248-03)
TOTALS	.1000+01(.000)			.9825-00(.000)	-.1753-01(.247-03)

ISOTOPE	BOL (A/O)	EOL MASS RATIO	EOL (A/O)	EOL (GM)	BOL (GM)	NET PRODUCTION (GM)
PU238	.0000(.0000)	.9901-02(.990-04)	.5082(.0057)	.3031-04(.570-06)	.0000(.000)	.3031-04(.576-06)
PU239	100.0000(.0000)	1.0000	57.3657(.0613)	.3074-02(.496-04)	.0000(.000)	.3074-02(.496-04)
PU240	.0000(.0000)	.5414-00(.160-02)	31.0686(.0655)	.1671-02(.274-04)	.0000(.000)	.1671-02(.274-04)
PU241	.0000(.0000)	.1194+00(.000-03)	7.4793(.0393)	.4041-03(.690-05)	.0000(.000)	.4041-03(.690-05)
PU242	.0000(.0000)	.6096-01(.610-03)	3.4942(.0340)	.1698-03(.363-05)	.0000(.000)	.1698-03(.363-05)
TOTALS				.5370-02(.869-04)	-.0000(.000)	.5370-02(.869-04)

FISSIONS BY ND148

ISOTOPE	FISSIONS (GM)	BURNUP (MW/MTM)	FISSION YIELD	DEL	MEV/FISSION
U-235	.4993-02(.2333-04)	4760.2	.0169(.0001)	.0630(.0064)	201.7
U-238	.8486-03(.8085-04)	830.2	.0193(.0010)		208.5
PU239	.5875-02(.2339-03)	5759.9	.0170(.0003)	.0826(.0063)	210.7
PU241	.5178-03(.1616-04)	410.8	.0189(.0005)	.0855(.0085)	213.8
TOTALS	.1223-01(.2309-03)	11887.1			

U235/U238BOL=.174(.003) ALPHA235=.1764(.0025) ALPHA239=.4708(.0204) U236 INTO PU239=.1175-01(.25-03)GM U236 INTO NP237=.790-076M

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION, ERRORS-----

PORT ELEMENT 1037 ROD 1377 (K ROD RING) NATURAL UO2 THE SAMPLE WAS CUT 59.4 INCHES FROM THE TOP OF THE FUEL

INPUT DATA---- TIME OUT OF REACTOR=1.83YRS BOL PU241 DECAY CORRECTION TIME= -.000YRS OXIDE FUEL=.29776GM/ML
SPIKE=-ND42/50 .8056-02(.24-03) ND50/42 .8560+01(.30-01)--SAMPLE=-ND50/48 .4964-00(.10-02) MIXTURE=-ND42/50 .1570-01(.80-04)

ISOTOPIC DILUTION ANALYSIS

ATOMS/ML IN SPIKE	SPIKE	SPIKE VOL(ML)	SAMPLE VOL(ML)	MIXTURE	ATOMS/ML IN SAMPLE
PU242 .4981+17(.50+15)	PU9/2 .1030-03(.66-05)	.2000-00(.10-02)	.2463-02(.12-04)	PU9/2 .4868-00(.15-02)	PU239 .2023+19(.26+17)
ND150 .7640+16(.78+14)	ND8/0 .8679-02(.16-03)	.3997-00(.20-02)	.4925-02(.25-04)	ND8/0 .1866-00(.60-03)	ND148 .1235+18(.16+16)

BOL U+PU=.2624(.0026)GM/ML AS CALCULATED BY FUEL WEIGHT AND SOLUTION VOLUME 1.24% SAMPLE---NO CONTAMINATION---MIXTURE 1.00%

ISOTOPIC INVENTORY

ISOTOPE	BOL (GM)	FOL MASS RATIO	EOL (A/O)	EOL (GM)	NET PRODUCTION (GM)
U-234	.5605-04(.496-06)	.4900-04(.200-05)	.0049(.0002)	.4730-04(.199-05)	-.8751-05(.206-05)
U-235	.7113-02(.690-05)	.1590-02(.200-06)	.1586(.0020)	.1541-02(.199-04)	-.5572-02(.211-04)
U-236	.0000(.000)	.0700-03(.200-04)	.0868(.0020)	.8470-03(.199-04)	.8470-03(.199-04)
U-238	.9923-00(.692-05)	1.0000	.99.7497(.0029)	.9818-00(.220-03)	-.1105-01(.220-03)
TOTALS	.1000+01(.000)			.9842-00(.000)	-.1578-01(.218-03)

ISOTOPE	BOL (A/O)	EOL MASS RATIO	EOL (A/O)	EOL (GM)	BOL (GM)	NET PRODUCTION (GM)
PU238	.0000(.0000)	.7423-02(.150-03)	.4517(.0091)	.2262-04(.585-06)	.0000(.000)	.2262-04(.585-06)
PU239	100.0000(.0000)	1.0000	60.8522(.0598)	.3060-02(.494-04)	.0000(.000)	.3060-02(.494-04)
PU240	.0000(.0000)	.4758-00(.140-02)	28.9535(.0622)	.1462-02(.240-04)	.0000(.000)	.1462-02(.240-04)
PU241	.0000(.0000)	.1040+00(.500-03)	6.9082(.0352)	.3503-03(.596-05)	.0000(.000)	.3503-03(.596-05)
PU242	.0000(.0000)	.4658-01(.500-03)	2.8345(.0297)	.1443-03(.232-05)	.0000(.000)	.1443-03(.232-05)
TOTALS				.5039-02(.615-04)	-.0000(.000)	.5039-02(.615-04)

FISSIONS BY ND148

ISOTOPE	FISSIONS (GM)	BURNUP (MW/MTM)	FISSION YIELD	DEL	MEV/FISSION
U-235	.4728-02(.2901-04)	4532.2	.0169(.0001)	.0609(.0061)	201.7
U-238	.7017-03(.6708-04)	800.5	.0193(.0010)		208.5
PU239	.4973-02(.2052-03)	4700.0	.0170(.0003)	.0766(.0077)	210.7
PU241	.3938-03(.1238-04)	460.5	.0169(.0005)	.0799(.0080)	213.8
TOTALS	.1000-01(.2023-03)	10663.2			

U235/U238BOL=.217(.003) ALPHA235=.1704(.0050) ALPHA239=.4698(.0210) U236 INTO PU239=.1059-01(.22-03)GM U236 INTO NP237=.645-076M

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION, ERRORS-----

PRTR ELEMENT 1037 ROD 1377(1, 000, 110) ATUPAL U02 THE SAMPLE WAS CUT 42.4 INCHES FROM THE TOP OF THE FUEL
 INPUT DATA---- TIME OUT OF REACTOR=1.833YRS BOL PU241 DECAY CORRECTION TIME= -.000YRS
 SPIKE--ND42/50 .8056-02(.24-03) ND50/42 .9370+01(.30-01)--SAMPLE--ND50/48 .5930-00(.10-02) MIXTURE--ND42/50 .1711-01(.90-04)

ISOTOPIC DILUTION ANALYSIS
 ATOMS/ML IN SPIKE SPIKE SPIKE VOL(ML) SAMPLE VOL(ML) MIXTURE ATOMS/ML IN SAMPLE
 PU242 .4981+17(.50+15) PU9/2 .1030-03(.66-05) .2000-00(.10-02) .1971-02(.10-04) PU9/2 .3954-00(.12-02) PU239 .2056+19(.26+17)
 U-233 .5146+19(.50+17) U 8/3 .2404-02(.12-04) .2000-00(.10-02) .1971-02(.10-04) U 8/3 .5541-00(.40-02) U-238 .6663+21(.97+19)
 ND150 .7840+16(.78+14) ND8/0 .8679-02(.16-03) .3997-00(.20-02) .3939-02(.20-04) ND8/0 .1765-00(.60-03) ND148 .1466+18(.19+16)

BOL U+PU=.2687(.0039)GM/ML AS CALCULATED BY ISOTOPIC DILUTION

1.29% SAMPLE---NO CONTAMINATION---MIXTURE 1.22%

ISOTOPIC INVENTORY
 ISOTOPE BOL (GM) BOL MASS RATIO EOL (A/O) EOL (GM) EOL (GM) NET PRODUCTION (GM)
 U-234 .5605-04(.490-06) .3800-04(.200-00) .0038(.0002) .3602-04(.200-05) .3602-04(.200-05) -.1943-04(.206-05)
 U-235 .7113-02(.690-05) .1160-02(.200-00) .1158(.0020) .1123-02(.199-04) .1123-02(.199-04) -.5990-02(.211-04)
 U-236 .0000(.0000) .6400-03(.100-00) .0938(.0010) .9135-03(.997-05) .9135-03(.997-05) .9135-03(.997-05)
 U-238 .9928-00(.692-05) 1.0000 99.7667(.0023) .9811-00(.289-03) .9811-00(.289-03) -.1277-01(.289-03)
 TOTALS .1000+01(.0000) .9822-00(.0000) -.1785-01(.286-03)

ISOTOPE BOL (A/O) BOL MASS RATIO EOL (A/O) EOL (GM) BOL (GM) NET PRODUCTION (GM)
 PU238 .0000(.0000) .1098-01(.110-03) .6175(.0062) .3320-04(.680-06) .0000(.0000) .3320-04(.680-06)
 PU239 100.0000(.0000) 1.0000 56.2408(.0617) .3036-02(.543-04) .0000(.0000) .3036-02(.543-04)
 PU240 .0000(.0000) .5566-00(.170-02) 31.3036(.0678) .1697-02(.308-04) .0000(.0000) .1697-02(.308-04)
 PU241 .0000(.0000) .1282-00(.600-03) 7.8703(.0390) .4285-03(.799-05) .0000(.0000) .4285-03(.799-05)
 PU242 .0000(.0000) .7055-01(.600-03) 3.9678(.0327) .2169-03(.432-05) .0000(.0000) .2169-03(.432-05)
 TOTALS .5412-02(.969-04) .5412-02(.969-04) .5412-02(.969-04)

FISSIONS BY ND148
 ISOTOPE FISSIONS (GM) BURNUP (KWD/MTM) FISSION YIELD DEL MEV/FISSION
 U-235 .5081-02(.2333-04) 447.1 .0169(.0001) .0609(.0061) 201.7
 U-238 .8168-03(.7884-04) 801.0 .0193(.0010) .0799(.0080) 208.5
 PU239 .6018-02(.2690-03) 500.3 .0170(.0003) .0766(.0077) 210.7
 PU241 .5918-03(.1875-04) 583.9 .0189(.0005) .0799(.0080) 213.8
 TOTALS .1251-01(.2711-03) 12155.3

U235/U238BOL=.158(.003) ALPHA235=.1791(.0024) ALPHA239=.4846(.0235) U236 INTO PU239=.1200-01(.29-03)GM U236 INTO NP237=.871-0766

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

PRTR ELEMENT 1037 ROD 1398(1, 000, 110) NATURAL U02 THE SAMPLE WAS CUT 70.9 INCHES FROM THE TOP OF THE FUEL
 INPUT DATA---- TIME OUT OF REACTOR=1.833YRS BOL PU241 DECAY CORRECTION TIME= -.000YRS OXIDE FUEL=.3204GM/ML
 SPIKE--ND42/50 .8056-02(.24-03) ND50/42 .9360+01(.30-01)--SAMPLE--ND50/48 .4908-00(.10-02) MIXTURE--ND42/50 .1398-01(.80-04)

ISOTOPIC DILUTION ANALYSIS
 ATOMS/ML IN SPIKE SPIKE SPIKE VOL(ML) SAMPLE VOL(ML) MIXTURE ATOMS/ML IN SAMPLE
 PU242 .4981+17(.50+15) PU9/2 .1030-03(.66-05) .2000-00(.10-02) .1971-02(.10-04) PU9/2 .4157-00(.12-02) PU239 .2137+19(.27+17)
 ND150 .7840+16(.78+14) ND8/0 .8679-02(.16-03) .3997-00(.20-02) .3939-02(.20-04) ND8/0 .1497-00(.50-03) ND148 .1199+18(.15+16)

BOL U+PU=.2824(.0028)GM/ML AS CALCULATED BY FUEL WEIGHT AND SOLUTION VOLUME

1.12% SAMPLE---NO CONTAMINATION---MIXTURE .98%

ISOTOPIC INVENTORY
 ISOTOPE BOL (GM) BOL MASS RATIO EOL (A/O) EOL (GM) EOL (GM) NET PRODUCTION (GM)
 U-234 .5605-04(.496-06) .4200-04(.200-05) .0042(.0002) .4059-04(.199-05) .4059-04(.199-05) -.1546-04(.206-05)
 U-235 .7113-02(.690-05) .1830-02(.200-04) .1825(.0020) .1776-02(.199-04) .1776-02(.199-04) -.5337-02(.211-04)
 U-236 .0000(.0000) .6600-03(.100-04) .0858(.0010) .8382-03(.996-05) .8382-03(.996-05) .8382-03(.996-05)
 U-238 .9928-00(.692-05) 1.0000 99.7275(.0023) .9829-00(.199-03) .9829-00(.199-03) -.9936-02(.199-03)
 TOTALS .1000+01(.0000) .9856-00(.0000) -.1443-01(.198-03)

ISOTOPE BOL (A/O) BOL MASS RATIO EOL (A/O) EOL (GM) BOL (GM) NET PRODUCTION (GM)
 PU238 .0000(.0000) .5321-02(.530-04) .3394(.0034) .1591-04(.302-06) .0000(.0000) .1591-04(.302-06)
 PU239 100.0000(.0000) 1.0000 63.8045(.0592) .3003-02(.484-04) .0000(.0000) .3003-02(.484-04)
 PU240 .0000(.0000) .4219-00(.130-02) 26.8347(.0616) .1272-02(.209-04) .0000(.0000) .1272-02(.209-04)
 PU241 .0000(.0000) .9560-01(.500-03) 6.6374(.0361) .3160-03(.541-05) .0000(.0000) .3160-03(.541-05)
 PU242 .0000(.0000) .4064-01(.300-03) 2.5849(.0187) .1236-03(.220-05) .0000(.0000) .1236-03(.220-05)
 TOTALS .4731-02(.764-04) .4731-02(.764-04) .4731-02(.764-04)

FISSIONS BY ND148
 ISOTOPE FISSIONS (GM) BURNUP (KWD/MTM) FISSION YIELD DEL MEV/FISSION
 U-235 .4502-02(.2331-04) 415.6 .0169(.0001) .0491(.0049) 201.7
 U-238 .4924-03(.4764-04) 461.8 .0193(.0010) .0604(.0060) 208.5
 PU239 .4427-02(.1825-03) 440.0 .0170(.0003) .0563(.0056) 210.7
 PU241 .3372-03(.1025-04) 32.7 .0189(.0005) .0604(.0060) 213.8
 TOTALS .9759-02(.1822-03) 917.1

U235/U238BOL=.250(.003) ALPHA235=.1854(.0024) ALPHA239=.4602(.0205) U236 INTO PU239=.9403-02(.20-03)GM U236 INTO NP237=.569-0766

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

PRTR ELEMENT 1037 ROD 1598(11 ROD RING) NATURAL UO2 THE SAMPLE WAS CUT 01.4 INCHES FROM THE TOP OF THE FUEL

INPUT DATA---- TIME OUT OF REACTOR=1.833YRS BOL PU241 DECAY CORRECTION TIME= -.000YRS OXIDE FUEL= .29476G/MIL
SPIKE--ND42/50 .0056-02(.24-03) ND50/42 .6660+01(.30-01)--SAMPLE--ND50/40 .4460-00(.10-02) MIXTURE--ND42/50 .1637-01(.80-04)

ISOTOPIC DILUTION ANALYSIS
ATOMS/ML IN SPIKE SPIKE VOL(ML) SAMPLE VOL(ML) MIXTURE ATOMS/ML IN SAMPLE
PU242 .4981+17(.50+15) PU9/2 .1030-03(.66-05) .2000-00(.10-02) .1971-02(.10-04) PU9/2 .4089-00(.12-02) PU239 .2161+19(.27+17)
ND150 .7840+16(.78+14) ND8/0 .8679-02(.16-03) .3997-00(.20-02) .2953-02(.15-04) ND8/0 .1653-00(.50-03) ND148 .1788+18(.23+16)

BOL U+PU=.2598(.0026)G/MIL AS CALCULATED BY FUEL WEIGHT AND SOLUTION VOLUME 1.23% SAMPLE--NO CONTAMINATION--MIXTURE 1.25%

ISOTOPIC INVENTORY
ISOTOPE BOL (GM) EOL MASS RATIO EOL (A/O) EOL (GM) DEL (GM) NET PRODUCTION (GM)
U-234 .5605-04(.440-06) .3700-04(.200-05) .0037(.0002) .3553-04(.200-05) .0000 (.000) .2051-04(.206-05)
U-235 .7113-02(.690-05) .7800-03(.100-04) .0779(.0010) .7523-03(.997-05) .0000 (.000) .6361-02(.121-04)
U-236 .0000 (.000) .6800-03(.100-0) .0978(.0010) .9492-03(.997-05) .0000 (.000) .9492-03(.997-05)
U-238 .9926-00(.692-05) 1.0000 99.8206(.0016) .9768-00(.314-03) .9768-00(.314-03) .1601-01(.314-03)
TOTALS .1000+01(.000) .0000 .9835-00(.000) .0000 (.000) .2142-01(.314-03)

ISOTOPE BOL (A/O) EOL MASS RATIO EOL (A/O) EOL (GM) BOL (GM) NET PRODUCTION (GM)
PU238 .0000(.0000) .1398-01(.140-03) .7473(.0075) .4497-04(.855-06) .0000 (.000) .4497-04(.855-06)
PU239 100.0000(.0000) 1.0000 53.4575(.0545) .3230-02(.522-04) .0000 (.000) .3230-02(.522-04)
PU240 .0000(.0000) .5757-00(.170-02) 30.7755(.0645) .1868-02(.307-04) .0000 (.000) .1868-02(.307-04)
PU241 .0000(.0000) .1596-00(.500-03) 9.3131(.0346) .5675-03(.944-05) .0000 (.000) .5675-03(.944-05)
PU242 .0000(.0000) .1067+00(.300-03) 5.7066(.0258) .3492-03(.589-05) .0000 (.000) .3492-03(.589-05)
TOTALS .0000 .1067+00(.300-03) 5.7066(.0258) .0060-02(.981-04) .0000 (.000) .6060-02(.981-04)

FISSIONS BY ND 148
ISOTOPE FISSIIONS (GM) BURNUP (MMO/MTM) FISSION YIELD DEL MEV/FISSION
U-235 .4778-02(.2332-04) 4560.3 .0169(.0001) .0491(.0049) 201.7
U-238 .5780-03(.5596-04) 565.5 .0193(.0010) .0503(.0056) 208.5
PU239 .5550-02(.2149-03) 5441.4 .0170(.0003) .0503(.0056) 210.7
PU241 .4851-03(.1473-04) 470.6 .0189(.0005) .0604(.0060) 213.8
TOTALS .1139-01(.2150-03) 11065.8 .0189(.0005) .0604(.0060) 213.8

U235/U238BOL=.203(.003) ALPHA235=.1865(.0026) ALPHA239=.4548(.0192) U238 INTO PU239=.1124-01(.23-03)GM U236 INTO NP237=.717-07GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

PRTR ELEMENT 1037 ROD 1598(12 ROD RING) NATURAL UO2 THE SAMPLE WAS CUT 42.4 INCHES FROM THE TOP OF THE FUEL

INPUT DATA---- TIME OUT OF REACTOR=1.833YRS BOL PU241 DECAY CORRECTION TIME= -.000YRS OXIDE FUEL= .30126G/MIL
SPIKE--ND42/50 .0056-02(.24-03) ND50/42 .7120+01(.40-01)--SAMPLE--ND50/48 .5136-00(.20-02) MIXTURE--ND42/50 .1889-01(.10-03)

ISOTOPIC DILUTION ANALYSIS
ATOMS/ML IN SPIKE SPIKE VOL(ML) SAMPLE VOL(ML) MIXTURE ATOMS/ML IN SAMPLE
PU242 .4981+17(.50+15) PU9/2 .1030-03(.66-05) .2000-00(.10-02) .1971-02(.10-04) PU9/2 .4089-00(.12-02) PU239 .2161+19(.27+17)
ND150 .7840+16(.78+14) ND8/0 .8679-02(.16-03) .3997-00(.20-02) .2953-02(.15-04) ND8/0 .1653-00(.50-03) ND148 .1788+18(.23+16)

BOL U+PU=.2655(.0027)G/MIL AS CALCULATED BY FUEL WEIGHT AND SOLUTION VOLUME 1.55% SAMPLE--NO CONTAMINATION--MIXTURE 1.57%

ISOTOPIC INVENTORY
ISOTOPE BOL (GM) EOL MASS RATIO EOL (A/O) EOL (GM) DEL (GM) NET PRODUCTION (GM)
U-234 .5605-04(.490-06) .3700-04(.200-05) .0037(.0002) .3553-04(.200-05) .0000 (.000) .2051-04(.206-05)
U-235 .7113-02(.690-05) .7800-03(.100-04) .0779(.0010) .7523-03(.997-05) .0000 (.000) .6361-02(.121-04)
U-236 .0000 (.000) .6800-03(.100-0) .0978(.0010) .9492-03(.997-05) .0000 (.000) .9492-03(.997-05)
U-238 .9926-00(.692-05) 1.0000 99.8206(.0016) .9768-00(.314-03) .9768-00(.314-03) .1601-01(.314-03)
TOTALS .1000+01(.000) .0000 .9835-00(.000) .0000 (.000) .2142-01(.314-03)

ISOTOPE BOL (A/O) EOL MASS RATIO EOL (A/O) EOL (GM) BOL (GM) NET PRODUCTION (GM)
PU238 .0000(.0000) .1398-01(.140-03) .7473(.0075) .4497-04(.855-06) .0000 (.000) .4497-04(.855-06)
PU239 100.0000(.0000) 1.0000 53.4575(.0545) .3230-02(.522-04) .0000 (.000) .3230-02(.522-04)
PU240 .0000(.0000) .5757-00(.170-02) 30.7755(.0645) .1868-02(.307-04) .0000 (.000) .1868-02(.307-04)
PU241 .0000(.0000) .1596-00(.500-03) 9.3131(.0346) .5675-03(.944-05) .0000 (.000) .5675-03(.944-05)
PU242 .0000(.0000) .1067+00(.300-03) 5.7066(.0258) .3492-03(.589-05) .0000 (.000) .3492-03(.589-05)
TOTALS .0000 .1067+00(.300-03) 5.7066(.0258) .0060-02(.981-04) .0000 (.000) .6060-02(.981-04)

FISSIONS BY ND 148
ISOTOPE FISSIIONS (GM) BURNUP (MMO/MTM) FISSION YIELD DEL MEV/FISSION
U-235 .5415-02(.1570-04) 5150.8 .0169(.0001) .0491(.0049) 201.7
U-238 .7917-03(.7674-04) 774.6 .0193(.0010) .0503(.0056) 208.5
PU239 .8297-02(.2970-03) 8134.6 .0170(.0003) .0503(.0056) 210.7
PU241 .9527-03(.2847-04) 739.9 .0189(.0005) .0604(.0060) 213.8
TOTALS .1546-01(.2941-03) 15739.9 .0189(.0005) .0604(.0060) 213.8

U235/U238BOL=.140(.001) ALPHA235=.174(.0027) ALPHA239=.4474(.0178) U238 INTO PU239=.1928-01(.31-03)GM U236 INTO NP237=.115-06GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

PRTR ELEMENT 1037 ROD 139P(1) ROD RING) NATURAL UO2 THE SAMPLE WAS CUT 23.9 INCHES FROM THE TOP OF THE FUEL

INPUT DATA---- TIME OUT OF REACTOR=1.833YRS BOL PU241 DECAY CORRECTION TIME= -.000YRS OXIDE FUEL= .31650G/MML
SPIKE--ND42/50 .0056-02(.24-03) ND50/42 .5790-01(.30-01)--SAMPLE--ND50/46 .5109-00(.20-02) MIXTURE--ND42/50 .1734-01(.90-04)

ISOTOPIIC DILUTION ANALYSIS
ATOMS/ML IN SPIKE SPIKE SPIKE VOL(ML) SAMPLE VOL(ML) MIXTURE ATOMS/ML IN SAMPLE
PU242 .4981+17(.50+15) PU9/2 .1030-03(.66-05) .1494-00(.75-02) .2463-02(.12-04) PU9/2 .7022-00(.30-02) PU239 .2275+19(.12+14)
ND150 .7840+16(.78+14) ND8/0 .8679-02(.16-03) .3997-00(.20-02) .2953-02(.15-04) ND8/0 .1620-00(.50-03) ND148 .1743+18(.22+16)

BOL U+PU=.2788(.0028)G/MML AS CALCULATED BY FUEL WEIGHT AND SOLUTION VOLUME 1.40% SAMPLE--NO CONTAMINATION--MIXTURE 1.38%

ISOTOPIIC INVENTORY
ISOTOPE BOL (GM) BOL MASS RATIO EOL (A/O) EOL (GM) NET PRODUCTION (GM)
U-234 .5605-04(.495-06) .3900-04(.200-05) .0039(.0002) .3750-04(.200-05) -.1855-04(.206-05)
U-235 .7113-02(.690-05) .4500-03(.100-04) .0948(.0010) .9173-03(.997-05) -.6196-02(.121-04)
U-236 .0000(.000) .6700-03(.100-04) .0968(.0010) .9456-03(.997-05) .9406-03(.997-05)
U-238 .9928-00(.692-05) 1.0000 99.8045(.0016) .9779-03(.415-03) -.1495-01(.415-03)
TOTALS .1000+01(.000) .9798-00(.000) -.2021-01(.415-03)

ISOTOPE BOL (A/O) BOL MASS RATIO EOL (A/O) EOL (GM) BOL (GM) NET PRODUCTION (GM)
PU238 .0000(.0000) .1215-01(.120-03) .6692(.0066) .3918-04(.209-05) .0000(.000) .3918-04(.209-05)
PU239 100.0000(.0000) 1.0000 55.0822(.0599) .3238-02(.170-03) .0000(.000) .3238-02(.170-03)
PU240 .0000(.0000) .5500-00(.170-02) 30.2952(.0674) .1789-02(.939-04) .0000(.000) .1789-02(.939-04)
PU241 .0000(.0000) .1484-00(.700-03) 8.9228(.0439) .5290-03(.279-04) .0000(.000) .5290-03(.279-04)
PU242 .0000(.0000) .9133-01(.500-03) 5.0307(.0267) .2995-03(.158-04) .0000(.000) .2995-03(.158-04)
TOTALS .5895-02(.309-03) .5895-02(.309-03)

F I S S I O N S B Y N D 1 4 8
ISOTOPE FISSIONS (GM) BURNUP (KWD/MTM) FISSION YIELD DEL MEV/FISSION
U-235 .5259-02(.1570-04) 541.0 .0169(.0001) .0491(.0049) 201.7
U-238 .7361-03(.7137-04) 720.1 .0193(.0010) .0604(.0060) 208.5
PU239 .7588-02(.2784-03) 7439.7 .0170(.0003) .0563(.0056) 210.7
PU241 .8171-03(.4758-04) 806.2 .0189(.0005) .0604(.0060) 213.8
TOTALS .1440-01(.2766-03) 14907.0

U235/U238BOL=.129(.001) ALPHA235=.178(.0023) ALPHA239=.4496(.0289) U238 INTO PU239=.1428-01(.41-03)GM U236 INTO NP237=.102-06GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

PRTR ELEMENT 1037 ROD 139B(1) ROD RING) NATURAL UO2 THE SAMPLE WAS CUT 17.4 INCHES FROM THE TOP OF THE FUEL

INPUT DATA---- TIME OUT OF REACTOR=1.833YRS BOL PU241 DECAY CORRECTION TIME= -.000YRS OXIDE FUEL= .31096G/MML
SPIKE--ND42/50 .8056-02(.24-03) ND50/42 .8690+01(.30-01)--SAMPLE--ND50/48 .5046-00(.20-02) MIXTURE--ND42/50 .1722-01(.90-04)

ISOTOPIIC DILUTION ANALYSIS
ATOMS/ML IN SPIKE SPIKE SPIKE VOL(ML) SAMPLE VOL(ML) MIXTURE ATOMS/ML IN SAMPLE
PU242 .4981+17(.50+15) PU9/2 .1030-03(.66-05) .2000-00(.10-02) .1971-02(.10-04) PU9/2 .4245-00(.13-02) PU239 .2212+19(.28+17)
ND150 .7840+16(.78+14) ND8/0 .8679-02(.16-03) .3997-00(.20-02) .3939-02(.20-04) ND8/0 .1860-00(.60-03) ND148 .1538+18(.20+16)

BOL U+PU=.2741(.0027)G/MML AS CALCULATED BY FUEL WEIGHT AND SOLUTION VOLUME 1.24% SAMPLE--NO CONTAMINATION--MIXTURE 1.19%

ISOTOPIIC INVENTORY
ISOTOPE BOL (GM) BOL MASS RATIO EOL (A/O) EOL (GM) NET PRODUCTION (GM)
U-234 .5605-04(.496-06) .3800-04(.200-05) .0038(.0002) .3659-04(.200-05) -.1945-04(.206-05)
U-235 .7113-02(.690-05) .1210-02(.200-04) .1207(.0020) .1170-02(.199-04) -.5943-02(.211-04)
U-236 .0000(.000) .9400-03(.100-04) .0938(.0010) .9130-03(.997-05) .9130-03(.997-05)
U-238 .9928-00(.692-05) 1.0000 99.7817(.0023) .9795-00(.263-03) -.1335-01(.263-03)
TOTALS .1000+01(.000) .9816-00(.000) -.1838-01(.262-03)

ISOTOPE BOL (A/O) BOL MASS RATIO EOL (A/O) EOL (GM) BOL (GM) NET PRODUCTION (GM)
PU238 .0000(.0000) .9787-02(.980-04) .5648(.0057) .3122-04(.594-06) .0000(.000) .3122-04(.594-06)
PU239 100.0000(.0000) 1.0000 57.7091(.0570) .3204-02(.518-04) .0000(.000) .3204-02(.518-04)
PU240 .0000(.0000) .5073-00(.150-02) 29.2758(.0628) .1632-02(.268-04) .0000(.000) .1632-02(.268-04)
PU241 .0000(.0000) .1327-00(.600-03) 8.3593(.0400) .4679-03(.794-05) .0000(.000) .4679-03(.794-05)
PU242 .0000(.0000) .7089-01(.350-03) 4.0910(.0198) .2300-03(.390-05) .0000(.000) .2300-03(.390-05)
TOTALS .5565-02(.902-04) .5565-02(.902-04)

F I S S I O N S B Y N D 1 4 8
ISOTOPE FISSIONS (GM) BURNUP (KWD/MTM) FISSION YIELD DEL MEV/FISSION
U-235 .5034-02(.2333-04) 4824.9 .0169(.0001) .0491(.0049) 201.7
U-238 .6568-03(.6362-04) 642.6 .0193(.0010) .0604(.0060) 208.5
PU239 .6577-02(.2455-03) 6440.0 .0170(.0003) .0563(.0056) 210.7
PU241 .6274-03(.1877-04) 619.0 .0189(.0005) .0604(.0060) 213.8
TOTALS .1289-01(.2460-03) 12534.5

U235/U238BOL=.105(.003) ALPHA235=.180(.0023) ALPHA239=.4468(.0184) U238 INTO PU239=.1275-01(.26-03)GM U236 INTO NP237=.847-07GM

-----QUANTITIES ENCLOSED BY PARENTHESES ARE ONE STANDARD DEVIATION ERRORS-----

APPENDIX B

Nondestructive Burnup Data

[illegible]

[illegible][illegible][illegible]

800	646	679	732	703	701	725	691	692	636	619	655	595	656	648	590	612	583	582	602	641
820	640	638	636	626	599	644	589	608	631	583	629	598	594	648	613	590	555	532	556	559
840	580	586	561	562	565	612	565	591	641	589	619	628	584	599	583	570	586	576	554	585
860	505	550	550	559	569	568	523	550	537	585	526	531	564	494	505	501	521	498	511	496
880	486	520	496	492	483	484	489	470	443	464	446	448	475	435	460	467	484	483	468	497
900	547	551	569	732	754	747	691	636	583	685	780	936	1031	899	635	542	470	468	492	421
920	460	491	484	484	466	445	478	434	449	464	462	447	473	428	439	480	469	441	489	522
940	543	695	704	700	579	516	505	502	516	571	755	936	1242	1401	1217	795	532	491	408	393
960	421	397	445	405	388	372	347	373	373	358	320	370	379	376	315	341	323	355	331	335
980	324	371	365	338	364	348	312	310	351	349	364	350	351	340	319	355	305	361	350	310
1000	353	318	342	323	338	332	332	313	332	332	319	367	306	315	319	334	302	347	318	353
1020	347	421	440	502	477	409	320	277	281	308	280	286	286	265	294	233	245	273	219	213
1040	251	250	263	235	244	203	214	225	236	206	230	242	268	309	322	414	469	510	555	606
1060	603	487	422	474	472	448	311	214	187	179	183	182	178	186	157	181	154	170	166	191
1080	175	194	164	190	190	173	186	153	167	160	145	170	159	188	167	141	137	160	131	149
1100	145	195	155	154	145	143	123	139	141	138	154	163	147	137	122	128	112	146	156	134
1120	125	133	113	131	138	144	137	145	123	139	147	137	128	113	136	136	136	150	132	114
1140	128	113	138	137	127	143	118	159	163	181	259	284	472	611	831	997	800	527	257	130
1160	111	114	102	110	115	117	103	100	115	81	90	88	115	114	117	104	83	95	107	78
1180	85	92	83	95	96	89	79	99	95	101	91	86	101	92	97	83	87	89	100	95
1200	100	103	133	124	101	211	271	355	333	229	175	111	67	103	65	89	90	87	83	81
1220	92	84	104	75	69	82	93	78	85	86	97	139	169	205	293	383	539	614	502	302
1240	151	87	65	65	49	77	61	65	68	85	79	67	71	76	104	100	69	66	64	53
1260	65	65	48	55	62	52	54	60	69	62	44	67	71	62	55	49	54	64	62	54
1280	46	63																		

[illegible]

CHAN	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	10698	28901	31435	34607	33416	42628	45458	47327	46697	41718	35149	31810	30936	30708	31520	31480	31899	32045	31818	32446
60	32632	32485	33216	33526	35313	33730	34074	34334	34573	34796	34996	35510	35700	35119	36935	37372	37574	37435	37190	37020
80	37658	38061	37803	38552	39036	39866	40611	41338	41390	41442	43944	47865	50800	75247	79071	77102	926881	104500	82618	55102
100	43403	41058	41460	41485	41762	42739	48281	61343	73383	69445	51906	53211	48207	42405	37270	35489	34789	35164	36156	36770
120	36082	35435	35115	34739	34610	35141	36101	39587	43166	42670	38530	35500	34324	34432	34396	34226	34286	33995	34591	34738
140	34165	33901	34138	34062	34324	33948	34129	33900	33840	33941	33986	34000	35771	34148	33395	33776	33700	33939	33834	33642
160	33857	33603	33649	33986	33911	33808	33959	34014	34235	34008	34013	33637	33900	34038	34109	34177	33886	33714	33692	33738
180	33343	33343	33263	33580	33600	33643	33653	33143	33006	33292	32791	32835	32779	32646	32877	32676	32738	32854	32515	32637
200	32540	32567	32660	32730	32355	32722	32197	32618	32275	32297	32324	32041	32653	32654	32628	32202	31875	32434	32475	32215
220	32116	32308	32850	32424	32106	31926	32041	32459	32581	32628	32704	33144	32302	32317	32134	32033	32113	32074	32211	32033
240	32267	31920	31996	32505	32078	32271	31696	32064	31883	31523	32237	32251	32211	32211	32325	32155	32225	32052	32028	32024
260	32006	32218	32150	32350	32345	32174	32599	32443	32149	31820	31979	32094	32296	32449	32584	32635	32439	32460	32333	32321
280	32279	32370	32296	32215	32521	32413	32844	32357	32509	32400	32365	32251	32613	32311	32472	32312	32476	32619	32687	32658
300	32752	32621	32404	32504	32663	32382	32459	32750	32212	32630	32697	32601	32393	32194	32131	32011	31410	31445	31359	31207
320	32131	31389	31815	31394	30964	31362	31372	30952	30951	31235	31320	31106	31166	31596	31442	31224	31271	31265	31364	31613
340	31611	31698	31333	31406	31540	31589	31664	31677	31940	32097	31981	32142	32081	31817	31950	31666	31578	32129	32247	32053
360	31691	31912	31662	32100	31764	31924	31612	31659	31605	31824	32124	32070	31897	31830	32016	31966	31851	32046	31758	32238
380	32208	32167	32241	31896	31889	31922	31761	31171	31333											

800	958	1016	1109	1085	1072	973	896	855	864	984	950	849	827	854	848	882	856	919	867	884
820	956	908	875	916	827	888	886	853	853	818	827	835	821	823	789	832	830	812	813	828
840	791	808	848	785	819	780	808	828	844	875	945	848	860	824	809	764	727	759	812	766
860	752	786	800	750	726	732	762	787	803	777	728	752	702	679	686	706	660	676	663	691
880	639	725	676	702	647	624	664	643	684	638	643	653	661	707	645	645	633	677	701	757
900	817	889	1010	1181	1205	1007	857	819	876	1121	1327	1394	1394	1052	761	683	668	630	674	624
920	637	667	658	640	655	635	609	586	613	644	632	644	625	637	613	653	664	677	702	725
940	916	1030	1025	909	774	691	728	758	841	1048	1278	1672	1975	1864	1301	844	629	628	600	522
960	549	553	545	544	580	534	505	522	483	478	469	493	471	475	466	446	487	439	441	511
980	439	449	475	470	479	480	495	486	481	480	483	464	476	478	464	456	453	499	457	461
1000	456	441	462	451	475	501	467	419	473	449	485	454	460	459	421	426	482	429	466	515
1020	564	728	756	742	627	427	457	391	400	386	353	389	400	380	369	369	417	375	337	362
1040	324	357	322	316	280	314	295	313	299	325	355	350	369	479	542	604	717	853	895	879
1060	696	611	624	602	572	396	270	237	262	244	247	219	230	233	228	226	216	235	252	241
1080	253	273	288	258	248	245	218	219	252	224	229	242	217	213	223	190	219	204	222	175
1100	217	173	198	213	215	198	207	190	191	185	197	204	228	174	193	187	191	199	183	195
1120	214	201	174	175	212	198	240	183	212	216	201	208	177	179	185	182	184	167	183	175
1140	165	236	165	184	162	189	201	200	272	311	430	668	957	1271	1437	1180	712	337	193	133
1160	147	131	149	145	145	147	135	143	152	126	133	132	136	125	133	127	136	130	141	146
1180	115	114	133	140	126	125	135	116	118	141	149	124	136	115	132	135	138	132	143	133
1200	146	197	172	221	280	356	417	430	266	199	161	131	123	110	121	102	118	131	110	115
1220	138	115	112	106	116	118	117	114	140	138	193	232	314	511	662	837	927	712	442	202
1240	109	94	99	81	93	79	96	91	95	94	112	124	111	133	111	88	98	85	89	90
1260	79	71	80	60	74	64	84	91	79	81	72	73	70	76	73					

[illegible]

[illegible]

[illegible]

[illegible]

820	804	828	936	993	913	824	735	689	723	717	720	736	774	739	751	711	707	714	757	760
820	737	751	754	693	766	676	754	678	732	664	709	723	661	659	744	669	651	670	674	689
840	656	663	675	665	646	650	615	673	685	682	772	758	664	749	692	677	667	645	679	664
860	683	712	603	645	673	605	660	637	661	595	626	574	624	566	566	581	580	579	590	601
880	608	530	535	590	560	545	567	544	587	581	547	556	583	569	533	605	559	550	571	632
900	650	662	611	943	939	921	772	700	746	844	1056	1261	1231	960	731	574	528	539	507	528
920	529	510	549	541	533	551	525	513	549	559	542	569	523	516	543	549	535	550	637	636
940	604	746	836	774	669	581	556	613	640	772	951	1317	1501	1622	1272	832	548	467	465	461
960	462	492	461	497	423	431	410	428	452	387	404	414	386	425	414	412	391	418	400	388
980	394	420	373	394	407	393	407	403	423	398	402	408	389	335	401	417	412	402	366	389
1000	404	362	366	367	414	386	388	386	407	342	390	420	391	377	350	370	352	359	364	401
1020	443	530	632	613	566	422	376	361	324	366	366	352	323	345	345	286	330	326	291	291
1040	312	271	279	279	279	250	276	252	265	187	283	297	295	312	398	565	534	601	732	696
1060	626	521	536	570	538	425	310	225	187	217	204	437	206	188	202	168	190	184	184	211
1080	216	263	211	247	242	201	187	150	188	207	169	186	188	184	156	179	193	187	184	161
1100	180	159	160	160	155	162	165	154	145	162	151	170	190	175	149	155	174	170	169	153
1120	145	146	152	163	176	153	165	166	158	185	195	184	169	160	113	159	164	153	170	152
1140	158	171	142	157	151	177	154	166	191	268	324	463	641	972	1126	1150	845	466	213	132
1160	104	112	120	114	143	110	100	118	115	107	111	112	121	107	126	101	120	90	93	98
1180	102	112	114	111	115	114	102	116	110	132	118	97	128	120	107	119	97	109	113	119
1200	116	153	161	176	214	276	359	361	331	197	124	111	82	102	90	112	99	101	101	111
1220	88	104	99	70	69	107	108	77	118	104	124	211	228	339	467	597	684	665	428	253
1240	109	85	75	83	73	84	65	76	36	70	79	32	100	120	102	85	74	85	76	73
1260	52	58	48	46	70	80	68	55	83	60	61	64	58	54	67	73	68	70	51	

[illegible]

CHAN	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	14172	21448	22453	25275	28102	30518	31759	32644	30893	26722	22953	21519	20953	21300	21509	21714	21509	7191	21876	22066
60	22294	22237	22262	22705	22671	23221	23021	23128	23383	24056	23820	23930	24104	24732	25049	25382	25398	25162	24939	25169
80	25426	25307	25518	25675	26367	27466	27467	27493	28121	28110	29599	33453	41501	51057	51635	52190	64979	66821	48884	33167
100	26061	27413	27550	27816	27979	29053	34660	43636	48994	43670	36747	34368	31283	26636	24417	23497	23110	23737	24000	24441
120	23627	23225	23158	23232	23200	23572	24416	25929	28585	27092	24607	23231	22603	22443	22697	22725	22545	22701	22700	22650
140	22513	22958	22506	22622	22537	22519	22416	22623	22484	22761	22535	22535	22531	22571	22539	22673	22058	22104	22647	22118
160	22317	22436	22404	22510	22455	22506	22977	22096	22779	22564	22270	22535	22673	22615	22601	22685	22498	22428	22747	22192
180	22670	22365	22268	22191	22231	22218	21904	21442	21228	21745	19922	18186	15993	12712	11900	11689	11398	11589	11335	11276
200	21385	21484	21413	21747	21466	21548	21437	21533	21292	21466	21257	21459	21300	21510	21540	21369	21314	21292	21438	21624
220	21243	21094	21313	21370	21471	21304	21253	21291	21295	21474	21554	21626	21510	21673	21500	20971	21183	21479	21244	21093
240	21200	21308	21102	21199	21155	21333	21206	21231	20966	21236	20991	21211	20914	21039	21255	21101	20885	21163	21297	21133
260	20965	21496	21275	21094	21264	21154	21000	21115	21050	21339	20963	21152	21095	21358	21244	21538	21253	21489	21274	21427
280	21465	21144	21432	21287	20935	21440	21342	21119	21224	21504	21554	21430	21433	21420	21395	21700	21627	21654	21512	21171
300	21219	21312	21291	21436	21404	21866	21277	21348	21311	21304	21462	21509	21245	21413	21255	21049	20988	20719	21001	20582
320	20048	20482	21742	20637	20600	20886	20756	20710	20508	20733	20625	20622	20673	20857	20616	20524	20801	20935	20675	20952
340	21324	20883	20765	21049	20979	20963	21338	21135	21050	21177	21033	20834	20933	21195	21115	21203	20493	21331	21286	21324
360	21153	21306	21152	21107	21231	21423	21182	21278	21693	21382	21325	21297	21595	21343	21359	21209	21632	21723	21349	21803
380	21740	21409	21653	21357	21461	21462	21197	21280	21458	21074	21411	22133	22810	22294	20961	20258	20212	20346	20133	20226
400	20227																			

800	682	629	602	680	605	637	569	566	563	576	562	580	565	584	598	564	576	523	590	599
820	591	555	507	576	544	562	582	528	551	572	516	598	543	561	542	509	527	588	547	474
840	547	511	514	530	519	523	549	547	562	531	592	595	572	554	502	539	510	524	500	506
860	541	523	522	518	516	518	502	536	501	486	474	505	449	476	500	469	429	458	482	481
880	425	412	421	441	455	430	450	417	415	431	417	410	442	403	441	448	441	437	457	509
900	503	590	687	719	700	571	556	535	642	818	927	1026	831	594	491	461	414	404	400	431
920	415	433	403	462	412	394	425	460	416	435	446	433	454	425	419	423	416	456	431	525
940	563	657	620	545	476	457	458	513	535	671	829	1135	1208	1041	728	468	410	390	400	387
960	356	375	370	317	335	327	342	339	340	298	314	311	296	350	328	323	321	322	332	312
980	290	308	298	302	327	316	311	322	293	306	332	313	310	302	307	327	303	286	310	294
1000	277	307	339	293	344	296	286	296	299	299	299	273	282	262	258	300	288	294	326	285
1020	373	451	463	412	329	257	256	225	248	251	243	262	246	245	243	204	224	201	245	199
1040	201	215	187	206	194	224	193	194	190	221	205	237	241	283	354	402	435	515	527	490
1060	449	443	506	481	438	313	182	177	132	150	135	169	139	153	132	133	141	138	179	136
1080	167	142	159	168	131	137	137	129	130	116	135	126	134	131	129	123	130	138	123	116
1100	128	117	158	118	141	107	135	110	113	129	118	131	135	99	101	127	114	96	109	132
1120	111	134	105	111	125	99	165	125	135	135	116	105	111	113	104	118	116	126	113	108
1140	112	123	100	123	132	105	121	155	148	226	306	433	599	794	906	688	409	215	117	89
1160	92	83	72	93	80	110	80	65	69	93	82	84	86	78	86	85	89	93	66	80
1180	85	87	69	82	84	87	90	82	78	76	93	95	90	75	93	89	80	99	88	108
1200	106	135	150	184	251	335	355	317	220	145	76	61	54	76	80	71	74	67	68	76
1220	63	77	68	72	68	69	74	40	80	103	117	167	196	297	397	468	455	381	196	116
1240	74	61	48	53	55	55	57	44	44	57	61	58	83	71	63	59	44	53	45	58
1260	36	46	57	49	60	49	47	39	45	43	50	53	44	49	40	54	59	45	41	55
1280	48	36	39	53	50	4														

[illegible]

[illegible]

[illegible]

800	677	735	703	710	744	724	723	670	742	671	696	702	737	718	704	702	689	671	734	746
820	723	761	710	709	664	690	683	683	708	704	664	705	664	654	684	639	659	627	678	679
840	651	730	641	633	686	700	684	671	696	662	650	666	690	679	607	695	632	655	672	664
860	697	637	607	645	675	646	655	627	599	605	588	608	636	555	556	513	569	521	580	565
880	560	535	506	533	501	535	557	523	593	520	547	543	542	537	539	504	550	531	586	631
900	679	731	814	809	675	627	616	695	807	964	1074	972	763	569	487	501	490	516	564	489
920	474	501	514	515	522	493	433	524	504	494	522	496	487	523	518	523	550	567	593	583
940	646	696	608	557	483	540	551	643	729	865	1098	1220	1058	686	527	474	457	438	431	488
960	437	478	444	397	467	438	434	425	399	396	395	390	374	433	398	411	386	386	382	410
980	355	371	382	405	375	403	375	379	383	381	364	403	364	359	353	386	397	379	398	350
1000	362	385	397	410	339	388	340	354	379	346	359	383	320	325	311	297	319	305	370	416
1020	440	432	444	345	292	305	232	286	278	295	268	252	260	256	261	254	244	247	245	243
1040	234	247	240	203	234	258	228	261	235	227	277	323	323	370	438	509	500	605	625	668
1060	779	986	979	719	420	281	199	174	183	176	163	162	164	164	190	155	158	164	194	156
1080	171	158	179	162	158	152	148	142	168	135	156	133	151	145	150	126	133	145	141	149
1100	141	144	140	126	117	114	132	134	105	158	142	123	130	126	120	121	122	102	140	127
1120	124	135	132	137	115	137	141	124	126	128	116	104	109	109	102	119	104	105	136	118
1140	122	125	110	105	118	120	170	193	266	313	485	661	769	867	595	342	160	96	100	100
1160	91	87	93	92	102	93	77	86	101	73	93	83	87	83	89	76	98	83	70	70
1180	83	90	84	76	92	91	74	77	99	99	104	99	98	91	96	94	121	114	117	131
1200	176	249	343	494	735	810	571	366	164	71	70	87	76	67	60	75	74	75	60	58
1220	58	61	59	75	53	73	72	84	113	128	163	194	290	405	423	396	283	131	77	63
1240	51	65	68	63	51	49	50	52	67	54	61	60	65	53	62	62	54	55	51	52
1260	33	47	42	52	40	53	57	49	34	55	53	47	55	55	58	38	45	38	53	52
1280	55	48	50	38	47															

[illegible]

GAMMA RAY SPECTRA DATA

UO-2 SPECTRUM SPECTRUM NO. 41 DATA TAKEN 11/ 3/69 LIVE TIME 300.14 POSITION 87.14. ENERGY(KEV)= 1.110*CHAN -6.5

CHAN	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
40	1751	17995	2084	23365	25233	26457	27772	27473	24544	20521	14131	17089	16949	17501	17450	17321	17409	17663	17581	
60	17549	17702	17471	17094	17661	17588	17933	18123	17867	18127	18293	18165	18309	18709	19390	19578	19357	18911	18472	
80	18641	18248	18957	19425	19477	20011	20173	19781	19955	20415	21391	21258	20403	20422	23886	36163	44078	42137	29481	
100	19513	19172	19723	19352	19671	20812	24783	30777	32692	29330	24694	23632	21033	18495	17623	16785	16876	16975	17223	
120	16933	16681	14731	16569	16711	16811	17545	18415	19367	18415	17144	16096	16366	16410	16425	16442	16522	16360	16250	
140	16278	16141	16163	16445	16211	16216	16151	16147	16110	16013	16069	16194	16025	15993	15964	15991	15768	16106	15927	
160	15671	15404	15113	15961	15762	16153	15739	16151	15756	16081	15803	15942	16161	16174	16160	15967	16054	16612	16014	
180	15767	15344	15221	15661	15754	15626	15661	15511	15223	15277	15422	15665	15395	15443	15044	15364	15339	15126	15192	
200	15367	15321	15221	15952	15347	15126	15164	15342	15064	15134	15112	15310	15152	15016	15253	15059	15057	14845	14916	
220	15207	15187	15065	15066	14943	14908	14950	15261	15012	15036	14838	14948	15708	14993	14721	14765	14929	14773	14906	
240	14942	14792	14661	14335	14942	14966	14733	14667	14672	14550	14553	14594	14666	14622	14718	14636	14645	14676	14651	
260	14459	14720	14661	14522	14401	14591	14146	14571	14627	14703	14617	14634	14777	14651	14596	14516	14653	14464	14604	
280	14012	14501	14669	14666	14602	14734	14172	14731	14535	14728	14470	14644	14614	14621	14406	14573	14710	14697	14713	
300	14641	14514	14703	14549	14643	14592	14364	14575	14507	14760	14403	14655	14481	14633	14637	14594	14342	14448	14297	
320	14554	14132	14441	14330	14410	14387	14253	14383	14420	14440	14432	14564	14533	14522	14397	14572	14507	14566	14436	
340	14425	14563	14466	14711	14573	14543	14046	14813	14669	14819	14806	14963	15041	14934	14685	15038	15089	14941	14891	
360	14795	14998	14953	14959	14903	15014	14982	15061	15369	15394	15261	15343	15237	15155	15318	15250	15496	15397	15384	
380	15271	15542	15582	15728	15583	15672	15590	15655	15722	15892	16295	16964	17075	16592	15820	15483	15463	15463	15538	
400	15375	15446	15646	15567	15443	15543	15612	15514	15644	15806	15601	15840	15375	15551	15536	15490	15666	15653	15566	
420	15465	15608	15565	15665	15757	15704	15234	15133	15088	14833	14641	14422	13932	13731	13315	12920	11892	11131	10448	
440	9476	9117	8814	8753	8370	8204	8233	8044	7719	7601	7374	7517	7456	7481	7267	7215	7148	6978	6875	
460	6800	7086	6761	7024	7650	9663	13643	16511	14954	10353	7195	6258	5912	5768	5692	5743	5569	5615	5452	
480	5566	5427	5265	5279	5292	5281	5142	5061	5020	4955	4808	4762	4773	4550	4472	4455	4419	4304	4206	
500	4049	4165	4033	3938	3920	3934	3968	3772	3897	3815	3817	4024	4467	4623	4645	4255	4167	4518	5376	
520	4876	3907	3465	3288	3346	3252	3191	3170	3182	3155	3174	3196	3279	3226	3185	3101	3156	3233	3204	
540	3182	3086	3111	3113	3180	3458	3968	4833	6545	10218	15071	15788	10819	5659	3152	2499	2374	2451	2377	
560	2594	2747	2646	2891	3773	5449	6535	5936	4022	2759	2295	2252	2258	2322	2319	2301	2401	2571	2753	
580	2674	2502	2371	2429	2433	2444	2474	2531	2658	2712	2771	2890	2972	3072	3384	3573	4172	6141	12325	
600	6130810	4114121442	87115	63353	9765	2380	1102	976	991	1016	984	996	906	876	879	862	852	812	845	
620	815	829	852	863	762	825	800	761	850	828	890	984	1230	1268	1185	1008	834	737	726	
640	734	725	743	695	690	702	672	662	706	718	692	685	691	703	743	876	1007	1255	1201	
660	825	674	617	752	713	664	680	682	704	678	681	676	643	687	663	687	674	664	708	
680	699	614	715	674	719	814	964	964	931	818	788	736	789	949	1305	1587	1490	1212	906	
700	675	668	681	683	686	669	666	717	713	686	697	680	680	715	731	775	781	958	1243	
720	3560	6169	8961	9408	6185	2999	1600	1360	1484	1345	955	579	594	546	596	553	540	603	519	
740	584	531	534	536	533	583	557	497	561	563	514	525	523	535	519	592	559	580	605	
760	552	559	551	494	496	537	486	484	517	516	517	457	498	447	488	539	498	481	459	
780	471	489	474	494	500	467	517	499	555	525	615	705	796	758	675	571	533	497	485	

800	484	483	435	483	514	469	506	491	490	451	460	492	514	486	493	485	487	507	518
820	486	442	481	442	472	471	509	494	485	502	494	462	477	446	446	483	454	501	480
840	470	509	504	489	493	428	445	473	459	491	469	458	455	480	465	444	503	512	463
860	478	467	456	472	431	436	472	485	451	457	448	451	404	414	408	375	364	396	377
880	368	396	367	366	363	360	370	371	333	341	373	368	362	346	361	343	349	351	364
900	357	396	347	476	459	418	381	396	383	498	529	552	503	422	328	342	323	311	340
920	335	343	323	331	341	330	337	354	336	327	313	319	310	342	324	347	330	324	311
940	345	392	368	365	342	329	314	340	399	429	499	598	633	572	493	357	309	303	292
960	337	297	334	287	295	284	291	271	258	278	279	280	291	280	281	262	269	276	274
980	289	270	280	270	276	276	276	284	305	285	294	316	279	307	261	263	283	265	247
1000	251	249	286	268	273	224	246	255	259	256	254	261	240	241	226	211	199	203	197
1020	228	262	276	223	219	191	153	170	156	188	188	167	173	174	147	151	149	158	175
1040	156	132	142	146	172	149	147	150	154	166	158	156	207	216	283	286	298	320	373
1060	511	637	855	867	639	350	193	136	112	128	117	92	99	119	112	114	91	109	113
1080	106	126	96	123	103	102	84	74	92	99	93	95	81	87	80	86	79	97	71
1100	91	88	78	84	85	79	64	74	86	84	83	74	72	69	73	61	47	87	57
1120	72	65	78	80	64	83	76	69	73	77	77	54	69	61	72	63	69	54	56
1140	65	58	62	63	51	74	82	79	87	104	158	208	282	347	391	310	155	76	64
1160	49	43	56	44	51	52	49	53	38	63	68	58	56	41	52	53	38	42	57
1180	48	58	52	60	63	48	59	52	55	48	60	62	59	52	62	68	59	68	91
1200	98	151	199	275	437	638	706	637	381	174	75	53	36	42	37	32	39	37	40
1220	39	39	32	36	45	34	41	34	48	46	57	64	89	117	162	180	184	125	88
1240	29	28	35	35	35	31	33	38	26	25	38	32	39	34	34	33	22	25	29
1260	29	37	25	20	23	23	26	24	25	27	22	30	31	29	31	29	33	25	31
1280	19	26	29	26	26	27	27	24	27	23	25	32	23	27	26	20	17	27	25
1300	21	20	21	24	26	20	19	33	24	22	31	17	21	32	21	27	31	24	24
1320	17	35	24	30	29	22	24	24	25	28	23	25	35	27	21	30	27	24	17
1340	23	28	29	29	36	59	61	76	67	48	42	24	30	26	29	23	27	24	20
1360	16	19	15	17	20	19	23	20	14	21	20	19	19	21	30	21	22	23	18

[illegible]

[illegible]

[illegible]

800	670	697	694	731	779	755	688	657	648	631	658	646	611	638	697	659	606	600	613	642
820	634	645	648	634	652	598	554	594	566	588	554	596	597	623	643	569	581	636	547	567
840	569	601	619	585	587	570	584	610	611	620	586	626	627	630	601	576	569	578	593	577
860	579	571	547	567	579	538	569	571	579	569	507	517	542	582	521	503	522	519	487	496
880	495	483	497	512	510	494	484	451	455	512	504	514	469	500	485	463	483	460	490	500
900	519	544	597	661	790	499	484	459	443	479	714	808	99	1	1015	819	657	533	446	460
920	438	433	500	467	477	499	484	459	443	479	494	427	450	457	453	481	440	481	491	497
940	529	546	615	679	648	572	523	451	533	519	595	767	958	1185	1274	1205	811	530	446	457
960	446	397	441	387	394	375	360	385	341	356	369	357	389	360	357	374	357	355	350	359
980	319	373	361	342	373	346	368	346	348	346	335	354	365	369	330	345	347	339	327	333
1000	316	357	331	323	322	306	376	351	333	320	372	376	355	345	330	323	315	285	353	342
1020	339	396	399	50	450	468	300	280	257	284	259	276	291	224	266	255	259	249	239	248
1040	248	241	224	217	226	197	225	192	207	250	206	191	213	229	249	348	357	444	482	508
1060	618	541	484	486	574	587	487	364	250	180	175	171	175	178	159	154	159	172	151	162
1080	145	179	187	175	156	189	168	159	145	163	149	147	138	158	138	147	148	150	127	152
1100	131	124	158	125	140	147	139	146	138	144	131	145	143	134	129	136	150	131	151	125
1120	143	139	109	125	136	145	133	124	149	133	154	148	143	124	122	127	148	114	122	118
1140	129	139	140	138	118	115	113	108	123	169	178	224	293	415	591	792	927	880	522	275
1160	131	96	99	109	109	108	72	84	111	82	86	100	101	80	89	88	104	83	73	92
1180	85	67	86	99	86	104	85	103	109	87	85	99	92	90	95	93	110	83	105	116
1200	104	113	119	128	171	179	247	308	436	461	365	203	138	103	95	71	75	54	72	84
1220	86	73	85	68	77	61	73	76	87	65	81	80	126	147	207	244	389	471	584	479
1240	305	159	86	79	65	72	64	72	62	54	80	70	77	67	81	76	65	73	71	59
1260	70	44	59	47	45	52	69	56	60	56	52	57	58	50	55	50	43	39	48	49
1280	56	58	51																	

[illegible]

SPECTRUM		SPECTRUM NO. 54		DATA TAKEN		11/2/69		LIVE TIME		330.11.		POSITION		23.1N.		ENERGY (KEV) = 1.111 * CHAN - 8.1	
CHAN	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	11657	17125	17693	19586	21761	23820	24779	25711	24255	20876	17717	16368	16283	16418	16369	16771	16932
60	17696	17521	17423	17517	17721	19010	18129	1787	18279	18459	14135	14266	18744	19193	19487	19594	19647
80	19635	19450	19771	20255	20744	20932	21331	20333	21218	21980	22870	22033	31803	30969	38454	39804	49221
100	21655	21040	2117	21403	21293	22699	26422	33231	37358	33621	21469	27180	24142	20004	10973	18188	18324
120	18491	18263	18427	18453	18153	19457	19364	20531	22025	21219	14459	16275	17903	18061	13253	18125	17334
140	17603	17991	17791	17641	17803	19076	18331	17951	17755	17865	17489	17831	17485	17077	17583	18040	17601
160	17932	17643	17771	17317	17777	17807	18116	17991	18052	17976	17925	17876	17559	17781	17761	17925	18099
180	17673	17544	17535	17642	17652	17499	17629	17281	17450	17468	17514	17164	17440	16951	17372	17377	17093
200	17615	17218	17211	17312	16764	17275	16957	17151	17243	17010	16924	17049	17191	16766	16890	17036	17213
220	16959	16934	17131	17085	16739	15843	17036	17113	16864	17104	17031	17049	17004	17244	16831	16918	16811
240	16974	16906	16935	16866	16841	17015	16941	16872	16802	16796	16839	16785	16931	17022	16733	16738	17039
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280	17624	16330	1667	17100	17101	17074	16825	17091	17014	17132	17125	17174	16991	17151	17295	17078	17114
300	16908	17249	17151	17128	17091	17172	16971	17281	17073	17156	17019	17174	17001	16760	16726	16773	16686
320	16327	16351	16250	16412	16380	16428	16359	16531	16377	16435	16227	16527	16420	16376	16631	16457	16792
340	16612	16523	16400	16580	16582	16673	16768	16661	16725	16687	16727	16942	16951	16971	16945	16801	16918
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380	16964	17149	17102	17084	17300	17125	16960	16651	16748	16540	16760	17524	17865	17553	16116	15914	16040
400	15636	15853	15946	15826	15533	15310	15588	15501	15475	15511	15564	15604	15340	15443	15316	15456	15582
420	15213	15163	15575	15603	15874	15628	14956	14944	14788								

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800	822	837	851	941	893	802	836	817	753	762	833	821	809	727	774	762	742	749	735	790
820	798	779	783	745	672	711	739	698	705	750	686	706	755	706	690	767	723	677	701	712
840	696	693	694	742	725	671	693	690	708	693	745	720	703	701	666	673	677	683	665	626
860	661	638	651	676	641	710	643	640	618	647	654	596	605	590	572	600	579	605	576	607
880	589	589	589	597	589	578	581	621	585	585	568	577	604	573	549	567	543	606	578	566
900	598	689	781	943	993	915	728	728	664	873	1022	1195	1258	1031	772	624	573	586	581	530
920	579	525	552	550	556	544	564	521	593	550	568	518	540	551	585	493	539	545	601	655
940	699	756	853	788	724	613	555	595	691	693	979	1211	1596	1680	1370	904	618	560	483	884
960	479	479	521	506	506	461	436	448	444	385	468	421	402	464	423	442	417	416	424	429
980	420	431	412	441	378	407	394	416	439	425	418	418	362	361	390	409	449	364	366	
1000	415	413	396	394	377	383	385	373	423	374	407	397	395	375	377	364	373	415	314	
1020	475	511	546	623	561	420	363	395	313	313	327	330	318	365	355	332	310	347	287	314
1040	311	327	293	285	293	268	269	274	233	235	250	258	312	332	432	499	527	629	727	798
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1080	181	214	227	235	250	199	209	189	166	181	194	190	173	173	182	198	183	179	172	166
1100	171	180	133	157	170	165	196	171	163	179	186	159	160	163	173	145	182	176	176	145
1120	146	161	166	180	161	144	153	165	162	168	193	168	173	159	151	153	153	145	151	143
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1160	116	116	116	116	102	107	119	122	109	98	125	111	124	112	96	119	101	83	188	137
1180	102	122	127	106	113	93	104	116	120	124	118	111	118	98	120	102	129	107	119	121
1200	140	141	157	184	213	322	429	453	432	276	176	118	111	76	112	102	101	101	106	84
1220	76	90	86	93	77	102	88	115	112	98	143	159	202	259	396	541	695	665	476	247
1240	125	100	82	66	74	85	74	60	74	82	82	104	94	112	125	96	91	81	57	62
1260	68	56	72	69	90	61	68	66	73	73	84	71	78	86	74	69	87	70	73	67

[illegible]

[illegible]

800	888	902	865	847	909	954	492	849	885	806	821	844	824	866	872	796	847	817	769	844
820	802	773	811	839	827	766	776	818	814	711	749	773	764	736	762	784	771	735	779	756
840	754	796	771	767	720	762	742	804	743	767	733	725	717	757	741	736	745	762	730	715
860	771	712	708	714	726	681	730	672	721	694	629	672	718	667	676	648	676	666	630	614
880	625	644	623	591	667	662	627	617	649	618	603	646	622	646	671	649	737	788	760	789
900	792	856	830	885	982	1054	1027	996	941	815	810	783	840	857	802	795	707	613	636	588
920	621	626	600	578	600	603	583	552	588	671	578	639	606	640	711	722	703	730	707	688
940	743	756	811	888	967	1108	1117	1163	1006	926	834	859	872	938	940	953	818	745	602	584
960	557	549	536	506	519	521	461	515	447	485	429	439	450	468	439	434	448	424	435	460
980	464	441	466	444	420	402	432	475	430	434	460	442	417	406	476	410	437	445	461	451
1000	456	429	415	429	429	402	416	439	420	386	445	424	443	502	461	510	523	483	491	468
1020	465	413	459	449	478	481	464	425	375	373	325	342	367	336	323	353	301	327	306	290
1040	313	289	304	334	348	334	381	428	401	470	489	526	549	541	496	568	573	592	553	545
1060	538	492	429	463	397	414	340	331	302	276	244	236	214	228	235	213	232	234	248	205
1080	200	239	223	220	245	228	229	243	210	220	191	192	191	190	211	205	186	203	186	225
1100	173	217	196	210	221	173	189	196	192	184	168	197	175	177	168	180	161	180	209	204
1120	187	195	185	169	177	181	175	219	170	195	216	184	186	181	189	179	190	178	191	203
1140	218	249	298	352	420	505	642	544	500	439	380	359	363	379	423	446	458	443	404	319
1160	246	207	148	113	123	142	125	120	120	130	133	130	139	131	121	131	112	126	115	121
1180	123	116	122	118	139	111	108	137	116	130	129	136	160	154	154	201	205	207	261	278
1200	226	221	169	199	193	217	215	228	218	206	200	190	155	140	134	120	110	116	97	109
1220	143	172	139	170	237	294	320	354	341	317	255	211	190	226	191	248	277	291	275	255
1240	235	191	168	132	106	111	107	95	73	78	77	78	81	73	86	93	60	95	105	96
1260	66	75	66	94	78	78	83	72	69	61	66	75	60	66	68	70	76			

[illegible]

1750	8	10	5	6	3	8	9	11	4	5	7	4	14	11	8	4	12	7	6	11
1800	12	11	12	6	6	11	7	4	4	3	9	6	11	4	6	4	7	3	13	8
1820	4	8	7	6	11	2	7	11	4	3	9	5	5	4	6	7	8	7	5	7
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1860	4	3	2	3	2	8	1	1	4	5	4	4	3	6	2	3	3	4	2	
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1900	3	8	2	3	3	1	6	6	3	3	3	4	5	2	1	2	2	0	0	1
1920	3	2	1	2	1	4	3	2	4	1	4	2	1	3	1	4	3	5	2	3
1940	2	1	1	2	2	4	3	4	3	3	4	2	2	2	6	5	1	4	4	1
1960	0	4	3	6	9	11	7	11	11	16	29	30	45	45	50	54	32	16	10	6
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2000	0	1	2	3	1	1	1	2	1	1	3	0	2	1	2	0	1	0	1	0
2020	1	2	1	2	2	1	5	1	0	0	0	0	1	1	1	3	0	1	2	1
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440	407	406	427	459	425	454	444	415	398	438	483	460	472	449	446	456	454	416	443	452
460	479	425	467	412	412	436	408	424	389	399	415	431	388	365	441	387	362	369	368	348
480	357	394	343	381	366	369	378	356	343	377	342	338	370	344	359	352	338	379	340	359
500	360	418	495	527	659	595	597	484	461	469	552	684	552	684	790	737	567	403	363	375
520	331	332	337	344	363	341	340	348	349	344	340	331	355	350	347	324	395	343	370	367
540	406	487	510	533	423	390	392	367	406	447	530	698	847	967	886	627	417	347	324	290
560	299	309	308	308	287	300	310	291	271	272	274	284	283	278	246	254	252	238	247	254
580	251	285	255	245	262	264	251	225	235	268	272	235	262	234	249	233	239	263	253	255
1000	233	232	234	237	240	256	279	250	256	269	264	252	257	250	241	240	260	218	228	259
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1040	200	193	181	158	162	167	128	148	156	174	167	148	176	193	229	269	345	347	414	416
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1080	112	117	117	137	154	131	115	114	114	119	119	118	126	115	103	104	123	115	91	102
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1200	81	105	103	123	151	197	244	363	307	300	155	111	65	68	60	57	60	65	57	45
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1240	133	70	66	46	45	38	44	44	39	63	53	50	64	69	58	55	51	56	57	52
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1280	47	45	35	37	45	37	35	39	41											

[illegible]

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80	40001	40310	40401	41164	42189	42808	43567	43334	43739	44692	46533	52420	64784	77759	78843	80587	98266	100304	74284	52295
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120	38757	37571	37349	37218	36774	37659	38359	41284	43760	42001	39062	37441	36490	36395	36357	36742	36747	36821	36443	36398
140	36750	36461	36304	36512	36255	36374	36749	36525	36603	36504	36330	34372	36120	36226	36259	36290	36182	36015	36294	36084
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180	35625	35643	35882	35808	35297	35817	35206	35273	35090	35105	35099	35491	35216	35289	35315	35202	34857	34911	35163	34912
200	34670	34795	34524	34619	34763	34518	34314	34673	34560	34338	34541	34625	34582	34650	34415	34317	34321	34747	34239	34739
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340	33933	33768	33919	33841	33943	33753	34113	34005	34074	34201	34243	34330	34516	34375	34405	34050	34169	34456	34319	34677
360	34526	34490	34286	34261	34263	34224	34119	34455	34327	34784	34727	35210	34635	35008	35005	35062	35070	33177	34687	35010
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800	1037	1043	1066	1096	1078	1025	962	932	1023	1030	1042	987	977	977	978	933	950	1005	1036	969
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840	897	961	863	904	890	911	862	914	891	949	1004	959	947	929	916	904	898	888	855	889
860	933	937	890	845	910	875	885	904	853	833	867	848	857	820	806	806	811	772	847	758
880	749	756	761	794	763	767	715	715	773	751	777	818	791	757	750	733	761	725	764	814
900	832	946	1027	1177	1258	1189	955	817	904	1023	1340	1398	1571	1230	876	810	694	702	705	696
920	695	739	719	683	704	683	794	711	719	679	691	674	681	744	700	711	719	713	777	821
940	795	928	1052	958	877	737	709	715	781	942	1233	1304	1835	1997	1556	1027	742	682	617	613
960	637	666	645	639	613	602	578	564	552	556	546	560	602	554	596	540	547	524	536	523
980	556	567	511	551	543	517	577	480	551	563	541	558	505	532	511	567	543	525	515	504
1000	487	486	492	503	514	545	531	507	534	553	568	514	513	481	520	454	503	484	400	549
1020	545	529	702	704	669	535	468	385	412	442	404	395	406	421	395	436	410	415	382	348
1040	362	374	371	295	327	339	332	310	304	331	326	364	397	431	530	632	721	731	889	922
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1100	209	209	199	203	211	210	206	206	215	210	215	206	202	221	182	207	205	180	199	199
1120	191	208	205	213	189	201	208	233	192	231	194	187	196	203	178	155	178	178	168	198
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1160	150	122	157	142	142	145	158	137	144	137	123	142	134	120	137	131	145	124	146	141
1180	134	128	118	128	147	146	131	136	153	127	129	126	144	144	127	114	120	158	180	161
1200	179	220	263	280	396	537	725	837	636	404	237	119	123	128	122	133	120	106	112	102
1220	114	121	102	114	127	123	109	107	120	135	187	200	243	324	422	597	749	711	524	252
1240	114	106	108	91	101	74	91	95	94	94	89	90	110	111	117	98	88	89	98	94
1260	76	76	71	82	76	73	85	89	74	70	75	82	83							

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