SEP 20 1996

Sta 34

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT 616566

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) Criticality and Safety	4. Related EDT No.: 616566
5. Proj./Prog./Dept./Div.: Spent Nuclear Fuel	6. Cog. Engr.: F. Schmittroth	7. Purchase Order No.: NA
8. Originator Remarks: <i>None</i> <i>For Review and approval</i>		9. Equip./Component No.: NA
11. Receiver Remarks:		10. System/Bldg./Facility: 308 Building
		12. Major Assm. Dwg. No.: NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date:

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Design- ator	Reason for Trans- mittal	Origin- ator Dispo- sition	Receiv- er Dispo- sition
1	WHC-SD-SNF-ANAL-010		0	ORIGEN2 Calculations Supporting TRIGA Irradiated Fuel Data Package	N/A 6/20/96 9-20-96	1 6/20/96 9-20-96	1 6/20/96 9-20-96	

16. KEY											
Approval Designator (F)		Reason for Transmittal (G)				Disposition (H) & (I)					
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)		1. Approval	4. Review	2. Approved		4. Reviewed no/comment					
		2. Release	5. Post-Review	2. Approved w/comment		5. Reviewed w/comment					
		3. Information	6. Dist. (Receipt Acknow. Required)	3. Disapproved w/comment		6. Receipt acknowledged					
17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)											
(G)	(H)	17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)				(G)	(H)				
Reason	Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN		
1	1	Cog.Eng. F. Schmittroth	<i>F. Schmittroth</i>	9/13/96	H0-35	J. O. Dittmer	<i>J. O. Dittmer</i>	9/13/96	H2-02		
1	1	Cog. Mgr. J. Greenborg	<i>J. Greenborg</i>	9/13/96	H0-35	R. L. McCormack	<i>R. L. McCormack</i>	9/13/96	R3-86		
1	1	QA D. W. Smith	<i>D. W. Smith</i>	9/13/96	R3-31	J. M. Steffen	<i>J. M. Steffen</i>	9/13/96	H1-47		
		Safety									
		Env.									

18. F. Schmittroth <i>F. Schmittroth</i> Signature of EDT Originator	19. <i>J. O. Dittmer</i> Authorized Representative for Receiving Organization	20. J. Greenborg <i>J. Greenborg</i> Cognizant Manager	21. DOE APPROVAL (if required) Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments
--	--	---	---

ORIGEN2 Calculations Supporting TRIGA Irradiated Fuel Data Package

F. Schmittroth

Westinghouse Hanford Company, Richland, WA 99352

U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: 616566

UC: 510

Org Code: 8M730

Charge Code: ~~B6CR2~~ B62096

B&R Code: EW3135040

Total Pages: 956 ~~EWG-20-96~~

Key Words: Spent fuel, TRIGA, Hanford, ORIGEN2, storage

Abstract: ORIGEN2 calculations were performed for TRIGA spent fuel elements from the Hanford Neutron Radiography Facility. The calculations support storage and disposal and results include mass, activity, and decay heat. Comparisons with underwater dose-rate measurements were used to confirm and adjust the calculations.

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

Printed in the United States of America. To obtain copies of this document, contact: WHC/BCS Document Control Services, P.O. Box 1970, Mailstop H6-08, Richland WA 99352, Phone (509) 372-2420; Fax (509) 376-4989.

SEP 20 1996			ID:
DATE:	HANFORD		
STA:	RELEASE		
34			22

Release Approval

Date

Release Stamp

Approved for Public Release

ORIGEN2 CALCULATIONS SUPPORTING TRIGA IRRADIATED FUEL DATA PACKAGE

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Westinghouse
Hanford Company Richland, Washington

Management and Operations Contractor for the
U.S. Department of Energy under Contract DE-AC06-87RL10930

Approved for public release; distribution is unlimited

LEGAL DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

This report has been reproduced from the best available copy.

Printed in the United States of America

DISCLM-2.CHP (1-91)

**ORIGEN2 CALCULATIONS SUPPORTING TRIGA
IRRADIATED FUEL DATA PACKAGE**

WHC-SD-SNF-ANAL-010, Rev. 0

F. A. Schmittroth and D. E. Lessor

September 1996

This page intentionally left blank.

CHECKLIST FOR INDEPENDENT TECHNICAL REVIEW

DOCUMENT REVIEWED ORIGEN2 Calculations Supporting TRIGA
Irradiated Fuel Data Package
 AUTHOR(s) F. Schmitzroth D. Lesser

I. Method(s) of Review

- ☒ Input data checked for accuracy
- ☒ Independent calculation performed
 - ☒ Hand calculation
 - ☐ Alternate computer code:
- ☐ Comparison to experiment or previous results
- ☐ Alternate method (define) _____

II. Checklist (either check or enter NA if not applied)

- ☒ Task completely defined
- ☒ Activity consistent with task specification
- ☒ Necessary assumptions explicitly stated and supported
- ☒ Resources properly identified and referenced
- ☒ Resource documentation appropriate for this application
- ☒ Input data explicitly stated
- ☒ Input data verified to be consistent with original source
- ☒ Geometric model adequate representation of actual geometry
- ☒ Material properties appropriate and reasonable
- ☒ Mathematical derivations checked including dimensional consistency
- ☒ Hand calculations checked for errors
- ☒ Assumptions explicitly stated and justified
- ☒ Computer software appropriate for task and used within range of validity
- ☒ Use of resource outside range of established validity is justified
- ☒ Software runstreams correct and consistent with results
- ☒ Software output consistent with input
- ☒ Results consistent with applicable previous experimental or analytical findings
- ☒ Results and conclusions address all points and are consistent with task requirements and/or established limits or criteria
- ☒ Conclusions consistent with analytical results and established limits
- ☒ Uncertainty assesment appropriate and reasonable
- ☒ Other (define) _____

III. Comments:

IV. REVIEWER: ASB DATE: 8 May 94

This page intentionally left blank.

LIST OF TERMS

AFFRI	Armed Forces Research Institute Reactor
DORF	Diamond Ordinance Reactor Facility
GA	Gulf General Atomic
NRF	Neutron Radiography Facility
NTS	Nevada Test Site (from Vietnam reactor)
TRIGA	Test Research Isotopes General Atomic

1.0 INTRODUCTION

Radionuclide inventories are provided for 99 TRIGA fuel elements from the Hanford Neutron Radiography Facility (NRF). The values are based on ORIGEN2 Croff (1980) and Wittekind (1994) calculations adjusted to underwater dose-rate measurements. The calculations include irradiations that occurred before being received at the NRF and irradiations that occurred during subsequent operation of the NRF.

Supporting documentation is provided including six attachments. Initial ORIGEN2 radionuclide production calculations for 101 TRIGA fuel assemblies (including two fuel-followed control rods) are documented in Schmittroth (1994) and are included as Attachment 1.

Subsequently, underwater measurements were made in the TRIGA pool for selected fuel elements. Dose rate comparisons (Schmittroth 1995) based on the ORIGEN2 calculations are included as Attachment 2. The comparisons are generally good. However, the calculated results for the DORF elements, excluding two fuel-followed control rods, were low by about a factor of ten, and revised ORIGEN2 calculations were made using prior burnups increased by a factor of ten. Measurements for the two DORF fuel-followed control rods (Serial Nos. 6312 and 6313) were higher by about a factor of five. A separate adjusted ORIGEN2 calculation was made for each.

The revised ORIGEN2 calculations include trace impurities of cobalt in the stainless steel elements including the DORF elements and the Gulf General Atomic (GA) elements. The cobalt impurities were not included in the original calculations.

2.0 BASKET LOADINGS

The 99 fuel assemblies were loaded into six casks. The two fuel-followed control rods were loaded into two separate containers. The specific loadings are given in Attachment 3 which lists the serial number of each element, the assigned cask/container and basket numbers, and the corresponding ORIGEN2 computer output file. The serial number identifies the specific element as described in the TRIGA database file given in Attachment 4.

The loading summary in Attachment 3 also lists a multiplier in the last column used to weight the corresponding ORIGEN2 results in creating summary tables for each cask. This multiplier accounts for partial residence times in the NRF. Separate ORIGEN2 calculations were made for each fuel type and irradiation condition (e.g., GA elements irradiated in Row B of the NRF).

3.0 CORRECTIONS FOR PARTIAL RESIDENCE IN THE NRF CORE

Most of the TRIGA fuel elements were either in the NRF for the full operating history or were not used. As noted, some also had prior burnups. Likewise, the basic set of ORIGEN2 calculations all assumed that the pins either experienced the complete NRF burnup history or were not used. A few (two NTS elements and eight AFFRI elements) were resident in the NRF core for only part of the time.

Because of the uncertainties associated with the prior irradiation histories, it is adequate to estimate the results for partial burnups by scaling the full-burnup ORIGEN2 calculations. The presence of prior irradiations complicates this correction slightly.

Let the actual burnup, T , be given by

$$T = N + P$$

where

N represents the actual burnup experienced in the Neutron Radiography Facility and P represents the prior burnup.

Similarly denote the burnup, T^* , used in the ORIGEN2 calculation by

$$T^* = N^* + P$$

where

N^* represents the full NRF burnup. The desired factor needed to scale the full-burnup ORIGEN2 calculations is

$$m = \frac{T}{T^*}$$

which may be rewritten as

$$m = \frac{m_0 + P/N^*}{1 + P/N^*}$$

where

$m_0 = N/N^*$ is the burnup scaling factor in the absence of any prior burnup ($P=0$).

For the AFFRI pins, the assumed prior burnup (43.8 kWd) was small compared to the NRF burnup (311 kWd) giving $P/N^*=0.141$ so that the effect of prior burnup on rescaling the ORIGEN2 calculation is small. In contrast, the prior burnup for the NTS pins was assumed equal to the NRF burnup assumed in ORIGEN2 ($P/N^*=1$). These values were used to calculate the multipliers given in Attachment 3.

4.0 CASK SUMMARY TABLES

Summary tables (Attachment 5) were created for each cask and container by combining the ORIGEN2 output files in accordance with the element loadings and multiplier weights given in Attachment 3.

Each set of summary tables includes tables for grams, curies, and watts (decay heat) for decay times ranging from 0 to 1000 years. Each table is sorted on 20 year decay times (column 6) with the largest 25 entries listed. Each table includes totals that represent the entire cask or container inventory. In general this procedure lists over 99% of the total values; however, the interchange of dominant radionuclides causes some exceptions, especially for short times. Detailed values can be obtained from the full ORIGEN2 output files given in Attachment 6.

5.0 REFERENCES

- Croff, A. G., 1980, *ORIGEN2: A Revised and Updated Version of the Oak Ridge Isotope Generation and Depletion Code*, ORNL-5621, Oak Ridge National Laboratory, Oak Ridge, Tennessee.
- Wittekind, W. D., 1994, *Software Certification Package for the ORIGEN2 Code*, WHC-SD-NR-SWD-006, Rev. 0-A, Westinghouse Hanford Company, Richland, Washington.
- Schmittroth, F. A., 1994, *ORIGEN2 Source Term Calculations for the Neutron Radiography Facility TRIGA Reactor*, WHC-SD-TP-ANAL-001, Rev. 0, Westinghouse Hanford Company, Richland, Washington.
- Schmittroth, F. A., 1995, *Underwater Dose-Rate Measurements for TRIGA Fuel Pins at the Neutron Radiography Facility*, Internal Memo:
F. A. Schmittroth to J. O. Dittmer, Westinghouse Hanford Company, Richland, Washington.

This page intentionally left blank.

ATTACHMENT 1

INITIAL ORIGEN2 RADIONUCLIDE PRODUCTION CALCULATIONS

This page intentionally left blank.

FEB 28 1994

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT 603581

2. To: (Receiving Organization) Packaging Safety Engineering	3. From: (Originating Organization) Radiation Physics and Shielding	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: 22570	6. Cog. Engr.: F. A. Schmittroth	7. Purchase Order No.: NA
8. Originator Remarks: Approval/Release		9. Equip./Component No.: NA
		10. System/Bldg./Facility: NA
11. Receiver Remarks:		12. Major Assm. Dwg. No.: NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date: February 28, 1994

15. DATA TRANSMITTED							
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Impact Level	(G) Reason for Transmittal	(H) Originator Disposition
1	WHC-SD-TP-ANAL-001		0	ORIGEN2 Source Term Calculations for the Neutron Radiography TRIGA Reactor	4	1	1

16. KEY							
Impact Level (F)		Reason for Transmittal (G)			Disposition (H) & (I)		
1. 2, 3, or 4 (see MRP 5.43)		1. Approval	4. Review	1. Approved	4. Reviewed no/comment		
		2. Release	5. Post-Review	2. Approved w/comment	5. Reviewed w/comment		
		3. Information	6. Dist. (Receipt Acknow. Required)	3. Disapproved w/comment	6. Receipt acknowledged		

(G) (H)		17. SIGNATURE/DISTRIBUTION (See Impact Level for required signatures)								(G)	(H)
Reason	Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	Reason	Disp.
1	1	Cog. Eng.: FA Schmittroth	<i>[Signature]</i>	2-28-94	10-35						
1	1	Cog. Mgr.: J Greenberg	<i>[Signature]</i>	2-28-94	10-35						
		QA									
		Safety									
		Env.									
1		MD Clements			G2-02						
1		JG Field			G2-02						

18. F. A. Schmittroth <i>[Signature]</i> Signature of EDT Originator	19. J. G. Field <i>[Signature]</i> Authorized Representative Date	20. J. Greenberg <i>[Signature]</i> Cognizant/Project Engineer's Manager Date	21. DOE APPROVAL (if required) Ltr. No. [] Approved [] Approved w/comments [] Disapproved w/comments
--	--	--	---

Date Received: FEB 28 1994		INFORMATION RELEASE REQUEST		Reference: WHC-CN-3-4	
Complete for all Types of Release					
Purpose ☐ Speech or Presentation ☐ Full Paper (Check only one suffix) ☐ Summary ☐ Abstract ☐ Visual Aid ☐ Speakers Bureau ☐ Poster Session ☐ Videotape			☐ Reference ☒ Technical Report ☐ Thesis or Dissertation ☐ Manual ☐ Brochure/Flier ☐ Software/Database ☐ Controlled Document ☐ Other		
			ID Number (include revision, volume, etc.) WHC-SD-TP-ANAL-001, Rev. 0, EDT 603581		
			List attachments. NA		
			Date Release Required February 28, 1994		
Title ORIGEN2 Source Term Calculations for the Neutron Radiography TRIGA Reactor				Unclassified Category UC- NA	
				Impact Level 4	
New or novel (patentable) subject matter? ☒ No ☐ Yes If "Yes", has disclosure been submitted by WHC or other company? ☐ No ☐ Yes (Disclosure No(s))			Information received from others in confidence, such as proprietary data, trade secrets, and/or inventions? ☒ No ☐ Yes (Identify)		
Copyrights? ☒ No ☐ Yes If "Yes", has written permission been granted? ☐ No ☐ Yes (Attach Permission)			Trademarks? ☒ No ☐ Yes (Identify)		
Complete for Speech or Presentation					
Title of Conference or Meeting			Group or Society Sponsoring		
Date(s) of Conference or Meeting		City/State	Will proceedings be published?		☐ Yes ☐ No
			Will material be handed out?		☐ Yes ☐ No
Title of Journal					
CHECKLIST FOR SIGNATORIES					
Review Required per WHC-CN-3-4		Yes	No	Reviewer - Signature Indicates Approval	
				Name (printed)	Signature Date
Classification/Unclassified Controlled Nuclear Information		☐	☒		
Patent - General Counsel		☐	☒		
Legal - General Counsel		☐	☒		
Applied Technology/Export Controlled Information or International Program		☐	☒		
WHC Program/Project		☐	☒		
Communications		☐	☒		
RL Program/Project		☐	☒		
Publication Services		☐	☒		
Other Program/Project		☐	☒		
Information conforms to all applicable requirements. The above information is certified to be correct.					
		Yes	No	INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP	
References Available to Intended Audience		☒	☐	Stamp is required before release. Release is contingent upon resolution of mandatory comments.	
Transmit to DOE-HQ/Office of Scientific and Technical Information		☐	☒		
Author/Requestor (Printed/Signature)		Date			
F. Schmittroth <i>F. Schmittroth</i>					
Intended Audience					
☐ Internal ☒ Sponsor ☐ External					
Responsible Manager (Printed/Signature)		Date			
J. Greenberg <i>J. Greenberg</i>		2-28-94			
		Date Cancelled		Date Disapproved	

SUPPORTING DOCUMENT		1. Total Pages <i>64 63 75</i>
2. Title ORIGEN2 Source Term Calculations for the Neutron Radiography Facility TRIGA Reactor	3. Number WHC-SD-TP-ANAL-001	4. Rev No. 0
5. Key Words ORIGEN2, TRIGA, NRF	6. Author Name: F. Schmittroth <i>F. Schmittroth</i> Signature Organization/Charge Code 22570/B 2 MCD	
7. Abstract This report documents the radioactive source terms based on the ORIGEN2 code. Shielding calculations for a transportation cask are also provided.		
<p>8. PURPOSE AND USE OF DOCUMENT - This document was prepared for use within the U.S. Department of Energy and its contractors. It is to be used only to perform, direct, or integrate work under U.S. Department of Energy contracts. This document is not approved for public release until reviewed.</p> <p>PATENT STATUS - This document copy, since it is transmitted in advance of patent clearance, is made available in confidence solely for use in performance of work under contracts with the U.S. Department of Energy. This document is not to be published nor its contents otherwise disseminated or used for purposes other than specified above before patent approval for such release or use has been secured, upon request, from the Patent Counsel, U.S. Department of Energy Field Office, Richland, WA.</p> <p>DISCLAIMER - This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.</p>		<p>10. RELEASE STAMP</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> OFFICIAL RELEASE BY WHC DATE FEB 28 1994 <i>Sta. 21</i> </div>
9. Impact Level 4		

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	DESCRIPTION OF NRF FUEL ASSEMBLIES	1
2.1	IRRADIATION HISTORY	1
2.2	ASSUMED PRIOR IRRADIATION HISTORIES	2
3.0	ORIGEN2 SOURCE-TERM CALCULATIONS	3
3.1	MATERIAL INVENTORY MODEL	3
3.2	IRRADIATION MODEL	4
3.3	SPECIFIC CALCULATIONS	5
3.4	MAXIMUM SOURCE-TERM CALCULATION	6
3.5	GA CALCULATIONS	7
3.6	NTS CALCULATIONS	7
3.7	DORF CALCULATIONS	7
3.8	AFFRI CALCULATIONS	7
4.0	MAXIMUM PHOTON SOURCE TERM	8
5.0	APPENDICES	8
5.1	REFERENCES	8
5.2	FIGURES FOR INPUT RUNSTREAMS	9
5.2.1	Figure A.1. Base Origen2 input runstream	9
5.2.2	Figure A.2. ORIGEN2 input runstream for maximum source	11
5.2.3	Figure A.3. ORIGEN2 input runstream for GA (Row B) fuel element	13
5.2.4	Figure A.4. ORIGEN2 input runstream for NTS (Row C) fuel element	15
5.2.5	Figure A.5. ORIGEN2 input runstream for DORF (none) fuel element	17
5.2.6	Figure A.6. ORIGEN2 input runstream for AFFRI (none) fuel element	19
5.2.7	Figure A.7. ORIGEN2 input runstream for AFFRI (Row E) fuel element	21
5.3	FIGURES FOR GRAM INVENTORIES	23
5.3.1	Figure B.1. Gram inventories from ORIGEN2 for average power	23
5.3.2	Figure B.2. Gram inventories from ORIGEN2 for maximum source term	25
5.3.3	Figure B.3. Gram inventories from ORIGEN2 for GA (Row B) element	27
5.3.4	Figure B.4. Gram inventories from ORIGEN2 for NTS (Row C) element	29
5.3.5	Figure B.5. Gram inventories from ORIGEN2 for DORF (Row C) element	31
5.3.6	Figure B.6. Gram inventories from ORIGEN2 for AFFRI (none) element	32

TABLE OF CONTENTS (Continued)

5.3.7	Figure B.7. Gram inventories from ORIGEN2 for AFFRI (Row E) element	33
5.4	FIGURES FOR CURIE INVENTORIES	35
5.4.1	Figure C.1. Curie inventories from ORIGEN2 for average power	35
5.4.2	Figure C.2. Curie inventories from ORIGEN2 for maximum source term	36
5.4.3	Figure C.3. Curie inventories from ORIGEN2 for GA (Row B) element	37
5.4.4	Figure C.4. Curie inventories from ORIGEN2 for NTS (Row C) element	38
5.4.5	Figure C.5. Curie inventories from ORIGEN2 for DORF (none) element	39
5.4.6	Figure C.6. Curie inventories from ORIGEN2 for AFFRI (none) element	40
5.4.7	Figure C.7. Curie inventories from ORIGEN2 for AFFRI (Row E) element	41
5.5	FIGURES FOR MAXIMUM PHOTON SOURCE TERM RESULTS	42
5.5.1	Figure D.1. Photon source tables from ORIGEN2 for maximum source term	42
5.5.2	Figure D.2. Total maximum photon source strength for 19 TRIGA fuel pins (format suitable for ISOSHL mode 2) calculations)	44
5.6	ATTACHMENT 1. COPIES OF FUEL ELEMENT DESCRIPTIONS TAKEN FROM MCCORD REFERENCE	45
5.7	ATTACHMENT 2. NRF FUEL-ELEMENT IRRADIATION DATABASE	50
5.8	ATTACHMENT 3. FAX FROM W. L. WHITEMORE (GENERAL ATOMICS)	54
5.9	ATTACHMENT 4. TRIGA POWER FACTORS	57
5.10	CHECKLIST FOR CALCULATION REVIEW	59

ORIGEN2 SOURCE TERM CALCULATIONS FOR THE NEUTRON RADIOGRAPHY FACILITY TRIGA REACTOR

1.0 INTRODUCTION

As described in *Material Definition of Irradiated TRIGA Fuel for Storage at 200 West* (McCord 1992), a Mark I Training Reactor, Isotopes, General Atomic (TRIGA) reactor operated in the 308 Building intermittently from the late 1970's until its last power run in March 1989. This facility is called the Neutron Radiography Facility (NRF) and is described in further detail in the Safety Analysis Report (Plum and Krider 1975).

This report documents the radioactive source terms based on the ORIGEN2 (Croff 1980) code. Shielding calculations for a transportation cask are also provided. An earlier memo (Schwarz 1992) gave preliminary results for a selected set of elements that had no prior irradiation history.

As partially documented in *Material Definition of Irradiated TRIGA Fuel for Storage at 200 West* (McCord 1992) and the Safety Analysis Report (Plum and Krider 1975), the fuel came from diverse sources. The central part of the core consisted of fresh fuel elements from General Atomics (GA). Some of the other fuel elements had some prior irradiations which are described further in Section 3.0.

2.0 DESCRIPTION OF NRF FUEL ASSEMBLIES

All of the fuel can be broadly classed in two categories, stainless steel clad and aluminum clad. The stainless steel elements contain 38 g of 8.5 wt% enriched ^{235}U , while the aluminum clad elements contain 37 g of 8.0 wt% enriched ^{235}U . Attachment 1 (McCord 1992) gives a complete description of the fuel and cladding composition for both categories. Four elements are fuel-followed control rods and have the same material specifications as the stainless steel clad elements except they include an additional 14.25 in. borated graphite column.

2.1 IRRADIATION HISTORY

The fuel element irradiation histories in the NRF and their core locations are given in an NRF irradiation database in Attachment 2. A summary of the NRF irradiation histories is given in Table 1.

Table 1. Summary of NRF Fuel Element Irradiations.

Source	Clad	NRF Irradiation			
		Full Term	Some	None	Total
AFFRI	Al	18	8	7	33
NTS	Al	31	2	0	33
DORF (fuel)	SS	0	0	21	21
DORF (ff)	SS	0	0	4	4
GA	SS	12	0	0	12
Oregon St.	SS	0	0	1	1
TOTALS		61	10	33	104

The Armed Forces Research Institute Reactor (AFFRI) and the NTS (from Vietnam) are aluminum clad elements with a prior irradiation history.

The Diamond Ordinance Reactor Facility (DORF) elements had a prior irradiation history but were not irradiated in the NRF. Four of the elements were fuel-followed (ff) control rods.

The GA elements were fresh elements and loaded in the inner B and C rows. They had no prior irradiation history.

A single unirradiated element was obtained from Oregon State University for a total of 104 elements.

2.2 ASSUMED PRIOR IRRADIATION HISTORIES

The AFFRI, NTS, and DORF elements all had some small amount of burnup when they were received at the NRF facility. The prior burnup for the AFFRI elements is taken as 3 g of ^{235}U divided among 56 elements (Plum and Krider 1975). Shipping papers for the DORF elements give approximately 2 Ci of activity spread over 23 elements. Two of the DORF fuel-followed control rods (8322 and 8323) came from warm storage and were not irradiated. As noted, the GA and Oregon State elements had no prior irradiation.

3.0 ORIGEN2 SOURCE-TERM CALCULATIONS

ORIGEN2 source-term calculations for the 104 elements fall into two main categories, their source (AFFRI, NTS, DORF, GA, or Oregon State), and their irradiation location (core row). Therefore, separate calculations were made based on these attributes. As shown in Table 1, nearly all the elements were either in the core for the full irradiation history or were not irradiated at all. The full-period results can be scaled for those elements that had partial residence periods.

3.1 MATERIAL INVENTORY MODEL

Each ORIGEN2 calculation requires a model of the material inventories and the irradiation history. The material compositions for the fuel are defined by the data in *Material Definition of Irradiated TRIGA Fuel for Storage at 200 West* (McCord 1992) and shown in Attachment 1. The specified ^{235}U weight provides an absolute mass normalization. The enrichment then fixes the amount of ^{238}U . The uranium content in percent together with the zirconium/hydrogen ratio can then be used to determine the amount of both hydrogen and zirconium. The results are given in Table 2.

Table 2. Fuel Compositions for ORIGEN2 Calculations.

	Weight (g)	
	Stainless Steel	Aluminum
^{235}U	38.0	37.0
^{238}U	153.9	149.9
^{234}U , ^{236}U	0.38	0.37
Hydrogen	35.7	23.4
Zirconium	2030.5	2125.9

The cladding material inventories are also determined from the data in *Material Definition of Irradiated TRIGA Fuel for Storage at 200 West* (McCord 1992). For the stainless steel elements, a calculated cladding volume of 41.19 cm³ and a density of 8.03 g/cm³ yields a total mass of 331 g/fuel-element. The aluminum cladding has a larger volume of 60.47 cm³. An assumed density of 2.70 g/cm³ then gives 163 g of aluminum. The specific isotopic values are specified in Figure A.1 which shows a generic ORIGEN2 input run stream for stainless-steel cladding. For the cladding inventories, isotopic

values are given for 1 kg units of both stainless steel and aluminum. The desired amounts are then readily specified with the ORIGEN2 "ADD" command.

Specific details of fuel-element endpieces and other peripheral hardware were not modeled; however, the gross values used here are more than adequate to determine source terms for the relatively unimportant non-fuel materials.

Table 2 also includes estimates of the amount of ^{234}U , and ^{236}U . The amount of ^{234}U assumes a value that is 1% of the ^{235}U value (see Attachment 3). This small amount is a little larger than the naturally occurring ratio and is typical for enriched fuel. The same value gives a conservative estimate for ^{236}U . Finally, 28 cm^3 (the free volume of 1.5 in. diameter TRIGA fuel) of air (N_2 and O_2) are included to account for the possibility of ^{14}C production by activation of ^{14}N and ^{16}O (see Attachment 3).

3.2 IRRADIATION MODEL

The irradiation model includes two components corresponding to the irradiation history in the NRF Facility and any prior irradiations. The NRF Facility operated intermittently from March 1977 to March 1990 (see the NRF database in Attachment 2) for a total of 13 years. According to the values in the database, the overall operation consisted of 2769 hours (0.315 years) for a total integrated power of 563,981 kW-h. This yields an average core power of 204 kW, or $204/68 = 3.00$ kW per assembly. Although the most conservative source term would be obtained by assuming that the entire irradiation occurred at the end of the period, it is known that a significant part of the operation occurred early in the period. Therefore, a more realistic assumptions was made that split the irradiation up into three $0.315/3 = 0.105$ year periods: one at the beginning, one at the end, and one in the middle. The precise values used are defined in the run stream given in Appendix A (Figure A.1) for an average-power element.

The power levels are dependent on the core row. Power peaking factors for each row are taken from Attachment 4 and shown in Table 3. Based on the NRF database and the initial loading in the Safety Analysis Report (Plum and Krider 1975), the number of assemblies in each row was determined as also shown in Table 3.

Table 3. TRIGA Fuel Element Powers By Row.

Row	No. element	P-factor	P'-factor	Power, kW
A	0	1.61	1.36	----
B	6	1.57	1.32	3.96
C	10	1.46	1.23	3.68
D	18	1.29	1.09	3.25
E	23	1.07	0.90	2.70
F	15	0.81	0.68	2.04

If one multiplies the power factors, P, by the respective number of assemblies and sums over all rows, an overall factor of 1.188 is obtained. In order to obtain power factors, P', appropriate for the specific NRF loading, the power factors for each row were divided by this overall normalization. The specific powers used in the ORIGEN2 calculations are shown in the last column of Table 3.

3.3 SPECIFIC CALCULATIONS

The ORIGEN2 run streams for individual fuel elements are all based on modifications of the generic calculation given in Figure A.1. The specific run streams are archived in the file triga.cpio created with Unix cpio utility and stored on the Common File System (CFS) in directory /v91039/origen2. Each run stream is identified by a unique input file name in the form name.inp with a corresponding output file name of name.outf. The file name prefix "name" has the form o-ccr-i and is created according to the following conventions:

- "cc" identifies the cladding
 - ss - stainless steel
 - al - aluminum
- "r" identifies the NRF irradiation row
 - b,c,d,e - corresponding row B, C, D, E
 - x - no irradiation in the NRF
- "i" identifies the assumed prior irradiation history
 - p - prior history equal to the NRF irradiation
 - m - prior history based on mass of ²³⁵U burned
 - c - prior history based on curies

Thus, for example, the input runstream for a GA stainless steel clad element irradiated in row B is in file o-ssb.inp with a corresponding output file o-ssb.outf. Table 4 summarizes the complete set of ORIGEN2 runs.

Table 4. Summary of ORIGEN2 Runs.

Base File Name	Description
*orig-base	Generic run with average power
*o-ssb-p	stainless steel (row b) + prior irradiation
GA Calculations	
*o-ssb	stainless steel (row b)
o-ssc	stainless steel (row c)
NTS Calculations	
*o-alc-p	aluminum (row c) + prior irradiation
o-ald-p	aluminum (row d) + prior irradiation
o-ale-p	aluminum (row e) + prior irradiation
o-alf-p	aluminum (row f) + prior irradiation
DORF Calculations	
*o-ssx-c	stainless steel (none) with (2/23) Ci
AFFRI Calculations	
*o-alx-m	aluminum (none) + (3/56) g-235 BU
*o-ale-m	aluminum (row e) + (3/56) g-235 BU
o-alf-m	aluminum (row f) + (3/56) g-235 BU

Complete runstreams are documented in Appendix A for the runs marked with an asterisk (*). The other runs are for outer rows such that the inner row calculations will give conservative source term estimates for outer rows. Summaries of the gram amounts derived from the ORIGEN2 calculations are given in Appendix B matched one-to-one with the input runstreams in Appendix A. Likewise curie amounts are given in Appendix C.

3.4 MAXIMUM SOURCE-TERM CALCULATION

A maximum source term calculation was made by assuming irradiation in a row B location with a prior irradiation. In practice, the only elements in the high-power row B locations were the fresh-fuel GA elements. The prior

irradiation was taken to be that taken for the NTS assemblies. These assemblies were assumed to be irradiated between 1960 and 1969 (about 7 years prior to the NRF irradiation). Their burnup was unknown, but was assumed equal in magnitude to the NRF irradiation. The ORIGEN2 runstream for this case is shown in Appendix A (Figure A.2) which also documents the input setup used to model the prior NTS irradiation history.

3.5 GA CALCULATIONS

Two ORIGEN2 calculations were performed for the General Atomic (GA) fuel elements, one for Row B fuel elements and one for Row C. The input runstreams are identical to the generic calculations given in Figure A.1 except that the fuel element powers are changed from 3 kW to the value for the respective row as given in Table 3.

3.6 NTS CALCULATIONS

Four calculations were performed for the aluminum clad NTS fuel elements corresponding to rows C, D, E, and F. The input for this case was constructed starting from the runstream used for the maximum source term calculation shown in Figure A.2. The isotopic inventories for the stainless-steel cladding were replaced by values for the aluminum cladding, and the powers were altered for the corresponding irradiation row. Note that the prior irradiation model is given as 0.315 years irradiation followed by 7 years decay.

3.7 DORF CALCULATIONS

A single calculation was made for the Diamond Ordinance elements. There was no irradiation in the NRF and the prior irradiation was modeled by adjusting the time to give the required curie content discussed previously. This was achieved by a very short prior irradiation period of 0.01 years at an average power of 3 kW.

3.8 AFFRI CALCULATIONS

As seen in Table 1, the AFFRI fuel pins included some that were irradiated in the NRF and other that were not. All were assumed to have a prior irradiation to give about (3/56) grams burnup of ^{235}U . This was found to be adequately modeled by assuming a short (0.04 years) irradiation period at an average power of 3 kW.

4.0 MAXIMUM PHOTON SOURCE TERM

Photon source strength tables derived from ORIGEN2 are given in Appendix D (Figure D.1) for the maximum source strength case designated by the case identifier "o-ssb-p". This case represents irradiation of a GA fuel element in Row B with a prior assumed irradiation equal to the NRF irradiation.

A conservative source term useful for shielding and dose rate calculations was obtained by summing the activation, actinide, and fission-product results for the 5-year decay time. The results were then multiplied by 19 to represent the source term for a cask containing 19 pins. The results are shown in Figure D.2 and are suitable for editing into an ISOSHL mode 3 shielding and dose-rate calculation.

5.0 APPENDICES

5.1 REFERENCES

- McCord, R. B., 1992, *Material Definition of Irradiated TRIGA Fuel for Storage at 200 West*, (internal letter 92-020 to R. J. Landon, August 25), Westinghouse Hanford Company, Richland Washington.
- Plum, R. L., and H. S. Krider, 1975, *Final Safety Analysis Report, Neutron Radiography Facility (TRIGA Mark I Reactor)*, TC-344, Hanford Engineering Development Laboratory, August 1975.
- Croff, A. G., 1980, *ORIGEN2- A Revised and Updated Version of the Oak Ridge Isotope Generation and Depletion Code*, ORNL-5621, Oak Ridge National Laboratory, July 1980.
- Schwarz, R. A., 1992, *Analysis of the Dose Rates from TRIGA Fuel*, (internal letter 22570-93-RAS-003 to J. O. Dittmer, February 10), Westinghouse Hanford Company, Richland, Washington.

5.2 FIGURES FOR INPUT RUNSTREAMS

5.2.1 Figure A.1. Base Origen2 input runstream
(File: orig-base.inp)

```

-1
-1
-1
BAS      One Triga fuel element: Stainless Steel clad
TIT      Triga fuel characterization
RDA
LIP      0 0 0
RDA      Read non-standard data from Unit 3 for C14.
LIB      0 1 2 3 204 205 206 9 3 -2 1 1
PHO      101 102 103 10
RDA
RDA      /* Fuel for one SS-clad element */
INP      -1 1 -1 -1 1 1
RDA      /* Fuel for one Al-clad element */
INP      -2 1 -1 -1 1 1
RDA      /* 1 kg of 304 SS cladding */
INP      -3 1 -1 -1 1 1
RDA      /* 1 kg of Al cladding */
INP      -4 1 -1 -1 1 1
RDA      /* 1 cc air (N2 + O2) */
INP      -5 1 -1 -1 1 1
RDA
RDA      Initialize vector with Fuel
MOV      -1 1 0 1.0
RDA      Add cladding
ADD      -3 1 0 0.331      Add 0.331 kg of SS cladding
RDA      Add 28 cc of air
ADD      -5 1 0 28.0
RDA
RDA      Begin irradiation
RDA      years      MW
RDA      BUP
IRP      0.105 0.003 1 2 5 2
DEC      6.0      2 3 5 0
IRP      6.105 0.003 3 4 5 0
DEC      12.895 4 5 5 0
IRP      13.0 0.003 5 6 5 0
RDA      BUP
MOV      6 2 0 1.0      /* Move discharge to vector 2 */
RDA
RDA      /* Start decay section */
RDA      years
DEC      3.0      2 3 5 1
DEC      4.0      3 4 5 0
DEC      5.0      4 5 5 0
DEC      10.0     5 6 5 0
DEC      20.0     6 7 5 0
RDA
CUT      5 1.0E-5 7 1.0E-10 9 1.0E-5 -1
RDA      Output grams, curies, decay heat
OPTL     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTA     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTF     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8
HED      1 Initial
HED      2 Discharge
OUT      6 1 -1 0
STP      4
2 922350 38.0 922380 153.9 922340 0.38 922360 0.38 Fuel (SS)
4 010000 35.7 400000 2030.5 0 0.0 Fuel (SS)
0
2 922350 37.0 922380 149.9 922340 0.37 922360 0.37 Fuel (Al)
4 010000 23.4 400000 2125.9 0 0.0 Fuel (Al)

```

WHC-SD-SNF-ANAL-010, Rev. 0

WHC-SD-TP-ANAL-001

Rev. 0

0										
4	260000	648.5	240000	200.0	280000	120.0	250000	20.0	SS-304	
4	060000	0.8	150000	0.4	160000	0.3	140000	10.8	SS-304	
0										
4	130000	1000.0	0	0.0					Aluminum	
0										
4	070000	9.8E-4	080000	3.0E-4	0	0.0			Air (1cc)	
0										
END										
==										

5.2.2 Figure A.2. ORIGEN2 input runstream for maximum source (File: o-ssb-p.inp)

```

-1
-1
-1
BAS      Triga fuel element: SS clad (Row 8) + prior irradiation
TIT      Origen2 Triga fuel characterization
RDA
LIP      0 0 0
RDA      Read non-standard data from Unit 3 for C14.
LIB      0 1 2 3 204 205 206 9 3 -2 1 1
PHO      101 102 103 10
RDA
RDA      /* Fuel for one SS-clad element */
INP      -1 1 -1 -1 1 1
RDA      /* Fuel for one Al-clad element */
INP      -2 1 -1 -1 1 1
RDA      /* 1 kg of 304 SS cladding */
INP      -3 1 -1 -1 1 1
RDA      /* 1 kg of Al cladding */
INP      -4 1 -1 -1 1 1
RDA      /* 1 cc air (N2 + O2) */
INP      -5 1 -1 -1 1 1
RDA
RDA      Initialize vector with Fuel
MOV      -1 1 0 1.0
RDA      Add cladding
ADD      -3 1 0 0.331      Add 0.331 kg of SS cladding
RDA      Add 28 cc of air
ADD      -5 1 0 28.0
RDA
RDA      Prior irradiation equal to NRF irradiation.
RDA      years      MW
SUP
IRP      0.315      0.00396      1 2 5 2
DEC      7.0              2 3 5 0
SUP
MOV      3 1 0 1.0
RDA      Standard Full Power NRF irradiation
RDA      years      MW
SUP
IRP      0.105      0.00396      1 2 5 1      /* Reset time */
DEC      6.0              2 3 5 0
IRP      6.105      0.00396      3 4 5 0
DEC      12.895              4 5 5 0
IRP      13.0      0.00396      5 6 5 0
SUP
MOV      6 2 0 1.0      /* Move discharge to vector 2 */
RDA
RDA      /* Start decay section */
RDA      years
DEC      3.0              2 3 5 1      /* Reset time */
DEC      4.0              3 4 5 0
DEC      5.0              4 5 5 0
DEC      10.0             5 6 5 0
DEC      20.0             6 7 5 0
RDA
CUT      5 1.0E-10      7 1.0E-10      9 1.0E-10      -1
RDA      Output grams, curies, decay heat
OPTL     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTA     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTF     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
HED      1 Initial
HED      2 Discharge
OUT      7 1 -1 0
STP      4
2      922350      38.0      922380      153.9      922340      0.38      922360      0.38      Fuel (SS)

```

WHC-SD-TP-ANAL-001 Rev. 0

A1-19

5.2.3 Figure A.3. ORIGIN2 input runstream for GA (Row B) fuel element (File: o-ssb.inp)

```

-1
-1
-1
BAS      Triga fuel element: Stainless Steel clad (Row B)
TIT      Origen2 Triga fuel characterization
RDA
LIP      0 0 0
RDA      Read non-standard data from Unit 3 for C14.
LIB      0 1 2 3 204 205 206 9 3 -2 1 1
PHO      101 102 103 10
RDA
RDA      /* Fuel for one SS-clad element      */
INP      -1 1 -1 -1 1 1
RDA      /* Fuel for one Al-clad element      */
INP      -2 1 -1 -1 1 1
RDA      /* 1 kg of 304 SS cladding           */
INP      -3 1 -1 -1 1 1
RDA      /* 1 kg of Al cladding               */
INP      -4 1 -1 -1 1 1
RDA      /* 1 cc air (N2 + O2)                */
INP      -5 1 -1 -1 1 1
RDA
RDA      Initialize vector with Fuel
MOV      -1 1 0 1.0
RDA      Add cladding
ADD      -3 1 0 0.331      Add 0.331 kg of SS cladding
RDA      Add 28 cc of air
ADD      -5 1 0 28.0
RDA
RDA      Standard Full Power NRF irradiation
RDA      years      MW
BUP
IRP      0.105      0.00396      1 2 5 2
DEC      6.0                2 3 5 0
IRP      6.105      0.00396      3 4 5 0
DEC      12.895             4 5 5 0
IRP      13.0        0.00396      5 6 5 0
BUP
MOV      6 2 0 1.0      /* Move discharge to vector 2 */
RDA
RDA      /* Start decay section */
RDA      years
DEC      3.0                2 3 5 1      /* Reset time to 0 */
DEC      4.0                3 4 5 0
DEC      5.0                4 5 5 0
DEC      10.0               5 6 5 0
DEC      20.0               6 7 5 0
RDA
CUT      5 1.0E-10      7 1.0E-10      9 1.0E-10      -1
RDA      Output grams, curies, decay heat
OPTL     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTA     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTF     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
HED      1 Initial
HED      2 Discharge
OUT      7 1 -1 0
STP      4
2      922350      38.0      922380      153.9      922340      0.38      922360      0.38      Fuel (SS)
4      010000      35.7      400000      2030.5      0      0.0      0.0      Fuel (SS)
0
2      922350      37.0      922380      149.9      922340      0.37      922360      0.37      Fuel (Al)
4      010000      23.4      400000      2125.9      0      0.0      0.0      Fuel (Al)
0
4      260000      648.5      240000      200.0      280000      120.0      250000      20.0      SS-304
4      060000      0.8      150000      0.4      160000      0.3      140000      10.0      SS-304

```

WHC-SD-TP-ANAL-001 Rev. 0

A1-21

5.2.4 Figure A.4. ORIGEN2 input runstream for NTS (Row C) fuel element (File: o-alc-p.inp)

```

-1
-1
-1
BAS      Triga fuel element: Al clad (Row C) + prior irradiation
TIT      Origen2 Triga fuel characterization
RDA
LIP      0 0 0
RDA      Read non-standard data from Unit 3 for C14.
LIB      0 1 2 3 204 205 206 9 3 -2 1 1
PHO      101 102 103 10
RDA
RDA      /* Fuel for one SS-clad element */
INP      -1 1 -1 -1 1 1
RDA      /* Fuel for one Al-clad element */
INP      -2 1 -1 -1 1 1
RDA      /* 1 kg of 304 SS cladding */
INP      -3 1 -1 -1 1 1
RDA      /* 1 kg of Al cladding */
INP      -4 1 -1 -1 1 1
RDA      /* 1 cc air (N2 + O2) */
INP      -5 1 -1 -1 1 1
RDA
RDA      Initialize vector with Fuel
MOV      -2 1 0 1.0
RDA      Add cladding
ADD      -4 1 0 0.163      Add 0.163 kg of Al cladding
RDA      Add 28 cc of air
ADD      -5 1 0 28.0
RDA
RDA      Prior irradiation equal to NRF irradiation.
years    MW
IRP      0.315 0.00368 1 2 5 2
DEC      7.0      2 3 5 0
RDA
MOV      3 1 0 1.0
RDA      Standard Full Power NRF irradiation
years    MW
IRP      0.105 0.00368 1 2 5 1      /* Reset time */
DEC      6.0      2 3 5 0
IRP      6.105 0.00368 3 4 5 0
DEC      12.895 4 5 5 0
IRP      13.0 0.00368 5 6 5 0
RDA
MOV      6 2 0 1.0      /* Move discharge to vector 2 */
RDA
RDA      /* Start decay section */
years
DEC      3.0      2 3 5 1      /* Reset time */
DEC      4.0      3 4 5 0
DEC      5.0      4 5 5 0
DEC      10.0 5 6 5 0
DEC      20.0 6 7 5 0
RDA
CUT      5 1.0E-10 7 1.0E-10 9 1.0E-10 -1
RDA      Output grams, curies, decay heat
OPTL     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTA     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTF     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8
HED      1 Initial
HED      2 Discharge
OUT      7 1 -1 0
STP      4

```

WHC-SD-TP-ANAL-001

Rev. 0

2	922350	38.0	922380	153.9	922340	0.38	922360	0.38	Fuel (SS)
4	010000	35.7	400000	2030.5	0	0.0			Fuel (SS)
0									
2	922350	37.0	922380	149.9	922340	0.37	922360	0.37	Fuel (Al)
4	010000	23.4	400000	2125.9	0	0.0			Fuel (Al)
0									
4	260000	648.5	240000	200.0	280000	120.0	250000	20.0	SS-304
4	060000	0.8	150000	0.4	160000	0.3	140000	10.0	SS-304
0									
4	130000	1000.0	0	0.0					Aluminum
0									
4	070000	9.8E-4	080000	3.0E-4	0	0.0			Air (1cc)
0									
0	END								
	==								

WHC-SD-TP-ANAL-001

Rev. 0

5.2.5 Figure A.5. ORIGEN2 input runstream for DORF (none) fuel element (File: o-ssx-c.inp)

```

-1
-1
-1
BAS      Triga fuel element: SS clad (none) + (2/23) Ci from prior BU
TIT      Origen2 Triga fuel characterization .
RDA
LIP      0 0 0
RDA      Read non-standard data from Unit 3 for C14.
LIB      0 1 2 3 204 205 206 9 3 -2 1 1
PHO      101 102 103 10
RDA
RDA      /* Fuel for one SS-clad element      */
INP      -1 1 -1 -1 1 1
RDA      /* Fuel for one Al-clad element      */
INP      -2 1 -1 -1 1 1
RDA      /* 1 kg of 304 SS cladding           */
INP      -3 1 -1 -1 1 1
RDA      /* 1 kg of Al cladding               */
INP      -4 1 -1 -1 1 1
RDA      /* 1 cc air (N2 + O2)                */
INP      -5 1 -1 -1 1 1
RDA
RDA      Initialize vector with Fuel
MOV      -1 1 0 1.0
RDA      Add cladding
ADD      -3 1 0 0.331      Add 0.331 kg of SS cladding
RDA      Add 28 cc of air
ADD      -5 1 0 28.0
RDA
RDA      Prior irradiation to give (2/23) Ci from prior BU.
RDA      years      Mw
IRP      0.010 0.003      1 2 5 2
DEC      7.0      2 3 5 0
RDA
MOV      3 1 0 1.0      /* Put back in vector 1 */
RDA      Decay for 11 years (starting time ~ May '79)
RDA      years
DEC      11.0      1 2 5 1 /* reset time */
RDA
RDA      /* Start decay section */
RDA      years
DEC      3.0      2 3 5 1 /* Reset time */
DEC      4.0      3 4 5 0
DEC      5.0      4 5 5 0
DEC      10.0     5 6 5 0
DEC      20.0     6 7 5 0
RDA
CUT      5 1.0E-10 7 1.0E-10 9 1.0E-10 -1
RDA      Output grams, curies, decay heat
OPTL     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTA     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTF     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8
HED      1 Initial
HED      2 Discharge
OUT      7 1 -1 0
STP      4
2 922350 38.0 922380 153.9 922340 0.38 922360 0.38 Fuel (SS)
4 010000 35.7 400000 2030.5 0 0.0 Fuel (SS)
0
2 922350 37.0 922380 149.9 922340 0.37 922360 0.37 Fuel (Al)
4 010000 23.4 400000 2125.9 0 0.0 Fuel (Al)
0
4 260000 648.5 240000 200.0 280000 120.0 250000 20.0 SS-304

```

WHC-SD-SNF-ANAL-010, Rev. 0

WHC-SD-TP-ANAL-001

Rev. 0

4	060000	0.8	150000	0.4	160000	0.3	140000	10.0	SS-304
0	130000	1000.0	0	0.0					Aluminum
4	070000	9.8E-4	080000	3.0E-4	0	0.0			Air (1cc)
0									
4									
0									
END									
==									

5.2.6 Figure A.6. ORIGEN2 input runstream for AFFRI (none) fuel element (File: o-alx-m.inp)

```

-1
-1
-1
BAS      Triga fuel element: Al clad (none) + (3/56) g-235 BU
TIT      Origen2 Triga fuel characterization
RDA
LIP      0 0 0
RDA      Read non-standard data from Unit 3 for C14.
LIB      0 1 2 3 204 205 206 9 3 -2 1 1
PHO      101 102 103 10
RDA
RDA      /* Fuel for one SS-clad element */
INP      -1 1 -1 -1 1 1
RDA      /* Fuel for one Al-clad element */
INP      -2 1 -1 -1 1 1
RDA      /* 1 kg of 304 SS cladding */
INP      -3 1 -1 -1 1 1
RDA      /* 1 kg of Al cladding */
INP      -4 1 -1 -1 1 1
RDA      /* 1 cc air (N2 + O2) */
INP      -5 1 -1 -1 1 1
RDA
RDA      Initialize vector with Fuel
MOV      -2 1 0 1.0
RDA      Add cladding
ADD      -4 1 0 0.163      Add 0.163 kg of Al cladding
RDA      Add 28 cc of air
ADD      -5 1 0 28.0
RDA
RDA      Prior irradiation to give (3/56) grams U235 BU.
RDA      years      MW
BUP
IRP      0.040      0.003      1 2 5 2
DEC      7.0      2 3 5 0
RDA
MOV      3 1 0 1.0      /* Put back in vector 1 */
RDA      Decay for 13 years
RDA      years
DEC      13.0      1 2 5 1 /* reset time */
RDA
RDA      /* Start decay section */
RDA      years
DEC      3.0      2 3 5 1 /* Reset time */
DEC      4.0      3 4 5 0
DEC      5.0      4 5 5 0
DEC      10.0     5 6 5 0
DEC      20.0     6 7 5 0
RDA
CUT      5 1.0E-10      7 1.0E-10      9 1.0E-10      -1
RDA      Output grams, curies, decay heat
OPTL     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTA     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTF     8 8 8 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
HED      1 Initial
HED      2 Discharge
OUT      7 1 -1 0
STP      4
2 922350 38.0 922380 153.9 922340 0.38 922360 0.38 Fuel (SS)
4 010000 35.7 400000 2030.5 0 0.0 Fuel (SS)
0
2 922350 37.0 922380 149.9 922340 0.37 922360 0.37 Fuel (Al)
4 010000 23.4 400000 2125.9 0 0.0 Fuel (Al)
0
4 260000 648.5 240000 200.0 280000 120.0 250000 20.0 SS-304

```

WHC-SD-TP-ANAL-001

Rev. 0

4	060000	0.8	150000	0.4	160000	0.3	140000	10.0	SS-304
0									
4	130000	1000.0	0	0.0					Aluminum
0									
4	070000	9.8E-4	080000	3.0E-4	0	0.0			Air (1cc)
0									
0									
END									
==									

5.2.7 Figure A.7. ORIGEN2 input runstream for AFFRI (Row E) fuel element (File: o-ale-m.inp)

```

-1
BAS Triga fuel element: Al clad (Row E) • (3/56) g-235 BU
TIT Origen2 Triga fuel characterization
RDA
LIP 0 0 0
Read non-standard data from Unit 3 for C14.
LIB 0 1 2 3 204 205 206 9 3 -2 1 1
PHO 101 102 103 10
RDA
/* Fuel for one SS-clad element */
-1 1 -1 -1 1 1
RDA /* Fuel for one Al-clad element */
-2 1 -1 -1 1 1
INP /* 1 kg of 304 SS cladding */
-3 1 -1 -1 1 1
RDA /* 1 kg of Al cladding */
-4 1 -1 -1 1 1
INP /* 1 cc air (N2 + O2) */
-5 1 -1 -1 1 1
RDA
Initialize vector with Fuel
MOV -2 1 0 1.0
Add cladding
ADD -4 1 0 0.163 Add 0.163 kg of Al cladding
ADD Add 28 cc of air
-5 1 0 28.0
RDA
Prior irradiation to give (3/56) grams U235 BU.
years MW
IRP 0.040 0.003 1 2 5 2
DEC 7.0 2 3 5 0
BUP
MOV 3 1 0 1.0
Standard Full Power NRF irradiation
RDA years MW
IRP 0.105 0.00270 1 2 5 1 /* Reset time */
DEC 6.0 2 3 5 0
IRP 6.105 0.00270 3 4 5 0
DEC 12.895 4 5 5 0
IRP 13.0 0.00270 5 6 5 0
BUP
MOV 6 2 0 1.0 /* Move discharge to vector 2 */
RDA
/* Start decay section */
years
DEC 3.0 2 3 5 1 /* Reset time */
DEC 4.0 3 4 5 0
DEC 5.0 4 5 5 0
DEC 10.0 5 6 5 0
DEC 20.0 6 7 5 0
RDA
CUT 5 1.0E-10 7 1.0E-10 9 1.0E-10 -1
Output grams, curies, decay heat
OPTL 8 8 8 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
ORA 8 8 8 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
OPTF 8 8 8 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
HED 1 Initial
DED 2 Discharge
QUT 7 1 -1 0
SIP 4

```

WHC-SD-TP-ANAL-001

Rev. 0

2	922350	38.0	922380	153.9	922340	0.38	922360	0.38	Fuel (SS)
4	010000	35.7	400000	2030.5	0	0.0			Fuel (SS)
0									
2	922350	37.0	922380	149.9	922340	0.37	922360	0.37	Fuel (AL)
4	010000	23.4	400000	2125.9	0	0.0			Fuel (AL)
0									
4	260000	648.5	240000	200.0	280000	120.0	250000	20.0	SS-304
4	060000	0.8	150000	0.4	160000	0.3	140000	10.0	SS-304
0									
4	130000	1000.0	0	0.0					Aluminum
0									
4	070000	9.8E-4	080000	3.0E-4	0	0.0			Air (Tcc)
0									
0									
END									
==									

5.3 FIGURES FOR GRAM INVENTORIES

5.3.1 Figure B.1. Gram inventories from ORIGEN2 for average power

Sort column = 5
 Input file: orig-base.outf
 Multiplier: 1.000e+00

One Triga fuel element: Stainless Steel clad
 ACTIVATION, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR
ZR 90	1.031e+03	1.031e+03	1.031e+03	1.031e+03	1.031e+03	1.031e+03
ZR 94	3.637e+02	3.637e+02	3.637e+02	3.637e+02	3.637e+02	3.637e+02
ZR 92	3.498e+02	3.498e+02	3.498e+02	3.498e+02	3.498e+02	3.498e+02
ZR 91	2.266e+02	2.266e+02	2.266e+02	2.266e+02	2.266e+02	2.266e+02
FE 56	1.973e+02	1.972e+02	1.972e+02	1.972e+02	1.972e+02	1.972e+02
ZR 96	5.977e+01	5.977e+01	5.977e+01	5.977e+01	5.977e+01	5.977e+01
CR 52	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01
H 1	3.569e+01	3.569e+01	3.569e+01	3.569e+01	3.569e+01	3.569e+01
NI 58	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01
NI 54	1.205e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01
NI 60	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01
MN 55	6.620e+00	6.618e+00	6.618e+00	6.618e+00	6.618e+00	6.618e+00
CR 53	6.403e+00	6.405e+00	6.405e+00	6.405e+00	6.405e+00	6.405e+00
FE 57	4.705e+00	4.716e+00	4.716e+00	4.716e+00	4.716e+00	4.716e+00
SI 28	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00
CR 50	2.766e+00	2.765e+00	2.765e+00	2.765e+00	2.765e+00	2.765e+00
CR 54	1.621e+00	1.623e+00	1.623e+00	1.623e+00	1.623e+00	1.623e+00
NI 62	1.505e+00	1.504e+00	1.504e+00	1.504e+00	1.504e+00	1.504e+00
FE 58	6.458e-01	6.460e-01	6.461e-01	6.461e-01	6.461e-01	6.461e-01
NI 61	4.660e-01	4.666e-01	4.666e-01	4.666e-01	4.666e-01	4.666e-01
NI 64	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01
C 12	2.616e-01	2.616e-01	2.616e-01	2.616e-01	2.616e-01	2.616e-01
SI 29	1.595e-01	1.595e-01	1.595e-01	1.595e-01	1.595e-01	1.595e-01
P 31	1.324e-01	1.324e-01	1.324e-01	1.324e-01	1.324e-01	1.324e-01
SI 30	1.095e-01	1.095e-01	1.095e-01	1.095e-01	1.095e-01	1.095e-01
S 32	9.408e-02	9.408e-02	9.408e-02	9.408e-02	9.408e-02	9.408e-02
N 14	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02
SUMTOT	2.397e+03	2.397e+03	2.397e+03	2.397e+03	2.397e+03	2.397e+03

One Triga fuel element: Stainless Steel clad
 ACTINIDES, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR
U238	1.539e+02	1.539e+02	1.539e+02	1.539e+02	1.539e+02	1.539e+02
U235	3.800e+01	3.756e+01	3.756e+01	3.756e+01	3.756e+01	3.756e+01
U236	3.800e-01	4.597e-01	4.597e-01	4.597e-01	4.597e-01	4.597e-01
U234	3.800e-01	3.785e-01	3.785e-01	3.785e-01	3.785e-01	3.785e-01
Pu239	0.000e+00	2.693e-02	2.777e-02	2.777e-02	2.777e-02	2.776e-02
SUMTOT	1.927e+02	1.923e+02	1.923e+02	1.923e+02	1.923e+02	1.923e+02

One Triga fuel element: Stainless Steel clad
 FISSION PRODUCTS, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR
XE136	0.000e+00	1.597e-02	1.597e-02	1.597e-02	1.597e-02	1.597e-02
XE134	0.000e+00	1.575e-02	1.576e-02	1.576e-02	1.576e-02	1.576e-02
BA138	0.000e+00	1.436e-02	1.437e-02	1.437e-02	1.437e-02	1.437e-02
CE140	0.000e+00	1.178e-02	1.389e-02	1.389e-02	1.389e-02	1.389e-02
LA139	0.000e+00	1.373e-02	1.374e-02	1.374e-02	1.374e-02	1.374e-02
CS133	0.000e+00	1.270e-02	1.372e-02	1.372e-02	1.372e-02	1.372e-02
ND143	0.000e+00	1.088e-02	1.290e-02	1.290e-02	1.290e-02	1.290e-02
CE142	0.000e+00	1.276e-02	1.278e-02	1.278e-02	1.278e-02	1.278e-02
PR141	0.000e+00	9.817e-03	1.272e-02	1.272e-02	1.272e-02	1.272e-02
ND144	0.000e+00	8.159e-03	1.170e-02	1.185e-02	1.192e-02	1.196e-02
CS135	0.000e+00	1.088e-02	1.098e-02	1.098e-02	1.098e-02	1.098e-02

CS137	0.000e+00	1.109e-02	1.035e-02	1.011e-02	9.880e-03	8.802e-03
MO100	0.000e+00	9.644e-03	9.644e-03	9.644e-03	9.644e-03	9.644e-03
MO 95	0.000e+00	6.336e-03	9.320e-03	9.320e-03	9.320e-03	9.320e-03
ZR 96	0.000e+00	9.248e-03	9.248e-03	9.248e-03	9.248e-03	9.248e-03
ZR 93	0.000e+00	9.140e-03	9.189e-03	9.189e-03	9.189e-03	9.189e-03
TC 99	0.000e+00	8.748e-03	9.086e-03	9.086e-03	9.086e-03	9.086e-03
ZR 94	0.000e+00	8.959e-03	8.961e-03	8.961e-03	8.961e-03	8.961e-03
MO 98	0.000e+00	8.780e-03	8.780e-03	8.780e-03	8.780e-03	8.780e-03
MO 97	0.000e+00	8.658e-03	8.740e-03	8.740e-03	8.740e-03	8.740e-03
XE132	0.000e+00	8.369e-03	8.734e-03	8.734e-03	8.734e-03	8.734e-03
ND145	0.000e+00	8.643e-03	8.670e-03	8.670e-03	8.670e-03	8.670e-03
ZR 92	0.000e+00	8.412e-03	8.439e-03	8.439e-03	8.439e-03	8.439e-03
ZR 91	0.000e+00	5.945e-03	8.131e-03	8.131e-03	8.131e-03	8.131e-03
RU101	0.000e+00	7.879e-03	7.881e-03	7.881e-03	7.881e-03	7.881e-03
ND146	0.000e+00	6.669e-03	6.671e-03	6.671e-03	6.671e-03	6.671e-03
RU102	0.000e+00	6.658e-03	6.659e-03	6.659e-03	6.659e-03	6.659e-03
Y 89	0.000e+00	4.821e-03	6.507e-03	6.507e-03	6.507e-03	6.507e-03
SR 90	0.000e+00	6.767e-03	6.300e-03	6.152e-03	6.008e-03	5.334e-03
XE131	0.000e+00	5.209e-03	5.789e-03	5.789e-03	5.789e-03	5.789e-03
RH103	0.000e+00	3.783e-03	4.998e-03	4.998e-03	4.998e-03	4.998e-03
SR 88	0.000e+00	4.921e-03	4.929e-03	4.929e-03	4.929e-03	4.929e-03
SM147	0.000e+00	3.106e-03	4.220e-03	4.434e-03	4.599e-03	4.997e-03
ND148	0.000e+00	3.844e-03	3.844e-03	3.844e-03	3.844e-03	3.844e-03
RB 87	0.000e+00	3.422e-03	3.424e-03	3.424e-03	3.424e-03	3.424e-03
RU104	0.000e+00	3.060e-03	3.061e-03	3.061e-03	3.061e-03	3.061e-03
TE130	0.000e+00	3.030e-03	3.030e-03	3.030e-03	3.030e-03	3.030e-03
BA137	0.000e+00	1.747e-03	2.490e-03	2.726e-03	2.957e-03	4.035e-03
KR 86	0.000e+00	2.644e-03	2.644e-03	2.644e-03	2.644e-03	2.644e-03
ZR 90	0.000e+00	1.109e-03	1.576e-03	1.724e-03	1.869e-03	2.543e-03
PD105	0.000e+00	1.672e-03	1.707e-03	1.707e-03	1.707e-03	1.707e-03
ND150	0.000e+00	1.507e-03	1.507e-03	1.507e-03	1.507e-03	1.507e-03
RB 85	0.000e+00	1.410e-03	1.456e-03	1.468e-03	1.480e-03	1.528e-03
I129	0.000e+00	1.381e-03	1.431e-03	1.431e-03	1.431e-03	1.431e-03
KR 84	0.000e+00	1.327e-03	1.327e-03	1.327e-03	1.327e-03	1.327e-03
SM149	0.000e+00	1.249e-03	1.320e-03	1.320e-03	1.320e-03	1.320e-03
SM150	0.000e+00	1.183e-03	1.183e-03	1.183e-03	1.183e-03	1.183e-03
SUMTOT	0.000e+00	3.585e-01	3.585e-01	3.585e-01	3.585e-01	3.585e-01
==						

5.3.2 Figure B.2. Gram inventories from ORIGEN2 for maximum source term

Input file: o-ssb-p.outf
Multiplier: 1.000e+00

Triga fuel element: SS clad (Row B) + prior irradiation
ACTINATION, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
ZR 90	1.031e+03	1.031e+03	1.031e+03	1.031e+03	1.031e+03	1.031e+03	1.031e+03
ZR 94	3.637e+02	3.637e+02	3.637e+02	3.637e+02	3.637e+02	3.637e+02	3.637e+02
ZR 92	3.498e+02	3.498e+02	3.498e+02	3.498e+02	3.498e+02	3.498e+02	3.498e+02
ZR 91	2.266e+02	2.266e+02	2.266e+02	2.266e+02	2.266e+02	2.266e+02	2.266e+02
FE 56	1.972e+02	1.972e+02	1.972e+02	1.972e+02	1.972e+02	1.972e+02	1.972e+02
ZR 96	5.977e+01	5.976e+01	5.976e+01	5.976e+01	5.976e+01	5.976e+01	5.976e+01
CR 52	5.541e+01	5.540e+01	5.540e+01	5.540e+01	5.540e+01	5.540e+01	5.540e+01
H 1	3.569e+01	3.569e+01	3.569e+01	3.569e+01	3.569e+01	3.569e+01	3.569e+01
NI 58	2.677e+01	2.676e+01	2.676e+01	2.676e+01	2.676e+01	2.676e+01	2.676e+01
FE 54	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01
NI 60	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01
MN 55	6.618e+00	6.616e+00	6.616e+00	6.616e+00	6.616e+00	6.616e+00	6.616e+00
CR 53	6.405e+00	6.408e+00	6.408e+00	6.408e+00	6.408e+00	6.408e+00	6.408e+00
FE 57	4.719e+00	4.734e+00	4.734e+00	4.734e+00	4.734e+00	4.734e+00	4.734e+00
SI 28	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00
CR 50	2.765e+00	2.764e+00	2.764e+00	2.764e+00	2.764e+00	2.764e+00	2.764e+00
CR 54	1.624e+00	1.627e+00	1.627e+00	1.627e+00	1.627e+00	1.627e+00	1.627e+00
NI 62	1.504e+00	1.504e+00	1.504e+00	1.504e+00	1.504e+00	1.504e+00	1.504e+00
FE 58	6.462e-01	6.466e-01	6.466e-01	6.466e-01	6.466e-01	6.466e-01	6.466e-01
NI 61	4.667e-01	4.675e-01	4.675e-01	4.675e-01	4.675e-01	4.675e-01	4.675e-01
NI 64	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01
C 12	2.616e-01	2.616e-01	2.616e-01	2.616e-01	2.616e-01	2.616e-01	2.616e-01
SI 29	1.595e-01	1.595e-01	1.595e-01	1.595e-01	1.595e-01	1.595e-01	1.595e-01
P 31	1.324e-01	1.324e-01	1.324e-01	1.324e-01	1.324e-01	1.324e-01	1.324e-01
SI 30	1.095e-01	1.095e-01	1.095e-01	1.095e-01	1.095e-01	1.095e-01	1.095e-01
S 32	9.408e-02	9.408e-02	9.408e-02	9.408e-02	9.408e-02	9.408e-02	9.408e-02
N 14	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02
H 2	1.138e-02	1.207e-02	1.207e-02	1.207e-02	1.207e-02	1.207e-02	1.207e-02
ZR 93	5.235e-03	1.054e-02	1.054e-02	1.054e-02	1.054e-02	1.054e-02	1.054e-02
O 16	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03
NI 59	3.605e-03	7.243e-03	7.243e-03	7.243e-03	7.243e-03	7.242e-03	7.242e-03
MO 97	2.910e-03	5.828e-03	5.856e-03	5.856e-03	5.856e-03	5.856e-03	5.856e-03
S 34	4.432e-03	4.432e-03	4.432e-03	4.432e-03	4.432e-03	4.432e-03	4.432e-03
MO 95	1.946e-03	3.281e-03	3.915e-03	3.915e-03	3.915e-03	3.915e-03	3.915e-03
C 13	3.181e-03	3.181e-03	3.181e-03	3.181e-03	3.181e-03	3.181e-03	3.181e-03
V 51	1.135e-03	2.037e-03	2.284e-03	2.284e-03	2.284e-03	2.284e-03	2.284e-03
SUMTOT	2.397e+03	2.397e+03	2.397e+03	2.397e+03	2.397e+03	2.397e+03	2.397e+03

Triga fuel element: SS clad (Row B) + prior irradiation
ACTINIDES, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
U238	1.539e+02	1.538e+02	1.538e+02	1.538e+02	1.538e+02	1.538e+02	1.538e+02
U235	3.743e+01	3.685e+01	3.685e+01	3.685e+01	3.685e+01	3.685e+01	3.685e+01
U236	4.851e-01	5.896e-01	5.896e-01	5.896e-01	5.896e-01	5.896e-01	5.896e-01
U234	3.780e-01	3.759e-01	3.759e-01	3.759e-01	3.759e-01	3.759e-01	3.759e-01
PU239	3.650e-02	7.052e-02	7.164e-02	7.164e-02	7.164e-02	7.163e-02	7.161e-02
NP237	1.145e-03	2.385e-03	2.508e-03	2.508e-03	2.508e-03	2.508e-03	2.509e-03
PU240	3.190e-04	1.260e-03	1.260e-03	1.260e-03	1.260e-03	1.259e-03	1.258e-03
SUMTOT	1.922e+02	1.917e+02	1.917e+02	1.917e+02	1.917e+02	1.917e+02	1.917e+02

Triga fuel element: SS clad (Row B) + prior irradiation
FISSION PRODUCTS, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
XE136	2.197e-02	4.392e-02	4.392e-02	4.392e-02	4.392e-02	4.392e-02	4.392e-02
XE134	2.081e-02	4.159e-02	4.161e-02	4.161e-02	4.161e-02	4.161e-02	4.161e-02
BA138	1.896e-02	3.791e-02	3.791e-02	3.791e-02	3.791e-02	3.791e-02	3.791e-02
CE140	1.794e-02	3.349e-02	3.627e-02	3.627e-02	3.627e-02	3.627e-02	3.627e-02

LA139	1.813e-02	3.623e-02	3.625e-02	3.625e-02	3.625e-02	3.625e-02	3.625e-02
CS133	1.811e-02	3.480e-02	3.615e-02	3.615e-02	3.615e-02	3.615e-02	3.615e-02
ND143	1.701e-02	3.122e-02	3.388e-02	3.388e-02	3.388e-02	3.388e-02	3.388e-02
CE142	1.686e-02	3.370e-02	3.372e-02	3.372e-02	3.372e-02	3.372e-02	3.372e-02
PR141	1.679e-02	2.974e-02	3.357e-02	3.357e-02	3.357e-02	3.357e-02	3.357e-02
ND144	1.576e-02	2.671e-02	3.137e-02	3.158e-02	3.166e-02	3.172e-02	3.172e-02
CS135	1.361e-02	2.710e-02	2.722e-02	2.722e-02	2.722e-02	2.722e-02	2.722e-02
MO100	1.273e-02	2.546e-02	2.546e-02	2.546e-02	2.546e-02	2.546e-02	2.546e-02
MO 95	1.230e-02	2.064e-02	2.458e-02	2.458e-02	2.458e-02	2.458e-02	2.458e-02
ZR 96	1.221e-02	2.441e-02	2.441e-02	2.441e-02	2.441e-02	2.441e-02	2.441e-02
ZR 93	1.213e-02	2.417e-02	2.424e-02	2.424e-02	2.424e-02	2.424e-02	2.424e-02
TC 99	1.199e-02	2.350e-02	2.395e-02	2.395e-02	2.395e-02	2.395e-02	2.395e-02
ZR 94	1.183e-02	2.364e-02	2.365e-02	2.365e-02	2.365e-02	2.365e-02	2.365e-02
MO 98	1.159e-02	2.318e-02	2.318e-02	2.318e-02	2.318e-02	2.318e-02	2.318e-02
XE132	1.154e-02	2.266e-02	2.314e-02	2.314e-02	2.314e-02	2.314e-02	2.314e-02
MO 97	1.154e-02	2.296e-02	2.307e-02	2.307e-02	2.307e-02	2.307e-02	2.307e-02
ND145	1.144e-02	2.281e-02	2.285e-02	2.285e-02	2.285e-02	2.285e-02	2.285e-02
CS137	1.447e-02	2.535e-02	2.365e-02	2.311e-02	2.259e-02	2.012e-02	1.597e-02
ZR 92	1.114e-02	2.223e-02	2.226e-02	2.226e-02	2.226e-02	2.226e-02	2.226e-02
ZR 91	1.073e-02	1.856e-02	2.144e-02	2.144e-02	2.144e-02	2.144e-02	2.144e-02
RU101	1.040e-02	2.080e-02	2.080e-02	2.080e-02	2.080e-02	2.080e-02	2.080e-02
ND146	8.809e-03	1.764e-02	1.764e-02	1.764e-02	1.764e-02	1.764e-02	1.764e-02
RU102	8.791e-03	1.760e-02	1.760e-02	1.760e-02	1.760e-02	1.760e-02	1.760e-02
Y 89	8.587e-03	1.494e-02	1.716e-02	1.716e-02	1.716e-02	1.716e-02	1.716e-02
XE131	7.634e-03	1.444e-02	1.521e-02	1.521e-02	1.521e-02	1.521e-02	1.521e-02
SR 90	8.820e-03	1.539e-02	1.433e-02	1.399e-02	1.366e-02	1.213e-02	9.559e-03
RH103	6.602e-03	1.153e-02	1.314e-02	1.314e-02	1.314e-02	1.314e-02	1.314e-02
SR 88	6.505e-03	1.299e-02	1.300e-02	1.300e-02	1.300e-02	1.300e-02	1.300e-02
SM147	5.610e-03	1.072e-02	1.221e-02	1.250e-02	1.272e-02	1.325e-02	1.343e-02
BA137	2.479e-03	8.538e-03	1.024e-02	1.078e-02	1.130e-02	1.377e-02	1.792e-02
ND148	5.075e-03	1.015e-02	1.015e-02	1.015e-02	1.015e-02	1.015e-02	1.015e-02
RB 87	4.518e-03	9.026e-03	9.029e-03	9.029e-03	9.029e-03	9.029e-03	9.029e-03
RU104	4.044e-03	8.107e-03	8.107e-03	8.107e-03	8.107e-03	8.107e-03	8.107e-03
TE130	4.001e-03	8.007e-03	8.007e-03	8.007e-03	8.007e-03	8.007e-03	8.007e-03
ZR 90	1.574e-03	5.384e-03	6.445e-03	6.782e-03	7.111e-03	8.644e-03	1.121e-02
KR 86	3.490e-03	6.974e-03	6.974e-03	6.974e-03	6.974e-03	6.974e-03	6.974e-03
SM150	1.823e-03	4.948e-03	4.948e-03	4.948e-03	4.948e-03	4.948e-03	4.948e-03
PD105	2.251e-03	4.476e-03	4.523e-03	4.523e-03	4.523e-03	4.523e-03	4.523e-03
RB 85	1.886e-03	3.914e-03	3.997e-03	4.020e-03	4.041e-03	4.131e-03	4.243e-03
ND150	1.990e-03	3.982e-03	3.982e-03	3.982e-03	3.982e-03	3.982e-03	3.982e-03
I129	1.890e-03	3.714e-03	3.781e-03	3.781e-03	3.781e-03	3.781e-03	3.781e-03
KR 84	1.752e-03	3.506e-03	3.507e-03	3.507e-03	3.507e-03	3.507e-03	3.507e-03
TE128	1.055e-03	2.112e-03	2.113e-03	2.113e-03	2.113e-03	2.113e-03	2.113e-03
SM152	9.620e-04	2.104e-03	2.106e-03	2.107e-03	2.107e-03	2.110e-03	2.113e-03
PD106	9.548e-04	1.634e-03	1.909e-03	1.929e-03	1.939e-03	1.949e-03	1.949e-03
SM151	1.123e-03	1.951e-03	1.925e-03	1.911e-03	1.896e-03	1.824e-03	1.689e-03
KR 83	9.006e-04	1.793e-03	1.795e-03	1.795e-03	1.795e-03	1.795e-03	1.795e-03
SM149	1.482e-03	1.567e-03	1.661e-03	1.661e-03	1.661e-03	1.661e-03	1.661e-03
SE 82	5.519e-04	1.103e-03	1.103e-03	1.103e-03	1.103e-03	1.103e-03	1.103e-03
EU153	5.270e-04	1.054e-03	1.068e-03	1.068e-03	1.068e-03	1.068e-03	1.068e-03
SUMTOT	4.729e-01	9.462e-01	9.462e-01	9.462e-01	9.462e-01	9.462e-01	9.462e-01
==							

5.3.3 Figure B.3. Gram inventories from ORIGEN2 for GA (Row B) element

Input file: o-ssb.outf
Multiplier: 1.000e+00

Triga fuel element: Stainless Steel clad (Row B)
ACTINATION, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
ZR 90	1.031e+03	1.031e+03	1.031e+03	1.031e+03	1.031e+03	1.031e+03	1.031e+03
ZR 94	3.637e+02	3.637e+02	3.637e+02	3.637e+02	3.637e+02	3.637e+02	3.637e+02
ZR 92	3.498e+02	3.498e+02	3.498e+02	3.498e+02	3.498e+02	3.498e+02	3.498e+02
ZR 91	2.266e+02	2.266e+02	2.266e+02	2.266e+02	2.266e+02	2.266e+02	2.266e+02
FE 56	1.972e+02	1.972e+02	1.972e+02	1.972e+02	1.972e+02	1.972e+02	1.972e+02
ZR 96	5.977e+01	5.977e+01	5.977e+01	5.977e+01	5.977e+01	5.977e+01	5.977e+01
CR 52	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01
H 1	3.569e+01	3.569e+01	3.569e+01	3.569e+01	3.569e+01	3.569e+01	3.569e+01
NI 58	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01
FE 54	1.205e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01
NI 60	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01
MN 55	6.620e+00	6.618e+00	6.618e+00	6.618e+00	6.618e+00	6.618e+00	6.618e+00
CR 53	6.403e+00	6.405e+00	6.405e+00	6.405e+00	6.405e+00	6.405e+00	6.405e+00
FE 57	4.705e+00	4.719e+00	4.719e+00	4.719e+00	4.719e+00	4.719e+00	4.719e+00
SI 28	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00
CR 50	2.766e+00	2.765e+00	2.765e+00	2.765e+00	2.765e+00	2.765e+00	2.765e+00
CR 54	1.621e+00	1.624e+00	1.624e+00	1.624e+00	1.624e+00	1.624e+00	1.624e+00
NI 62	1.505e+00	1.504e+00	1.504e+00	1.504e+00	1.504e+00	1.504e+00	1.504e+00
FE 58	6.458e-01	6.461e-01	6.462e-01	6.462e-01	6.462e-01	6.462e-01	6.462e-01
NI 61	4.660e-01	4.667e-01	4.667e-01	4.667e-01	4.667e-01	4.667e-01	4.667e-01
NI 64	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01
C 12	2.616e-01	2.616e-01	2.616e-01	2.616e-01	2.616e-01	2.616e-01	2.616e-01
SI 29	1.595e-01	1.595e-01	1.595e-01	1.595e-01	1.595e-01	1.595e-01	1.595e-01
P 31	1.324e-01	1.324e-01	1.324e-01	1.324e-01	1.324e-01	1.324e-01	1.324e-01
SI 30	1.095e-01	1.095e-01	1.095e-01	1.095e-01	1.095e-01	1.095e-01	1.095e-01
S 32	9.408e-02	9.408e-02	9.408e-02	9.408e-02	9.408e-02	9.408e-02	9.408e-02
N 14	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02
H 2	1.071e-02	1.138e-02	1.138e-02	1.138e-02	1.138e-02	1.138e-02	1.138e-02
O 16	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03
ZR 93	0.000e+00	5.235e-03	5.235e-03	5.235e-03	5.235e-03	5.235e-03	5.235e-03
S 34	4.432e-03	4.432e-03	4.432e-03	4.432e-03	4.432e-03	4.432e-03	4.432e-03
NI 59	0.000e+00	3.605e-03	3.605e-03	3.605e-03	3.605e-03	3.605e-03	3.604e-03
C 13	3.181e-03	3.181e-03	3.181e-03	3.181e-03	3.181e-03	3.181e-03	3.181e-03
MO 97	0.000e+00	2.882e-03	2.910e-03	2.910e-03	2.910e-03	2.910e-03	2.910e-03
MO 95	0.000e+00	1.320e-03	1.946e-03	1.946e-03	1.946e-03	1.946e-03	1.946e-03
V 51	0.000e+00	8.908e-04	1.135e-03	1.135e-03	1.135e-03	1.135e-03	1.135e-03
SUMTOT	2.397e+03	2.397e+03	2.397e+03	2.397e+03	2.397e+03	2.397e+03	2.397e+03

Triga fuel element: Stainless Steel clad (Row B)
ACTINIDES, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
U238	1.539e+02	1.539e+02	1.539e+02	1.539e+02	1.539e+02	1.539e+02	1.539e+02
U235	3.800e+01	3.743e+01	3.743e+01	3.743e+01	3.743e+01	3.743e+01	3.743e+01
U236	4.851e-01	4.851e-01	4.851e-01	4.851e-01	4.851e-01	4.851e-01	4.851e-01
U234	3.800e-01	3.780e-01	3.780e-01	3.780e-01	3.780e-01	3.780e-01	3.779e-01
PU239	0.000e+00	3.538e-02	3.649e-02	3.649e-02	3.649e-02	3.649e-02	3.648e-02
NP237	0.000e+00	1.034e-03	1.136e-03	1.136e-03	1.136e-03	1.136e-03	1.136e-03
SUMTOT	1.927e+02	1.922e+02	1.922e+02	1.922e+02	1.922e+02	1.922e+02	1.922e+02

Triga fuel element: Stainless Steel clad (Row B)
FISSION PRODUCTS, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
XE136	0.000e+00	2.191e-02	2.191e-02	2.191e-02	2.191e-02	2.191e-02	2.191e-02
XE134	0.000e+00	2.079e-02	2.081e-02	2.081e-02	2.081e-02	2.081e-02	2.081e-02
BA138	0.000e+00	1.895e-02	1.896e-02	1.896e-02	1.896e-02	1.896e-02	1.896e-02
CE140	0.000e+00	1.554e-02	1.833e-02	1.833e-02	1.833e-02	1.833e-02	1.833e-02
LA139	0.000e+00	1.812e-02	1.813e-02	1.813e-02	1.813e-02	1.813e-02	1.813e-02

WHC-SD-TP-ANAL-001

Rev. 0

CS133	0.000e+00	1.675e-02	1.811e-02	1.811e-02	1.811e-02	1.811e-02	1.811e-02
ND143	0.000e+00	1.435e-02	1.701e-02	1.701e-02	1.701e-02	1.701e-02	1.701e-02
CE142	0.000e+00	1.685e-02	1.686e-02	1.686e-02	1.686e-02	1.686e-02	1.686e-02
PR141	0.000e+00	1.296e-02	1.679e-02	1.679e-02	1.679e-02	1.679e-02	1.679e-02
ND144	0.000e+00	1.078e-02	1.545e-02	1.566e-02	1.574e-02	1.580e-02	1.580e-02
CS135	0.000e+00	1.354e-02	1.366e-02	1.366e-02	1.366e-02	1.366e-02	1.366e-02
CS137	0.000e+00	1.444e-02	1.366e-02	1.335e-02	1.304e-02	1.162e-02	9.222e-03
MO100	0.000e+00	1.273e-02	1.273e-02	1.273e-02	1.273e-02	1.273e-02	1.273e-02
MO 95	0.000e+00	8.361e-03	1.230e-02	1.230e-02	1.230e-02	1.230e-02	1.230e-02
ZR 96	0.000e+00	1.221e-02	1.221e-02	1.221e-02	1.221e-02	1.221e-02	1.221e-02
ZR 93	0.000e+00	1.206e-02	1.213e-02	1.213e-02	1.213e-02	1.213e-02	1.213e-02
TC 99	0.000e+00	1.154e-02	1.199e-02	1.199e-02	1.199e-02	1.199e-02	1.199e-02
ZR 94	0.000e+00	1.182e-02	1.183e-02	1.183e-02	1.183e-02	1.183e-02	1.183e-02
MO 98	0.000e+00	1.159e-02	1.159e-02	1.159e-02	1.159e-02	1.159e-02	1.159e-02
MO 97	0.000e+00	1.143e-02	1.154e-02	1.154e-02	1.154e-02	1.154e-02	1.154e-02
XE132	0.000e+00	1.105e-02	1.154e-02	1.154e-02	1.154e-02	1.154e-02	1.154e-02
ND145	0.000e+00	1.140e-02	1.144e-02	1.144e-02	1.144e-02	1.144e-02	1.144e-02
ZR 92	0.000e+00	1.110e-02	1.114e-02	1.114e-02	1.114e-02	1.114e-02	1.114e-02
ZR 91	0.000e+00	7.847e-03	1.073e-02	1.073e-02	1.073e-02	1.073e-02	1.073e-02
RU101	0.000e+00	1.040e-02	1.040e-02	1.040e-02	1.040e-02	1.040e-02	1.040e-02
ND146	0.000e+00	8.806e-03	8.809e-03	8.809e-03	8.809e-03	8.809e-03	8.809e-03
RU102	0.000e+00	8.791e-03	8.791e-03	8.791e-03	8.791e-03	8.791e-03	8.791e-03
Y 89	0.000e+00	6.363e-03	8.587e-03	8.587e-03	8.587e-03	8.587e-03	8.587e-03
SR 90	0.000e+00	8.930e-03	8.315e-03	8.119e-03	7.928e-03	7.039e-03	5.546e-03
XE131	0.000e+00	6.870e-03	7.636e-03	7.636e-03	7.636e-03	7.636e-03	7.636e-03
RH103	0.000e+00	4.988e-03	6.593e-03	6.593e-03	6.593e-03	6.593e-03	6.593e-03
SR 88	0.000e+00	6.495e-03	6.505e-03	6.505e-03	6.505e-03	6.505e-03	6.505e-03
SM147	0.000e+00	4.093e-03	5.563e-03	5.845e-03	6.062e-03	6.587e-03	6.765e-03
ND148	0.000e+00	5.074e-03	5.074e-03	5.074e-03	5.074e-03	5.074e-03	5.074e-03
RB 87	0.000e+00	4.515e-03	4.518e-03	4.518e-03	4.518e-03	4.518e-03	4.518e-03
RU104	0.000e+00	4.042e-03	4.043e-03	4.043e-03	4.043e-03	4.043e-03	4.043e-03
TE130	0.000e+00	4.000e-03	4.001e-03	4.001e-03	4.001e-03	4.001e-03	4.001e-03
BA137	0.000e+00	2.306e-03	3.286e-03	3.598e-03	3.903e-03	5.326e-03	7.723e-03
KR 86	0.000e+00	3.490e-03	3.490e-03	3.490e-03	3.490e-03	3.490e-03	3.490e-03
ZR 90	0.000e+00	1.464e-03	2.080e-03	2.275e-03	2.466e-03	3.356e-03	4.847e-03
PD105	0.000e+00	2.205e-03	2.252e-03	2.252e-03	2.252e-03	2.252e-03	2.252e-03
ND150	0.000e+00	1.990e-03	1.990e-03	1.990e-03	1.990e-03	1.990e-03	1.990e-03
RB 85	0.000e+00	1.861e-03	1.921e-03	1.938e-03	1.953e-03	2.017e-03	2.097e-03
I129	0.000e+00	1.823e-03	1.890e-03	1.890e-03	1.890e-03	1.890e-03	1.890e-03
SM150	0.000e+00	1.831e-03	1.831e-03	1.831e-03	1.831e-03	1.831e-03	1.831e-03
KR 84	0.000e+00	1.752e-03	1.752e-03	1.752e-03	1.752e-03	1.752e-03	1.752e-03
SM149	0.000e+00	1.379e-03	1.473e-03	1.473e-03	1.473e-03	1.473e-03	1.473e-03
SM151	0.000e+00	1.108e-03	1.102e-03	1.094e-03	1.085e-03	1.044e-03	9.668e-04
TE128	0.000e+00	1.054e-03	1.055e-03	1.055e-03	1.055e-03	1.055e-03	1.055e-03
SUMTOT	0.000e+00	4.733e-01	4.733e-01	4.733e-01	4.733e-01	4.733e-01	4.733e-01
==							

5.3.4 Figure B.4. Gram inventories from ORIGEN2 for NTS (Row C) element

Input file: o-alc-p.outf
Multiplier: 1.000e+00

Triga fuel element: Al clad (Row C) + prior irradiation
ACTIVATION, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
ZR 90	1.079e+03	1.079e+03	1.079e+03	1.079e+03	1.079e+03	1.079e+03	1.079e+03
ZR 94	3.808e+02	3.808e+02	3.808e+02	3.808e+02	3.808e+02	3.808e+02	3.808e+02
ZR 92	3.663e+02	3.663e+02	3.663e+02	3.663e+02	3.663e+02	3.663e+02	3.663e+02
ZR 91	2.373e+02	2.373e+02	2.373e+02	2.373e+02	2.373e+02	2.373e+02	2.373e+02
AL 27	1.630e+02	1.630e+02	1.630e+02	1.630e+02	1.630e+02	1.630e+02	1.630e+02
ZR 96	6.257e+01	6.257e+01	6.257e+01	6.257e+01	6.257e+01	6.257e+01	6.257e+01
H 1	2.339e+01	2.339e+01	2.339e+01	2.339e+01	2.339e+01	2.339e+01	2.339e+01
N 14	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02
ZR 93	5.230e-03	1.052e-02	1.052e-02	1.052e-02	1.052e-02	1.052e-02	1.052e-02
O 16	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03
H 2	7.442e-03	7.870e-03	7.870e-03	7.870e-03	7.870e-03	7.870e-03	7.870e-03
MO 97	2.907e-03	5.820e-03	5.848e-03	5.848e-03	5.848e-03	5.848e-03	5.848e-03
MO 95	1.944e-03	3.277e-03	3.910e-03	3.910e-03	3.910e-03	3.910e-03	3.910e-03
SI 28	1.002e-03	2.016e-03	2.016e-03	2.016e-03	2.016e-03	2.016e-03	2.016e-03
SUMTOT	2.312e+03	2.312e+03	2.312e+03	2.312e+03	2.312e+03	2.312e+03	2.312e+03

Triga fuel element: Al clad (Row C) + prior irradiation
ACTINIDES, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
U238	1.499e+02	1.498e+02	1.498e+02	1.498e+02	1.498e+02	1.498e+02	1.498e+02
U235	3.647e-01	3.593e+01	3.593e+01	3.593e+01	3.593e+01	3.593e+01	3.593e+01
U236	4.677e-01	5.649e-01	5.649e-01	5.649e-01	5.649e-01	5.649e-01	5.649e-01
U234	3.681e-01	3.662e-01	3.662e-01	3.662e-01	3.662e-01	3.662e-01	3.662e-01
PU239	3.395e-02	6.566e-02	6.671e-02	6.671e-02	6.670e-02	6.669e-02	6.668e-02
NP237	1.059e-03	2.199e-03	2.311e-03	2.311e-03	2.311e-03	2.311e-03	2.312e-03
PU240	2.833e-04	1.120e-03	1.120e-03	1.120e-03	1.120e-03	1.119e-03	1.118e-03
SUMTOT	1.872e-02	1.868e+02	1.868e+02	1.868e+02	1.868e+02	1.868e+02	1.868e+02

Triga fuel element: Al clad (Row C) + prior irradiation
FISSION PRODUCTS, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
XE136	2.028e-02	4.054e-02	4.054e-02	4.054e-02	4.054e-02	4.054e-02	4.054e-02
XE134	1.934e-02	3.865e-02	3.867e-02	3.867e-02	3.867e-02	3.867e-02	3.867e-02
BA138	1.762e-02	3.523e-02	3.523e-02	3.523e-02	3.523e-02	3.523e-02	3.523e-02
CE140	1.667e-02	3.112e-02	3.371e-02	3.371e-02	3.371e-02	3.371e-02	3.371e-02
LA139	1.685e-02	3.367e-02	3.369e-02	3.369e-02	3.369e-02	3.369e-02	3.369e-02
CS133	1.683e-02	3.234e-02	3.360e-02	3.360e-02	3.360e-02	3.360e-02	3.360e-02
ND143	1.581e-02	2.903e-02	3.149e-02	3.149e-02	3.149e-02	3.149e-02	3.149e-02
CE142	1.567e-02	3.132e-02	3.133e-02	3.133e-02	3.133e-02	3.133e-02	3.133e-02
PR141	1.560e-02	2.763e-02	3.120e-02	3.120e-02	3.120e-02	3.120e-02	3.120e-02
ND144	1.465e-02	2.481e-02	2.915e-02	2.934e-02	2.941e-02	2.947e-02	2.947e-02
CS135	1.278e-02	2.546e-02	2.558e-02	2.558e-02	2.558e-02	2.558e-02	2.558e-02
MO100	1.183e-02	2.366e-02	2.366e-02	2.366e-02	2.366e-02	2.366e-02	2.366e-02
MO 95	1.143e-02	1.919e-02	2.284e-02	2.284e-02	2.284e-02	2.284e-02	2.284e-02
ZR 96	1.134e-02	2.268e-02	2.268e-02	2.268e-02	2.268e-02	2.268e-02	2.268e-02
ZR 93	1.127e-02	2.246e-02	2.252e-02	2.252e-02	2.252e-02	2.252e-02	2.252e-02
TC 99	1.114e-02	2.184e-02	2.226e-02	2.226e-02	2.226e-02	2.226e-02	2.226e-02
ZR 94	1.099e-02	2.197e-02	2.198e-02	2.198e-02	2.198e-02	2.198e-02	2.198e-02
MO 98	1.077e-02	2.154e-02	2.154e-02	2.154e-02	2.154e-02	2.154e-02	2.154e-02
XE132	1.072e-02	2.105e-02	2.150e-02	2.150e-02	2.150e-02	2.150e-02	2.150e-02
MO 97	1.072e-02	2.134e-02	2.144e-02	2.144e-02	2.144e-02	2.144e-02	2.144e-02
ND145	1.063e-02	2.120e-02	2.123e-02	2.123e-02	2.123e-02	2.123e-02	2.123e-02
CS137	1.344e-02	2.356e-02	2.198e-02	2.148e-02	2.099e-02	1.870e-02	1.484e-02
ZR 92	1.035e-02	2.066e-02	2.069e-02	2.069e-02	2.069e-02	2.069e-02	2.069e-02
ZR 91	9.972e-03	1.725e-02	1.993e-02	1.993e-02	1.993e-02	1.993e-02	1.993e-02
RU101	9.667e-03	1.933e-02	1.933e-02	1.933e-02	1.933e-02	1.933e-02	1.933e-02
ND146	8.185e-03	1.639e-02	1.639e-02	1.639e-02	1.639e-02	1.639e-02	1.639e-02

RU102	8.169e-03	1.635e-02	1.635e-02	1.635e-02	1.635e-02	1.635e-02	1.635e-02
Y 89	7.980e-03	1.388e-02	1.595e-02	1.595e-02	1.595e-02	1.595e-02	1.595e-02
XE131	7.095e-03	1.343e-02	1.414e-02	1.414e-02	1.414e-02	1.414e-02	1.414e-02
SR 90	8.196e-03	1.430e-02	1.332e-02	1.300e-02	1.270e-02	1.127e-02	8.884e-03
RH103	6.136e-03	1.072e-02	1.222e-02	1.222e-02	1.222e-02	1.222e-02	1.222e-02
SR 88	6.046e-03	1.207e-02	1.208e-02	1.208e-02	1.208e-02	1.208e-02	1.208e-02
SM147	5.217e-03	9.971e-03	1.135e-02	1.162e-02	1.182e-02	1.232e-02	1.249e-02
BA137	2.304e-03	7.934e-03	9.512e-03	1.001e-02	1.050e-02	1.279e-02	1.665e-02
ND148	4.716e-03	9.430e-03	9.430e-03	9.430e-03	9.430e-03	9.430e-03	9.430e-03
RB 87	4.199e-03	8.389e-03	8.392e-03	8.392e-03	8.392e-03	8.392e-03	8.392e-03
RU104	3.757e-03	7.532e-03	7.532e-03	7.532e-03	7.532e-03	7.532e-03	7.532e-03
TE130	3.718e-03	7.440e-03	7.441e-03	7.441e-03	7.441e-03	7.441e-03	7.441e-03
ZR 90	1.463e-03	5.004e-03	5.990e-03	6.303e-03	6.609e-03	8.034e-03	1.042e-02
KR 86	3.243e-03	6.481e-03	6.481e-03	6.481e-03	6.481e-03	6.481e-03	6.481e-03
SM150	1.653e-03	4.532e-03	4.532e-03	4.532e-03	4.532e-03	4.532e-03	4.532e-03
PD105	2.092e-03	4.159e-03	4.203e-03	4.203e-03	4.203e-03	4.203e-03	4.203e-03
RB 85	1.753e-03	3.637e-03	3.714e-03	3.736e-03	3.756e-03	3.839e-03	3.943e-03
ND150	1.849e-03	3.700e-03	3.700e-03	3.700e-03	3.700e-03	3.700e-03	3.700e-03
I129	1.756e-03	3.452e-03	3.514e-03	3.514e-03	3.514e-03	3.514e-03	3.514e-03
KR 84	1.628e-03	3.258e-03	3.259e-03	3.259e-03	3.259e-03	3.259e-03	3.259e-03
TE128	9.802e-04	1.962e-03	1.963e-03	1.963e-03	1.963e-03	1.963e-03	1.963e-03
SM152	8.895e-04	1.940e-03	1.942e-03	1.942e-03	1.943e-03	1.945e-03	1.949e-03
PD106	8.861e-04	1.515e-03	1.771e-03	1.789e-03	1.798e-03	1.808e-03	1.808e-03
SM151	1.048e-03	1.827e-03	1.803e-03	1.789e-03	1.775e-03	1.708e-03	1.582e-03
KR 83	8.370e-04	1.667e-03	1.668e-03	1.668e-03	1.668e-03	1.668e-03	1.668e-03
SM149	1.419e-03	1.523e-03	1.610e-03	1.610e-03	1.610e-03	1.610e-03	1.610e-03
SE 82	5.129e-04	1.025e-03	1.025e-03	1.025e-03	1.025e-03	1.025e-03	1.025e-03
SUMTOT	4.395e-01	8.793e-01	8.793e-01	8.793e-01	8.793e-01	8.793e-01	8.793e-01
==							

5.3.5 Figure B.5. Gram inventories from ORIGEN2 for DORF (Row C) element

Input file: o-ssx-c.outf
Multiplier: 1.000e+00

Triga fuel element: SS clad (none) • (2/23) Ci from prior BU
ACTIVATION, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
ZR 90	1.031e+03	1.031e+03	1.031e+03	1.031e+03	1.031e+03	1.031e+03	1.031e+03
ZR 96	3.637e+02	3.637e+02	3.637e+02	3.637e+02	3.637e+02	3.637e+02	3.637e+02
ZR 92	3.498e+02	3.498e+02	3.498e+02	3.498e+02	3.498e+02	3.498e+02	3.498e+02
91	2.266e+02	2.266e+02	2.266e+02	2.266e+02	2.266e+02	2.266e+02	2.266e+02
FE 56	1.973e+02	1.973e+02	1.973e+02	1.973e+02	1.973e+02	1.973e+02	1.973e+02
ZR 96	5.977e+01	5.977e+01	5.977e+01	5.977e+01	5.977e+01	5.977e+01	5.977e+01
CR 52	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01
H 1	3.569e+01	3.569e+01	3.569e+01	3.569e+01	3.569e+01	3.569e+01	3.569e+01
NI 58	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01
FE 54	1.205e+01	1.205e+01	1.205e+01	1.205e+01	1.205e+01	1.205e+01	1.205e+01
NI 60	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01
MN 55	6.620e+00	6.620e+00	6.620e+00	6.620e+00	6.620e+00	6.620e+00	6.620e+00
CR 53	6.403e+00	6.403e+00	6.403e+00	6.403e+00	6.403e+00	6.403e+00	6.403e+00
FE 57	4.705e+00	4.705e+00	4.705e+00	4.705e+00	4.705e+00	4.705e+00	4.705e+00
SI 28	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00
CR 50	2.766e+00	2.766e+00	2.766e+00	2.766e+00	2.766e+00	2.766e+00	2.766e+00
CR 54	1.621e+00	1.621e+00	1.621e+00	1.621e+00	1.621e+00	1.621e+00	1.621e+00
NI 62	1.505e+00	1.505e+00	1.505e+00	1.505e+00	1.505e+00	1.505e+00	1.505e+00
FE 58	6.458e-01	6.458e-01	6.458e-01	6.458e-01	6.458e-01	6.458e-01	6.458e-01
NI 61	4.660e-01	4.660e-01	4.660e-01	4.660e-01	4.660e-01	4.660e-01	4.660e-01
NI 64	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01
C 12	2.616e-01	2.616e-01	2.616e-01	2.616e-01	2.616e-01	2.616e-01	2.616e-01
SI 29	1.595e-01	1.595e-01	1.595e-01	1.595e-01	1.595e-01	1.595e-01	1.595e-01
P 31	1.324e-01	1.324e-01	1.324e-01	1.324e-01	1.324e-01	1.324e-01	1.324e-01
SI 30	1.095e-01	1.095e-01	1.095e-01	1.095e-01	1.095e-01	1.095e-01	1.095e-01
S 32	9.408e-02	9.408e-02	9.408e-02	9.408e-02	9.408e-02	9.408e-02	9.408e-02
N 14	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02
H 2	1.073e-02	1.073e-02	1.073e-02	1.073e-02	1.073e-02	1.073e-02	1.073e-02
O 16	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03
S 34	4.432e-03	4.432e-03	4.432e-03	4.432e-03	4.432e-03	4.432e-03	4.432e-03
C 13	3.181e-03	3.181e-03	3.181e-03	3.181e-03	3.181e-03	3.181e-03	3.181e-03
SUMTOT	2.397e+03	2.397e+03	2.397e+03	2.397e+03	2.397e+03	2.397e+03	2.397e+03

Triga fuel element: SS clad (none) • (2/23) Ci from prior BU
ACTINIDES, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
U238	1.539e+02	1.539e+02	1.539e+02	1.539e+02	1.539e+02	1.539e+02	1.539e+02
U235	3.799e+01	3.799e+01	3.799e+01	3.799e+01	3.799e+01	3.799e+01	3.799e+01
U236	3.825e-01	3.825e-01	3.825e-01	3.825e-01	3.825e-01	3.825e-01	3.825e-01
U234	3.799e-01	3.799e-01	3.799e-01	3.799e-01	3.799e-01	3.799e-01	3.799e-01
SUMTOT	1.926e+02	1.926e+02	1.926e+02	1.926e+02	1.926e+02	1.926e+02	1.926e+02

Triga fuel element: SS clad (none) • (2/23) Ci from prior BU
FISSION PRODUCTS, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
SUMTOT	1.139e-02	1.139e-02	1.139e-02	1.139e-02	1.139e-02	1.139e-02	1.139e-02
==							

5.3.6 Figure B.6. Gram inventories from ORIGEN2 for AFFRI (none) element

Input file: o-alk-m.outf
Multiplier: 1.000e+00

Triga fuel element: Al clad (none) + (3/56) g-235 BU
ACTIVATION, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
ZR 90	1.079e+03	1.079e+03	1.079e+03	1.079e+03	1.079e+03	1.079e+03	1.079e+03
ZR 94	3.808e+02	3.808e+02	3.808e+02	3.808e+02	3.808e+02	3.808e+02	3.808e+02
ZR 92	3.662e+02	3.662e+02	3.662e+02	3.662e+02	3.662e+02	3.662e+02	3.662e+02
ZR 91	2.373e+02	2.373e+02	2.373e+02	2.373e+02	2.373e+02	2.373e+02	2.373e+02
AL 27	1.630e+02	1.630e+02	1.630e+02	1.630e+02	1.630e+02	1.630e+02	1.630e+02
ZR 96	6.258e+01	6.258e+01	6.258e+01	6.258e+01	6.258e+01	6.258e+01	6.258e+01
H 1	2.339e+01	2.339e+01	2.339e+01	2.339e+01	2.339e+01	2.339e+01	2.339e+01
N 14	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02
O 16	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03
H 2	7.063e-03	7.063e-03	7.063e-03	7.063e-03	7.063e-03	7.063e-03	7.063e-03
SUMTOT	2.312e+03	2.312e+03	2.312e+03	2.312e+03	2.312e+03	2.312e+03	2.312e+03

Triga fuel element: Al clad (none) + (3/56) g-235 BU
ACTINIDES, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
U238	1.499e+02	1.499e+02	1.499e+02	1.499e+02	1.499e+02	1.499e+02	1.499e+02
U235	3.694e+01	3.694e+01	3.694e+01	3.694e+01	3.694e+01	3.694e+01	3.694e+01
U236	3.801e-01	3.801e-01	3.801e-01	3.801e-01	3.801e-01	3.801e-01	3.801e-01
U234	3.698e-01	3.698e-01	3.698e-01	3.698e-01	3.698e-01	3.698e-01	3.698e-01
PU239	3.571e-03	3.570e-03	3.570e-03	3.570e-03	3.570e-03	3.569e-03	3.568e-03
SUMTOT	1.876e+02	1.876e+02	1.876e+02	1.876e+02	1.876e+02	1.876e+02	1.876e+02

Triga fuel element: Al clad (none) + (3/56) g-235 BU
FISSION PRODUCTS, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
XE136	2.022e-03	2.022e-03	2.022e-03	2.022e-03	2.022e-03	2.022e-03	2.022e-03
XE134	2.001e-03	2.001e-03	2.001e-03	2.001e-03	2.001e-03	2.001e-03	2.001e-03
BA138	1.824e-03	1.824e-03	1.824e-03	1.824e-03	1.824e-03	1.824e-03	1.824e-03
LA139	1.745e-03	1.745e-03	1.745e-03	1.745e-03	1.745e-03	1.745e-03	1.745e-03
CS133	1.745e-03	1.745e-03	1.745e-03	1.745e-03	1.745e-03	1.745e-03	1.745e-03
CE140	1.691e-03	1.691e-03	1.691e-03	1.691e-03	1.691e-03	1.691e-03	1.691e-03
ND143	1.642e-03	1.642e-03	1.642e-03	1.642e-03	1.642e-03	1.642e-03	1.642e-03
CE142	1.622e-03	1.622e-03	1.622e-03	1.622e-03	1.622e-03	1.622e-03	1.622e-03
PR141	1.616e-03	1.616e-03	1.616e-03	1.616e-03	1.616e-03	1.616e-03	1.616e-03
ND144	1.512e-03	1.515e-03	1.515e-03	1.515e-03	1.515e-03	1.515e-03	1.515e-03
CS135	1.400e-03	1.400e-03	1.400e-03	1.400e-03	1.400e-03	1.400e-03	1.400e-03
MO100	1.224e-03	1.224e-03	1.224e-03	1.224e-03	1.224e-03	1.224e-03	1.224e-03
MO 95	1.184e-03	1.184e-03	1.184e-03	1.184e-03	1.184e-03	1.184e-03	1.184e-03
TC 99	1.177e-03	1.177e-03	1.177e-03	1.177e-03	1.177e-03	1.177e-03	1.177e-03
ZR 96	1.175e-03	1.175e-03	1.175e-03	1.175e-03	1.175e-03	1.175e-03	1.175e-03
ZR 93	1.167e-03	1.167e-03	1.167e-03	1.167e-03	1.167e-03	1.167e-03	1.167e-03
ZR 94	1.138e-03	1.138e-03	1.138e-03	1.138e-03	1.138e-03	1.138e-03	1.138e-03
XE132	1.116e-03	1.116e-03	1.116e-03	1.116e-03	1.116e-03	1.116e-03	1.116e-03
MO 98	1.115e-03	1.115e-03	1.115e-03	1.115e-03	1.115e-03	1.115e-03	1.115e-03
MO 97	1.110e-03	1.110e-03	1.110e-03	1.110e-03	1.110e-03	1.110e-03	1.110e-03
ND145	1.102e-03	1.102e-03	1.102e-03	1.102e-03	1.102e-03	1.102e-03	1.102e-03
ZR 92	1.072e-03	1.072e-03	1.072e-03	1.072e-03	1.072e-03	1.072e-03	1.072e-03
ZR 91	1.033e-03	1.033e-03	1.033e-03	1.033e-03	1.033e-03	1.033e-03	1.033e-03
RU101	1.001e-03	1.001e-03	1.001e-03	1.001e-03	1.001e-03	1.001e-03	1.001e-03
SUMTOT	4.549e-02	4.549e-02	4.549e-02	4.549e-02	4.549e-02	4.549e-02	4.549e-02

==

5.3.7 Figure B.7. Gram inventories from ORIGEN2 for AFFRI (Row E) element

Input file: o-ale-m.outf
Multiplier: 1.000e+00

Triga fuel element: Al clad (Row E) + (3/56) g-235 BU
ACTIVATION, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
ZR 90	1.079e+03	1.079e+03	1.079e+03	1.079e+03	1.079e+03	1.079e+03	1.079e+03
ZR 94	3.808e+02	3.808e+02	3.808e+02	3.808e+02	3.808e+02	3.808e+02	3.808e+02
ZR 92	3.662e+02	3.663e+02	3.663e+02	3.663e+02	3.663e+02	3.663e+02	3.663e+02
ZR 91	2.373e+02	2.373e+02	2.373e+02	2.373e+02	2.373e+02	2.373e+02	2.373e+02
AL 27	1.630e+02	1.630e+02	1.630e+02	1.630e+02	1.630e+02	1.630e+02	1.630e+02
ZR 96	6.258e+01	6.257e+01	6.257e+01	6.257e+01	6.257e+01	6.257e+01	6.257e+01
H 1	2.339e+01	2.339e+01	2.339e+01	2.339e+01	2.339e+01	2.339e+01	2.339e+01
N 14	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02	2.733e-02
O 16	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03	8.377e-03
H 2	7.063e-03	7.063e-03	7.063e-03	7.063e-03	7.063e-03	7.063e-03	7.063e-03
ZR 93	5.385e-04	4.374e-03	4.374e-03	4.374e-03	4.374e-03	4.374e-03	4.374e-03
MO 97	2.992e-04	2.431e-03	2.431e-03	2.431e-03	2.431e-03	2.431e-03	2.431e-03
MO 95	2.002e-04	1.626e-03	1.626e-03	1.626e-03	1.626e-03	1.626e-03	1.626e-03
SUMTOT	2.312e+03	2.312e+03	2.312e+03	2.312e+03	2.312e+03	2.312e+03	2.312e+03

Triga fuel element: Al clad (Row E) + (3/56) g-235 BU
ACTINIDES, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
U238	1.499e+02	1.499e+02	1.499e+02	1.499e+02	1.499e+02	1.499e+02	1.499e+02
U235	3.694e+01	3.655e+01	3.655e+01	3.655e+01	3.655e+01	3.655e+01	3.655e+01
U236	3.801e-01	4.518e-01	4.518e-01	4.518e-01	4.518e-01	4.518e-01	4.518e-01
U234	3.698e-01	3.684e-01	3.684e-01	3.684e-01	3.684e-01	3.684e-01	3.684e-01
PU239	3.571e-03	2.775e-02	2.850e-02	2.850e-02	2.850e-02	2.850e-02	2.849e-02
SUMTOT	1.876e+02	1.873e+02	1.873e+02	1.873e+02	1.873e+02	1.873e+02	1.873e+02

Triga fuel element: Al clad (Row E) + (3/56) g-235 BU
FISSION PRODUCTS, GRAMS

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
XE136	2.022e-03	1.625e-02	1.625e-02	1.625e-02	1.625e-02	1.625e-02	1.625e-02
XE134	2.001e-03	1.618e-02	1.619e-02	1.619e-02	1.619e-02	1.619e-02	1.619e-02
BA138	1.824e-03	1.475e-02	1.475e-02	1.475e-02	1.475e-02	1.475e-02	1.475e-02
CE140	1.691e-03	1.229e-02	1.419e-02	1.419e-02	1.419e-02	1.419e-02	1.419e-02
LA139	1.745e-03	1.410e-02	1.411e-02	1.411e-02	1.411e-02	1.411e-02	1.411e-02
CS133	1.745e-03	1.317e-02	1.409e-02	1.409e-02	1.409e-02	1.409e-02	1.409e-02
ND143	1.642e-03	1.143e-02	1.324e-02	1.324e-02	1.324e-02	1.324e-02	1.324e-02
CE142	1.622e-03	1.311e-02	1.312e-02	1.312e-02	1.312e-02	1.312e-02	1.312e-02
PR141	1.616e-03	1.045e-02	1.307e-02	1.307e-02	1.307e-02	1.307e-02	1.307e-02
ND144	1.512e-03	8.864e-03	1.205e-02	1.219e-02	1.225e-02	1.229e-02	1.229e-02
CS135	1.400e-03	1.134e-02	1.142e-02	1.142e-02	1.142e-02	1.142e-02	1.142e-02
MO100	1.224e-03	9.904e-03	9.904e-03	9.904e-03	9.904e-03	9.904e-03	9.904e-03
CS137	1.387e-03	1.101e-02	1.027e-02	1.004e-02	9.807e-03	8.737e-03	6.935e-03
MO 95	1.184e-03	6.885e-03	9.571e-03	9.571e-03	9.571e-03	9.571e-03	9.571e-03
ZR 96	1.175e-03	9.498e-03	9.498e-03	9.498e-03	9.498e-03	9.498e-03	9.498e-03
ZR 93	1.167e-03	9.392e-03	9.436e-03	9.436e-03	9.436e-03	9.436e-03	9.436e-03
TC 99	1.177e-03	9.048e-03	9.353e-03	9.353e-03	9.353e-03	9.352e-03	9.352e-03
ZR 94	1.138e-03	9.201e-03	9.202e-03	9.202e-03	9.202e-03	9.202e-03	9.202e-03
MO 98	1.115e-03	9.017e-03	9.017e-03	9.017e-03	9.017e-03	9.017e-03	9.017e-03
XE132	1.116e-03	8.651e-03	8.980e-03	8.980e-03	8.980e-03	8.980e-03	8.980e-03
MO 97	1.110e-03	8.902e-03	8.976e-03	8.976e-03	8.976e-03	8.976e-03	8.976e-03
ND145	1.102e-03	8.879e-03	8.904e-03	8.904e-03	8.904e-03	8.904e-03	8.904e-03
ZR 92	1.072e-03	8.642e-03	8.667e-03	8.667e-03	8.667e-03	8.667e-03	8.667e-03
ZR 91	1.033e-03	6.383e-03	8.350e-03	8.350e-03	8.350e-03	8.350e-03	8.350e-03
RU101	1.001e-03	8.092e-03	8.094e-03	8.094e-03	8.094e-03	8.094e-03	8.094e-03
ND146	8.463e-04	6.850e-03	6.852e-03	6.852e-03	6.852e-03	6.852e-03	6.852e-03
RU102	8.450e-04	6.838e-03	6.839e-03	6.839e-03	6.839e-03	6.839e-03	6.839e-03
Y 89	8.267e-04	5.165e-03	6.682e-03	6.682e-03	6.682e-03	6.682e-03	6.682e-03
SR 90	8.463e-04	6.710e-03	6.248e-03	6.101e-03	5.958e-03	5.289e-03	4.169e-03

XE131	7.368e-04	5.422e-03	5.944e-03	5.944e-03	5.944e-03	5.944e-03	5.944e-03
RH103	6.359e-04	4.037e-03	5.131e-03	5.131e-03	5.131e-03	5.131e-03	5.131e-03
SR 88	6.263e-04	5.055e-03	5.062e-03	5.062e-03	5.062e-03	5.062e-03	5.062e-03
SN147	5.531e-04	3.447e-03	4.452e-03	4.645e-03	4.793e-03	5.152e-03	5.274e-03
WD148	4.880e-04	3.947e-03	3.947e-03	3.947e-03	3.947e-03	3.947e-03	3.947e-03
RB 87	4.350e-04	3.514e-03	3.516e-03	3.516e-03	3.516e-03	3.516e-03	3.516e-03
BA137	2.429e-04	2.175e-03	2.912e-03	3.147e-03	3.376e-03	4.446e-03	6.249e-03
RU104	3.880e-04	3.143e-03	3.144e-03	3.144e-03	3.144e-03	3.144e-03	3.144e-03
TE130	3.846e-04	3.112e-03	3.112e-03	3.112e-03	3.112e-03	3.112e-03	3.112e-03
KR 86	3.360e-04	2.716e-03	2.716e-03	2.716e-03	2.716e-03	2.716e-03	2.716e-03
ZR 90	1.542e-04	1.378e-03	1.840e-03	1.987e-03	2.131e-03	2.800e-03	3.920e-03
PD105	2.163e-04	1.722e-03	1.754e-03	1.754e-03	1.754e-03	1.754e-03	1.754e-03
ND150	1.913e-04	1.548e-03	1.548e-03	1.548e-03	1.548e-03	1.548e-03	1.548e-03
RB 85	1.818e-04	1.467e-03	1.510e-03	1.522e-03	1.533e-03	1.579e-03	1.637e-03
I129	1.817e-04	1.424e-03	1.470e-03	1.470e-03	1.470e-03	1.470e-03	1.470e-03
KR 84	1.684e-04	1.363e-03	1.363e-03	1.363e-03	1.363e-03	1.363e-03	1.363e-03
SM149	2.975e-04	1.248e-03	1.313e-03	1.313e-03	1.313e-03	1.313e-03	1.313e-03
SM150	1.952e-05	1.258e-03	1.258e-03	1.258e-03	1.258e-03	1.258e-03	1.258e-03
SUMTOT	4.549e-02	3.682e-01	3.682e-01	3.682e-01	3.682e-01	3.682e-01	3.682e-01

5.4 FIGURES FOR CURIE INVENTORIES

5.4.1 Figure C.1. Curie inventories from ORIGEN2 for average power

Sort column = 5

Input file: orig-base.outf

Multiplier: 1.000e+00

One Triga fuel element: Stainless Steel clad
ACTIVATION, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR
FE 55	0.000e+00	5.322e-01	2.392e-01	1.832e-01	1.403e-01	3.701e-02
NI 63	0.000e+00	2.436e-02	2.381e-02	2.364e-02	2.346e-02	2.259e-02
MN 54	0.000e+00	1.253e-01	1.103e-02	4.904e-03	2.181e-03	3.798e-05
CO 60	0.000e+00	8.018e-04	5.404e-04	4.738e-04	4.154e-04	2.152e-04
NI 59	0.000e+00	2.067e-04	2.067e-04	2.067e-04	2.067e-04	2.067e-04
ZR 93	0.000e+00	9.955e-06	9.955e-06	9.955e-06	9.955e-06	9.955e-06
C 14	0.000e+00	4.549e-06	4.548e-06	4.547e-06	4.547e-06	4.544e-06
NB 93M	0.000e+00	2.466e-06	3.458e-06	3.756e-06	4.039e-06	5.258e-06
SUMTOT	0.000e+00	2.065e+02	2.750e-01	2.125e-01	1.666e-01	6.008e-02

One Triga fuel element: Stainless Steel clad
ACTINIDES, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR
U234	2.375e-03	2.366e-03	2.366e-03	2.366e-03	2.366e-03	2.366e-03
PU239	0.000e+00	1.674e-03	1.727e-03	1.727e-03	1.727e-03	1.726e-03
PU241	0.000e+00	2.187e-04	1.892e-04	1.804e-04	1.719e-04	1.351e-04
TH231	0.000e+00	5.558e-04	8.123e-05	8.123e-05	8.123e-05	8.123e-05
U235	8.217e-05	8.123e-05	8.123e-05	8.123e-05	8.123e-05	8.123e-05
PA234M	0.000e+00	5.175e-05	5.175e-05	5.175e-05	5.175e-05	5.175e-05
TH234	0.000e+00	5.175e-05	5.175e-05	5.175e-05	5.175e-05	5.175e-05
U238	5.176e-05	5.175e-05	5.175e-05	5.175e-05	5.175e-05	5.175e-05
PU240	0.000e+00	4.193e-05	4.192e-05	4.191e-05	4.191e-05	4.189e-05
PU238	0.000e+00	3.915e-05	4.057e-05	4.025e-05	3.994e-05	3.839e-05
U236	2.459e-05	2.975e-05	2.975e-05	2.975e-05	2.975e-05	2.975e-05
AM241	0.000e+00	7.252e-07	1.699e-06	1.992e-06	2.271e-06	3.473e-06
SUMTOT	2.534e-03	3.950e+02	4.716e-03	4.707e-03	4.698e-03	4.661e-03

One Triga fuel element: Stainless Steel clad
FISSION PRODUCTS, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR
CS137	0.000e+00	9.451e-01	9.005e-01	8.799e-01	8.598e-01	7.660e-01
Y 90	0.000e+00	9.320e-01	8.600e-01	8.397e-01	8.200e-01	7.280e-01
SR 90	0.000e+00	9.234e-01	8.598e-01	8.395e-01	8.198e-01	7.278e-01
BA137M	0.000e+00	9.194e-01	8.518e-01	8.324e-01	8.134e-01	7.246e-01
PM147	0.000e+00	1.281e+00	8.549e-01	6.564e-01	5.040e-01	1.345e-01
PR144	0.000e+00	1.219e+01	8.387e-01	3.442e-01	1.413e-01	1.645e-03
CE144	0.000e+00	1.213e+01	8.387e-01	3.442e-01	1.413e-01	1.645e-03
KR 85	0.000e+00	9.480e-02	7.835e-02	7.345e-02	6.885e-02	4.983e-02
RH106	0.000e+00	8.837e-01	9.911e-02	4.983e-02	2.505e-02	8.047e-04
RU106	0.000e+00	7.799e-01	9.911e-02	4.983e-02	2.505e-02	8.047e-04
SM151	0.000e+00	2.259e-02	2.245e-02	2.228e-02	2.211e-02	2.127e-02
EU155	0.000e+00	2.060e-02	1.355e-02	1.178e-02	1.024e-02	5.093e-03
SB125	0.000e+00	3.144e-02	1.668e-02	1.299e-02	1.011e-02	2.893e-03
H 3	0.000e+00	3.546e-03	2.997e-03	2.833e-03	2.679e-03	2.023e-03
TE125M	0.000e+00	2.624e-03	4.069e-03	3.168e-03	2.467e-03	7.059e-04
CS134	0.000e+00	1.179e-02	4.304e-03	3.075e-03	2.197e-03	4.092e-04
PR144M	0.000e+00	1.465e-01	1.006e-02	4.130e-03	1.695e-03	1.973e-05
EU154	0.000e+00	6.108e-04	4.796e-04	4.425e-04	4.082e-04	2.728e-04
EU152	0.000e+00	4.705e-04	4.038e-04	3.837e-04	3.646e-04	2.826e-04
TC 99	0.000e+00	1.484e-04	1.541e-04	1.541e-04	1.541e-04	1.541e-04
CD113M	0.000e+00	1.215e-04	1.056e-04	1.007e-04	9.606e-05	7.575e-05
SUMTOT	0.000e+00	1.377e+04	6.358e+00	4.971e+00	4.271e+00	3.169e+00

==

5.4.2 Figure C.2. Curie inventories from ORIGEN2 for maximum source term

Input file: o-ssb-p.outf
Multiplier: 1.000e+00

Triga fuel element: SS clad (Row B) + prior irradiation
ACTIVATION, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
FE 55	2.893e-01	7.222e-01	3.246e-01	2.486e-01	1.904e-01	5.022e-02	3.492e-03
NI 63	3.212e-02	6.171e-02	6.033e-02	5.988e-02	5.943e-02	5.723e-02	5.308e-02
NM 54	2.020e-03	1.679e-01	1.478e-02	6.573e-03	2.924e-03	5.090e-05	1.543e-08
CO 60	8.168e-04	1.247e-03	8.402e-04	7.366e-04	6.458e-04	3.346e-04	8.980e-05
NI 59	2.731e-04	5.488e-04	5.488e-04	5.488e-04	5.488e-04	5.488e-04	5.487e-04
ZR 93	1.316e-05	2.648e-05	2.648e-05	2.648e-05	2.648e-05	2.648e-05	2.648e-05
NB 93M	3.681e-06	1.125e-05	1.322e-05	1.382e-05	1.438e-05	1.681e-05	2.014e-05
C 14	6.014e-06	1.210e-05	1.209e-05	1.209e-05	1.209e-05	1.208e-05	1.207e-05
SUMTOT	3.245e-01	2.768e-02	4.014e-01	3.164e-01	2.540e-01	1.084e-01	5.727e-02

Triga fuel element: SS clad (Row B) + prior irradiation
ACTINIDES, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
PU239	2.270e-03	4.385e-03	4.455e-03	4.455e-03	4.455e-03	4.454e-03	4.453e-03
PU241	4.024e-04	3.355e-03	2.904e-03	2.767e-03	2.637e-03	2.073e-03	1.281e-03
U234	2.363e-03	2.350e-03	2.350e-03	2.350e-03	2.350e-03	2.350e-03	2.350e-03
PU238	7.535e-05	3.169e-04	3.205e-04	3.180e-04	3.155e-04	3.033e-04	2.803e-04
PU240	7.272e-05	2.873e-04	2.872e-04	2.872e-04	2.871e-04	2.870e-04	2.867e-04
TH231	8.093e-05	1.051e-03	7.969e-05	7.969e-05	7.969e-05	7.969e-05	7.969e-05
U235	8.093e-05	7.969e-05	7.969e-05	7.969e-05	7.969e-05	7.969e-05	7.969e-05
AM241	5.129e-06	3.393e-05	4.876e-05	5.322e-05	5.746e-05	7.572e-05	1.007e-04
U238	5.175e-05	5.173e-05	5.173e-05	5.173e-05	5.173e-05	5.173e-05	5.173e-05
PA234M	5.175e-05	5.174e-05	5.173e-05	5.173e-05	5.173e-05	5.173e-05	5.173e-05
TH234	5.175e-05	5.174e-05	5.173e-05	5.173e-05	5.173e-05	5.173e-05	5.173e-05
U236	3.140e-05	3.816e-05	3.816e-05	3.816e-05	3.816e-05	3.816e-05	3.816e-05
NP237	8.077e-07	1.682e-06	1.769e-06	1.769e-06	1.769e-06	1.769e-06	1.769e-06
PA233	8.077e-07	2.651e-06	1.769e-06	1.769e-06	1.769e-06	1.769e-06	1.769e-06
SUMTOT	5.538e-03	5.312e-02	1.073e-02	1.059e-02	1.046e-02	9.903e-03	9.111e-03

Triga fuel element: SS clad (Row B) + prior irradiation
FISSION PRODUCTS, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
CS137	1.259e+00	2.206e+00	2.058e+00	2.011e+00	1.965e+00	1.751e+00	1.390e+00
Y 90	1.204e+00	2.118e+00	1.956e+00	1.910e+00	1.865e+00	1.655e+00	1.305e+00
SR 90	1.204e+00	2.100e+00	1.955e+00	1.909e+00	1.864e+00	1.655e+00	1.304e+00
BA137M	1.191e+00	2.096e+00	1.947e+00	1.903e+00	1.859e+00	1.656e+00	1.315e+00
PM147	1.028e+00	1.720e+00	1.142e+00	8.765e-01	6.730e-01	1.796e-01	1.279e-02
PR144	1.137e-01	1.609e+01	1.106e+00	4.539e-01	1.863e-01	2.168e-02	2.939e-07
CE144	1.137e-01	1.600e+01	1.106e+00	4.539e-01	1.863e-01	2.168e-02	2.939e-07
KR 85	1.170e-01	1.754e-01	1.449e-01	1.358e-01	1.273e-01	9.213e-02	4.826e-02
SM151	2.955e-02	5.135e-02	5.067e-02	5.028e-02	4.990e-02	4.801e-02	4.445e-02
RH106	2.869e-02	1.241e+00	1.342e-01	6.745e-02	3.391e-02	1.089e-03	1.133e-06
RU106	2.869e-02	1.056e+00	1.342e-01	6.745e-02	3.391e-02	1.089e-03	1.133e-06
EU155	1.992e-02	3.027e-02	1.991e-02	1.731e-02	1.505e-02	7.483e-03	1.850e-03
SB125	2.097e-02	4.261e-02	2.256e-02	1.757e-02	1.368e-02	3.914e-03	3.205e-04
CS134	3.593e-03	4.887e-02	1.783e-02	1.274e-02	9.104e-03	1.695e-03	5.880e-05
H 3	4.433e-03	6.826e-03	5.768e-03	5.454e-03	5.156e-03	3.894e-03	2.222e-03
TE125M	5.117e-03	3.686e-03	5.504e-03	4.286e-03	3.337e-03	9.549e-04	7.819e-05
EU152	1.303e-05	3.556e-03	3.052e-03	2.900e-03	2.756e-03	2.136e-03	1.283e-03
PR144M	1.365e-03	1.931e-01	1.327e-02	5.447e-03	2.235e-03	2.602e-05	3.526e-09
EU154	7.809e-04	3.164e-03	2.484e-03	2.292e-03	2.114e-03	1.413e-03	6.311e-04
TC 99	2.033e-04	3.986e-04	4.061e-04	4.061e-04	4.061e-04	4.061e-04	4.061e-04
CD113M	1.546e-04	2.460e-04	2.137e-04	2.037e-04	1.943e-04	1.532e-04	9.527e-05
SUMTOT	6.373e+00	1.816e+04	1.183e+01	9.907e+00	8.898e+00	7.066e+00	5.426e+00

==

5.4.3 Figure C.3. Curie inventories from ORIGEN2 for GA (Row B) element

Input file: o-ssb.outf

Multiplier: 1.000e+00

Triga fuel element: Stainless Steel clad (Row B)

ACTIVATION, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
FE 55	0.000e+00	7.062e-01	3.165e-01	2.424e-01	1.857e-01	4.897e-02	3.405e-03
NI 63	0.000e+00	3.220e-02	3.148e-02	3.124e-02	3.101e-02	2.986e-02	2.770e-02
MN 54	0.000e+00	1.658e-01	1.459e-02	6.490e-03	2.887e-03	5.025e-05	1.523e-08
CO 60	0.000e+00	1.063e-03	7.166e-04	6.283e-04	5.508e-04	2.854e-04	7.659e-05
NI 59	0.000e+00	2.732e-04	2.731e-04	2.731e-04	2.731e-04	2.731e-04	2.731e-04
ZR 93	0.000e+00	1.316e-05	1.316e-05	1.316e-05	1.316e-05	1.316e-05	1.316e-05
C 14	0.000e+00	6.014e-06	6.012e-06	6.011e-06	6.011e-06	6.007e-06	6.000e-06
NB 93M	0.000e+00	3.259e-06	4.569e-06	4.963e-06	5.338e-06	6.949e-06	9.166e-06
SUMTOT	0.000e+00	2.733e+02	3.639e-01	2.811e-01	2.204e-01	7.947e-02	3.148e-02

Triga fuel element: Stainless Steel clad (Row B)

ACTINIDES, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
U234	5.375e-03	2.363e-03	2.363e-03	2.363e-03	2.363e-03	2.363e-03	2.363e-03
PU239	0.000e+00	2.200e-03	2.269e-03	2.269e-03	2.269e-03	2.269e-03	2.268e-03
PU241	0.000e+00	5.010e-04	4.336e-04	4.132e-04	3.938e-04	3.096e-04	1.913e-04
U235	8.217e-05	8.093e-05	8.093e-05	8.093e-05	8.093e-05	8.093e-05	8.093e-05
TH231	0.000e+00	7.080e-04	8.093e-05	8.093e-05	8.093e-05	8.093e-05	8.093e-05
PU240	0.000e+00	7.270e-05	7.268e-05	7.267e-05	7.266e-05	7.262e-05	7.254e-05
PU238	0.000e+00	6.936e-05	7.194e-05	7.138e-05	7.081e-05	6.807e-05	6.290e-05
PA234M	0.000e+00	5.175e-05	5.175e-05	5.175e-05	5.175e-05	5.175e-05	5.175e-05
TH234	0.000e+00	5.175e-05	5.175e-05	5.175e-05	5.175e-05	5.175e-05	5.175e-05
U238	5.176e-05	5.175e-05	5.175e-05	5.175e-05	5.175e-05	5.175e-05	5.175e-05
U236	2.459e-05	3.140e-05	3.140e-05	3.140e-05	3.140e-05	3.140e-05	3.140e-05
AM241	0.000e+00	1.659e-06	3.889e-06	4.561e-06	5.200e-06	7.953e-06	1.173e-05
SUMTOT	2.534e-03	5.231e-02	5.566e-03	5.545e-03	5.526e-03	5.442e-03	5.321e-03

Triga fuel element: Stainless Steel clad (Row B)

FISSION PRODUCTS, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
CS137	0.000e+00	1.274e+00	1.189e+00	1.161e+00	1.135e+00	1.011e+00	8.025e-01
SR 90	0.000e+00	1.219e+00	1.135e+00	1.108e+00	1.082e+00	9.605e-01	7.570e-01
Y 90	0.000e+00	1.231e+00	1.135e+00	1.108e+00	1.082e+00	9.607e-01	7.572e-01
BA137M	0.000e+00	1.214e+00	1.124e+00	1.099e+00	1.074e+00	9.565e-01	7.592e-01
PM147	0.000e+00	1.688e+00	1.127e+00	8.655e-01	6.646e-01	1.773e-01	1.263e-02
PR144	0.000e+00	1.611e+01	1.107e+00	4.543e-01	1.864e-01	2.170e-03	2.941e-07
CE144	0.000e+00	1.601e+01	1.107e+00	4.543e-01	1.864e-01	2.170e-03	2.941e-07
KR 85	0.000e+00	1.251e-01	1.034e-01	9.693e-02	9.086e-02	6.576e-02	3.445e-02
RH106	0.000e+00	1.215e+00	1.314e-01	6.605e-02	3.321e-02	1.067e-03	1.102e-06
RU106	0.000e+00	1.034e+00	1.314e-01	6.605e-02	3.321e-02	1.067e-03	1.102e-06
SM151	0.000e+00	2.917e-02	2.901e-02	2.878e-02	2.856e-02	2.748e-02	2.545e-02
EU155	0.000e+00	2.703e-02	1.778e-02	1.546e-02	1.344e-02	6.684e-03	1.652e-03
SB125	0.000e+00	4.154e-02	2.204e-02	1.716e-02	1.336e-02	3.823e-03	3.131e-04
CS134	0.000e+00	2.057e-02	7.507e-03	5.364e-03	3.832e-03	7.137e-04	2.475e-05
H 3	0.000e+00	4.682e-03	3.957e-03	3.741e-03	3.536e-03	2.671e-03	1.524e-03
TE125M	0.000e+00	3.466e-03	5.377e-03	4.187e-03	3.260e-03	9.328e-04	7.638e-05
PR144M	0.000e+00	1.933e-01	1.328e-02	5.451e-03	2.237e-03	2.604e-05	3.529e-09
EU154	0.000e+00	1.066e-03	8.370e-04	7.721e-04	7.124e-04	4.761e-04	2.126e-04
EU152	0.000e+00	7.962e-04	6.833e-04	6.494e-04	6.171e-04	4.783e-04	2.873e-04
TC 99	0.000e+00	1.958e-04	2.033e-04	2.033e-04	2.033e-04	2.033e-04	2.033e-04
CD113M	0.000e+00	1.607e-04	1.397e-04	1.332e-04	1.270e-04	1.002e-04	6.228e-05
SUMTOT	0.000e+00	1.816e+04	8.393e+00	6.562e+00	5.637e+00	4.182e+00	3.153e+00

5.4.4 Figure C.4. Curie inventories from ORIGEN2 for NTS (Row C) element

Input file: o-alc-p.outf
Multiplier: 1.000e+00

Triga fuel element: Al clad (Row C) + prior irradiation
ACTIVATION, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
ZR 93	1.315e-05	2.645e-05	2.645e-05	2.645e-05	2.645e-05	2.645e-05	2.645e-05
NB 93M	3.677e-06	1.124e-05	1.321e-05	1.380e-05	1.436e-05	1.678e-05	2.012e-05
C 14	5.738e-06	1.154e-05	1.153e-05	1.153e-05	1.153e-05	1.152e-05	1.151e-05
H 3	9.042e-07	1.548e-06	1.308e-06	1.237e-06	1.169e-06	8.831e-07	5.038e-07
SUMTOT	2.347e-05	2.264e-05	3.139e-05	5.815e-05	5.362e-05	5.565e-05	5.858e-05

Triga fuel element: Al clad (Row C) + prior irradiation
ACTINIDES, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
PU239	2.112e-03	4.083e-03	4.148e-03	4.148e-03	4.148e-03	4.147e-03	4.146e-03
U234	2.301e-03	2.289e-03	2.289e-03	2.289e-03	2.289e-03	2.289e-03	2.289e-03
PU241	3.410e-04	2.845e-03	2.462e-03	2.346e-03	2.236e-03	1.758e-03	1.086e-03
PU238	6.661e-05	2.793e-04	2.823e-04	2.801e-04	2.779e-04	2.671e-04	2.468e-04
PU240	6.458e-05	2.554e-04	2.553e-04	2.552e-04	2.552e-04	2.551e-04	2.548e-04
U235	7.886e-05	7.771e-05	7.771e-05	7.771e-05	7.771e-05	7.771e-05	7.771e-05
TH231	7.886e-05	9.802e-04	7.771e-05	7.771e-05	7.771e-05	7.771e-05	7.771e-05
PA234M	5.040e-05	5.039e-05	5.039e-05	5.039e-05	5.039e-05	5.039e-05	5.039e-05
U238	5.040e-05	5.039e-05	5.039e-05	5.039e-05	5.039e-05	5.039e-05	5.039e-05
TH234	5.040e-05	5.039e-05	5.039e-05	5.039e-05	5.039e-05	5.039e-05	5.039e-05
AM241	4.347e-06	2.879e-05	4.136e-05	4.515e-05	4.874e-05	6.422e-05	8.538e-05
U236	3.027e-05	3.656e-05	3.656e-05	3.656e-05	3.656e-05	3.656e-05	3.656e-05
NP237	7.470e-07	1.551e-06	1.630e-06	1.630e-06	1.630e-06	1.630e-06	1.630e-06
PA233	7.470e-07	2.438e-06	1.630e-06	1.630e-06	1.630e-06	1.630e-06	1.630e-06
SUMTOT	5.230e-03	4.932e-02	9.830e-03	9.714e-03	9.605e-03	9.130e-03	8.458e-03

Triga fuel element: Al clad (Row C) + prior irradiation
FISSION PRODUCTS, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
CS137	1.170e+00	2.050e+00	1.913e+00	1.869e+00	1.827e+00	1.627e+00	1.292e+00
SR 90	1.118e+00	1.951e+00	1.817e+00	1.774e+00	1.733e+00	1.538e+00	1.212e+00
Y 90	1.119e+00	1.968e+00	1.817e+00	1.775e+00	1.733e+00	1.539e+00	1.213e+00
BA137M	1.107e+00	1.947e+00	1.810e+00	1.768e+00	1.728e+00	1.539e+00	1.222e+00
PM147	9.560e-01	1.599e+00	1.061e+00	8.147e-01	6.256e-01	1.669e-01	1.189e-02
PR144	1.058e-01	1.495e-01	1.028e+00	4.218e-01	1.731e-01	2.015e-03	2.731e-07
CE144	1.058e-01	1.487e-01	1.028e+00	4.218e-01	1.731e-01	2.015e-03	2.731e-07
KR 85	1.088e-01	1.631e-01	1.346e-01	1.262e-01	1.183e-01	8.562e-02	4.485e-02
SM151	2.757e-02	4.809e-02	4.745e-02	4.709e-02	4.675e-02	4.496e-02	4.163e-02
RH106	2.665e-02	1.144e+00	1.245e-01	6.258e-02	3.146e-02	1.011e-03	1.046e-06
RU106	2.665e-02	9.794e-01	1.245e-01	6.258e-02	3.146e-02	1.011e-03	1.046e-06
EU155	1.855e-02	2.816e-02	1.852e-02	1.610e-02	1.400e-02	6.962e-03	1.721e-03
SB125	1.949e-02	3.958e-02	2.096e-02	1.632e-02	1.270e-02	3.635e-03	2.977e-04
CS134	3.186e-03	4.331e-02	1.580e-02	1.129e-02	8.068e-03	1.503e-03	5.211e-05
H 3	4.120e-03	6.343e-03	5.360e-03	5.068e-03	4.791e-03	3.619e-03	2.064e-03
TE125M	4.755e-03	3.424e-03	5.113e-03	3.981e-03	3.100e-03	8.869e-04	7.262e-05
EU152	1.162e-05	3.186e-03	2.734e-03	2.598e-03	2.469e-03	1.914e-03	1.150e-03
PR144M	1.269e-03	1.795e-01	1.233e-02	5.062e-03	2.077e-03	2.418e-05	3.277e-09
EU154	6.925e-04	2.803e-03	2.201e-03	2.030e-03	1.873e-03	1.252e-03	5.591e-04
TC 99	1.890e-04	3.704e-04	3.775e-04	3.775e-04	3.775e-04	3.775e-04	3.775e-04
CD113M	1.436e-04	2.285e-04	1.984e-04	1.892e-04	1.804e-04	1.423e-04	8.848e-05
SUMTOT	5.923e+00	1.688e+04	1.099e+01	9.206e+00	8.269e+00	6.567e+00	5.043e+00

==

5.4.5 Figure C.5. Curie inventories from ORIGEN2 for DORF (none) element

Input file: o-ssx-c.outf
Multiplier: 1.000e+00

Triga fuel element: SS clad (none) + (2/23) Ci from prior BU
ACTIVATION, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
NI 63	7.673e-04	7.063e-04	6.905e-04	6.853e-04	6.802e-04	6.551e-04	6.075e-04
FE 55	6.637e-03	3.535e-04	1.589e-04	1.217e-04	9.322e-05	2.458e-05	1.709e-06
NI 59	6.540e-06	6.540e-06	6.539e-06	6.539e-06	6.539e-06	6.539e-06	6.538e-06
CO 60	1.905e-05	4.482e-06	3.021e-06	2.648e-06	2.322e-06	1.203e-06	3.228e-07
SUMTOT	7.474e-03	1.072e-03	8.596e-04	8.169e-04	7.830e-04	6.881e-04	6.168e-04

Triga fuel element: SS clad (none) + (2/23) Ci from prior BU
ACTINIDES, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
U234	2.375e-03	2.375e-03	2.375e-03	2.375e-03	2.375e-03	2.375e-03	2.375e-03
TH231	8.214e-05	8.214e-05	8.214e-05	8.214e-05	8.214e-05	8.214e-05	8.214e-05
U235	8.214e-05	8.214e-05	8.214e-05	8.214e-05	8.214e-05	8.214e-05	8.214e-05
PU239	5.555e-05	5.555e-05	5.554e-05	5.554e-05	5.554e-05	5.553e-05	5.551e-05
PA234M	5.176e-05	5.176e-05	5.176e-05	5.176e-05	5.176e-05	5.176e-05	5.176e-05
TH234	5.176e-05	5.176e-05	5.176e-05	5.176e-05	5.176e-05	5.176e-05	5.176e-05
U238	5.176e-05	5.176e-05	5.176e-05	5.176e-05	5.176e-05	5.176e-05	5.176e-05
U236	2.476e-05	2.476e-05	2.476e-05	2.476e-05	2.476e-05	2.476e-05	2.476e-05
SUMTOT	2.775e-03	2.775e-03	2.776e-03	2.776e-03	2.776e-03	2.776e-03	2.776e-03

Triga fuel element: SS clad (none) + (2/23) Ci from prior BU
FISSION PRODUCTS, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
CS137	3.017e-02	2.340e-02	2.183e-02	2.133e-02	2.085e-02	1.857e-02	1.474e-02
Y 90	2.887e-02	2.222e-02	2.069e-02	2.020e-02	1.973e-02	1.752e-02	1.381e-02
BA137M	2.854e-02	2.214e-02	2.065e-02	2.018e-02	1.972e-02	1.757e-02	1.394e-02
SR 90	2.887e-02	2.222e-02	2.069e-02	2.020e-02	1.972e-02	1.751e-02	1.380e-02
KR 85	2.789e-03	1.370e-03	1.128e-03	1.057e-03	9.912e-04	7.174e-04	3.758e-04
SM151	7.780e-04	7.148e-04	6.984e-04	6.931e-04	6.878e-04	6.618e-04	6.127e-04
PM147	2.412e-02	1.319e-03	5.970e-04	4.584e-04	3.520e-04	9.392e-05	6.688e-06
EU155	4.894e-04	1.052e-04	6.915e-05	6.013e-05	5.229e-05	2.599e-05	6.425e-06
H 3	1.054e-04	5.698e-05	4.815e-05	4.552e-05	4.303e-05	3.250e-05	1.854e-05
SB125	4.846e-04	3.090e-05	1.458e-05	1.135e-05	8.841e-06	2.530e-06	2.071e-07
TC 99	5.053e-06	5.053e-06	5.053e-06	5.053e-06	5.053e-06	5.053e-06	5.053e-06
TE125M	1.182e-04	7.538e-06	3.558e-06	2.770e-06	2.157e-06	6.172e-07	5.054e-08
CD113M	3.669e-06	2.175e-06	1.886e-06	1.799e-06	1.715e-06	1.353e-06	8.411e-07
SUMTOT	1.514e-01	9.359e-02	8.643e-02	8.425e-02	8.216e-02	7.271e-02	5.732e-02

==

5.4.6 Figure C.6. Curie inventories from ORIGEN2 for AFFRI (none) element

Input file: o-ax-m.outf
Multiplier: 1.000e+00

Triga fuel element: Al clad (none) + (3/56) g-235 BU
ACTIVATION, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
ZR 93	1.354e-06	1.354e-06	1.354e-06	1.354e-06	1.354e-06	1.354e-06	1.354e-06
SUMTOT	2.419e-06	2.808e-06	2.867e-06	2.885e-06	2.902e-06	2.974e-06	3.075e-06

Triga fuel element: Al clad (none) + (3/56) g-235 BU
ACTINIDES, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
U234	2.312e-03	2.312e-03	2.312e-03	2.312e-03	2.312e-03	2.311e-03	2.311e-03
PU239	2.221e-04	2.220e-04	2.220e-04	2.220e-04	2.220e-04	2.219e-04	2.219e-04
U235	7.989e-05	7.989e-05	7.989e-05	7.989e-05	7.989e-05	7.989e-05	7.989e-05
TH231	7.989e-05	7.989e-05	7.989e-05	7.989e-05	7.989e-05	7.989e-05	7.989e-05
TH234	5.041e-05	5.041e-05	5.041e-05	5.042e-05	5.042e-05	5.041e-05	5.041e-05
PA234M	5.041e-05	5.041e-05	5.041e-05	5.042e-05	5.042e-05	5.041e-05	5.041e-05
U238	5.041e-05	5.041e-05	5.041e-05	5.041e-05	5.041e-05	5.041e-05	5.041e-05
U236	2.460e-05	2.460e-05	2.460e-05	2.460e-05	2.460e-05	2.460e-05	2.460e-05
SUMTOT	2.871e-03	2.871e-03	2.871e-03	2.871e-03	2.871e-03	2.871e-03	2.871e-03

Triga fuel element: Al clad (none) + (3/56) g-235 BU
FISSION PRODUCTS, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
CS137	1.207e-01	8.939e-02	8.340e-02	8.150e-02	7.964e-02	7.095e-02	5.631e-02
BA137M	1.142e-01	8.456e-02	7.890e-02	7.710e-02	7.534e-02	6.712e-02	5.327e-02
Y 90	1.155e-01	8.477e-02	7.893e-02	7.707e-02	7.526e-02	6.682e-02	5.266e-02
SR 90	1.155e-01	8.475e-02	7.891e-02	7.706e-02	7.524e-02	6.680e-02	5.265e-02
KR 85	1.117e-02	4.818e-03	3.968e-03	3.720e-03	3.487e-03	2.524e-03	1.322e-03
SM151	3.089e-03	2.794e-03	2.731e-03	2.710e-03	2.689e-03	2.587e-03	2.395e-03
PM147	9.682e-02	3.121e-03	1.413e-03	1.085e-03	8.328e-04	2.222e-04	1.583e-05
EU155	1.955e-03	3.177e-04	2.089e-04	1.816e-04	1.579e-04	7.851e-05	1.941e-05
H 3	4.229e-04	2.039e-04	1.723e-04	1.629e-04	1.540e-04	1.163e-04	6.635e-05
SB125	1.966e-03	7.521e-05	3.550e-05	2.764e-05	2.152e-05	6.158e-06	5.043e-07
TC 99	1.996e-05	1.996e-05	1.996e-05	1.996e-05	1.996e-05	1.996e-05	1.996e-05
CD113M	1.469e-05	7.921e-06	6.869e-06	6.550e-06	6.246e-06	4.925e-06	3.063e-06
TE125M	4.748e-04	1.835e-05	8.662e-06	6.744e-06	5.251e-06	1.503e-06	1.230e-07
SUMTOT	6.062e-01	3.549e-01	3.287e-01	3.207e-01	3.129e-01	2.773e-01	2.187e-01

==

5.4.7 Figure C.7. Curie inventories from ORIGEN2 for AFFRI (Row E) element

Input file: o-ale-m.outf
Multiplier: 1.000e+00

Triga fuel element: Al clad (Row E) + (3/56) g-235 BU
ACTIVATION, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
ZR 93	1.354e-06	1.100e-05	1.100e-05	1.100e-05	1.100e-05	1.100e-05	1.100e-05
NB 93M	3.850e-07	3.211e-06	4.237e-06	4.545e-06	4.838e-06	6.100e-06	7.835e-06
C 14	5.908e-07	4.798e-06	4.796e-06	4.796e-06	4.795e-06	4.792e-06	4.787e-06
SUMTOT	2.419e-06	1.639e+02	2.099e-04	2.465e-05	2.128e-05	2.232e-05	2.387e-05

Triga fuel element: Al clad (Row E) + (3/56) g-235 BU
ACTINIDES, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
U234	2.312e-03	2.303e-03	2.303e-03	2.303e-03	2.303e-03	2.303e-03	2.303e-03
PU239	2.221e-04	1.725e-03	1.772e-03	1.772e-03	1.772e-03	1.772e-03	1.772e-03
PU241	2.492e-07	2.426e-04	2.100e-04	2.001e-04	1.907e-04	1.499e-04	9.264e-05
TH231	7.989e-05	7.363e-04	7.904e-05	7.904e-05	7.904e-05	7.904e-05	7.904e-05
U235	7.989e-05	7.904e-05	7.904e-05	7.904e-05	7.904e-05	7.904e-05	7.904e-05
PA234M	5.041e-05	5.041e-05	5.040e-05	5.041e-05	5.041e-05	5.040e-05	5.040e-05
TH234	5.041e-05	5.041e-05	5.040e-05	5.041e-05	5.041e-05	5.040e-05	5.040e-05
U238	5.041e-05	5.040e-05	5.040e-05	5.040e-05	5.040e-05	5.040e-05	5.040e-05
PU240	5.151e-07	4.539e-05	4.538e-05	4.537e-05	4.537e-05	4.534e-05	4.529e-05
PU238	2.538e-07	4.326e-05	4.451e-05	4.416e-05	4.381e-05	4.211e-05	3.891e-05
U236	2.460e-05	2.924e-05	2.924e-05	2.924e-05	2.924e-05	2.924e-05	2.924e-05
AM241	3.290e-09	1.020e-06	2.099e-06	2.424e-06	2.733e-06	4.065e-06	5.892e-06
SUMTOT	2.871e-03	3.559e+02	4.719e-03	4.709e-03	4.700e-03	4.658e-03	4.599e-03

Triga fuel element: Al clad (Row E) + (3/56) g-235 BU
FISSION PRODUCTS, CURIES

	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
CS137	1.207e-01	9.579e-01	8.938e-01	8.734e-01	8.535e-01	7.603e-01	6.035e-01
Y 90	1.155e-01	9.237e-01	8.528e-01	8.328e-01	8.132e-01	7.219e-01	5.690e-01
SR 90	1.155e-01	9.157e-01	8.526e-01	8.325e-01	8.130e-01	7.217e-01	5.689e-01
BA137M	1.142e-01	9.120e-01	8.456e-01	8.262e-01	8.074e-01	7.193e-01	5.709e-01
PM147	9.682e-02	1.156e+00	7.710e-01	5.920e-01	4.545e-01	1.215e-01	8.637e-02
CE144	9.620e-03	1.092e+01	7.548e-01	3.098e-01	1.271e-01	1.480e-02	2.006e-07
PR144	9.649e-03	1.097e+01	7.548e-01	3.098e-01	1.271e-01	1.480e-03	2.006e-07
KR 85	1.117e-02	9.013e-02	7.448e-02	6.982e-02	6.544e-02	4.737e-02	2.481e-02
RH106	2.481e-03	7.892e-01	8.930e-02	4.490e-02	2.257e-02	7.250e-04	7.481e-07
RU106	2.481e-03	7.027e-01	8.930e-02	4.490e-02	2.257e-02	7.250e-04	7.449e-07
SM151	3.089e-03	2.288e-02	2.270e-02	2.253e-02	2.235e-02	2.151e-02	1.992e-02
EU155	1.955e-03	1.888e-02	1.242e-02	1.080e-02	9.390e-03	4.668e-03	1.154e-03
SB125	1.946e-03	2.838e-02	1.505e-02	1.172e-02	9.125e-03	2.611e-03	2.138e-04
H 3	4.229e-04	3.396e-03	2.870e-03	2.713e-03	2.565e-03	1.937e-03	1.105e-03
TE125M	4.748e-04	2.381e-03	3.672e-03	2.859e-03	2.226e-03	6.370e-04	5.216e-05
CS134	1.450e-05	1.168e-02	4.264e-03	3.047e-03	2.177e-03	4.054e-04	1.406e-05
PR144M	1.158e-04	1.318e-01	9.058e-03	3.717e-03	1.526e-03	1.776e-05	2.407e-09
EU152	3.114e-08	6.061e-04	5.202e-04	4.944e-04	4.698e-04	3.641e-04	2.187e-04
EU154	5.224e-06	6.299e-04	4.946e-04	4.563e-04	4.210e-04	2.813e-04	1.257e-04
TC 99	1.996e-05	1.535e-04	1.586e-04	1.586e-04	1.586e-04	1.586e-04	1.586e-04
CD113M	1.469e-05	1.174e-04	1.020e-04	9.729e-05	9.278e-05	7.316e-05	4.549e-05
SUMTOT	6.062e-01	1.240e+04	6.051e+00	4.795e+00	4.157e+00	3.129e+00	2.369e+00

5.5 FIGURES FOR MAXIMUM PHOTON SOURCE TERM RESULTS

5.5.1 Figure D.1. Photon source tables from ORIGEN2 for maximum source term

Sort column = 5
 Input file: o-ssb-p.outf
 Multiplier: 1.000e+00

BASIS=Triga fuel element: SS clad (Row B) • prior irradiation
 ACTIVATION, PHOTONS (photons/sec)

E-mean	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
1.500E-02	1.852e+07	3.081e+12	9.013e+07	4.737e+07	2.846e+07	1.276e+07	1.119e+07
2.500E-02	6.781e+05	6.194e+11	1.106e+06	9.993e+05	9.616e+05	8.287e+05	6.940e+05
3.750E-02	2.396e+05	4.078e+11	3.538e+05	2.954e+05	2.759e+05	2.101e+05	1.523e+05
5.750E-02	1.868e+05	5.899e+11	2.429e+05	1.776e+05	1.568e+05	8.824e+04	3.375e+04
8.500E-02	7.014e+04	3.616e+11	9.124e+04	6.375e+04	5.554e+04	2.882e+04	7.809e+03
1.250E-01	2.693e+04	2.393e+11	3.718e+04	2.452e+04	2.131e+04	1.104e+04	2.974e+03
2.250E-01	8.858e+03	3.658e+11	2.359e+04	8.328e+03	7.022e+03	3.639e+03	9.834e+02
3.750E-01	2.486e+03	2.622e+11	5.032e+03	2.314e+03	1.972e+03	1.023e+03	2.775e+02
5.750E-01	1.452e+02	2.298e+12	2.929e+05	8.317e+03	3.450e+02	6.143e+01	1.805e+01
8.500E-01	7.337e+07	5.246e+12	5.464e+08	2.390e+08	1.062e+08	1.850e+06	8.092e+02
1.250E+00	6.042e+07	1.478e+11	6.216e+07	5.450e+07	4.778e+07	2.475e+07	6.643e+06
1.750E+00	3.292e-02	9.325e+11	5.427e+03	1.518e+02	4.269e+00	2.404e-02	1.895e-02
2.250E+00	3.202e+02	4.287e+11	3.294e+02	2.888e+02	2.532e+02	1.312e+02	3.521e+01
2.750E+00	9.910e-01	6.002e+10	1.019e+00	8.937e-01	7.836e-01	4.059e-01	1.089e-01
TOTAL	1.535e+08	1.505e+13	7.009e+08	3.424e+08	1.839e+08	4.053e+07	1.873e+07
n_rows = 19							

BASIS=Triga fuel element: SS clad (Row B) + prior irradiation
 ACTINIDES, PHOTONS (photons/sec)

E-mean	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
1.500E-02	2.101e+07	1.357e+13	2.863e+07	2.864e+07	2.865e+07	2.872e+07	2.877e+07
2.500E-02	6.899e+05	5.966e+11	7.286e+05	7.328e+05	7.368e+05	7.539e+05	7.775e+05
3.750E-02	1.585e+05	8.798e+11	1.714e+05	1.717e+05	1.720e+05	1.732e+05	1.747e+05
5.750E-02	4.939e+05	7.776e+11	1.115e+06	1.176e+06	1.235e+06	1.486e+06	1.829e+06
8.500E-02	7.737e+05	6.139e+12	7.911e+05	7.913e+05	7.915e+05	7.917e+05	7.918e+05
1.250E-01	6.103e+05	4.867e+12	6.153e+05	6.153e+05	6.154e+05	6.154e+05	6.154e+05
2.250E-01	1.752e+06	3.447e+12	1.734e+06	1.734e+06	1.734e+06	1.734e+06	1.734e+06
3.750E-01	7.017e+04	3.723e+11	9.005e+04	9.009e+04	9.012e+04	9.025e+04	9.049e+04
5.750E-01	2.709e+04	5.883e+10	3.001e+04	3.018e+04	3.028e+04	3.038e+04	3.019e+04
8.500E-01	1.733e+04	8.676e+10	1.864e+04	1.872e+04	1.876e+04	1.881e+04	1.872e+04
1.250E+00	1.213e+04	2.228e+09	1.224e+04	1.224e+04	1.225e+04	1.227e+04	1.230e+04
1.750E+00	1.907e+03	2.430e+06	2.160e+03	2.175e+03	2.186e+03	2.205e+03	2.214e+03
2.250E+00	1.417e+00	7.139e+00	8.594e+00	9.265e+00	9.966e+00	1.391e+01	2.392e+01
2.750E+00	3.603e+02	1.762e+03	2.688e+03	2.824e+03	2.907e+03	2.970e+03	2.736e+03
3.500E+00	3.522e-01	7.075e-01	5.111e-01	5.118e-01	5.137e-01	5.262e-01	5.583e-01
5.000E+00	1.462e-01	2.892e-01	2.025e-01	2.018e-01	2.017e-01	2.015e-01	2.012e-01
7.000E+00	1.636e-02	3.253e-02	2.257e-02	2.250e-02	2.248e-02	2.246e-02	2.243e-02
1.100E+01	1.850e-03	3.698e-03	2.547e-03	2.539e-03	2.537e-03	2.534e-03	2.531e-03
TOTAL	2.562e+07	3.080e+13	3.394e+07	3.401e+07	3.409e+07	3.443e+07	3.485e+07

BASIS=Triga fuel element: SS clad (Row B) + prior irradiation
 FISSION PRODUCTS, PHOTONS (photons/sec)

E-mean	Initial	Discharge	3.0YR	4.0YR	5.0YR	10.0YR	20.0YR
1.500E-02	4.111e+10	2.506e+14	9.499e+10	7.254e+10	6.224e+10	4.903e+10	3.830e+10
2.500E-02	8.962e+09	6.295e+13	2.031e+10	1.544e+10	1.318e+10	1.021e+10	7.918e+09
3.750E-02	9.083e+09	5.192e+13	2.237e+10	1.649e+10	1.385e+10	1.071e+10	8.356e+09
5.750E-02	7.831e+09	5.421e+13	1.872e+10	1.408e+10	1.197e+10	9.376e+09	7.332e+09
8.500E-02	4.955e+09	3.996e+13	1.245e+10	8.995e+09	7.444e+09	5.648e+09	4.379e+09
1.250E-01	3.162e+09	4.007e+13	1.232e+10	7.582e+09	5.549e+09	3.675e+09	2.838e+09
2.250E-01	4.004e+09	9.868e+13	1.022e+10	7.409e+09	6.149e+09	4.710e+09	3.688e+09
3.750E-01	2.011e+09	6.004e+13	5.006e+09	3.553e+09	2.888e+09	2.088e+09	1.598e+09
5.750E-01	4.723e+10	1.005e+14	8.025e+10	7.625e+10	7.345e+10	6.434e+10	5.093e+10
8.500E-01	4.320e+08	1.057e+14	1.634e+09	1.095e+09	8.314e+08	4.320e+08	2.839e+08

WHC-SD-TP-ANAL-001

Rev. 0

1.250E+00	1.628E+08	6.996E+13	7.400E+08	4.532E+08	3.212E+08	1.783E+08	1.196E+08
1.750E+00	1.564E+07	2.436E+13	7.518E+07	3.946E+07	2.352E+07	9.562E+06	7.004E+06
2.250E+00	3.357E+07	1.399E+13	3.186E+08	1.314E+08	5.428E+07	6.706E+05	8.634E+02
2.750E+00	2.568E+05	5.984E+12	1.346E+06	6.509E+05	3.167E+05	9.210E+03	9.084E+00
3.500E+00	2.982E+04	3.626E+12	1.394E+05	7.011E+04	3.525E+04	1.132E+03	1.178E+00
5.000E+00	1.032E-09	1.952E+12	2.107E-09	2.120E-09	2.129E-09	2.153E-09	2.161E-09
7.000E+00	6.696E-11	1.577E+10	1.367E-10	1.375E-10	1.382E-10	1.397E-10	1.402E-10
1.100E+01	4.234E-12	3.109E+06	8.645E-12	8.697E-12	8.737E-12	8.833E-12	8.865E-12
TOTAL	1.294E+11	9.845E+14	2.794E+11	2.241E+11	1.979E+11	1.604E+11	1.257E+11

5.5.2 Figure D.2. Total maximum photon source strength for 19 TRIGA fuel pins (format suitable for ISOSHLD mode 2) calculations)

BASIS=Triga fuel element: SS clad (Row B) + prior irradiation

Multiplier = 19.000000

5.0YR	MeV	
1.184e+12,	1.500E-02,	0.0,
2.505e+11,	2.500E-02,	0.0,
2.632e+11,	3.750E-02,	0.0,
2.275e+11,	5.750E-02,	0.0,
1.415e+11,	8.500E-02,	0.0,
1.054e+11,	1.250E-01,	0.0,
1.169e+11,	2.250E-01,	0.0,
5.487e+10,	3.750E-01,	0.0,
1.396e+12,	5.750E-01,	0.0,
1.781e+10,	8.500E-01,	0.0,
7.011e+09,	1.250E+00,	0.0,
4.469e+08,	1.750E+00,	0.0,
1.031e+09,	2.250E+00,	0.0,
6.073e+06,	2.750E+00,	0.0,
6.698e+05,	3.500E+00,	0.0,
3.832e+00,	5.000E+00,	0.0,
4.271e-01,	7.000E+00,	0.0,
4.820e-02,	1.100E+01,	0.0,

**5.6 ATTACHMENT 1. COPIES OF FUEL ELEMENT DESCRIPTIONS TAKEN FROM MCCORD
REFERENCE**

NRF TRIGA FUEL ASSEMBLIES PRINCIPAL DESIGN PARAMETERS

Fuel Element Design	Stainless Steel Clad Fuel Element	Aluminum Clad Fuel Element
Fuel-moderator Material	U-ZrH _{1.6}	U-ZrH _{1.8}
Uranium Content	8.5 wt%	8.0 wt%
Uranium Enrichment	20% U ²³⁵	20% U ²³⁵
Shape of Fuel Core	Cylindrical	Cylindrical
Length of Fuel Core	15 in. Overall	14 in. Overall
Diameter of Fuel Core	1.43 in. O.D.	1.41 in. O.D.
U ²³⁵ Content (nominal)	38 grams	37 grams
Fuel Mixture (atomic ratio)	2r H U (wt%)	1.0 1.0 8.0
Zirconium Hydride Content	91.5 wt%	92.0 wt%
Length of Top & Bottom Graphite Reflectors	3.47 in.	4.00 in.
Cladding Material	Type 304 SS	Al-1100, anodized
Top & Bottom End-Fixture Material	Type 304 SS	Al-1100, anodized
Cladding Thickness	0.020 in.	0.030 in.
Diameter of Fuel Element	1.47 in. O.D.	1.47 in. O.D.
Overall Length of Fuel Element	28.37 in.	28.37 in.

$O.R. = 1735$
 $I.R. = 715$
 1.276×28.37

0.2% in
 $Al-1100$ 2.70 in.

NRF TRIGA FUEL ASSEMBLIES PRINCIPAL DESIGN PARAMETERS

Fuel Followed Control Rod Design

Fuel-moderator Material	U-ZrH _{1.6}
Uranium Content	8.5 wt%
Uranium Enrichment	20% U ²³⁵
Shape of Fuel Core	Cylindrical
Length of Fuel Core	15 in. Overall
Diameter of Fuel Core	1.335 in. O.D.
U ²³⁵ Content (nominal)	38 grams
Fuel Mixture (atomic ratio)	Zr 1.0 H 1.6 U (wt%) 8.5
Zirconium Hydride Content	91.5 wt%
Length of Borated Graphite Column	14.25 in.
Cladding Material	Type 304 SS
Top & Bottom End-Fixture Material	Type 304 SS
Cladding Thickness	0.020 in.
Diameter of Fuel Followed Control Rod	1.375 in. O.D.
Overall Length of Fuel Followed Control Rod	45.75 in.

Typical TRIGA Aluminum-Clad Fuel Element.

Typical TRIGA Stainless Steel-Clad Fuel Element.

5.7 ATTACHMENT 2. NRF FUEL-ELEMENT IRRADIATION DATABASE

NPR TRIGA FUEL ASSEMBLY PRINCIPAL DESIGN PARAMETERS & CURRENT STATUS

ELEMENT NUMBER	OPERATION NUMBER	START LOCATION	STOP LOCATION	CORE K/MW	OPERATING HOURS	CORE HOURS	DOSE RATE	CURRENT RATE	FUEL ELEMENT SERIAL	RECEIVED FROM	DATE RECEIVED	FUEL ELEMENT CONTENT	FUEL CLADDING ELEMENT	ORIGINAL U235
6	NONE	NONE	NONE	0.000	0.000	0.000	0.000	2	2463	AFNN	7/74	AI	14	38.83
7	NONE	NONE	NONE	0.000	0.000	0.000	0.000	2	2474	AFNN	8/74	AI	14	38.44
8	NONE	NONE	NONE	0.000	0.000	0.000	0.000	2	2477	AFNN	7/74	AI	14	38.81
13	NONE	NONE	NONE	0.000	0.000	0.000	0.000	2	2558	AFNN	7/74	AI	14	38.22
14	NONE	NONE	NONE	0.000	0.000	0.000	0.000	2	2561	AFNN	7/74	AI	14	38.87
15	NONE	NONE	NONE	0.000	0.000	0.000	0.000	2	2568	AFNN	7/74	AI	14	38.12
21	NONE	326/77	NONE	0.000	0.000	0.000	0.000	2	2591	AFNN	7/74	AI	14	40.34
22	NONE	326/77	NONE	0.000	0.000	0.000	0.000	2	2592	AFNN	7/74	AI	14	40.34
66	E18	9/15/87	- PRESENT	118.435	867	1,108,559	50 to 100	2	3077	AFNN	7/74	AI	14	38.82
67	F27	3/5/80	- PRESENT	318.012,072	1,648,169	50 to 100	3073	AFNN	7/74	AI	14	38.83		
64	F4	3/5/80	- PRESENT	318.012,072	1,648,169	50 to 100	3073	AFNN	7/74	AI	14	38.83		
65	F4	3/5/80	- PRESENT	318.012,072	1,648,169	50 to 100	3073	AFNN	7/74	AI	14	38.83		
12	F28	2/26/79	- PRESENT	373.546,142	1,981,659	50 to 100	2488	AFNN	7/74	AI	14	40.07		
63	F4, F25	2/26/79	- PRESENT	373.546,142	1,981,659	50 to 100	3071	AFNN	7/74	AI	14	38.84		
23	E16	3/25/78	- PRESENT	463.338,825	2,340,749	50 to 100	2602	AFNN	7/74	AI	14	38.77		
24	E16	3/25/78	- PRESENT	463.338,825	2,340,749	50 to 100	2602	AFNN	7/74	AI	14	38.77		
25	E16	3/25/78	- PRESENT	463.338,825	2,340,749	50 to 100	2602	AFNN	7/74	AI	14	38.77		
3	F18	3/27/77	- PRESENT	553.981,102	2,708,589	50 to 100	2488	AFNN	7/74	AI	14	38.73		
5	F18	3/27/77	- PRESENT	553.981,102	2,708,589	50 to 100	2488	AFNN	7/74	AI	14	38.73		
9	E23	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2483	AFNN	8/74	AI	14	38.68		
10	E23	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2483	AFNN	8/74	AI	14	38.68		
11	E19	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2444	AFNN	8/74	AI	14	38.95		
16	E19	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2444	AFNN	8/74	AI	14	38.95		
17	E8	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2578	AFNN	8/74	AI	14	38.27		
18	F22	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2578	AFNN	8/74	AI	14	38.27		
19	F22	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2594	AFNN	8/74	AI	14	38.73		
20	F21	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2594	AFNN	8/74	AI	14	38.73		
22	E21	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2600	AFNN	8/74	AI	14	38.74		
24	E12	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2603	AFNN	7/74	AI	14	38.14		
24	E12	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2603	AFNN	7/74	AI	14	38.14		
25	E17	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2609	AFNN	8/74	AI	14	38.78		
25	E17	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2609	AFNN	8/74	AI	14	38.78		
26	E20	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2612	AFNN	8/74	AI	14	38.63		
28	E20	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2612	AFNN	8/74	AI	14	38.63		
29	F12, F17	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2613	AFNN	8/74	AI	14	39.00		
30	F3, F23	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2613	AFNN	8/74	AI	14	39.00		
65	NONE	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2613	AFNN	8/74	AI	14	37.60		
66	NONE	3/26/77	- PRESENT	553.981,102	2,708,589	50 to 100	2613	AFNN	8/74	AI	14	37.60		
2	NONE	NONE	NONE	0.000	0.000	0.000	0.001	8323	DOFF	5/62/79	SS	15	31.45	
3	NONE	NONE	NONE	0.000	0.000	0.000	0.001	1	8312	DOFF	5/62/79	SS	15	32.01
4	NONE	NONE	NONE	0.000	0.000	0.000	0.001	1	8312	DOFF	5/62/79	SS	15	32.01
5	NONE	NONE	NONE	0.000	0.000	0.000	0.001	1	8312	DOFF	5/62/79	SS	15	32.01
8	NONE	NONE	NONE	0.000	0.000	0.000	0.000	5	2698	DOFF	5/62/79	SS	15	35.59
80	NONE	NONE	NONE	0.000	0.000	0.000	0.000	5	2698	DOFF	5/62/79	SS	15	35.79

A1-59

43	D1	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2689	NTS	2/27/8	A	14	35.80
44	D7	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2690	NTS	2/27/8	A	14	35.80
45	E5	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2694	NTS	2/27/8	A	14	35.89
46	D5	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2697	NTS	2/27/8	A	14	38.88
47	D8	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2698	NTS	2/27/8	A	14	38.75
48	D6	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2674	NTS	2/27/8	A	14	35.71
49	C7	3/26/77	-3/27/80	553,981.102	2,768,589	50 to 100	2678	NTS	2/27/8	A	14	35.71
50	D12	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2677	NTS	2/27/8	A	14	37.72
51	E9	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2683	NTS	2/27/8	A	14	38.31
52	E1	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2685	NTS	2/27/8	A	14	38.30
53	D4	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2690	NTS	2/27/8	A	14	38.36
54	E3	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2691	NTS	2/27/8	A	14	38.02
55	E7	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2692	NTS	2/27/8	A	14	37.71
56	D1	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2695	NTS	2/27/8	A	14	37.71
57	D16	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2696	NTS	2/27/8	A	14	38.25
58	D15	3/26/77	-3/27/80	553,981.102	2,768,589	50 to 100	2697	NTS	2/27/8	A	14	35.97
59	D5	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2698	NTS	2/27/8	A	14	37.96
60	E4	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2699	NTS	2/27/8	A	14	37.96
61	D1	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2699	NTS	2/27/8	A	14	37.96
62	E4	3/26/77	- PRESENT	553,981.102	2,768,589	50 to 100	2699	NTS	2/27/8	A	14	37.96
100	NONE		NONE	0.000	0.000	0	7388 OREGON ST		7/1/82	SS/TC	15	37.96

5.8 ATTACHMENT 3. FAX FROM W. L. WHITTEMORE (GENERAL ATOMICS)

1 1/2

Fax: 509-376-6282 TO: Frank Schmitt-Roth Hanford, Washington FROM: W.L. Whittemore. TRIGA Group No. of pages <u>2</u> , including this page	Date: Nov. 5, 1993 Fax: (619) 455-4169 Verify: (619) 455-3571
--	---

- ① Typical assays for as-delivered U metal for TRIGA fuel are the following for four cases:

	wt.-%			
U-234	0.167	0.139	0.177	0.167
U-235	19.789	19.731	19.729	19.657
U-236	0.106	0.094	0.103	0.090
U-238	79.933	80.036	79.974	80.087
	100.000			

- ② Free volume in the as-built 1.5-inch diameter TRIGA fuel have the following nominal values:

Standard fuel 27.9 cm³ minimum*

Instrumented fuel 39.6 cm³ minimum*
 (Thames
 Coupled)

* This volume is nominal.

- ③ For the Hanford fuel, the fill gas was entirely air at NTP.

2 of 2

Frank Schmitt-Roth (cont).

Although the following info may not affect your analyses, the fact is that all the O_2 and N_2 from the air filling disappear to form compounds with zirconium at the fuel operating temperature. [We have actually demonstrated this by measuring the plenum pressure after a short run at full operating temperature. The measured pressure was essentially a vacuum.]

I hope the above info will answer your series of questions.

Sincerely,

WLR

C-993

5.9 ATTACHMENT 4. TRIGA POWER FACTORS

TRIGA POWER FACTORS (P_f) FOR EACH CORE RING
 OF 250 KW MARK I TRIGA REACTOR
 FOR FUEL ELEMENT BURNUP CALCULATIONS

A RING >	$P_f = 1.61$	<u>11-assembly</u> 1
B RING >	$P_f = 1.57$	6
C RING >	$P_f = 1.46$	12
D RING >	$P_f = 1.29$	18
E RING >	$P_f = 1.07$	24
F RING >	$P_f = 0.81$	30
G RING >	$P_f = 0.66$	

FROM BILL STOUT, GENERAL ATOMICS, 8/18/92

JOD POWERCOR.TRI
 10/27/92

5.10 CHECKLIST FOR CALCULATION REVIEW

Document Reviewed (Complete reference) Memorandum 22570-FAS-94-001
ORIGEN2 Source Term Calculations for the Neutron Radiography Facility Triga
Reactor
 Author(s) F. A. Schmittroth

CHECKLIST FOR CALCULATION REVIEW

Yes No N/A

General Considerations

☒	☐	☐	Problem completely defined.
☒	☐	☐	Necessary assumptions explicitly stated and supported.
☒	☐	☐	Computer codes and data files documented.
☒	☐	☐	Data used in calculations explicitly stated in document.
☒	☐	☐	Data checked for consistency with original source information as applicable.
☐	☐	☒	Mathematical derivations checked including dimensional consistency of results.
☒	☐	☐	Models appropriate and used within range of validity or use outside range of established validity justified.
☐	☐	☒	Hand calculations checked for errors.
☒	☐	☐	Code runstreams correct and consistent with analysis documentation.
☒	☐	☐	Code output consistent with input and with results reported in analysis documentation.
☐	☐	☒	Acceptability limits on analytical results applicable and supported. Limits checked against sources.
☒	☐	☐	Safety margins consistent with good engineering practices.
☒	☐	☐	Conclusions consistent with analytical results and applicable limits.
☒	☐	☐	Results and conclusions address all points required in the problem statement.

 Technical Reviewer Approval

2/28/94
 Date

Note: Any calculations, comments, or notes generated as part of this review should be signed, dated and attached to this checklist. Such material should be labeled and recorded in such a manner as to be intelligible to a technically qualified third party.

This page intentionally left blank.

ATTACHMENT 2

**DOSE RATE COMPARISONS OF UNDERWATER MEASUREMENTS WITH RESULTS
BASED ON ORIGEN2 CALCULATIONS**

This page intentionally left blank.

Westinghouse Hanford Company

Internal Memo

From: Nuclear Physics and Shielding 8M730-FAS-95-001
 Phone: 376-3463 HO-35
 Date: May 23, 1996
 Subject: UNDERWATER DOSE-RATE MEASUREMENTS FOR TRIGA FUEL PINS AT THE
 NEUTRON RADIOGRAPHY FACILITY

To: J. O. Dittmer N1-41

cc: J. Greenborg HO-35
 D. C. Hedengren R3-86
 J. V. Nelson HO-35
 FAS File/LB

- References: 1) J. O. Dittmer, J-2 Document No. 3A-05-00006/W, "Dose Measurement and Inspection of Selected Triga Fuel Assemblies", Rev. 0, Westinghouse Hanford Company, Richland, Washington, dated February 7, 1995.
- 2) F. Schmittroth, WHC-SD-TP-ANAL-001, "ORIGEN2 Source Term Calculations for the Neutron Radiography TRIGA Reactor", Rev. 0, Westinghouse Hanford Company, Richland, Washington, dated February 1994.
- 3) R. L. Plum and H. S. Krider, "Final Safety Analysis Report Neutron Radiography Facility (TRIGA Mark I Ractor)", Hanford Engineering Development Laboratory, dated August 1975.

Introduction

Underwater dose-rate measurements (Ref. 1) were completed for selected fuel pins in the Neutron Radiography Facility (NRF) Triga reactor. These measurements serve two purposes. First, they provide a consistency check for fuel pins with a known irradiation history. Secondly, they assist in adjusting the burnup history for pins that arrived at the NRF with poorly documented histories.

Measurements were completed with a gamma-ray probe positioned both 3" (7.62 cm) and 12" (30.48 cm) radially from the center of the active fuel region (surface to surface). The two distances were selected to ensure that reasonable dose rate ranges were encountered and that measurement geometries were correctly addressed.

Dose rate calculations were carried out using the point-kernal ISOSHL code for the measured configurations. The radii of both the fuel pin (1.82 cm) and the probe with an underwater housing (2.22 cm) were added to the surface

Hanford Operations and Engineering Contractor for the US Department of Energy

J. O. Dittmer
Page 4
May 23, 1996

8M730-FAS-95-001

to surface distance to obtain an effective ISOSHL D dose-rate position. The fuel pin was modeled as a simple cylinder of uranium zirconium hydride by assuming a source material consisting of 192 grams of uranium, 2031 grams of zirconium, and 36 grams of hydrogen. Using an active fuel region having a diameter of 1.43" (3.63 cm) and a height of 15" (38.1 cm), Ref.(3), gives an effective density of 5.7 g/cm³. The intervening space was modeled as a water shield. The same geometry was used for both aluminum and stainless steel clad pins. The differences in dose rates are expected to be negligible. Specific details are documented in the attached ISOSHL D runstream for the Row B Gulf General Atomic fuel pins. Runstreams for the other cases differ only in the source term and are archived in CFS as /v91039/triga/triga_meas.tar.Z. The archive also includes the corresponding output files.

The photon source terms are from archived ORIGEN2 calculations documented in Ref.(2).

Results

The measured and calculated results are compared in Table I. The calculated values are absolute with no adjustments or scaling.

Table I. NRF Triga dose-rate measurements and calculations.
(Conversion factors to rem were included in the calculation.)

Element	S.N.	Location	Origin2 Run ID	3" location (rem/hr)		12" location (rem/hr)		Contact (rem/hr)
				meas.	calc.	meas.	calc.	
FE(GA)	7182	B2	o-ssb	11.60	11.17	0.70	0.66	133.7
FE(GA)	7188	B4	o-ssb	11.00	11.17	0.70	0.66	133.7
FE(GA)	7180	C4	o-ssc	10.40	10.37	0.60	0.61	124.1
FE(NTS)	2897E	C5	o-alc-p	13.40	17.57	0.80	1.04	210.7
FE(NTS)	2832E	D18	o-ald-p	15.80	15.49	0.80	0.92	185.8
FE(NTS)	3069E	E24	o-ale-p	6.30	12.84	0.30	0.76	154.0
FE(AFFR1)	2463E	None	o-alc-m	0.60	0.73	0.10	0.04	8.79
FE(AFFR1)	2477E	None	o-alc-m	0.60	0.73	0.10	0.04	8.79
FE(AFFR1)	2483E	E23	o-ale-m	6.40	8.30	0.40	0.49	99.3
FE(AFFR1)	2484E	E19	o-ale-m	6.80	8.30	0.40	0.49	99.3

J. O. Dittmer
Page 5
May 23, 1996

8M730-FAS-95-001

FE(AFFRI)	2616E	F3, F23	o-alf-m	5.60	6.44	0.40	0.38	77.1
FE(DORF)	3106E	None	o-ssx-c	2.00	0.19	0.10	0.01	2.3
FE(DORF)	3108E	None	o-ssx-c	2.30	0.19	0.10	0.01	2.3
FE(DORF)	3110E	None	o-ssx-c	2.40	0.19	0.10	0.01	2.3
FFCR(DORF)	6312	None	o-ssx-c	0.90	0.19	0.10	0.01	2.3
FFCR(DORF)	6313	None	o-ssx-c	0.70	0.19	0.10	0.01	2.3
FFCR(DORF)	8322	None	na	0.00		0.00		
FFCR(DORF)	8323	None	na	0.00		0.00		
* All NRF irradiations were for 2786 hours.								

The measured and calculated results for the GA pins are in excellent agreement. These fuel pins started as fresh elements with no prior ambiguous irradiation history. The variation between row B and row C elements is correctly matched as well as the absolute magnitudes.

The agreement for the NTS elements whose prior irradiation history was unknown is not as good. However the calculated values are either close to the measured values or are higher. The factor of two difference for element 3069E indicates that the NTS assemblies had substantial variations in their prior irradiation histories.

The low prior burnup assumed for the AFFRI elements is confirmed by the comparison. The calculated dose rates compare well (within 30%) with the measured values for both those elements that were irradiated in the NRF as well as for those that were not. Discrepancies at the 12" location are likely at the limit of the detector scale.

The calculations for the DORF fuel elements grossly under predict the measured values by a factor of ten at the more reliable 3" location. Since these elements were not irradiated in the NRF, the assumed prior irradiation history was severely underestimated.

For convenience, calculated contact values are also included in Table I. For practical applications, the low DORF values should be increased by the ratio of the measured to calculated values at 3".

Recommendations

Based on these comparisons, the following recommendation are made. The current ORIGEN2 calculations give a good representation of the fission-product radionuclide inventories for the GA fuel elements. Although not

J. O. Dittmer
Page 6
May 23, 1996

8M730-FAS-95-001

directly tested by the current comparison, the actinide inventories should also be reasonably predicted. No adjustment of the GA calculations is recommended.

While the agreement for the NTS and AFFRI elements is not as good, neither is there a basis for adjusting these calculations. The strong dose-rate variations observed for the measured NTS elements is reasonably bounded by the current calculations. However, there is no way to precisely estimate values for unmeasured pins. There is also a possibility that an unmeasured pin could have values somewhat higher than the basis ORIGEN2 calculations.

The ORIGEN2 calculations for the DORF assemblies should be repeated with revised prior burnups adjusted to the measured dose rates.

The ORIGEN2 calculations were made for common categories of elements (e.g. a given type and irradiation location). A few fuel pins had shorter irradiation histories than those assumed in the ORIGEN2 results. Further calculations to account for these detailed differences are not recommended. Scaling of the existing results would not introduce uncertainties any larger than those that arise from current prior history ambiguities.

F. A. Schmittroth
Nuclear Physics & Shielding

Concurrence: _____
J. Greenborg

11p

Attachments

J. O. Dittmer
 Page 7
 May 23, 1996

8M730-FAS-95-001

3 Dose in water (1 Triga fuel element, SS clad (Row B), 5 yr decay)
 X = 11.66 (3" between surfaces)

\$INPUT

NEXT= 3, OPTION= 1, ISPEC= 3,
 NTHETA=10, NPSI=10, DELR=1.0, units='MREM'

IGEOM= 7, X= 11.66, Y= 19.0,
 NSHLD= 2, JBUF= 2,
 SLTH=38.0,

T(1)= 1.816,
 T(2)= 9.843,

SOURCE(1,1)=

3.923e+10,	1.500E-02,	0.0,
8.417e+09,	2.500E-02,	0.0,
8.789e+09,	3.750E-02,	0.0,
7.549e+09,	5.750E-02,	0.0,
4.805e+09,	8.500E-02,	0.0,
3.812e+09,	1.250E-01,	0.0,
3.926e+09,	2.250E-01,	0.0,
1.910e+09,	3.750E-01,	0.0,
4.275e+10,	5.750E-01,	0.0,
5.594e+08,	8.500E-01,	0.0,
2.331e+08,	1.250E+00,	0.0,
1.848e+07,	1.750E+00,	0.0,
5.429e+07,	2.250E+00,	0.0,
3.125e+05,	2.750E+00,	0.0,
3.452e+04,	3.500E+00,	0.0,
1.461e-01,	5.000E+00,	0.0,
1.635e-02,	7.000E+00,	0.0,
1.849e-03,	1.100E+01,	0.0,

\$-----1-----2-----3-----4

ZR	5.7	0.0	0.0	0.0
1WA	0.0	1.0	0.0	0.0

X = 34.52 (12" between surfaces)

\$INPUT NEXT=4, X = 34.52, T(2) = 32.7 \$

Last case

\$INPUT NEXT=6 \$

CHECKLIST FOR INDEPENDENT TECHNICAL REVIEW

DOCUMENT REVIEWED

NUMBER: 8M730-FAS-95-001

TITLE: Underwater Dose Rate Measurements for Triga Fuel Pins at the Neutron Radiography Facility

AUTHOR(s): F. Schmittroth

I. Method(s) of Review

- ☒ (x) Input data checked for accuracy
- ☐ () Independent calculation performed
 - ☐ () Hand calculation
 - ☐ () Alternate computer code: _____
- ☐ () Comparison to experiment or previous results
- ☐ () Alternate method (define) _____

II. Checklist (either check or enter NA if not applied)

- ☒ (x) Task completely defined
- ☒ (x) Activity consistent with task specification
- ☒ (x) Necessary assumptions explicitly stated and supported
- ☒ (x) Resources properly identified and referenced
- ☒ (x) Resource documentation appropriate for this application
- ☒ (x) Input data explicitly stated
- ☒ (x) Input data verified to be consistent with original source
- ☒ (x) Geometric model adequate representation of actual geometry
- ☒ (x) Material properties appropriate and reasonable
- ☒ (NA) Mathematical derivations checked including dimensional consistency
- ☒ (x) Hand calculations checked for errors
- ☒ (x) Assumptions explicitly stated and justified
- ☒ (x) Computer software appropriate for task and used within range of validity
- ☒ (NA) Use of resource outside range of established validity is justified
- ☒ (x) Software runstreams correct and consistent with results
- ☒ (x) Software output consistent with input
- ☒ (NA) Results consistent with applicable previous experimental or analytical findings
- ☒ (x) Results and conclusions address all points and are consistent with task requirements and/or established limits or criteria
- ☒ (x) Conclusions consistent with analytical results and established limits
- ☒ (x) Uncertainty assesment appropriate and reasonable
- ☐ () Other (define) _____

III. Comments: The version of ISOSHIELD (4.0) used in the analysis has not been certified. However, draft documentation, including a validation section, has been completed, and the code appears to be operating correctly.

IV. REVIEWER: J. V. Nelson DATE: April 26, 1995

ATTACHMENT 3

TRIGA FUEL ELEMENT CASK AND CONTAINER LOADINGS

This page intentionally left blank.

NRF Cask #1, Basket #1, GA (b,c) & DORF pins			
No.	Identifier	Origen2 file	Multiplier
1	7186	o3-ssb.outf	1.00
2	7189	o3-ssc.outf	1.00
3	7180	o3-ssc.outf	1.00
4	7183	o3-ssc.outf	1.00
5	7199	o3-ssc.outf	1.00
6	7185	o3-ssc.outf	1.00
7	3110	o3-ssx-c.outf	1.00
8	3108	o3-ssx-c.outf	1.00
9	3109	o3-ssx-c.outf	1.00
10	3104	o3-ssx-c.outf	1.00
11	3090	o3-ssx-c.outf	1.00
12	3095	o3-ssx-c.outf	1.00
13	3092	o3-ssx-c.outf	1.00
14	3106	o3-ssx-c.outf	1.00
15	3102	o3-ssx-c.outf	1.00
16	3087	o3-ssx-c.outf	1.00
17	3000	o3-ssx-c.outf	1.00
NRF Cask #2, Basket #2, NTS (d,e,f)			
No.	Identifier	Origen2 file	Multiplier
1	2890	o2-ald-p.outf	1.00
2	2834	o2-ald-p.outf	1.00
3	2828	o2-ald-p.outf	1.00
4	2867	o2-ald-p.outf	1.00
5	2874	o2-ald-p.outf	1.00
6	2862	o2-ald-p.outf	1.00
7	2843	o2-ald-p.outf	1.00
8	2877	o2-ald-p.outf	1.00
9	2855	o2-ald-p.outf	1.00
10	2837	o2-ald-p.outf	1.00
11	2831	o2-ald-p.outf	1.00
12	2850	o2-ale-p.outf	1.00
13	2892	o2-ale-p.outf	1.00
14	3065	o2-alf-p.outf	0.78
15	2849	o2-ale-p.outf	1.00
16	2884	o2-ale-p.outf	1.00
17	2851	o2-ale-p.outf	1.00
NRF Cask #3, Basket #3, AFFR1 (e,f)			
No.	Identifier	Origen2 file	Multiplier
1	2573	o2-ale-m.outf	1.00
2	2603	o2-ale-m.outf	1.00
3	2611	o2-ale-m.outf	1.00
4	2286	o2-alf-m.outf	1.00
5	3073	o2-alf-m.outf	0.61
6	2576	o2-ale-m.outf	1.00
7	2602	o2-ale-m.outf	0.84
8	2609	o2-ale-m.outf	1.00
9	3077	o2-ale-m.outf	0.45
10	2586	o2-alf-m.outf	1.00
11	2610	o2-alf-m.outf	0.61
12	2259	o2-ale-m.outf	1.00
13	2613	o2-alf-m.outf	1.00
14	2482	o2-ale-m.outf	1.00
15	3076	o2-alf-m.outf	1.00
16	3071	o2-alf-m.outf	0.71
17	2486	o2-alf-m.outf	0.71
NRF Cask #6, Basket #6, GA (b,c) & DORF			
No.	Identifier	Origen2 file	Multiplier
1	7187	o3-ssc.outf	1.00
2	7181	o3-ssb.outf	1.00
3	7190	o3-ssb.outf	1.00
4	7188	o3-ssb.outf	1.00
5	7182	o3-ssb.outf	1.00
6	7184	o3-ssb.outf	1.00
7	2999	o3-ssx-c.outf	1.00
8	3003	o3-ssx-c.outf	1.00
9	2995	o3-ssx-c.outf	1.00
10	3098	o3-ssx-c.outf	1.00
11	3099	o3-ssx-c.outf	1.00
12	3101	o3-ssx-c.outf	1.00
13	2996	o3-ssx-c.outf	1.00
14	3091	o3-ssx-c.outf	1.00
15	3089	o3-ssx-c.outf	1.00
16	3151	o3-ssx-c.outf	1.00
NRF Cask #4, Basket #4, NTS (c,d,e)			

No.	Identifier	Origen2 file	Multiplier
1	2876	o2-alc-p.outf	1.00
2	2840	o2-alc-p.outf	1.00
3	2897	o2-alc-p.outf	1.00
4	2896	o2-ald-p.outf	1.00
5	2895	o2-ald-p.outf	1.00
6	2894	o2-ald-p.outf	1.00
7	2832	o2-ald-p.outf	1.00
8	2860	o2-ald-p.outf	1.00
9	2859	o2-ald-p.outf	1.00
10	2871	o2-ald-p.outf	1.00
11	2883	o2-alc-p.outf	1.00
12	3069	o2-alc-p.outf	1.00
13	2891	o2-alc-p.outf	1.00
14	3067	o2-alc-p.outf	1.00
15	2864	o2-alc-p.outf	1.00
16	884	o2-alc-p.outf	0.59
NRF Cask #5, Basket #5, AFFRI (e,f,n)			
No.	Identifier	Origen2 file	Multiplier
1	2616	o2-alf-m.outf	1.00
2	2584	o2-alf-m.outf	1.00
3	2477	o2-afx-m.outf	1.00
4	2566	o2-afx-m.outf	1.00
5	2558	o2-afx-m.outf	1.00
6	2561	o2-afx-m.outf	1.00
7	2591	o2-afx-m.outf	1.00
8	2335	o2-ale-m.outf	0.67
9	2336	o2-alf-m.outf	0.41
10	2463	o2-afx-m.outf	1.00
11	2474	o2-afx-m.outf	1.00
12	2484	o2-ale-m.outf	1.00
13	2612	o2-ale-m.outf	1.00
14	2600	o2-ale-m.outf	1.00
15	2579	o2-ale-m.outf	1.00
16	2483	o2-ale-m.outf	1.00
DOT 6M Container #1, Basket #1, DORF			
No.	Identifier	Origen2 file	Multiplier
1	6312	o3-ffcr.outf	1.00
DOT 6M Container #2, Basket #2, DORF			
No.	Identifier	Origen2 file	Multiplier
1	6313	o3-ffcr.outf	1.00

NRF TRIGA ® Cask: Fuel Element Serial Number, Basket Position Number,
Cask Basket Number, and NRF TRIGA ® Cask Number

NRF TRIGA ® Cask: Fuel Element Serial Number, Basket Position Number,
Cask Basket Number, and NRF TRIGA ® Cask Number

NRF TRIGA ® Cask: Fuel Element Serial Number, Basket Position Number,
Cask Basket Number, and NRF TRIGA ® Cask Number

NRF TRIGA ® Cask: Fuel Element Serial Number, Basket Position Number,
Cask Basket Number, and NRF TRIGA ® Cask Number

NRF TRIGA ® Cask: Fuel Element Serial Number, Basket Position Number,
Cask Basket Number, and NRF TRIGA ® Cask Number

NRF TRIGA ® Cask: Fuel Element Serial Number, Basket Position Number,
Cask Basket Number, and NRF TRIGA ® Cask Number

DOT 6M Container: Fuel Followed Control Rod Serial Number,
Rack Position Number, Container Rack Number, and DOT 6M Container Number

ATTACHMENT 4
TRIGA DATABASE FILE

This page intentionally left blank.

NRF TRIGA FUEL ASSEMBLIES PRINCIPAL DESIGN PARAMETERS & CURRENT STATUS

ELEMENT NUMBER	OPERATION INCOME LOCATION	RESIDENT IN CORE START	RESIDENT IN CORE STOP	OPERATION CORE KILOWATT HOURS	MULTI(°)	MULTI-PLIER	CORE OPERATING HOURS	CURRENT DOSE RATE	FUEL ELEMENT SERIAL NUMBER	RECEIVED FROM	DATE RECEIVED	FUEL ELEMENT CLADDING	FUEL COLUMN LENGTH	ORIGINAL U235 CONTENT
1	E16	3/26/77	-3/25/78	100,624.28	0.18	0.59	427.84	50 to 100	884	NTS	2/3/76	AI	14	29.24
2	E2	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2259	AFFRI	7/74	AI	14	39.27
3	E16	3/27/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2268	AFFRI	7/74	AI	14	38.75
4	E18	3/26/77	-9/15/81	352,916.235	0.63	0.67	1,662.350	2	2335	AFFRI	7/74	AI	14	38.71
5	F6	3/26/77	-2/28/79	185,434.960	0.33	0.41	806.760	2	2336	AFFRI	8/74	AI	14	39.38
6	NONE	NONE	NONE	0.000	0.00	1.00	0.000	2	2463	AFFRI	7/74	AI	14	39.93
7	NONE	NONE	NONE	0.000	0.00	1.00	0.000	2	2474	AFFRI	8/74	AI	14	38.44
8	NONE	NONE	NONE	0.000	0.00	1.00	0.000	2	2477	AFFRI	7/74	AI	14	39.81
9	E6	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2482	AFFRI	7/74	AI	14	38.73
10	E23	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2483	AFFRI	8/74	AI	14	39.69
11	E19	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2484	AFFRI	8/74	AI	14	38.95
12	F26	2/28/79	-PRESENT	378,546.142	0.67	0.71	1,961.829	50 to 100	2486	AFFRI	7/74	AI	14	40.07
13	NONE	NONE	NONE	0.000	0.00	1.00	0.000	2	2558	AFFRI	7/74	AI	14	39.22
14	NONE	NONE	NONE	0.000	0.00	1.00	0.000	2	2561	AFFRI	7/74	AI	14	38.87
15	NONE	NONE	NONE	0.000	0.00	1.00	0.000	2	2566	AFFRI	7/74	AI	14	39.12
16	E10	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2573	AFFRI	7/74	AI	14	39.27
17	E8	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2576	AFFRI	8/74	AI	14	38.73
18	E22	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2579	AFFRI	8/74	AI	14	39.22
19	F22	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2584	AFFRI	8/74	AI	14	40.47
20	F30, F21	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2586	AFFRI	8/74	AI	14	40.34
21	NONE	NONE	NONE	0.000	0.00	1.00	0.000	2	2591	AFFRI	7/74	AI	14	40.34
22	E21	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2600	AFFRI	8/74	AI	14	39.14
23	E16	3/26/77	-PRESENT	463,356.822	0.82	0.84	2,340.749	50 to 100	2602	AFFRI	7/74	AI	14	38.77
24	E12	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2603	AFFRI	7/74	AI	14	38.74
25	E17	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2609	AFFRI	8/74	AI	14	38.76
26	F27	3/26/77	-PRESENT	316,012.072	0.56	0.61	1,648.169	50 to 100	2610	AFFRI	8/74	AI	14	39.69
27	E15	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2611	AFFRI	7/74	AI	14	38.63
28	E20	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2612	AFFRI	8/74	AI	14	38.53
29	F13, F17	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2613	AFFRI	8/74	AI	14	39.60
30	F3, F23	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2616	AFFRI	8/74	AI	14	39.73
31	D10	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2621	NTS	2/3/76	AI	14	37.14
32	D4	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2838	NTS	2/3/76	AI	14	36.22
33	D18	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2832	NTS	2/3/76	AI	14	36.32
34	D9	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2834	NTS	2/76	AI	14	37.62
35	D14	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2837	NTS	2/3/76	AI	14	36.05
36	C11	3/26/77	-3/26/90	563,981.102	1.00	1.00	2,768.589	50 to 100	2840	NTS	2/3/76	AI	14	35.92
37	D11	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2843	NTS	2/3/76	AI	14	37.61
38	E9	3/26/77	-PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2849	NTS	2/3/76	AI	14	35.09

WHC-SD-SNF-ANAL-010, Rev. 0

ELEMENT NUMBER	OPERATION INCOME LOCATION	RESIDENT IN CORE START	STOP	OPERATION CORE KILOWATT HOURS	MULTI ⁽⁰⁾	MULTI- PLIER	CORE OPERATING HOURS	CURRENT DOSE RATE	FUEL ELEMENT SERIAL NUMBER	RECEIVED FROM	DATE RECEIVED	FUEL ELEMENT CLADDING	FUEL COLUMN LENGTH	ORIGINAL COLUMN U235 CONTENT
39	E1	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2850	NTS	2/3/76	AI	14	36.33
40	E14	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2851	NTS	2/3/76	AI	14	34.54
41	D13	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2855	NTS	2/3/76	AI	14	36.87
42	D2	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2859	NTS	2/3/76	AI	14	37.62
43	D1	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2860	NTS	2/3/76	AI	14	35.66
44	D7	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2862	NTS	2/3/76	AI	14	38.00
45	E5	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2864	NTS	2/3/76	AI	14	35.89
46	E5	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2867	NTS	2/3/76	AI	14	36.86
47	D3	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2871	NTS	2/3/76	AI	14	36.76
48	D6	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2874	NTS	2/3/76	AI	14	35.91
49	C7	3/26/77	-3/27/90	563,981.102	1.00	1.00	2,768.589	50 to 100	2876	NTS	2/3/76	AI	14	35.71
50	D12	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2877	NTS	2/3/76	AI	14	37.72
51	C9	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2883	NTS	2/3/76	AI	14	36.31
52	E11	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2884	NTS	2/3/76	AI	14	37.33
53	D8	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2890	NTS	2/3/76	AI	14	35.90
54	E3	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2891	NTS	2/3/76	AI	14	36.36
55	E7	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2892	NTS	2/3/76	AI	14	35.02
56	D17	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2894	NTS	2/3/76	AI	14	40.10
57	D16	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2895	NTS	2/3/76	AI	14	37.78
58	D15	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	2896	NTS	2/3/76	AI	14	36.25
59	C5	3/26/77	-3/27/90	563,981.102	1.00	1.00	2,768.589	50 to 100	2897	NTS	2/3/76	AI	14	35.97
60	F20	3/26/77	- PRESENT	316,012.072	0.56	0.78	1,648.169	50 to 100	3065	NTS	7/74	AI	14	36.09
61	E4	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	3067	NTS	7/74	AI	14	37.06
62	E24	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	3069	NTS	8/74	AI	14	37.88
63	F8, F25	2/28/79	- PRESENT	378,546.142	0.67	0.71	1,961.829	50 to 100	3071	AFFRI	7/74	AI	14	38.04
64	F9	3/26/77	- PRESENT	316,012.072	0.56	0.61	1,648.169	50 to 100	3073	AFFRI	7/74	AI	14	35.83
65	F24	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	3076	AFFRI	7/74	AI	14	37.60
66	E18	9/15/81	- PRESENT	211,065.867	0.37	0.45	1,106.259	50 to 100	3077	AFFRI	7/74	AI	14	36.82
67	C4	3/26/77	-3/27/90	563,981.102	1.00	1.00	2,768.589	50 to 100	7180	GA	7/74	SS	15	38.99
68	B2	3/26/77	-3/27/90	563,981.102	1.00	1.00	2,768.589	50 to 100	7181	GA	7/74	SS	15	38.99
69	B4	3/26/77	-3/27/90	563,981.102	1.00	1.00	2,768.589	50 to 100	7182	GA	7/74	SS	15	38.99
70	C12	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	7183	GA	7/74	SS	15	38.00
71	B5	3/26/77	-3/27/90	563,981.102	1.00	1.00	2,768.589	50 to 100	7184	GA	7/74	SS	15	38.99
72	C8	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	7185	GA	7/74	SS	15	38.99
73	B6	3/26/77	-3/27/90	563,981.102	1.00	1.00	2,768.589	50 to 100	7186	GA	7/74	SS	15	38.99
74	C6	3/26/77	-3/27/90	563,981.102	1.00	1.00	2,768.589	50 to 100	7187	GA	7/74	SS	15	38.99
75	B3	3/26/77	-3/27/90	563,981.102	1.00	1.00	2,768.589	50 to 100	7188	GA	7/74	SS	15	38.99
76	C2	3/26/77	-3/27/90	563,981.102	1.00	1.00	2,768.589	50 to 100	7189	GA	7/74	SS	15	38.99
77	B1	3/26/77	-3/27/90	563,981.102	1.00	1.00	2,768.589	50 to 100	7190	GA	7/74	SS	15	38.99
78	C10	3/26/77	- PRESENT	563,981.102	1.00	1.00	2,768.589	50 to 100	7199	GA	7/74	SS	15	38.99
79	NONE	3/26/77	NONE	0.000	0.00	1.00	0.000	5	2995	DORF	5/24/79	SS	15	35.59

ELEMENT NUMBER	OPERATION IN CORE LOCATION	RESIDENT IN CORE START	STOP	OPERATION CORE KILOWATT HOURS	MULTI- PLIER	CORE OPERATING HOURS	CURRENT DOSE RATE	FUEL ELEMENT SERIAL NUMBER	RECEIVED FROM	DATE RECEIVED	FUEL ELEMENT CLADDING	FUEL COLUMN LENGTH	ORIGINAL U235 CONTENT
80	NONE		NONE	0.000	0.00	0.000	5	2996	DORF	5/24/79	SS	15	35.79
81	NONE		NONE	0.000	0.00	0.000	5	2999	DORF	5/24/79	SS	15	36.44
82	NONE		NONE	0.000	0.00	0.000	5	3000	DORF	5/24/79	SS	15	37.22
83	NONE		NONE	0.000	0.00	0.000	5	3003	DORF	5/24/79	SS	15	36.30
84	NONE		NONE	0.000	0.00	0.000	5	3087	DORF	5/24/79	SS	15	37.41
85	NONE		NONE	0.000	0.00	0.000	5	3089	DORF	5/24/79	SS	15	37.75
86	NONE		NONE	0.000	0.00	0.000	5	3090	DORF	5/24/79	SS	15	37.47
87	NONE		NONE	0.000	0.00	0.000	5	3091	DORF	5/24/79	SS	15	37.60
88	NONE		NONE	0.000	0.00	0.000	5	3092	DORF	5/24/79	SS	15	37.40
89	NONE		NONE	0.000	0.00	0.000	5	3095	DORF	5/24/79	SS	15	37.69
90	NONE		NONE	0.000	0.00	0.000	5	3098	DORF	5/24/79	SS	15	37.35
91	NONE		NONE	0.000	0.00	0.000	5	3098	DORF	5/24/79	SS	15	37.87
92	NONE		NONE	0.000	0.00	0.000	5	3101	DORF	5/24/79	SS	15	37.16
93	NONE		NONE	0.000	0.00	0.000	5	3102	DORF	5/24/79	SS	15	37.35
94	NONE		NONE	0.000	0.00	0.000	5	3104	DORF	5/24/79	SS	15	37.55
95	NONE		NONE	0.000	0.00	0.000	5	3106	DORF	5/24/79	SS	15	37.34
96	NONE		NONE	0.000	0.00	0.000	5	3108	DORF	5/24/79	SS	15	37.19
97	NONE		NONE	0.000	0.00	0.000	5	3109	DORF	5/24/79	SS	15	37.85
98	NONE		NONE	0.000	0.00	0.000	5	3110	DORF	5/24/79	SS	15	37.30
99	NONE		NONE	0.000	0.00	0.000	10	3151	DORF	5/24/79	SS/TG	15	39.31

WHC-SD-SNF-ANAL-010, Rev. 0

NRF TRIGA FUEL ASSEMBLIES PRINCIPAL DESIGN PARAMETERS & CURRENT STATUS

CONTROL ROD NUMBER	OPERATION IN CORE LOCATION	TIME IN CORE	OPERATION CORE KILOWATT HOURS	MULTI- PLIER	CORE OPERATING HOURS	CURRENT DOSE RATE (RHR)	FUEL FOLLOW- UP CONTROL ROD SERIAL NUMBER	RECEIVED FROM	DATE RECEIVED	CONTROL ROD CLADDING	FUEL COLUMN LENGTH (INCH)	ORIGINAL U235 CONTENT
3	NONE	NONE	0.000	1.00	0.000	1	6312	DORF	5/24/79	SS	15	32.01
4	NONE	NONE	0.000	1.00	0.000	3.5	6313	DORF	5/24/79	SS	15	32.00

This page intentionally left blank.

ATTACHMENT 5

**TRIGA CASK SUMMARY TABLES
(CURIES, GRAMS, WATTS)**

This page intentionally left blank.

CONTENTS

ATTACHMENT

5	TRIGA CASK SUMMARY TABLES (CURIES, GRAMS, WATTS)		A5-1
b1n1c	. . .	A5-5	
b1n1g	. . .	A5-6	
b1n1w	. . .	A5-7	
b2n2c	. . .	A5-8	
b2n2g	. . .	A5-9	
b2n2w	. . .	A5-10	
b3n3c	. . .	A5-11	
b3n3g	. . .	A5-12	
b3n3w	. . .	A5-13	
b6n6c	. . .	A5-14	
b6n6g	. . .	A5-15	
b6n6w	. . .	A5-16	
b4n4c	. . .	A5-17	
b4n4g	. . .	A5-18	
b4n4w	. . .	A5-19	
b5n5c	. . .	A5-20	
b5n5g	. . .	A5-21	
b5n5w	. . .	A5-22	
r1c1c	. . .	A5-23	
r1c1g	. . .	A5-24	
r1c1w	. . .	A5-25	
r2c2c	. . .	A5-26	
r2c2g	. . .	A5-27	
r2c2w	. . .	A5-28	

This page intentionally left blank.

NRF Cask #1, Basket #1, GA (b,c) & DORF pins
ALL, CURIES

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
CS137	3.322e+00	9.770e+00	8.507e+00	7.754e+00	6.154e+00	3.877e+00	9.690e-01	9.020e-10
BA137M	3.143e+00	9.292e+00	8.045e+00	7.336e+00	5.822e+00	3.667e+00	9.169e-01	8.534e-10
Y 90	3.179e+00	1.739e+01	8.088e+00	7.354e+00	5.796e+00	3.601e+00	8.632e-01	4.293e-10
SR 90	3.178e+00	9.325e+00	8.086e+00	7.352e+00	5.794e+00	3.600e+00	8.632e-01	4.292e-10
KR 85	3.077e-01	8.576e-01	5.834e-01	4.505e-01	2.359e-01	6.475e-02	1.338e-03	0.000e+00
NI 63	8.455e-02	2.596e-01	2.481e-01	2.407e-01	2.233e-01	1.920e-01	1.222e-01	1.385e-04
SM151	8.382e-02	2.426e-01	2.344e-01	2.273e-01	2.104e-01	1.804e-01	1.136e-01	1.109e-04
CO 60	5.326e-01	1.624e+00	7.375e-01	4.358e-01	1.170e-01	8.428e-03	3.149e-06	0.000e+00
PM147	2.681e+00	9.680e+00	2.912e+00	1.012e+00	7.207e-02	3.655e-04	4.766e-11	0.000e+00
U234	4.034e-02	4.027e-02	4.027e-02	4.027e-02	4.027e-02	4.027e-02	4.027e-02	4.017e-02
FE 55	7.400e-01	4.014e+00	8.107e-01	2.791e-01	1.941e-02	9.383e-05	1.060e-11	0.000e+00
PU239	6.089e-03	1.852e-02	1.891e-02	1.891e-02	1.891e-02	1.889e-02	1.886e-02	1.838e-02
H 3	1.165e-02	3.273e-02	2.337e-02	1.867e-02	1.065e-02	3.467e-03	1.195e-04	0.000e+00
EU155	5.365e-02	1.644e-01	7.108e-02	4.064e-02	1.005e-02	6.137e-04	1.399e-07	0.000e+00
NI 59	7.202e-04	2.262e-03	2.262e-03	2.262e-03	2.262e-03	2.261e-03	2.260e-03	2.243e-03
SB125	5.394e-02	2.379e-01	5.949e-02	2.186e-02	1.790e-03	1.200e-05	3.618e-12	0.000e+00
TC 99	5.384e-04	1.644e-03	1.687e-03	1.687e-03	1.687e-03	1.687e-03	1.686e-03	1.681e-03
EU152	3.571e-06	4.265e-03	3.141e-03	2.563e-03	1.539e-03	5.554e-04	2.610e-05	3.135e-25
U235	1.394e-03	1.387e-03	1.387e-03	1.387e-03	1.387e-03	1.387e-03	1.387e-03	1.387e-03
TH231	9.006e-04	4.927e-03	1.387e-03	1.387e-03	1.387e-03	1.387e-03	1.387e-03	1.387e-03
EU154	4.652e-04	5.858e-03	3.612e-03	2.616e-03	1.686e-03	2.331e-04	1.851e-06	0.000e+00
PU241	6.016e-05	2.549e-03	1.909e-03	1.575e-03	9.733e-04	3.716e-04	2.069e-05	1.818e-17
TH234	5.694e-04	8.799e-04	8.799e-04	8.799e-04	8.799e-04	8.799e-04	8.799e-04	8.799e-04
U238	8.799e-04	8.799e-04	8.799e-04	8.799e-04	8.799e-04	8.799e-04	8.799e-04	8.799e-04
PA234M	5.694e-04	8.799e-04	8.799e-04	8.799e-04	8.799e-04	8.799e-04	8.799e-04	8.799e-04
SUMTOT	1.813e+01	1.071e+05	3.958e+01	3.265e+01	2.454e+01	1.527e+01	3.921e+00	7.201e-02

NRF Cask #1, Basket #1, GA (b,c) & DORF pins
ALL, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
ZR 90	1.753e+04	1.753e+04	1.753e+04	1.753e+04	1.753e+04	1.753e+04	1.753e+04	1.753e+04
ZR 94	6.183e+03	6.183e+03	6.183e+03	6.183e+03	6.183e+03	6.183e+03	6.183e+03	6.183e+03
ZR 92	5.947e+03	5.947e+03	5.947e+03	5.947e+03	5.947e+03	5.947e+03	5.947e+03	5.947e+03
ZR 91	3.852e+03	3.852e+03	3.852e+03	3.852e+03	3.852e+03	3.852e+03	3.852e+03	3.852e+03
FE 56	3.354e+03	3.354e+03	3.354e+03	3.354e+03	3.354e+03	3.354e+03	3.354e+03	3.354e+03
U238	2.616e+03	2.616e+03	2.616e+03	2.616e+03	2.616e+03	2.616e+03	2.616e+03	2.616e+03
ZR 96	1.016e+03	1.016e+03	1.016e+03	1.016e+03	1.016e+03	1.016e+03	1.016e+03	1.016e+03
CR 52	9.420e+02	9.420e+02	9.420e+02	9.420e+02	9.420e+02	9.420e+02	9.420e+02	9.420e+02
U235	6.445e+02	6.412e+02	6.412e+02	6.412e+02	6.412e+02	6.412e+02	6.412e+02	6.412e+02
H 1	6.067e+02	6.067e+02	6.067e+02	6.067e+02	6.067e+02	6.067e+02	6.067e+02	6.067e+02
NI 58	4.551e+02	4.551e+02	4.551e+02	4.551e+02	4.551e+02	4.551e+02	4.551e+02	4.551e+02
FE 54	2.047e+02	2.047e+02	2.047e+02	2.047e+02	2.047e+02	2.047e+02	2.047e+02	2.047e+02
NI 60	1.800e+02	1.800e+02	1.800e+02	1.800e+02	1.800e+02	1.800e+02	1.800e+02	1.800e+02
MN 55	1.125e+02	1.125e+02	1.125e+02	1.125e+02	1.125e+02	1.125e+02	1.125e+02	1.125e+02
CR 53	1.089e+02	1.089e+02	1.089e+02	1.089e+02	1.089e+02	1.089e+02	1.089e+02	1.089e+02
FE 57	8.002e+01	8.010e+01	8.010e+01	8.010e+01	8.010e+01	8.010e+01	8.010e+01	8.010e+01
SI 28	5.170e+01	5.170e+01	5.170e+01	5.170e+01	5.170e+01	5.170e+01	5.170e+01	5.170e+01
CR 50	4.702e+01	4.702e+01	4.702e+01	4.702e+01	4.702e+01	4.702e+01	4.702e+01	4.702e+01
CR 54	2.756e+01	2.757e+01	2.757e+01	2.757e+01	2.757e+01	2.757e+01	2.757e+01	2.757e+01
NI 62	2.558e+01	2.558e+01	2.558e+01	2.558e+01	2.558e+01	2.558e+01	2.558e+01	2.558e+01
FE 58	1.098e+01	1.098e+01	1.098e+01	1.098e+01	1.098e+01	1.098e+01	1.098e+01	1.098e+01
NI 61	7.924e+00	7.928e+00	7.928e+00	7.928e+00	7.928e+00	7.928e+00	7.928e+00	7.928e+00
N 14	7.750e+00	7.750e+00	7.750e+00	7.750e+00	7.750e+00	7.750e+00	7.750e+00	7.750e+00
U236	6.738e+00	6.732e+00	6.732e+00	6.732e+00	6.732e+00	6.732e+00	6.732e+00	6.732e+00
NI 64	6.693e+00	6.693e+00	6.693e+00	6.693e+00	6.693e+00	6.693e+00	6.693e+00	6.693e+00
SUMTOT	4.404e+04	4.404e+04	4.404e+04	4.404e+04	4.404e+04	4.404e+04	4.404e+04	4.404e+04

NRF Cask #1, Basket #1, GA (b,c) & DORF pins
ALL, WATTS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
Y 90	1.762e-02	9.639e-02	4.483e-02	4.076e-02	3.212e-02	1.995e-02	4.785e-03	2.379e-12
BA137M	1.234e-02	3.648e-02	3.159e-02	2.880e-02	2.286e-02	1.440e-02	3.600e-03	3.351e-12
CS137	3.674e-03	1.080e-02	9.408e-03	8.575e-03	6.807e-03	4.288e-03	1.072e-03	9.977e-13
SR 90	3.688e-03	1.082e-02	9.387e-03	8.532e-03	6.725e-03	4.178e-03	1.002e-03	4.982e-13
CO 60	8.211e-03	2.504e-02	1.137e-02	6.718e-03	1.804e-03	1.299e-04	4.854e-08	0.000e+00
U234	1.162e-03	1.160e-03	1.160e-03	1.160e-03	1.160e-03	1.160e-03	1.160e-03	1.157e-03
U239	1.877e-04	5.708e-04	5.828e-04	5.828e-04	5.825e-04	5.823e-04	5.812e-04	5.664e-04
KR 85	4.608e-04	1.285e-03	8.742e-04	6.748e-04	3.534e-04	9.700e-05	2.004e-06	0.000e+00
NI 63	3.357e-05	1.031e-04	9.851e-05	9.563e-05	8.869e-05	7.627e-05	4.853e-05	5.502e-08
U235	3.650e-05	3.631e-05	3.631e-05	3.631e-05	3.631e-05	3.631e-05	3.631e-05	3.631e-05
PM147	9.615e-04	3.473e-03	1.044e-03	3.630e-04	2.585e-05	1.311e-07	1.710e-14	0.000e+00
SM151	9.827e-06	2.844e-05	2.748e-05	2.668e-05	2.467e-05	2.115e-05	1.333e-05	1.301e-08
U238	2.232e-05	2.232e-05	2.232e-05	2.232e-05	2.232e-05	2.232e-05	2.232e-05	2.232e-05
PU240	1.405e-06	1.346e-05	1.344e-05	1.344e-05	1.343e-05	1.340e-05	1.331e-05	1.210e-05
U236	1.182e-05	1.286e-05	1.286e-05	1.286e-05	1.286e-05	1.286e-05	1.286e-05	1.285e-05
PU238	1.081e-06	1.317e-05	1.328e-05	1.286e-05	1.189e-05	1.015e-05	6.318e-06	5.172e-09
EU152	2.701e-08	3.226e-05	2.376e-05	1.938e-05	1.164e-05	4.201e-06	1.974e-07	2.371e-27
EU154	4.161e-06	5.240e-05	3.231e-05	2.340e-05	1.045e-05	2.085e-06	1.656e-08	0.000e+00
EU155	3.902e-05	1.195e-04	5.170e-05	2.956e-05	7.309e-06	4.463e-07	1.018e-10	0.000e+00
SB125	1.686e-04	7.442e-04	1.860e-04	6.833e-05	5.597e-06	3.753e-08	1.131e-14	0.000e+00
PA234M	2.814e-06	4.349e-06	4.348e-06	4.348e-06	4.348e-06	4.348e-06	4.348e-06	4.348e-06
AM241	2.618e-08	3.294e-07	1.030e-06	1.393e-06	2.031e-06	2.620e-06	2.743e-06	6.532e-07
CS134	1.580e-05	1.113e-03	1.482e-04	3.863e-05	1.340e-06	1.603e-09	2.788e-18	0.000e+00
TC 99	2.700e-07	8.244e-07	8.459e-07	8.459e-07	8.459e-07	8.457e-07	8.455e-07	8.431e-07
TH231	5.053e-07	2.764e-06	7.780e-07	7.780e-07	7.780e-07	7.780e-07	7.780e-07	7.780e-07
SUMTOT	5.158e-02	1.365e+03	1.154e-01	9.673e-02	7.270e-02	4.501e-02	1.237e-02	1.846e-03

NRF Cask #2, Basket #2, NTS (d,e,f)

ALL, CURIES

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
CS137	1.616e+01	2.833e+01	2.465e+01	2.248e+01	1.785e+01	1.124e+01	2.810e+00	2.616e-09
BA137M	1.529e+01	2.691e+01	2.333e+01	2.126e+01	1.688e+01	1.063e+01	2.658e+00	2.475e-09
Y 90	1.546e+01	4.690e+01	2.339e+01	2.126e+01	1.676e+01	1.041e+01	2.496e+00	1.241e-09
SR 90	1.545e+01	2.697e+01	2.338e+01	2.126e+01	1.676e+01	1.041e+01	2.495e+00	1.241e-09
KR 85	1.503e+00	2.253e+00	1.532e+00	1.183e+00	6.198e-01	1.701e-01	3.514e-03	0.000e+00
SM151	3.865e-01	6.829e-01	6.582e-01	6.383e-01	5.910e-01	5.066e-01	3.191e-01	3.115e-04
PM147	1.323e+01	2.211e+01	6.641e+00	2.308e+00	1.643e-01	8.336e-04	1.087e-10	0.000e+00
PU239	2.926e-02	5.674e-02	5.764e-02	5.763e-02	5.762e-02	5.759e-02	5.748e-02	5.601e-02
U234	3.864e-02	3.849e-02	3.848e-02	3.848e-02	3.848e-02	3.848e-02	3.847e-02	3.838e-02
H 3	5.692e-02	8.763e-02	6.257e-02	4.999e-02	2.852e-02	9.281e-03	3.198e-04	0.000e+00
EU155	2.580e-01	3.906e-01	1.689e-01	9.656e-02	2.387e-02	1.458e-03	3.324e-07	0.000e+00
EU152	1.362e-04	3.793e-02	2.793e-02	2.278e-02	1.369e-02	4.938e-03	2.320e-04	2.788e-24
PU241	3.310e-03	2.767e-02	2.073e-02	1.710e-02	1.057e-02	4.035e-03	2.246e-04	1.970e-15
EU154	7.969e-03	3.215e-02	1.982e-02	1.436e-02	6.413e-03	1.279e-03	1.016e-05	0.000e+00
TC 99	2.611e-03	5.121e-03	5.217e-03	5.217e-03	5.216e-03	5.216e-03	5.216e-03	5.200e-03
SB125	2.691e-01	5.460e-01	1.364e-01	5.014e-02	4.106e-03	2.753e-05	8.298e-12	0.000e+00
PU240	7.456e-04	2.958e-03	2.956e-03	2.955e-03	2.952e-03	2.945e-03	2.927e-03	2.661e-03
PU238	7.582e-04	3.144e-03	3.100e-03	3.004e-03	2.775e-03	2.370e-03	1.476e-03	1.217e-06
U235	1.327e-03	1.311e-03	1.311e-03	1.311e-03	1.311e-03	1.311e-03	1.311e-03	1.311e-03
TH231	1.327e-03	1.375e-02	1.311e-03	1.311e-03	1.311e-03	1.311e-03	1.311e-03	1.311e-03
CD113M	1.982e-03	3.150e-03	2.372e-03	1.962e-03	1.220e-03	4.715e-04	2.726e-05	7.330e-24
ZR 93	5.728e-04	1.145e-03	1.147e-03	1.147e-03	1.147e-03	1.147e-03	1.147e-03	1.147e-03
TE125M	6.566e-02	4.724e-02	3.329e-02	1.223e-02	1.002e-03	6.717e-06	2.025e-12	0.000e+00
NB 93M	1.603e-04	4.887e-04	6.471e-04	7.288e-04	8.728e-04	1.012e-03	1.086e-03	1.089e-03
TH234	8.458e-04	8.456e-04	8.456e-04	8.456e-04	8.456e-04	8.456e-04	8.456e-04	8.456e-04
SUMTOT	8.193e+01	2.433e+05	1.066e+02	9.088e+01	6.982e+01	4.351e+01	1.090e+01	1.131e-01

NRF Cask #2, Basket #2, NTS (d,e,f)

ALL, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
ZR 90	1.811e+04	1.811e+04	1.811e+04	1.811e+04	1.811e+04	1.811e+04	1.811e+04	1.811e+04
ZR 94	6.390e+03	6.390e+03	6.390e+03	6.390e+03	6.390e+03	6.390e+03	6.390e+03	6.390e+03
ZR 92	6.147e+03	6.147e+03	6.147e+03	6.147e+03	6.147e+03	6.147e+03	6.147e+03	6.147e+03
ZR 91	3.982e+03	3.982e+03	3.982e+03	3.982e+03	3.982e+03	3.982e+03	3.982e+03	3.982e+03
AL 27	2.735e+03	2.735e+03	2.735e+03	2.735e+03	2.735e+03	2.735e+03	2.735e+03	2.735e+03
U238	2.514e+03	2.514e+03	2.514e+03	2.514e+03	2.514e+03	2.514e+03	2.514e+03	2.514e+03
ZR 96	1.050e+03	1.050e+03	1.050e+03	1.050e+03	1.050e+03	1.050e+03	1.050e+03	1.050e+03
U235	6.135e+02	6.062e+02	6.062e+02	6.062e+02	6.062e+02	6.062e+02	6.062e+02	6.062e+02
H 1	3.925e+02	3.925e+02	3.925e+02	3.925e+02	3.925e+02	3.925e+02	3.925e+02	3.925e+02
U236	7.559e+00	8.903e+00	8.903e+00	8.903e+00	8.903e+00	8.903e+00	8.903e+00	8.904e+00
U234	6.182e+00	6.157e+00	6.157e+00	6.157e+00	6.156e+00	6.156e+00	6.155e+00	6.140e+00
PU239	4.705e-01	9.126e-01	9.259e-01	9.268e-01	9.265e-01	9.259e-01	9.244e-01	9.007e-01
XEL36	2.729e-01	5.456e-01	5.456e-01	5.456e-01	5.456e-01	5.456e-01	5.456e-01	5.456e-01
XEL34	2.672e-01	5.339e-01	5.342e-01	5.342e-01	5.342e-01	5.342e-01	5.342e-01	5.342e-01
BA138	2.434e-01	4.867e-01	4.868e-01	4.868e-01	4.868e-01	4.868e-01	4.868e-01	4.868e-01
CE140	2.304e-01	4.299e-01	4.657e-01	4.657e-01	4.657e-01	4.657e-01	4.657e-01	4.657e-01
LA139	2.328e-01	4.653e-01	4.654e-01	4.654e-01	4.654e-01	4.654e-01	4.654e-01	4.654e-01
CS133	2.325e-01	4.470e-01	4.645e-01	4.645e-01	4.645e-01	4.645e-01	4.645e-01	4.645e-01
N 14	4.586e-01	4.586e-01	4.586e-01	4.586e-01	4.586e-01	4.586e-01	4.586e-01	4.586e-01
ZR 93	2.279e-01	4.555e-01	4.564e-01	4.564e-01	4.564e-01	4.564e-01	4.563e-01	4.561e-01
ND143	2.186e-01	4.016e-01	4.357e-01	4.357e-01	4.357e-01	4.357e-01	4.357e-01	4.357e-01
CE142	2.165e-01	4.327e-01	4.329e-01	4.329e-01	4.329e-01	4.329e-01	4.329e-01	4.329e-01
PR141	2.156e-01	3.819e-01	4.310e-01	4.310e-01	4.310e-01	4.310e-01	4.310e-01	4.310e-01
ND144	2.023e-01	3.423e-01	4.063e-01	4.066e-01	4.066e-01	4.066e-01	4.066e-01	4.066e-01
MO 97	1.882e-01	3.750e-01	3.768e-01	3.768e-01	3.768e-01	3.768e-01	3.768e-01	3.768e-01
SUMTOT	4.194e+04	4.194e+04	4.194e+04	4.194e+04	4.194e+04	4.194e+04	4.194e+04	4.194e+04

NRF Cask #2, Basket #2, NTS (d,e,f)

ALL, WATTS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
Y 90	8.568e-02	2.599e-01	1.296e-01	1.178e-01	9.288e-02	5.770e-02	1.383e-02	6.879e-12
BA137M	6.004e-02	1.056e-01	9.159e-02	8.351e-02	6.628e-02	4.175e-02	1.044e-02	9.715e-12
CS137	1.788e-02	3.133e-02	2.727e-02	2.487e-02	1.974e-02	1.243e-02	3.108e-03	2.892e-12
SR 90	1.794e-02	3.131e-02	2.713e-02	2.467e-02	1.945e-02	1.208e-02	2.896e-03	1.440e-12
PU239	9.015e-04	1.749e-03	1.777e-03	1.776e-03	1.776e-03	1.774e-03	1.771e-03	1.727e-03
U234	1.113e-03	1.108e-03	1.108e-03	1.108e-03	1.108e-03	1.108e-03	1.108e-03	1.105e-03
KR 85	2.251e-03	3.375e-03	2.295e-03	1.772e-03	9.284e-04	2.547e-04	5.263e-06	0.000e+00
EU152	1.030e-06	2.868e-04	2.113e-04	1.723e-04	1.035e-04	3.735e-05	1.756e-06	2.109e-26
PU238	2.513e-05	1.042e-04	1.027e-04	9.954e-05	9.198e-05	7.855e-05	4.890e-05	4.033e-08
PU240	2.322e-05	9.210e-05	9.205e-05	9.201e-05	9.191e-05	9.171e-05	9.113e-05	8.284e-08
SM151	4.532e-05	8.007e-05	7.718e-05	7.484e-05	6.929e-05	5.940e-05	3.742e-05	3.653e-08
PM147	4.746e-03	7.930e-03	2.382e-03	8.279e-04	5.896e-05	2.990e-07	3.899e-14	0.000e+00
EU154	7.128e-05	2.875e-04	1.772e-04	1.284e-04	5.736e-05	1.144e-05	9.086e-08	0.000e+00
U235	3.475e-05	3.433e-05	3.433e-05	3.433e-05	3.433e-05	3.433e-05	3.433e-05	3.433e-05
AM241	1.402e-05	9.318e-06	1.688e-05	2.076e-05	2.760e-05	3.383e-05	3.467e-05	8.247e-06
U238	2.143e-05	2.144e-05	2.144e-05	2.144e-05	2.144e-05	2.144e-05	2.144e-05	2.144e-05
EU155	1.877e-04	2.841e-04	1.228e-04	7.023e-05	1.736e-05	1.060e-06	2.418e-10	0.000e+00
U236	1.325e-05	1.561e-05	1.561e-05	1.561e-05	1.561e-05	1.561e-05	1.561e-05	1.561e-05
SB125	8.413e-04	1.707e-03	4.265e-04	1.567e-04	1.283e-05	8.606e-08	2.594e-14	0.000e+00
CS134	3.733e-04	5.061e-03	6.737e-04	1.755e-04	6.089e-06	7.314e-09	1.272e-17	0.000e+00
PA234M	4.180e-06	4.180e-06	4.179e-06	4.179e-06	4.179e-06	4.179e-06	4.179e-06	4.179e-06
TC 99	1.310e-06	2.568e-06	2.616e-06	2.616e-06	2.616e-06	2.616e-06	2.616e-06	2.608e-06
CD113M	3.336e-06	5.301e-06	3.992e-06	3.302e-06	2.053e-06	7.938e-07	4.589e-08	1.234e-26
SB126M	9.127e-07	2.775e-06	1.828e-06	1.828e-06	1.828e-06	1.828e-06	1.828e-06	1.816e-06
H 3	1.917e-06	2.951e-06	2.107e-06	1.683e-06	9.602e-07	3.125e-07	1.077e-08	0.000e+00
SUMTOT	2.075e-01	3.104e+03	2.952e-01	2.578e-01	2.028e-01	1.275e-01	3.346e-02	3.036e-03

NRF Cask #3, Basket #3, AFFRI (e,f)

ALL, CURIES

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
CS137	1.802e+00	1.289e+01	1.122e+01	1.023e+01	8.122e+00	5.117e+00	1.279e+00	1.190e-09
BA137M	1.1705e+00	1.227e+01	1.062e+01	9.681e+00	7.684e+00	4.840e+00	1.210e+00	1.126e-09
Y 90	1.724e+00	2.622e+01	1.069e+01	9.715e+00	7.658e+00	4.757e+00	1.141e+00	5.672e-10
SR 90	1.724e+00	1.232e+01	1.068e+01	9.713e+00	7.656e+00	4.756e+00	1.140e+00	5.671e-10
KR 85	1.668e-01	1.207e+00	8.217e-01	6.345e-01	3.323e-01	9.119e-02	1.884e-03	0.000e+00
SM151	4.612e-02	3.106e-01	3.010e-01	2.919e-01	2.703e-01	2.317e-01	1.459e-01	1.425e-04
PM147	1.446e+00	1.539e+01	4.646e+00	1.615e+00	1.150e-01	5.832e-04	7.603e-11	0.000e+00
U234	3.452e-02	3.440e-02	3.440e-02	3.440e-02	3.440e-02	3.440e-02	3.438e-02	3.431e-02
PU239	3.316e-03	2.334e-02	2.397e-02	2.397e-02	2.396e-02	2.395e-02	2.391e-02	2.329e-02
EU135	2.919e-02	2.521e-01	1.090e-01	6.234e-02	1.541e-02	9.413e-04	2.146e-07	0.000e+00
H 3	6.315e-03	4.553e-02	3.251e-02	2.597e-02	1.482e-02	4.822e-03	1.662e-04	0.000e+00
SB125	2.905e-02	3.776e-01	9.454e-02	3.475e-02	2.845e-03	1.907e-05	5.749e-12	0.000e+00
EU152	4.649e-07	7.645e-03	5.631e-03	4.593e-03	2.759e-03	9.955e-04	4.678e-05	5.619e-25
TC 99	2.980e-04	2.075e-03	2.143e-03	2.143e-03	2.143e-03	2.143e-03	2.143e-03	2.136e-03
EU154	7.799e-05	7.759e-03	4.784e-03	3.465e-03	1.548e-03	3.088e-04	2.451e-06	0.000e+00
U235	1.193e-03	1.181e-03	1.181e-03	1.181e-03	1.181e-03	1.181e-03	1.181e-03	1.182e-03
TH231	1.193e-03	9.925e-03	1.181e-03	1.181e-03	1.181e-03	1.181e-03	1.181e-03	1.182e-03
PU241	3.721e-06	2.785e-03	2.087e-03	1.721e-03	1.063e-03	4.060e-04	2.260e-05	8.166e-18
TH234	7.526e-04	7.526e-04	7.525e-04	7.525e-04	7.525e-04	7.525e-04	7.525e-04	7.525e-04
PA234M	7.526e-04	7.526e-04	7.525e-04	7.525e-04	7.525e-04	7.525e-04	7.525e-04	7.525e-04
U238	7.526e-04	7.525e-04	7.525e-04	7.525e-04	7.525e-04	7.525e-04	7.525e-04	7.525e-04
TE125M	7.089e-03	3.170e-02	2.306e-02	8.477e-03	6.941e-04	4.653e-06	1.403e-12	0.000e+00
CD113M	2.193e-04	1.574e-03	1.186e-03	9.811e-04	6.100e-04	2.359e-04	1.364e-05	3.667e-24
PU240	7.690e-06	5.627e-04	5.624e-04	5.621e-04	5.615e-04	5.604e-04	5.568e-04	5.061e-04
PU238	3.789e-06	5.339e-04	5.361e-04	5.193e-04	4.799e-04	4.098e-04	2.551e-04	2.087e-07
SUMTOT	9.093e+00	1.720e+05	5.104e+01	4.215e+01	3.195e+01	1.986e+01	4.986e+00	6.790e-02

NRF Cask #3, Basket #3, AFFRI (e,f)

ALL, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
ZR 90	1.611e+04	1.611e+04	1.611e+04	1.611e+04	1.611e+04	1.611e+04	1.611e+04	1.611e+04
ZR 94	5.685e+03	5.685e+03	5.685e+03	5.685e+03	5.685e+03	5.685e+03	5.685e+03	5.685e+03
ZR 92	5.469e+03	5.469e+03	5.469e+03	5.469e+03	5.469e+03	5.469e+03	5.469e+03	5.469e+03
ZR 91	3.543e+03	3.543e+03	3.543e+03	3.543e+03	3.543e+03	3.543e+03	3.543e+03	3.543e+03
AL 27	2.434e+03	2.434e+03	2.434e+03	2.434e+03	2.434e+03	2.434e+03	2.434e+03	2.434e+03
U238	2.238e+03	2.238e+03	2.238e+03	2.238e+03	2.238e+03	2.238e+03	2.238e+03	2.238e+03
ZR 96	9.344e+02	9.344e+02	9.344e+02	9.344e+02	9.344e+02	9.344e+02	9.344e+02	9.344e+02
U235	5.515e+02	5.464e+02	5.464e+02	5.464e+02	5.464e+02	5.464e+02	5.464e+02	5.464e+02
H 1	3.492e+02	3.492e+02	3.492e+02	3.492e+02	3.492e+02	3.492e+02	3.492e+02	3.492e+02
U236	5.675e+00	6.629e+00	6.629e+00	6.629e+00	6.629e+00	6.629e+00	6.629e+00	6.629e+00
U234	5.521e+00	5.502e+00	5.502e+00	5.502e+00	5.502e+00	5.502e+00	5.501e+00	5.487e+00
N 14	4.080e-01	4.080e-01	4.080e-01	4.080e-01	4.080e-01	4.080e-01	4.080e-01	4.080e-01
PU239	5.332e-02	3.754e-01	3.854e-01	3.854e-01	3.853e-01	3.850e-01	3.843e-01	3.746e-01
XEL134	2.987e-02	2.185e-01	2.187e-01	2.187e-01	2.187e-01	2.187e-01	2.187e-01	2.187e-01
XEL136	3.019e-02	2.172e-01	2.172e-01	2.172e-01	2.172e-01	2.172e-01	2.172e-01	2.172e-01
BA138	2.723e-02	1.992e-01	1.992e-01	1.992e-01	1.992e-01	1.992e-01	1.992e-01	1.992e-01
CE140	2.525e-02	1.663e-01	1.915e-01	1.915e-01	1.915e-01	1.915e-01	1.915e-01	1.915e-01
LA139	2.608e-02	1.905e-01	1.906e-01	1.906e-01	1.906e-01	1.906e-01	1.906e-01	1.906e-01
CS133	2.603e-02	1.781e-01	1.904e-01	1.904e-01	1.904e-01	1.904e-01	1.904e-01	1.904e-01
ZR 93	2.545e-02	1.859e-01	1.865e-01	1.865e-01	1.865e-01	1.865e-01	1.865e-01	1.864e-01
ND143	2.452e-02	1.548e-01	1.789e-01	1.789e-01	1.789e-01	1.789e-01	1.789e-01	1.789e-01
CE142	2.422e-02	1.771e-01	1.772e-01	1.772e-01	1.772e-01	1.772e-01	1.772e-01	1.772e-01
PR141	2.413e-02	1.417e-01	1.765e-01	1.765e-01	1.765e-01	1.765e-01	1.765e-01	1.765e-01
ND144	2.257e-02	1.204e-01	1.657e-01	1.660e-01	1.660e-01	1.660e-01	1.660e-01	1.660e-01
CS135	2.090e-02	1.554e-01	1.565e-01	1.565e-01	1.565e-01	1.565e-01	1.565e-01	1.565e-01
SUMTOT	3.732e+04	3.732e+04	3.732e+04	3.732e+04	3.732e+04	3.732e+04	3.732e+04	3.732e+04

NRF Cask #3, Basket #3, AFFRI (e,f)

ALL, WATTS

	Initial	Discharge	6.0VR	10.0VR	20.0VR	40.0VR	100.0VR	1000.0VR
Y 90	9.558e-03	1.453e-01	5.923e-02	5.385e-02	4.244e-02	2.637e-02	6.321e-03	3.144e-12
BA137M	6.695e-03	4.819e-02	4.169e-02	3.801e-02	3.017e-02	1.900e-02	4.751e-03	4.422e-12
CS137	1.993e-03	1.426e-02	1.241e-02	1.132e-02	8.984e-03	5.659e-03	1.415e-03	1.317e-12
SR 90	2.001e-03	1.430e-02	1.240e-02	1.127e-02	8.886e-03	5.520e-03	1.323e-03	6.582e-13
U234	9.940e-04	9.907e-04	9.907e-04	9.907e-04	9.907e-04	9.906e-04	9.904e-04	9.880e-04
PU239	1.022e-04	7.194e-04	7.387e-04	7.386e-04	7.384e-04	7.380e-04	7.366e-04	7.179e-04
KR 85	2.498e-04	1.808e-03	1.231e-03	9.503e-04	4.978e-04	1.366e-04	2.822e-06	0.000e+00
PM147	5.185e-04	5.521e-03	1.667e-03	5.791e-04	4.125e-05	2.092e-07	2.728e-14	0.000e+00
SM151	5.408e-06	3.642e-05	3.529e-05	3.423e-05	3.169e-05	2.717e-05	1.711e-05	1.670e-08
U235	3.123e-05	3.094e-05	3.094e-05	3.094e-05	3.094e-05	3.094e-05	3.094e-05	3.094e-05
EU152	3.516e-09	5.783e-05	4.259e-05	3.474e-05	2.086e-05	7.530e-06	3.538e-07	4.251e-27
U238	1.910e-05	1.909e-05	1.909e-05	1.909e-05	1.909e-05	1.909e-05	1.909e-05	1.909e-05
PU240	2.395e-07	1.752e-05	1.751e-05	1.750e-05	1.748e-05	1.744e-05	1.733e-05	1.576e-05
PU238	1.256e-07	1.770e-05	1.777e-05	1.721e-05	1.591e-05	1.358e-05	8.453e-06	6.918e-09
EU154	6.977e-07	6.940e-05	4.279e-05	3.100e-05	1.385e-05	2.762e-06	2.193e-08	0.000e+00
U236	9.951e-06	1.162e-05	1.162e-05	1.162e-05	1.162e-05	1.162e-05	1.162e-05	1.162e-05
EU155	2.123e-05	1.833e-04	7.931e-05	4.534e-05	1.121e-05	6.847e-07	1.561e-10	0.000e+00
SB125	9.082e-05	1.181e-03	2.955e-04	1.086e-04	8.894e-06	5.963e-08	1.797e-14	0.000e+00
PA234M	3.719e-06	3.719e-06	3.719e-06	3.719e-06	3.719e-06	3.719e-06	3.719e-06	3.719e-06
AM241	1.632e-09	3.959e-07	1.162e-06	1.557e-06	2.253e-06	2.897e-06	3.027e-06	7.209e-07
CS134	2.204e-06	1.460e-03	1.943e-04	5.065e-05	1.756e-06	2.113e-09	3.675e-18	0.000e+00
TC 99	1.494e-06	1.040e-06	1.075e-06	1.075e-06	1.075e-06	1.075e-06	1.074e-06	1.071e-06
CD113M	3.692e-07	2.651e-06	1.997e-06	1.652e-06	1.027e-06	3.971e-07	2.296e-08	6.173e-27
SB126M	1.019e-07	1.941e-03	7.470e-07	7.470e-07	7.470e-07	7.468e-07	7.465e-07	7.419e-07
TH231	6.693e-07	5.569e-06	6.629e-07	6.629e-07	6.629e-07	6.629e-07	6.629e-07	6.629e-07
SUMTOT	2.381e-02	2.195e+03	1.382e-01	1.184e-01	9.294e-02	5.856e-02	1.566e-02	1.818e-03

NRF Cask #6, Basket #6, GA (b,c) & DORF
ALL, CURIOS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
CS137	3.020e+00	9.896e+00	8.615e+00	7.854e+00	6.233e+00	3.927e+00	9.818e-01	9.136e-10
BA137M	2.857e+00	9.414e+00	8.149e+00	7.430e+00	5.897e+00	3.715e+00	9.289e-01	8.645e-10
Y 90	2.890e+00	1.792e+01	8.195e+00	7.449e+00	5.872e+00	3.648e+00	8.746e-01	4.349e-10
SR 90	2.889e+00	9.451e+00	8.190e+00	7.448e+00	5.870e+00	3.647e+00	8.746e-01	4.348e-10
KR 85	2.797e-01	8.791e-01	5.982e-01	4.619e-01	2.419e-01	6.638e-02	1.372e-03	0.000e+00
NI 63	7.686e-02	2.617e-01	2.501e-01	2.427e-01	2.251e-01	1.936e-01	1.232e-01	1.399e-04
SM151	7.620e-02	2.431e-01	2.350e-01	2.279e-01	2.111e-01	1.809e-01	1.140e-01	1.112e-04
CO 60	4.842e-01	1.688e+00	7.668e-01	4.531e-01	1.216e-01	8.761e-03	3.273e-06	0.000e+00
PM147	2.437e+00	1.014e+01	3.053e+00	1.061e+00	7.557e-02	3.832e-04	4.996e-11	0.000e+00
U234	3.797e-02	3.790e-02	3.790e-02	3.790e-02	3.790e-02	3.789e-02	3.789e-02	3.780e-02
FE 55	6.727e-01	4.211e+00	8.503e-01	2.928e-01	2.036e-02	9.843e-05	1.112e-11	0.000e+00
PU239	5.535e-03	1.858e-02	1.899e-02	1.899e-02	1.898e-02	1.897e-02	1.894e-02	1.845e-02
H 3	1.059e-02	3.349e-02	2.391e-02	1.910e-02	1.090e-02	3.546e-03	1.222e-04	0.000e+00
EU155	4.877e-02	1.708e-01	7.386e-02	4.223e-02	1.044e-02	6.376e-04	1.454e-07	0.000e+00
NI 59	6.547e-04	2.274e-03	2.274e-03	2.274e-03	2.274e-03	2.274e-03	2.272e-03	2.255e-03
SB125	4.904e-02	2.494e-01	6.236e-02	2.292e-02	1.877e-03	1.259e-05	3.794e-12	0.000e+00
TC 99	4.895e-04	1.650e-03	1.695e-03	1.695e-03	1.695e-03	1.695e-03	1.695e-03	1.690e-03
EU152	3.246e-06	4.676e-03	3.444e-03	2.809e-03	1.687e-03	6.090e-04	2.861e-05	3.437e-25
U235	1.312e-03	1.304e-03	1.304e-03	1.304e-03	1.304e-03	1.304e-03	1.304e-03	1.304e-03
TH231	8.187e-04	5.022e-03	1.304e-03	1.304e-03	1.304e-03	1.304e-03	1.304e-03	1.304e-03
EU154	4.229e-04	6.424e-03	3.961e-03	2.869e-03	1.281e-03	2.557e-04	2.030e-06	0.000e+00
PU241	5.469e-05	2.940e-03	2.202e-03	1.817e-03	1.123e-03	4.286e-04	2.386e-05	2.551e-17
C 14	2.401e-04	8.345e-04	8.337e-04	8.336e-04	8.327e-04	8.305e-04	8.245e-04	7.395e-04
TH234	5.176e-04	8.281e-04	8.281e-04	8.281e-04	8.281e-04	8.281e-04	8.281e-04	8.281e-04
PA234M	5.176e-04	8.281e-04	8.281e-04	8.281e-04	8.281e-04	8.281e-04	8.281e-04	8.281e-04
SUMTOT	1.649e+01	1.125e+05	4.029e+01	3.313e+01	2.487e+01	1.546e+01	3.967e+00	6.936e-02

NRF Cask #6, Basket #6, GA (b,c) & DORF

ALL, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
ZR 90	1.650e+04	1.650e+04	1.650e+04	1.650e+04	1.650e+04	1.650e+04	1.650e+04	1.650e+04
ZR 94	5.819e+03	5.819e+03	5.819e+03	5.819e+03	5.819e+03	5.819e+03	5.819e+03	5.819e+03
ZR 92	5.597e+03	5.597e+03	5.597e+03	5.597e+03	5.597e+03	5.597e+03	5.597e+03	5.597e+03
ZR 91	3.626e+03	3.626e+03	3.626e+03	3.626e+03	3.626e+03	3.626e+03	3.626e+03	3.626e+03
FE 56	3.157e+03	3.156e+03	3.156e+03	3.156e+03	3.156e+03	3.156e+03	3.156e+03	3.156e+03
U238	2.462e+03	2.462e+03	2.462e+03	2.462e+03	2.462e+03	2.462e+03	2.462e+03	2.462e+03
ZR 96	9.563e+02	9.564e+02	9.564e+02	9.564e+02	9.564e+02	9.564e+02	9.564e+02	9.564e+02
CR 52	8.866e+02	8.866e+02	8.866e+02	8.866e+02	8.866e+02	8.866e+02	8.866e+02	8.866e+02
U235	6.066e+02	6.032e+02	6.032e+02	6.032e+02	6.032e+02	6.032e+02	6.032e+02	6.032e+02
H 1	5.710e+02	5.710e+02	5.710e+02	5.710e+02	5.710e+02	5.710e+02	5.710e+02	5.710e+02
NI 58	4.283e+02	4.283e+02	4.283e+02	4.283e+02	4.283e+02	4.283e+02	4.283e+02	4.283e+02
FE 54	1.927e+02	1.926e+02	1.926e+02	1.926e+02	1.926e+02	1.926e+02	1.926e+02	1.926e+02
NI 60	1.694e+02	1.694e+02	1.694e+02	1.694e+02	1.694e+02	1.694e+02	1.694e+02	1.694e+02
MN 55	1.059e+02	1.059e+02	1.059e+02	1.059e+02	1.059e+02	1.059e+02	1.059e+02	1.059e+02
CR 53	1.025e+02	1.025e+02	1.025e+02	1.025e+02	1.025e+02	1.025e+02	1.025e+02	1.025e+02
FE 57	7.531e+01	7.539e+01	7.539e+01	7.539e+01	7.539e+01	7.539e+01	7.539e+01	7.539e+01
SI 28	4.866e+01	4.866e+01	4.866e+01	4.866e+01	4.866e+01	4.866e+01	4.866e+01	4.866e+01
CR 50	4.426e+01	4.425e+01	4.425e+01	4.425e+01	4.425e+01	4.425e+01	4.425e+01	4.425e+01
CR 54	2.594e+01	2.595e+01	2.595e+01	2.595e+01	2.595e+01	2.595e+01	2.595e+01	2.595e+01
NI 62	2.408e+01	2.407e+01	2.407e+01	2.407e+01	2.407e+01	2.407e+01	2.407e+01	2.407e+01
FE 58	1.033e+01	1.034e+01	1.034e+01	1.034e+01	1.034e+01	1.034e+01	1.034e+01	1.034e+01
NI 61	7.458e+00	7.462e+00	7.462e+00	7.462e+00	7.462e+00	7.462e+00	7.462e+00	7.462e+00
N 14	7.294e+00	7.294e+00	7.294e+00	7.294e+00	7.294e+00	7.294e+00	7.294e+00	7.294e+00
U236	6.333e+00	6.956e+00	6.956e+00	6.956e+00	6.956e+00	6.956e+00	6.956e+00	6.956e+00
NI 64	6.299e+00	6.299e+00	6.299e+00	6.299e+00	6.299e+00	6.299e+00	6.299e+00	6.299e+00
SUMTOT	4.145e+04	4.145e+04	4.145e+04	4.145e+04	4.145e+04	4.145e+04	4.145e+04	4.145e+04

NRF Cask #6, Basket #6, GA (b,c) & DORF
ALL, WATTS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
Y 90	1.602e-02	9.934e-02	4.542e-02	4.129e-02	3.254e-02	2.022e-02	4.847e-03	2.411e-12
BA137M	1.122e-02	3.695e-02	3.200e-02	2.917e-02	2.316e-02	1.459e-02	3.646e-03	3.394e-12
CS137	3.340e-03	1.095e-02	9.530e-03	8.685e-03	6.895e-03	4.344e-03	1.085e-03	1.011e-12
SR 90	3.353e-03	1.097e-02	9.507e-03	8.645e-03	6.813e-03	4.233e-03	1.015e-03	5.047e-13
CO 60	7.465e-03	2.602e-02	1.182e-02	6.986e-03	1.875e-03	1.350e-04	5.047e-08	0.000e+00
U234	1.094e-03	1.092e-03	1.092e-03	1.092e-03	1.092e-03	1.091e-03	1.091e-03	1.089e-03
PU239	1.706e-04	5.726e-04	5.852e-04	5.852e-04	5.850e-04	5.847e-04	5.836e-04	5.687e-04
KR 85	4.189e-04	1.317e-03	8.962e-04	6.919e-04	3.624e-04	9.945e-05	2.054e-06	0.000e+00
NI 63	3.052e-05	1.039e-04	9.930e-05	9.638e-05	8.939e-05	7.688e-05	4.892e-05	5.555e-08
U235	3.435e-05	3.416e-05	3.416e-05	3.416e-05	3.416e-05	3.416e-05	3.416e-05	3.416e-05
PM147	8.741e-04	3.638e-03	1.095e-03	3.806e-04	2.710e-05	1.374e-07	1.792e-14	0.000e+00
SM151	8.934e-06	2.851e-05	2.756e-05	2.672e-05	2.474e-05	2.121e-05	1.336e-05	1.305e-08
U238	2.101e-05	2.101e-05	2.101e-05	2.101e-05	2.101e-05	2.101e-05	2.101e-05	2.101e-05
PU240	1.277e-06	1.455e-05	1.454e-05	1.453e-05	1.452e-05	1.449e-05	1.440e-05	1.309e-05
PU238	9.825e-07	1.437e-05	1.450e-05	1.405e-05	1.299e-05	1.109e-05	6.901e-06	5.651e-09
EU152	2.455e-08	3.537e-05	2.605e-05	2.125e-05	1.276e-05	4.606e-06	2.164e-07	2.600e-27
U236	1.110e-05	1.220e-05	1.220e-05	1.220e-05	1.220e-05	1.220e-05	1.220e-05	1.220e-05
EU154	3.783e-06	5.746e-05	3.543e-05	2.566e-05	1.146e-05	2.287e-06	1.816e-08	0.000e+00
EU155	3.547e-05	1.242e-04	5.373e-05	3.071e-05	7.595e-06	4.638e-07	1.058e-10	0.000e+00
SB125	1.533e-04	7.800e-04	1.950e-04	7.165e-05	5.868e-06	3.935e-08	1.186e-14	0.000e+00
PA234M	2.558e-06	4.092e-06	4.092e-06	4.092e-06	4.092e-06	4.092e-06	4.092e-06	4.092e-06
AN241	2.380e-08	3.678e-07	1.176e-06	1.594e-06	2.330e-06	3.010e-06	3.153e-06	7.507e-07
CS134	1.436e-05	1.228e-03	1.635e-04	4.260e-05	1.477e-06	1.774e-09	3.085e-18	0.000e+00
TC 99	2.455e-07	8.276e-07	8.503e-07	8.503e-07	8.503e-07	8.502e-07	8.496e-07	8.472e-07
CD113M	6.197e-07	1.971e-06	1.485e-06	1.228e-06	7.635e-07	2.953e-07	1.707e-08	4.590e-27
SUMTOT	4.693e-02	1.433e+03	1.173e-01	9.813e-02	7.361e-02	4.550e-02	1.243e-02	1.775e-03

NRF Cask #4, Basket #4, NTS (c,d,e)

ALL, CURIES

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
CS137	1.585e+01	2.778e+01	2.418e+01	2.205e+01	1.750e+01	1.102e+01	2.756e+00	2.565e-09
BA137M	1.500e+01	2.639e+01	2.288e+01	2.085e+01	1.656e+01	1.043e+01	2.607e+00	2.427e-09
Y 90	1.516e+01	4.602e+01	2.293e+01	2.085e+01	1.643e+01	1.021e+01	2.448e+00	1.217e-09
SR 90	1.515e+01	2.644e+01	2.293e+01	2.085e+01	1.643e+01	1.021e+01	2.447e+00	1.217e-09
KR 85	1.474e+00	2.210e+00	1.503e+00	1.160e+00	6.078e-01	1.668e-01	3.446e-03	0.000e+00
SM151	3.775e-01	6.646e-01	6.407e-01	6.213e-01	5.752e-01	4.931e-01	3.106e-01	3.032e-04
PM147	1.297e+01	2.168e+01	6.512e+00	2.263e+00	1.611e-01	8.173e-04	1.066e-10	0.000e+00
PU239	2.867e-02	5.556e-02	5.644e-02	5.643e-02	5.641e-02	5.639e-02	5.628e-02	5.484e-02
U234	3.589e-02	3.574e-02	3.573e-02	3.573e-02	3.573e-02	3.573e-02	3.573e-02	3.564e-02
H 3	5.583e-02	8.595e-02	6.137e-02	4.903e-02	2.797e-02	9.103e-03	3.137e-04	0.000e+00
EU155	2.526e-01	3.876e-01	1.654e-01	9.460e-02	2.339e-02	1.428e-03	3.257e-07	0.000e+00
EU152	1.403e-04	3.890e-02	2.865e-02	2.337e-02	1.404e-02	5.065e-03	2.380e-04	2.860e-24
PU241	3.632e-03	3.034e-02	2.273e-02	1.875e-02	1.158e-02	4.424e-03	2.463e-04	2.835e-15
EU154	8.260e-03	3.336e-02	2.056e-02	1.490e-02	6.654e-03	1.327e-03	1.054e-05	0.000e+00
TC 99	2.561e-03	5.021e-03	5.116e-03	5.116e-03	5.116e-03	5.115e-03	5.115e-03	5.100e-03
SB125	2.640e-01	5.357e-01	1.339e-01	4.920e-02	4.029e-03	2.701e-05	8.141e-12	0.000e+00
PU240	7.721e-04	3.060e-03	3.058e-03	3.057e-03	3.053e-03	3.046e-03	3.028e-03	2.752e-03
PU238	7.887e-04	3.282e-03	3.237e-03	3.136e-03	2.898e-03	2.475e-03	1.541e-03	1.272e-06
TH231	1.232e-03	1.343e-02	1.216e-03	1.216e-03	1.216e-03	1.216e-03	1.216e-03	1.216e-03
U235	1.232e-03	1.216e-03	1.216e-03	1.216e-03	1.216e-03	1.216e-03	1.216e-03	1.216e-03
CD113M	1.944e-03	3.091e-03	2.328e-03	1.925e-03	1.197e-03	4.628e-04	2.676e-05	7.194e-24
ZR 93	5.619e-04	1.123e-03	1.125e-03	1.125e-03	1.125e-03	1.125e-03	1.125e-03	1.125e-03
TE125M	6.441e-02	4.635e-02	3.266e-02	1.200e-02	9.828e-04	6.590e-06	1.986e-12	0.000e+00
AN241	4.630e-05	3.073e-04	5.567e-04	6.853e-04	9.110e-04	1.116e-03	1.144e-03	2.722e-04
NB 93M	1.572e-04	4.794e-04	6.347e-04	7.149e-04	8.561e-04	9.922e-04	1.065e-03	1.068e-03
SUMTOT	8.035e+01	2.386e+05	1.046e+02	8.912e+01	6.847e+01	4.267e+01	1.068e+01	1.086e-01

NRF Cask #4, Basket #4, NTS (c,d,e)

ALL, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
ZR 90	1.682e+04	1.682e+04	1.682e+04	1.682e+04	1.682e+04	1.682e+04	1.682e+04	1.682e+04
ZR 94	5.937e+03	5.937e+03	5.937e+03	5.937e+03	5.937e+03	5.937e+03	5.937e+03	5.937e+03
ZR 92	5.711e+03	5.711e+03	5.711e+03	5.711e+03	5.711e+03	5.711e+03	5.711e+03	5.711e+03
ZR 91	3.700e+03	3.700e+03	3.700e+03	3.700e+03	3.700e+03	3.700e+03	3.700e+03	3.700e+03
AL 27	2.541e+03	2.541e+03	2.541e+03	2.541e+03	2.541e+03	2.541e+03	2.541e+03	2.541e+03
U238	2.337e+03	2.335e+03	2.335e+03	2.335e+03	2.335e+03	2.335e+03	2.335e+03	2.335e+03
U235	5.696e+02	5.624e+02	5.624e+02	5.624e+02	5.624e+02	5.624e+02	5.624e+02	5.624e+02
H 1	3.647e+02	3.647e+02	3.647e+02	3.647e+02	3.647e+02	3.647e+02	3.647e+02	3.647e+02
U236	7.092e+00	8.410e+00	8.410e+00	8.410e+00	8.410e+00	8.410e+00	8.410e+00	8.411e+00
U234	5.742e+00	5.717e+00	5.717e+00	5.717e+00	5.716e+00	5.716e+00	5.716e+00	5.702e+00
PU239	4.610e-01	8.935e-01	9.076e-01	9.074e-01	9.072e-01	9.067e-01	9.051e-01	8.820e-01
XE136	2.697e-01	5.392e-01	5.392e-01	5.392e-01	5.392e-01	5.392e-01	5.392e-01	5.392e-01
XE134	2.621e-01	5.237e-01	5.239e-01	5.239e-01	5.239e-01	5.239e-01	5.239e-01	5.239e-01
BA138	2.387e-01	4.773e-01	4.774e-01	4.774e-01	4.774e-01	4.774e-01	4.774e-01	4.774e-01
CE140	2.259e-01	4.216e-01	4.567e-01	4.567e-01	4.567e-01	4.567e-01	4.567e-01	4.567e-01
LA139	2.283e-01	4.563e-01	4.565e-01	4.565e-01	4.565e-01	4.565e-01	4.565e-01	4.565e-01
CS133	2.280e-01	4.384e-01	4.555e-01	4.555e-01	4.555e-01	4.555e-01	4.555e-01	4.555e-01
ZR 93	2.235e-01	4.468e-01	4.476e-01	4.476e-01	4.476e-01	4.476e-01	4.475e-01	4.474e-01
ND143	2.143e-01	3.937e-01	4.271e-01	4.271e-01	4.271e-01	4.271e-01	4.271e-01	4.271e-01
N 14	4.261e-01	4.261e-01	4.261e-01	4.261e-01	4.261e-01	4.261e-01	4.261e-01	4.261e-01
CE142	2.123e-01	4.244e-01	4.245e-01	4.245e-01	4.245e-01	4.245e-01	4.245e-01	4.245e-01
PR141	2.114e-01	3.745e-01	4.227e-01	4.227e-01	4.227e-01	4.227e-01	4.227e-01	4.227e-01
ND144	1.984e-01	3.358e-01	3.987e-01	3.989e-01	3.989e-01	3.989e-01	3.989e-01	3.989e-01
MO 97	1.846e-01	3.679e-01	3.696e-01	3.696e-01	3.696e-01	3.696e-01	3.696e-01	3.696e-01
SUMTOT	3.897e+04	3.897e+04	3.897e+04	3.897e+04	3.897e+04	3.897e+04	3.897e+04	3.897e+04

NRF Cask #4, Basket #4, NTS (c,d,e)
ALL, WATTS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
Y 90	8.403e-02	2.551e-01	1.271e-01	1.156e-01	9.109e-02	5.658e-02	1.357e-02	6.746e-12
BA137M	5.888e-02	1.036e-01	8.983e-02	8.190e-02	6.500e-02	4.095e-02	1.024e-02	9.528e-12
CS137	1.753e-02	3.073e-02	2.674e-02	2.439e-02	1.936e-02	1.219e-02	3.049e-03	2.837e-12
SR 90	1.759e-02	3.070e-02	2.661e-02	2.419e-02	1.907e-02	1.185e-02	2.840e-03	1.412e-12
PU239	8.835e-04	1.712e-03	1.739e-03	1.739e-03	1.739e-03	1.737e-03	1.734e-03	1.690e-03
U234	1.034e-03	1.029e-03	1.029e-03	1.029e-03	1.029e-03	1.029e-03	1.029e-03	1.027e-03
KR 85	2.208e-03	3.310e-03	2.251e-03	1.738e-03	9.104e-04	2.498e-04	5.162e-06	0.000e+00
EU152	1.061e-06	2.942e-04	2.167e-04	1.767e-04	1.062e-04	3.831e-05	1.800e-06	2.163e-26
PU238	2.614e-05	1.088e-04	1.073e-04	1.039e-04	9.605e-05	8.202e-05	5.107e-05	4.216e-08
PU240	2.404e-05	9.527e-05	9.522e-05	9.517e-05	9.507e-05	9.487e-05	9.427e-05	8.569e-08
SW151	4.426e-05	7.792e-05	7.512e-05	7.284e-05	6.744e-05	5.781e-05	3.642e-05	3.555e-08
EU154	7.388e-05	2.983e-04	1.839e-04	1.333e-04	9.52e-05	1.187e-05	9.428e-08	0.000e+00
PM147	4.652e-03	7.775e-03	2.336e-03	8.118e-04	5.781e-05	2.931e-07	3.823e-14	0.000e+00
U235	3.226e-05	3.185e-05	3.185e-05	3.185e-05	3.185e-05	3.185e-05	3.185e-05	3.185e-05
AM241	1.538e-06	1.021e-05	1.850e-05	2.276e-05	3.026e-05	3.708e-05	3.800e-05	9.040e-06
U238	1.993e-05	1.992e-05	1.992e-05	1.992e-05	1.992e-05	1.992e-05	1.992e-05	1.992e-05
EU155	1.837e-04	2.783e-04	1.203e-04	6.881e-05	1.701e-05	1.039e-06	2.369e-10	0.000e+00
U236	1.243e-05	1.475e-05	1.475e-05	1.475e-05	1.475e-05	1.475e-05	1.475e-05	1.475e-05
SB125	8.252e-04	1.675e-03	4.185e-04	1.537e-04	1.259e-05	8.443e-08	2.545e-14	0.000e+00
CS134	3.869e-04	5.250e-03	6.988e-04	1.821e-04	6.316e-06	7.587e-09	1.320e-17	0.000e+00
PA234M	3.883e-06	3.883e-06	3.882e-06	3.882e-06	3.882e-06	3.882e-06	3.882e-06	3.882e-06
TC 99	1.284e-06	2.518e-06	2.566e-06	2.566e-06	2.566e-06	2.566e-06	2.565e-06	2.557e-06
CO113M	3.273e-06	5.203e-06	3.918e-06	3.240e-06	2.015e-06	7.791e-07	4.503e-08	1.211e-26
SB126M	8.952e-07	2.725e-03	1.794e-06	1.794e-06	1.794e-06	1.793e-06	1.793e-06	1.782e-06
H 3	1.880e-06	2.894e-06	2.067e-06	1.651e-06	9.418e-07	3.065e-07	1.056e-08	0.000e+00
SUMTOT	2.035e-01	3.043e+03	2.895e-01	2.528e-01	1.988e-01	1.250e-01	3.276e-02	2.917e-03

NRF Cask #5, Basket #5, AFFRI (e, f, n)

ALL, CURI5

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
CS137	1.820e+00	7.854e+00	6.838e+00	6.234e+00	4.948e+00	3.117e+00	7.792e-01	7.233e-10
Ba137M	1.722e+00	7.474e+00	6.468e+00	5.898e+00	4.681e+00	2.948e+00	7.371e-01	6.861e-10
Y 90	1.742e+00	1.533e+01	6.506e+00	5.915e+00	4.662e+00	2.896e+00	6.944e-01	3.453e-10
SR 90	1.742e+00	7.503e+00	6.504e+00	5.913e+00	4.661e+00	2.896e+00	6.943e-01	3.453e-10
KR 85	1.684e-01	7.118e-01	4.844e-01	3.740e-01	1.959e-01	5.375e-02	1.111e-03	0.000e+00
SM151	4.658e-02	1.932e-01	1.868e-01	1.813e-01	1.679e-01	1.439e-01	9.062e-02	8.849e-05
PM147	1.460e+00	8.685e+00	2.620e+00	9.105e-01	6.483e-02	3.288e-04	4.288e-11	0.000e+00
U234	3.486e-02	3.480e-02	3.480e-02	3.479e-02	3.479e-02	3.479e-02	3.478e-02	3.470e-02
Pu239	3.349e-03	1.462e-02	1.497e-02	1.497e-02	1.496e-02	1.496e-02	1.493e-02	1.454e-02
EU155	2.948e-02	1.440e-01	6.227e-02	3.560e-02	8.800e-03	5.375e-04	1.226e-07	0.000e+00
H 3	6.379e-03	2.699e-02	1.928e-02	1.540e-02	8.783e-03	2.859e-03	9.854e-05	0.000e+00
SB125	2.935e-02	2.131e-01	5.333e-02	1.960e-02	1.605e-03	1.076e-05	3.243e-12	0.000e+00
EU152	4.696e-07	4.388e-03	3.232e-03	2.636e-03	1.583e-03	5.714e-04	2.685e-05	3.225e-25
TC 99	3.010e-04	1.301e-03	1.340e-03	1.340e-03	1.340e-03	1.340e-03	1.340e-03	1.335e-03
TH231	1.205e-03	6.121e-03	1.198e-03	1.198e-03	1.198e-03	1.198e-03	1.198e-03	1.198e-03
TH233	1.205e-03	1.198e-03	1.198e-03	1.198e-03	1.198e-03	1.198e-03	1.198e-03	1.198e-03
EU154	7.878e-05	4.505e-03	2.778e-03	2.012e-03	8.900e-04	1.793e-04	1.423e-06	0.000e+00
U235	7.602e-04	7.602e-04	7.602e-04	7.601e-04	7.601e-04	7.601e-04	7.601e-04	7.601e-04
TH234	7.602e-04	7.602e-04	7.601e-04	7.601e-04	7.601e-04	7.601e-04	7.601e-04	7.601e-04
U238	7.602e-04	7.602e-04	7.601e-04	7.601e-04	7.601e-04	7.601e-04	7.601e-04	7.601e-04
PA234M	3.758e-06	1.657e-03	1.242e-03	1.024e-03	6.329e-04	2.416e-04	1.345e-05	5.258e-18
Pu241	3.710e-04	4.057e-04	4.057e-04	4.057e-04	4.057e-04	4.057e-04	4.057e-04	4.057e-04
U236	7.160e-03	1.797e-02	1.301e-02	4.782e-03	3.916e-04	2.625e-06	7.913e-13	0.000e+00
TE125M	2.215e-04	9.339e-04	7.078e-04	5.853e-04	3.639e-04	1.407e-04	8.135e-06	2.187e-24
CU113M	7.768e-06	3.286e-04	3.284e-04	3.283e-04	3.279e-04	3.273e-04	3.252e-04	2.955e-04
Pu240	9.185e+00	9.680e+04	3.079e+01	2.560e+01	1.946e+01	1.211e+01	3.055e+00	5.801e-02
SUMTOT								

NRF Cask #5, Basket #5, AFFRI (e,f,n)

ALL, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
ZR 90	1.627e+04	1.627e+04	1.627e+04	1.627e+04	1.627e+04	1.627e+04	1.627e+04	1.627e+04
ZR 94	5.742e+03	5.743e+03	5.743e+03	5.743e+03	5.743e+03	5.743e+03	5.743e+03	5.743e+03
ZR 92	5.522e+03	5.523e+03	5.523e+03	5.523e+03	5.523e+03	5.523e+03	5.523e+03	5.523e+03
ZR 91	3.578e+03	3.579e+03	3.579e+03	3.579e+03	3.579e+03	3.579e+03	3.579e+03	3.579e+03
AL 27	2.458e+03	2.458e+03	2.458e+03	2.458e+03	2.458e+03	2.458e+03	2.458e+03	2.458e+03
U238	2.260e+03	2.260e+03	2.260e+03	2.260e+03	2.260e+03	2.260e+03	2.260e+03	2.260e+03
ZR 96	9.437e+02	9.437e+02	9.437e+02	9.437e+02	9.437e+02	9.437e+02	9.437e+02	9.437e+02
U235	5.571e+02	5.541e+02	5.541e+02	5.541e+02	5.541e+02	5.541e+02	5.541e+02	5.541e+02
H 1	3.527e+02	3.527e+02	3.527e+02	3.527e+02	3.527e+02	3.527e+02	3.527e+02	3.527e+02
U236	5.732e+00	6.269e+00	6.269e+00	6.269e+00	6.269e+00	6.269e+00	6.269e+00	6.269e+00
U234	5.577e+00	5.566e+00	5.566e+00	5.566e+00	5.566e+00	5.566e+00	5.566e+00	5.566e+00
N 14	4.121e-01	4.121e-01	4.121e-01	4.121e-01	4.121e-01	4.121e-01	4.121e-01	4.121e-01
Pu239	5.385e-02	2.351e-01	2.407e-01	2.407e-01	2.406e-01	2.405e-01	2.400e-01	2.340e-01
XE134	3.018e-02	1.364e-01	1.365e-01	1.365e-01	1.365e-01	1.365e-01	1.365e-01	1.365e-01
XE136	3.049e-02	1.362e-01	1.362e-01	1.362e-01	1.362e-01	1.362e-01	1.362e-01	1.362e-01
O 16	1.263e-01	1.263e-01	1.263e-01	1.263e-01	1.263e-01	1.263e-01	1.263e-01	1.263e-01
BA138	2.751e-02	1.243e-01	1.243e-01	1.243e-01	1.243e-01	1.243e-01	1.243e-01	1.243e-01
CE140	2.550e-02	1.049e-01	1.191e-01	1.191e-01	1.191e-01	1.191e-01	1.191e-01	1.191e-01
LA139	2.631e-02	1.189e-01	1.189e-01	1.189e-01	1.189e-01	1.189e-01	1.189e-01	1.189e-01
CS133	2.631e-02	1.119e-01	1.188e-01	1.188e-01	1.188e-01	1.188e-01	1.188e-01	1.188e-01
ZR 93	2.572e-02	1.161e-01	1.164e-01	1.164e-01	1.164e-01	1.164e-01	1.164e-01	1.163e-01
NO143	2.476e-02	9.810e-02	1.117e-01	1.117e-01	1.117e-01	1.117e-01	1.117e-01	1.117e-01
CE142	2.446e-02	1.105e-01	1.106e-01	1.106e-01	1.106e-01	1.106e-01	1.106e-01	1.106e-01
PR141	2.437e-02	9.055e-02	1.102e-01	1.102e-01	1.102e-01	1.102e-01	1.102e-01	1.102e-01
H 2	1.065e-01	1.088e-01	1.088e-01	1.088e-01	1.088e-01	1.088e-01	1.088e-01	1.088e-01
SUMTOT	3.769e+04	3.769e+04	3.769e+04	3.769e+04	3.769e+04	3.769e+04	3.769e+04	3.769e+04

NRF Cask #5, Basket #5, AFFRI (e,f,n)

ALL, WATTS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
Y 90	9.654e-03	8.493e-02	3.606e-02	3.278e-02	2.584e-02	1.605e-02	3.849e-03	1.914e-12
BA137M	6.762e-03	2.934e-02	2.540e-02	2.315e-02	1.838e-02	1.158e-02	2.894e-12	6.024e-12
CS137	2.013e-03	8.690e-03	7.563e-03	6.895e-03	5.473e-03	3.448e-03	8.618e-04	2.692e-13
SR 90	2.021e-03	8.709e-03	7.550e-03	6.844e-03	5.410e-03	3.361e-03	8.058e-04	4.007e-13
U234	1.004e-03	1.002e-03	1.002e-03	1.002e-03	1.002e-03	1.002e-03	1.002e-03	9.994e-04
PU239	1.032e-04	4.505e-04	4.613e-04	4.613e-04	4.612e-04	4.609e-04	4.601e-04	4.483e-04
KR 85	2.523e-04	1.066e-03	7.255e-04	5.602e-04	2.935e-04	8.053e-05	1.664e-06	0.000e+00
U235	3.155e-05	3.138e-05	3.138e-05	3.138e-05	3.138e-05	3.138e-05	3.138e-05	3.138e-05
PM147	5.237e-04	3.115e-03	9.397e-04	3.265e-04	2.325e-05	1.179e-07	1.538e-14	0.000e+00
SM151	5.460e-06	2.265e-05	2.192e-05	2.126e-05	1.968e-05	1.687e-05	1.063e-05	1.037e-08
U238	1.929e-05	1.928e-05	1.928e-05	1.928e-05	1.928e-05	1.928e-05	1.928e-05	1.928e-05
EUI52	3.551e-09	3.319e-05	2.445e-05	1.994e-05	1.197e-05	4.322e-06	2.031e-07	2.440e-27
U236	1.005e-05	1.099e-05	1.099e-05	1.099e-05	1.099e-05	1.099e-05	1.099e-05	1.099e-05
PU240	2.419e-07	1.023e-05	1.022e-05	1.022e-05	1.021e-05	1.019e-05	1.012e-05	9.203e-06
PU238	1.268e-07	1.029e-05	1.033e-05	1.001e-05	9.252e-06	7.897e-06	4.917e-06	4.024e-09
EUI54	7.047e-07	4.030e-05	2.485e-05	1.800e-05	8.039e-06	1.604e-06	1.273e-08	0.000e+00
EUI55	2.144e-05	1.047e-04	4.529e-05	2.599e-05	6.400e-06	3.910e-07	8.914e-11	0.000e+00
SB125	9.173e-05	6.663e-04	1.667e-04	1.128e-05	5.018e-06	3.364e-08	1.014e-14	0.000e+00
PA234M	3.756e-06	3.756e-06	3.756e-06	3.756e-06	3.756e-06	3.756e-06	3.756e-06	3.756e-06
AW241	1.648e-09	2.355e-07	6.912e-07	9.263e-07	1.341e-06	1.724e-06	1.801e-06	4.290e-07
CS134	2.226e-06	8.462e-04	1.127e-04	2.936e-05	1.018e-06	1.224e-09	2.129e-18	0.000e+00
TH231	6.760e-07	3.434e-06	6.724e-07	6.724e-07	6.724e-07	6.724e-07	6.724e-07	6.724e-07
TC 99	1.510e-07	6.525e-07	6.718e-07	6.718e-07	6.718e-07	6.718e-07	6.717e-07	6.697e-07
CD113M	3.729e-07	1.582e-06	1.191e-06	9.855e-07	6.127e-07	2.369e-07	1.369e-08	3.682e-27
SB126M	1.030e-07	1.093e-03	4.661e-07	4.661e-07	4.661e-07	4.660e-07	4.658e-07	4.629e-07
SUMTOT	2.405e-02	1.236e+03	8.414e-02	7.246e-02	5.702e-02	3.609e-02	9.972e-03	1.552e-03

DOT 6M Container #1, Basket #1, DORF
ALL, CURIES

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
CS137	1.509e-01	1.170e-01	1.019e-01	9.288e-02	7.372e-02	4.644e-02	1.161e-02	1.081e-11
BA137M	1.427e-01	1.107e-01	9.637e-02	8.787e-02	6.974e-02	4.393e-02	1.098e-02	1.022e-11
Y 90	1.444e-01	1.111e-01	9.634e-02	8.759e-02	6.904e-02	4.289e-02	1.028e-02	5.114e-12
SR 90	1.444e-01	1.111e-01	9.632e-02	8.757e-02	6.902e-02	4.288e-02	1.028e-02	5.113e-12
NI 63	4.560e-03	4.197e-03	4.012e-03	3.893e-03	3.610e-03	3.105e-03	1.976e-03	2.231e-06
SM151	3.845e-03	3.532e-03	3.373e-03	3.271e-03	3.028e-03	2.596e-03	1.635e-03	1.596e-06
U234	1.999e-03	1.998e-03	1.998e-03	1.998e-03	1.998e-03	1.998e-03	1.998e-03	1.993e-03
KR 85	1.396e-02	6.855e-03	4.651e-03	3.591e-03	1.881e-03	5.161e-04	1.066e-05	0.000e+00
CO 60	2.864e-02	6.739e-03	3.061e-03	1.809e-03	4.854e-04	3.496e-05	1.307e-08	0.000e+00
Pu239	2.773e-04	2.772e-04	2.772e-04	2.772e-04	2.771e-04	2.769e-04	2.764e-04	2.694e-04
H 3	5.290e-04	2.853e-04	2.037e-04	1.628e-04	9.283e-05	3.021e-05	1.041e-06	0.000e+00
U235	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05
TH231	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05
PA234M	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05
TH234	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05
U238	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05
NI 59	3.885e-05	3.885e-05	3.885e-05	3.894e-05	3.884e-05	3.883e-05	3.881e-05	3.851e-05
PM147	1.211e-01	6.623e-03	1.357e-03	4.717e-04	3.359e-05	1.703e-07	2.221e-14	0.000e+00
EU155	2.440e-03	5.244e-04	2.267e-04	1.296e-04	3.204e-05	1.957e-06	4.462e-10	0.000e+00
TC 99	2.488e-05	2.488e-05	2.488e-05	2.488e-05	2.488e-05	2.487e-05	2.487e-05	2.480e-05
U236	2.153e-05	2.153e-05	2.153e-05	2.153e-05	2.153e-05	2.153e-05	2.153e-05	2.153e-05
C 14	1.425e-05	1.423e-05	1.422e-05	1.421e-05	1.419e-05	1.416e-05	1.406e-05	1.261e-05
FE 55	3.965e-02	2.112e-03	4.265e-04	1.468e-04	1.021e-05	4.936e-08	5.578e-15	0.000e+00
ZR 93	5.241e-06	5.241e-06	5.241e-06	5.241e-06	5.241e-06	5.241e-06	5.241e-06	5.238e-06
NB 93M	1.490e-06	2.987e-06	3.512e-06	3.783e-06	4.260e-06	4.719e-06	4.967e-06	4.977e-06
SUMTOT	8.338e-01	4.837e-01	4.109e-01	3.721e-01	2.933e-01	1.851e-01	4.944e-02	2.711e-03

DOI 6M Container #1, Basket #1, DORF
ALL, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
ZR 90	8.678e+02	8.678e+02	8.678e+02	8.678e+02	8.678e+02	8.678e+02	8.678e+02	8.678e+02
ZR 94	3.062e+02	3.062e+02	3.062e+02	3.062e+02	3.062e+02	3.062e+02	3.062e+02	3.062e+02
ZR 92	2.945e+02	2.945e+02	2.945e+02	2.945e+02	2.945e+02	2.945e+02	2.945e+02	2.945e+02
FE 56	1.973e+02	1.973e+02	1.973e+02	1.973e+02	1.973e+02	1.973e+02	1.973e+02	1.973e+02
ZR 91	1.908e+02	1.908e+02	1.908e+02	1.908e+02	1.908e+02	1.908e+02	1.908e+02	1.908e+02
U238	1.296e+02	1.296e+02	1.296e+02	1.296e+02	1.296e+02	1.296e+02	1.296e+02	1.296e+02
CR 52	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01
ZR 96	5.033e+01	5.033e+01	5.033e+01	5.033e+01	5.033e+01	5.033e+01	5.033e+01	5.033e+01
U235	3.193e+01	3.193e+01	3.193e+01	3.193e+01	3.193e+01	3.193e+01	3.193e+01	3.193e+01
H 1	3.005e+01	3.005e+01	3.005e+01	3.005e+01	3.005e+01	3.005e+01	3.005e+01	3.005e+01
NI 58	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01
FE 54	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01
NI 60	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01
MN 55	6.620e+00	6.620e+00	6.620e+00	6.620e+00	6.620e+00	6.620e+00	6.620e+00	6.620e+00
CR 53	6.403e+00	6.403e+00	6.403e+00	6.403e+00	6.403e+00	6.403e+00	6.403e+00	6.403e+00
FE 57	4.707e+00	4.707e+00	4.707e+00	4.707e+00	4.707e+00	4.707e+00	4.707e+00	4.707e+00
SI 28	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00
CR 50	2.766e+00	2.766e+00	2.766e+00	2.766e+00	2.766e+00	2.766e+00	2.766e+00	2.766e+00
CR 54	1.621e+00	1.621e+00	1.621e+00	1.621e+00	1.621e+00	1.621e+00	1.621e+00	1.621e+00
NI 62	1.505e+00	1.505e+00	1.505e+00	1.505e+00	1.505e+00	1.505e+00	1.505e+00	1.505e+00
FE 58	6.458e-01	6.458e-01	6.458e-01	6.458e-01	6.458e-01	6.458e-01	6.458e-01	6.458e-01
NI 61	4.661e-01	4.661e-01	4.661e-01	4.661e-01	4.661e-01	4.661e-01	4.661e-01	4.661e-01
N 14	4.559e-01	4.559e-01	4.559e-01	4.559e-01	4.559e-01	4.559e-01	4.559e-01	4.559e-01
NI 64	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01
U236	3.326e-01	3.326e-01	3.326e-01	3.326e-01	3.326e-01	3.326e-01	3.326e-01	3.326e-01
SUMTOT	2.234e+03	2.234e+03	2.234e+03	2.234e+03	2.234e+03	2.234e+03	2.234e+03	2.234e+03

DOT 6M Container #1, Basket #1, DORF
ALL, WATTS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
Y 90	8.003e-04	6.159e-04	5.340e-04	4.855e-04	3.826e-04	2.377e-04	5.699e-05	2.834e-14
BA137M	5.605e-04	4.347e-04	3.784e-04	3.450e-04	2.738e-04	1.725e-04	4.312e-05	4.014e-14
CS137	1.669e-04	1.294e-04	1.127e-04	1.027e-04	8.154e-05	5.137e-05	1.284e-05	1.195e-14
SR 90	1.675e-04	1.290e-04	1.118e-04	1.016e-04	8.011e-05	4.977e-05	1.193e-05	5.934e-15
U234	5.756e-05	5.756e-05	5.756e-05	5.756e-05	5.756e-05	5.755e-05	5.754e-05	5.740e-05
PU239	8.547e-06	8.544e-06	8.542e-06	8.541e-06	8.539e-06	8.534e-06	8.519e-06	8.301e-06
CO 60	4.415e-04	1.039e-04	4.719e-05	2.788e-05	7.483e-06	5.390e-07	2.014e-10	0.000e+00
KR 85	2.091e-05	1.027e-05	6.966e-06	5.379e-06	2.817e-06	7.731e-07	1.597e-08	0.000e+00
U235	1.808e-06	1.808e-06	1.808e-06	1.808e-06	1.808e-06	1.808e-06	1.808e-06	1.808e-06
NI 63	1.811e-06	1.667e-06	1.593e-06	1.546e-06	1.434e-06	1.233e-06	7.847e-07	8.862e-10
U238	1.105e-06	1.105e-06	1.105e-06	1.105e-06	1.105e-06	1.105e-06	1.105e-06	1.105e-06
U236	5.832e-07	5.832e-07	5.832e-07	5.832e-07	5.832e-07	5.832e-07	5.832e-07	5.832e-07
SM151	4.508e-07	4.142e-07	3.955e-07	3.835e-07	3.550e-07	3.044e-07	1.917e-07	1.871e-10
PA234M	2.154e-07	2.154e-07	2.154e-07	2.154e-07	2.154e-07	2.154e-07	2.154e-07	2.154e-07
TH231	3.874e-08	3.874e-08	3.874e-08	3.874e-08	3.874e-08	3.874e-08	3.874e-08	3.874e-08
PU240	3.069e-08	3.065e-08	3.063e-08	3.062e-08	3.059e-08	3.052e-08	3.033e-08	2.757e-08
EU155	1.775e-06	3.814e-07	1.649e-07	9.427e-08	2.330e-08	1.423e-09	3.245e-13	0.000e+00
TH230	3.564e-09	9.163e-09	1.222e-08	1.425e-08	1.934e-08	2.952e-08	6.003e-08	5.152e-07
TH234	1.767e-08	1.767e-08	1.767e-08	1.767e-08	1.767e-08	1.767e-08	1.767e-08	1.767e-08
TC 99	1.770e-08	1.622e-08	1.547e-08	1.499e-08	1.385e-08	1.183e-08	7.364e-09	6.017e-12
PU238	1.248e-08	1.248e-08	1.248e-08	1.247e-08	1.247e-08	1.247e-08	1.247e-08	1.243e-08
PM147	4.345e-05	2.376e-06	4.868e-07	1.692e-07	1.205e-08	6.109e-11	7.966e-18	0.000e+00
SB126M	8.534e-09	8.534e-09	8.533e-09	8.533e-09	8.532e-09	8.531e-09	8.528e-09	8.475e-09
EU154	9.019e-08	3.716e-08	2.291e-08	1.660e-08	7.414e-09	1.479e-09	1.175e-11	0.000e+00
CD113M	3.092e-08	1.834e-08	1.379e-08	1.140e-08	7.090e-09	2.741e-09	1.585e-10	4.261e-29
SUMTOT	2.414e-03	1.499e-03	1.264e-03	1.140e-03	9.003e-04	5.842e-04	1.959e-04	7.107e-05

DOJ 6M Container #2, Basket #2, DORF
ALL, CURIES

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
CSI37	1.509e-01	1.170e-01	1.019e-01	9.288e-02	7.372e-02	4.644e-02	1.161e-02	1.081e-11
BAI37M	1.427e-01	1.107e-01	9.637e-02	8.747e-02	6.974e-02	4.393e-02	1.098e-02	1.022e-11
Y 90	1.444e-01	1.111e-01	9.634e-02	8.759e-02	6.904e-02	4.289e-02	1.028e-02	5.114e-12
SR 90	1.444e-01	1.111e-01	9.632e-02	8.757e-02	6.902e-02	4.288e-02	1.028e-02	5.113e-12
SM151	4.560e-03	4.197e-03	4.012e-03	3.893e-03	3.610e-03	3.105e-03	1.976e-03	2.231e-06
U234	1.999e-03	1.998e-03	3.373e-03	3.271e-03	3.028e-03	2.596e-03	1.635e-03	1.596e-06
KR 85	1.396e-02	6.855e-03	4.651e-03	3.591e-03	1.881e-03	1.998e-03	1.998e-03	1.993e-03
CO 60	2.864e-02	6.739e-03	3.061e-03	1.809e-03	4.854e-04	3.496e-05	1.066e-05	0.000e+00
PUZ39	2.773e-04	2.772e-04	2.772e-04	2.772e-04	2.771e-04	2.769e-04	2.764e-04	0.000e+00
H 3	5.290e-04	2.853e-04	2.037e-04	1.628e-04	9.283e-05	3.021e-05	1.041e-06	0.000e+00
U235	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05
TH231	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05	6.904e-05
PA234M	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05
TH234	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05
U238	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05	4.358e-05
NI 59	3.885e-05	3.885e-05	3.885e-05	3.884e-05	3.884e-05	3.883e-05	3.881e-05	3.851e-05
PM147	1.211e-01	6.623e-03	1.357e-03	4.717e-04	3.359e-05	1.703e-07	2.221e-14	0.000e+00
EUI55	2.440e-03	5.244e-04	2.267e-04	1.296e-04	3.204e-05	1.957e-06	4.462e-10	0.000e+00
TC 99	2.488e-05	2.488e-05	2.488e-05	2.488e-05	2.488e-05	2.487e-05	2.487e-05	2.480e-05
U236	2.153e-05	2.153e-05	2.153e-05	2.153e-05	2.153e-05	2.153e-05	2.153e-05	2.153e-05
C 14	1.425e-05	1.423e-05	1.422e-05	1.421e-05	1.419e-05	1.416e-05	1.406e-05	1.261e-05
FE 55	3.965e-02	2.112e-03	4.265e-04	5.241e-06	1.021e-05	4.936e-08	5.578e-15	0.000e+00
ZR 93	5.241e-06	5.241e-06	5.241e-06	5.241e-06	5.241e-06	5.241e-06	5.241e-06	5.238e-06
NB 93M	1.490e-06	2.987e-06	3.512e-06	3.783e-06	4.260e-06	4.719e-06	4.967e-06	4.977e-06
SUMTOT	8.338e-01	4.837e-01	4.109e-01	3.721e-01	2.933e-01	1.851e-01	4.944e-02	2.711e-03

DOI 6M Container #2, Basket #2, DORF
ALL, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
ZR 90	8.678e+02	8.678e+02	8.678e+02	8.678e+02	8.678e+02	8.678e+02	8.678e+02	8.678e+02
ZR 94	3.062e+02	3.062e+02	3.062e+02	3.062e+02	3.062e+02	3.062e+02	3.062e+02	3.062e+02
ZR 92	2.945e+02	2.945e+02	2.945e+02	2.945e+02	2.945e+02	2.945e+02	2.945e+02	2.945e+02
FE 56	1.973e+02	1.973e+02	1.973e+02	1.973e+02	1.973e+02	1.973e+02	1.973e+02	1.973e+02
ZR 91	1.908e+02	1.908e+02	1.908e+02	1.908e+02	1.908e+02	1.908e+02	1.908e+02	1.908e+02
U238	1.296e+02	1.296e+02	1.296e+02	1.296e+02	1.296e+02	1.296e+02	1.296e+02	1.296e+02
CR 52	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01	5.541e+01
ZR 96	5.033e+01	5.033e+01	5.033e+01	5.033e+01	5.033e+01	5.033e+01	5.033e+01	5.033e+01
U235	3.193e+01	3.193e+01	3.193e+01	3.193e+01	3.193e+01	3.193e+01	3.193e+01	3.193e+01
H 1	3.005e+01	3.005e+01	3.005e+01	3.005e+01	3.005e+01	3.005e+01	3.005e+01	3.005e+01
NI 58	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01	2.677e+01
FE 54	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01	1.204e+01
NI 60	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01	1.059e+01
MN 55	6.620e+00	6.620e+00	6.620e+00	6.620e+00	6.620e+00	6.620e+00	6.620e+00	6.620e+00
CR 53	6.403e+00	6.403e+00	6.403e+00	6.403e+00	6.403e+00	6.403e+00	6.403e+00	6.403e+00
FE 57	4.707e+00	4.707e+00	4.707e+00	4.707e+00	4.707e+00	4.707e+00	4.707e+00	4.707e+00
SI 28	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00	3.041e+00
CR 50	2.766e+00	2.766e+00	2.766e+00	2.766e+00	2.766e+00	2.766e+00	2.766e+00	2.766e+00
CR 54	1.621e+00	1.621e+00	1.621e+00	1.621e+00	1.621e+00	1.621e+00	1.621e+00	1.621e+00
NI 62	1.505e+00	1.505e+00	1.505e+00	1.505e+00	1.505e+00	1.505e+00	1.505e+00	1.505e+00
FE 58	6.458e-01	6.458e-01	6.458e-01	6.458e-01	6.458e-01	6.458e-01	6.458e-01	6.458e-01
NI 61	4.661e-01	4.661e-01	4.661e-01	4.661e-01	4.661e-01	4.661e-01	4.661e-01	4.661e-01
N 14	4.559e-01	4.559e-01	4.559e-01	4.559e-01	4.559e-01	4.559e-01	4.559e-01	4.559e-01
NI 64	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01	3.937e-01
U236	3.326e-01	3.326e-01	3.326e-01	3.326e-01	3.326e-01	3.326e-01	3.326e-01	3.326e-01
SUMTOT	2.234e+03	2.234e+03	2.234e+03	2.234e+03	2.234e+03	2.234e+03	2.234e+03	2.234e+03

DOT 6M Container #2, Basket #2, DORF
ALL, WATTS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
Y 90	8.003e-04	6.159e-04	5.340e-04	4.855e-04	3.826e-04	2.377e-04	5.699e-05	2.834e-14
BA137M	5.605e-04	4.347e-04	3.784e-04	3.450e-04	2.738e-04	1.725e-04	4.312e-05	4.014e-14
CS137	1.669e-04	1.294e-04	1.127e-04	1.027e-04	8.154e-05	5.137e-05	1.284e-05	1.195e-14
SR 90	1.675e-04	1.290e-04	1.118e-04	1.016e-04	8.011e-05	4.977e-05	1.193e-05	5.934e-15
U234	5.756e-05	5.756e-05	5.756e-05	5.756e-05	5.755e-05	5.755e-05	5.754e-05	5.740e-05
Pu239	8.547e-06	8.544e-06	8.542e-06	8.541e-06	8.539e-06	8.534e-06	8.519e-06	8.301e-06
CO 60	4.415e-04	1.039e-04	4.719e-05	2.788e-05	7.483e-06	5.390e-07	2.014e-10	0.000e+00
KR 85	2.091e-05	1.027e-05	6.966e-06	5.379e-06	2.817e-06	7.731e-07	1.597e-08	0.000e+00
U235	1.808e-06	1.808e-06	1.808e-06	1.808e-06	1.808e-06	1.808e-06	1.808e-06	1.808e-06
NI 63	1.811e-06	1.667e-06	1.593e-06	1.546e-06	1.434e-06	1.233e-06	7.847e-07	8.862e-10
U238	1.105e-06	1.105e-06	1.105e-06	1.105e-06	1.105e-06	1.105e-06	1.105e-06	1.105e-06
U236	5.832e-07	5.832e-07	5.832e-07	5.832e-07	5.832e-07	5.832e-07	5.832e-07	5.832e-07
SM151	4.508e-07	4.142e-07	3.955e-07	3.835e-07	3.550e-07	3.044e-07	1.917e-07	1.871e-10
PA234M	2.154e-07	2.154e-07	2.154e-07	2.154e-07	2.154e-07	2.154e-07	2.154e-07	2.154e-07
TH231	3.874e-08	3.874e-08	3.874e-08	3.874e-08	3.874e-08	3.874e-08	3.874e-08	3.874e-08
Pu240	3.069e-08	3.065e-08	3.063e-08	3.062e-08	3.059e-08	3.052e-08	3.033e-08	2.757e-08
EU155	1.775e-06	3.814e-07	1.649e-07	9.427e-08	2.330e-08	1.423e-09	3.245e-13	0.000e+00
TH230	3.564e-09	9.163e-09	1.222e-08	1.425e-08	1.934e-08	2.952e-08	6.003e-08	5.152e-07
TH234	1.767e-08	1.767e-08	1.767e-08	1.767e-08	1.767e-08	1.767e-08	1.767e-08	1.767e-08
Pu238	1.770e-08	1.622e-08	1.547e-08	1.499e-08	1.385e-08	1.183e-08	7.364e-09	6.017e-12
TC 99	1.248e-08	1.248e-08	1.248e-08	1.247e-08	1.247e-08	1.247e-08	1.247e-08	1.243e-08
PM147	4.345e-05	2.376e-06	4.868e-07	1.692e-07	1.205e-08	6.109e-11	7.966e-18	0.000e+00
Sb126M	8.534e-09	8.534e-09	8.533e-09	8.533e-09	8.532e-09	8.531e-09	8.528e-09	8.528e-09
EU154	9.019e-08	3.716e-08	2.291e-08	1.660e-08	7.414e-09	1.479e-09	1.175e-11	0.000e+00
CD113M	3.092e-08	1.834e-08	1.379e-08	1.140e-08	7.090e-09	2.741e-09	1.585e-10	4.261e-29
SUMTOT	2.414e-03	1.499e-03	1.264e-03	1.140e-03	9.003e-04	5.842e-04	1.959e-04	7.107e-05

ATTACHMENT 6

**COMPLETE ORIGEN2 OUTPUT FILE LISTINGS
(ORIGEN2 OUTPUT FILES INCLUDE THE INPUT VALUES)**

**COMPLETE ORIGEN2 OUTPUT FILE LISTINGS
(ORIGEN2 OUTPUT FILES INCLUDE THE INPUT VALUES)**

CONTENTS

NTS CALCULATIONS	A6-3 - A6-330
AFFRI CALCULATIONS	A6-331 - A6-544
DORF CALCULATIONS	A6-545 - A6-648
GA CALCULATIONS	A6-649 - A6-816

OUTPUT UNIT = 6 PAGE 1

VERSION S.1

THIS TEXT IS INTENDED TO BE A BRIEF OUTLINE OF THE ORIGEN2 COMPUTER CODE, WHICH IS A REVISED AND UPDATED VERSION OF THE ORIGIN PROGRAM DOCUMENTED IN REPORT ORNL-6628 (MAY 1973). INCLUDED HERE ARE A BRIEF DESCRIPTION OF THE FUNCTIONS OF ORIGEN2, A LISTING OF THE MAJOR DATA SOURCES, A LISTING OF THE PUBLISHED DOCUMENTATION CONCERNING ORIGEN2, AND AN OUTLINE OF THE ORIGEN2 PROGRAM. ORIGEN2 IS AVAILABLE FROM THE ORNL RADIATION SHIELDING INFORMATION CENTER (RSIC) AT THE FOLLOWING ADDRESS:

COES COORDINATOR
RADIATION SHIELDING INFORMATION CENTER
BLDG. 6025
OAK RIDGE NATIONAL LABORATORY
OAK RIDGE, TENNESSEE 37830
PHONE: (615) 574-6176

QUESTIONS CONCERNING ORIGIN2 SHOULD BE ADDRESSED TO RSIC.
PHONE: (615) 374-8178

ORNGEN2 IS A REVISION AND UPDATE OF THE ORIGEN COMPUTER CODE. SPECIFICALLY, THE INPUT, OUTPUT, CONTROL, AND DATA BASE ASPECTS OF ORIGEN HAVE BEEN SIGNIFICANTLY REVISED AND UPDATED TO REFLECT CURRENT INFORMATION AND NEEDS. IT SHOULD BE NOTED THAT IN ORNGEN2, THE PHYSICAL AND MATHEMATICAL METHODS USED TO SOLVE THE NUCLEIDE BUILDUP, DEPLETION, AND DECAY EQUATIONS ARE ESSENTIALLY UNCHANGED FROM THAT IN ORIGEN. ORNGEN2 IS A COMPUTER CODE DESIGNED TO CALCULATE THE COMPOSITION AND CHARACTERISTICS OF NUCLEAR MATERIALS AS A FUNCTION OF DELAY TIME AND THE CHANGES THE MATERIALS UNDERGO DURING VARIOUS FUEL CYCLE OPERATIONS. INPUT AND OUTPUT FEATURES HAVE BEEN DESIGNED TO FACILITATE FLEXIBILITY IN THE TYPE OF CASES THAT CAN BE CONSIDERED AND IN CONTROLLING THE DETAIL OF THE OUTPUT. FOR FURTHER INFORMATION, THE USER IS REFERRED TO THE DOCUMENTATION LISTED BELOW.

FOR DATA SOURCES. VIRTUALLY ALL ASPECTS OF THE DATA INPUT TO ORIGIN2 HAVE BEEN UPDATED OR REVISED TO REFLECT CURRENT INFORMATION. THE DATA SOURCES OF THE CROSS SECTION DATA WERE THE ENDF/B-IV, ENDF/B-V, ENDF/B-VI, AND ORNL COMPILATIONS. DECAY AND FISSION INFORMATION WERE PRIMARILY BASED ON THE EVALUATED NUCLEAR STRUCTURE DATA FILE (ENSDF) AT ORNL AND ENDF/B-VI DATA CONCERNING REACTOR PHYSICS CHARACTERISTICS WERE OBTAINED FROM REFERENCE SAFETY ANALYSTS REPORTS AND, WHERE POSSIBLE, THE COMMERCIAL REACTOR VENDORS.

THE FOLLOWING ITEMS CONSTITUTE THE ORIGIN2 DOCUMENTATION PUBLISHED AS OF THE DATE OF THIS CODE PACKAGE:

- A.G. CROFF, "ORIGIN2 - A REVISED AND UPDATED VERSION OF THE OAK RIDGE ISOTOPE GENERATION AND DEPLETION CODE", ORNL-5621 (JULY 1980).
- A.G. CROFF, "A USER'S MANUAL FOR THE ORIGIN2 COMPUTER CODE", ORNL/TM-7175 (JULY 1980).
- A.G. CROFF, M.A. BJERKE, G.W. MORRISON, AND L.M. PETRIE, "REVISED URANIUM-PLUTONIUM CYCLE PWR AND BWR MODELS FOR THE ORIGIN COMPUTER CODE", ORNL/TM-6051 (SEPTEMBER 1978).
- A.G. CROFF AND R.L. BJERKE, "ALTERNATIVE FUEL CYCLE PWR MODELS FOR THE ORIGIN COMPUTER CODE", ORNL/TM-7005 (FEB 1980).
- A.G. CROFF, R.L. BJERKE, AND N.B. GOVE, "UPDATED DECAY AND PHOTON LIBRARIES FOR THE ORIGIN CODE", ORNL/TM-6055 (FEB 1979).
- A.G. CROFF, R.L. HAESE, AND N.B. GOVE, "UPDATED DECAY AND PHOTON LIBRARIES FOR THE ORIGIN CODE", ORNL/TM-6055 (FEB 1979).

A.G. CROFF, "ORIGEN2: A REVISED AND UPDATED VERSION OF ORIGEN", TRANS. AM. NUCL. SOC., VOL. 34, P. 349-50 (JUNE 1980).

LISTING OF INPUT DATA ON UNIT = 5

PAGE 3

INPUT UNIT	WRITE UNIT	CARD NUMBER	CARD IMAGE
5	50	1	-1
5	50	2	-1
5	50	3	-1
5	50	4	BAS
5	50	5	TIT
5	50	6	RDA
5	50	7	LIP
5	50	8	RDA
5	50	9	LIB
5	50	10	PHO
5	50	11	RDA
5	50	12	RDA
5	50	13	INP
5	50	14	RDA
5	50	15	INP
5	50	16	RDA
5	50	17	INP
5	50	18	RDA
5	50	19	INP
5	50	20	RDA
5	50	21	INP
5	50	22	RDA
5	50	23	RDA
5	50	24	MOV
5	50	25	RDA
5	50	26	ADD
5	50	27	RDA
5	50	28	ADD
5	50	29	RDA
5	50	30	RDA
5	50	31	RDA
5	50	32	BUF
5	50	33	IRP
5	50	34	DEC
5	50	35	MOV
5	50	36	IRP
5	50	37	RDA
5	50	38	RDA
5	50	39	BUF
5	50	40	IRP
5	50	41	DEC
5	50	42	IRP
5	50	43	DEC
5	50	44	IRP
5	50	45	BUF
5	50	46	MOV
5	50	47	RDA
5	50	48	RDA
5	50	49	RDA

Triaga fuel element: Al clad (Row C) + prior irradiation

Origen2 Triaga fuel characterization

0 0 0

Read non-standard data from Unit 3 for C14.

0 1 2 3 204 205 206 9 3 -2 1 1

101 102 103 10

/* Fuel for one SS-clad element */

-1 1 -1 -1 1 1

/* Fuel for one Al-clad element */

-2 1 -1 -1 1 1

/* 1 kg of 304 SS cladding */

-3 1 1 1 1 1

/* 1 kg of AL cladding */

-4 1 1 1 1 1

/* 1 cc air (M2 + O2) */

-5 1 -1 -1 1 1

Initialize vector with Fuel

-2 1 0 1.0

ADD cladding

-4 1 0 0.163

ADD 28 cc of air

-5 1 0 28.0

Prior irradiation equal to MRF irradiation.

years MM

0.315 0.00368 1 2 5 2

7.0 2 3 5 0

Standard Full Power MRF irradiation

years MM

3 1 0 1.0

0.105 0.00368 1 2 5 1

6.0 2 3 5 0

6.105 0.00368 3 4 5 0

12.895 4 5 5 0

13.0 0.00368 5 6 5 0

6 2 0 1.0 /* Move discharge to vector 2 */

/* Start decay section */

LISTING OF INPUT DATA ON UNIT = 5

PAGE 4

INPUT UNIT	WRITE UNIT	CARD NUMBER	CARD IMAGE	Fuel (SS)	Fuel (SS)	Fuel (AL)	Fuel (AL)	SS-304	SS-304	Aluminum	Air (1cc)	
5	50	50	6.0	2 3 5 1	922350	38.0	922380	153.9	922340	0.38	922360	0.38
5	50	51	DEC 10.0	3 4 5 0	010000	35.7	400000	2030.5	0	0.0		
5	50	52	DEC 20.0	4 5 5 0	922350	37.0	922380	149.9	922340	0.37	922360	0.37
5	50	53	DEC 40.0	5 6 5 0	010000	23.4	400000	2125.9	0	0.0		
5	50	54	DEC 100.0	6 7 5 0	260000	648.5	240000	200.0	280000	120.0	250000	20.0
5	50	55	DEC 1000.0	7 8 5 0	060000	0.8	150000	0.4	160000	0.3	140000	10.0
5	50	56	RDA		130000	1000.0	0	0.0				
5	50	57	CUT		070000	9.8E-4	080000	3.0E-4	0	0.0		
5	50	58	RDA									
5	50	59	OPTL									
5	50	60	OPTA									
5	50	61	OPTF									
5	50	62	HED									
5	50	63	HED									
5	50	64	STP									
5	50	65	STP									
5	50	66	2									
5	50	67	4									
5	50	68	0									
5	50	69	2									
5	50	70	4									
5	50	71	0									
5	50	72	4									
5	50	73	4									
5	50	74	0									
5	50	75	4									
5	50	76	0									
5	50	77	4									
5	50	78	0									
5	50	79	END									

OUTPUT UNIT = 6 PAGE 5

NEUTRON YIELD PER NEUTRON-INDUCED FISSION

NUCLIDE	YIELD	NUCLIDE	YIELD	NUCLIDE	YIELD	NUCLIDE	YIELD	NUCLIDE	YIELD	NUCLIDE	YIELD	NUCLIDE	YIELD	NUCLIDE	YIELD
832090	0.0000	882230	0.0000	882260	0.0000	882280	0.0000	892270	0.0000	902270	0.0000	902270	0.0000	902270	0.0000
902280	0.0000	902290	2.0490	902300	0.0000	902320	2.4180	902330	0.0000	902340	0.0000	902340	0.0000	902340	0.0000
912310	0.0000	912320	0.0000	912330	2.6630	912341	0.0000	912340	0.0000	912340	0.0000	912340	0.0000	912340	0.0000
922310	0.0000	922320	0.0000	922330	2.4990	922340	2.6310	922350	2.4210	922360	2.7340	922360	2.7340	922360	2.7340
922370	0.0000	922380	2.8010	922390	0.0000	922400	0.0000	922410	0.0000	922420	0.0000	922430	0.0000	922440	0.0000
932380	0.0000	932390	0.0000	942360	2.8700	942370	0.0000	942380	2.8330	942390	2.8750	942390	2.8750	942390	2.8750
942400	3.1350	942410	2.9340	942420	3.2800	942430	0.0000	942440	3.2770	942450	3.1620	942460	3.1620	942470	3.1620
952420	3.3600	952430	3.7320	952441	0.0000	952440	0.0000	952450	3.7460	952460	3.4340	952470	3.4340	952480	3.4340
962440	3.7250	962450	3.8320	962460	3.8580	962470	3.5920	962480	3.7960	962490	0.0000	962490	0.0000	962500	0.0000
972490	3.7600	982490	4.0620	982500	3.9700	982510	4.1400	982520	4.1260	982530	4.1500	982530	4.1500	982540	4.1500
982540	0.0000	992530	0.0000	992541	0.0000	992540	0.0000	0	0.0000	0	0.0000	0	0.0000	0	0.0000

OUTPUT UNIT = 6 PAGE 6

SPONTANEOUS FISSION NEUTRON YIELD, NEUT/FISSION

NUCLIDE	1.6950	922360	1.6500	922370	1.8720	922380	2.0000	922390	2.0480	922361	1.7900
922350	1.7830	922370	1.8730	922380	1.9630	922390	2.0530	922360	2.2200	942370	1.8860
922360	2.2800	942390	2.2400	942400	2.1600	942410	2.2500	942420	2.1500	942430	2.4300
942440	2.3000	952400	2.2900	952410	2.3830	952420	2.4750	952421	2.5900	952430	2.5200
952440	2.6570	952441	2.6650	962410	2.5000	962420	2.5900	962430	2.6870	962440	2.7600
962450	2.8720	962460	3.0000	962480	3.3200	962500	3.5600	972490	3.7200	982490	3.4400
982500	3.5600	982520	3.7250	982540	3.9000	992530	3.9200	992540	4.0400	992550	4.1600

THE REMAINING NEUTRON YIELDS ARE CALCULATED FROM THE EQUATION: NEUT/FISS=(2.84-0.1225*(AT WT-244))

INDIVIDUAL ELEMENT FRACTIONAL RECOVERIES

[illegible]

[illegible]

OUTPUT UNIT = 6 PAGE 9

GROUP FRACTIONAL RECOVERIES

GROUP	SET NUMBER 1	SET NUMBER 2	SET NUMBER 3	SET NUMBER 4	SET NUMBER 5	SET NUMBER 6	SET NUMBER 7	SET NUMBER 8	SET NUMBER 9	SET NUMBER 10
1	0.0000000	1.0000000	0.0005000	0.0000000	1.0000000	1.0000000	1.0000000	0.0000000	0.0000000	0.0000000
2	0.0000000	1.0000000	0.0005000	0.0000000	1.0000000	1.0000000	0.0000000	0.0000000	0.0000000	0.0000000
3	0.0000000	1.0000000	0.0005000	0.0000000	1.0000000	1.0000000	0.0000000	0.0000000	0.0000000	0.0000000
4	0.9950000	1.0000000	0.0005000	0.9990000	1.0000000	0.2000000	0.6000000	0.0000000	0.0000000	0.0000000
5	0.0000000	1.0000000	0.0005000	0.0000000	0.2500000	0.0500000	0.0000000	0.0000000	0.0000000	0.0000000
6	0.9950000	1.0000000	0.0005000	0.9990000	1.0000000	0.0200000	0.0000000	0.0000000	0.0000000	0.0000000
7	0.0000000	1.0000000	0.0005000	0.0000000	0.0010000	0.0010000	0.0000000	0.0000000	0.0000000	0.0000000
8	0.0000000	1.0000000	0.0005000	0.0000000	0.0010000	0.0010000	0.0000000	0.0000000	0.0000000	0.0000000
9	0.0000000	1.0000000	0.0005000	0.0000000	0.0010000	0.0010000	0.0000000	0.0000000	0.0000000	0.0000000
10	0.0000000	1.0000000	0.0005000	0.0000000	0.0010000	0.0010000	0.0000000	0.0000000	0.0000000	0.0000000
11	0.0000000	1.0000000	0.0005000	0.0000000	0.0010000	0.0010000	0.0000000	0.0000000	0.0000000	0.0000000
12	0.0000000	0.0010000	0.0005000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
13	0.0000000	0.0000000	0.0005000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
14	0.0000000	0.0000000	0.0005000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
15	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
16	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
17	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
18	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
19	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
20	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

PAGE 10

OUTPUT UNIT = 6

ELEMENT ASSIGNMENTS TO FRACTIONAL RECOVERY GROUPS

ELEM GROUP	ELEM GROUP	ELEM GROUP	ELEM GROUP	ELEM GROUP	ELEM GROUP	ELEM GROUP	ELEM GROUP	ELEM GROUP	ELEM GROUP	ELEM GROUP	ELEM GROUP	ELEM GROUP	ELEM GROUP
1 14	2 13	3 1	4 1	5 1	6 13	7 13	8 1	9 12	10 13	11 1	12 1	13 1	14 1
10 13	11 1	12 1	13 1	14 1	15 1	16 1	17 12	18 13	19 1	20 1	21 1	22 1	23 1
19 1	20 1	21 1	22 1	23 1	24 1	25 1	26 1	27 1	28 1	29 1	30 1	31 1	32 1
28 1	29 1	30 1	31 1	32 1	33 1	34 1	35 12	36 13	37 1	38 1	39 1	40 1	41 1
37 1	38 1	39 1	40 1	41 1	42 1	43 1	44 1	45 1	46 1	47 1	48 1	49 1	50 1
46 1	47 1	48 1	49 1	50 1	51 1	52 1	53 12	54 13	55 1	56 1	57 1	58 1	59 1
55 1	56 1	57 1	58 1	59 1	60 1	61 1	62 1	63 1	64 1	65 1	66 1	67 1	68 1
64 1	65 1	66 1	67 1	68 1	69 1	70 1	71 1	72 1	73 1	74 1	75 1	76 1	77 1
73 1	74 1	75 1	76 1	77 1	78 1	79 1	80 1	81 1	82 1	83 1	84 1	85 1	86 1
82 1	83 1	84 1	85 1	86 1	87 1	88 1	89 1	90 1	91 3	92 4	93 5	94 6	95 7
91 3	92 4	93 5	94 6	95 7	96 8	97 9	98 10	99 11					

PAGE 11

OUTPUT UNIT = 6

CHEMICAL TOXICITIES, GRAMS PER M**3 WATER

NUCLIDE	TOXICITY	NUCLIDE	TOXICITY	NUCLIDE	TOXICITY	NUCLIDE	TOXICITY	NUCLIDE	TOXICITY	NUCLIDE	TOXICITY	NUCLIDE	TOXICITY
1	3.50E+03	2	2.00E-01	3	5.00E+00	4	1.00E+00	5	1.00E+00	6	4.00E+02	7	1.00E+01
8	9.45E+05	9	1.00E+00	10	1.00E+00	11	1.00E+00	12	1.00E+00	13	1.00E+01	14	5.00E+00
15	1.00E+00	16	5.00E+01	17	1.00E+01	18	5.00E+01	19	1.00E+01	20	3.00E+01	21	5.00E+01
22	1.00E-01	23	1.00E-01	24	5.00E-02	25	1.00E-02	26	5.00E-02	27	5.00E-02	28	5.00E-02
29	1.00E-02	30	5.00E-02	31	1.00E-02	32	5.00E-02	33	1.00E-02	34	1.00E-02	35	3.00E+00
36	4.00E+01	37	5.00E+01	38	1.00E+01	39	1.00E-03	40	1.00E+00	41	2.00E-02	42	5.00E-01
43	1.00E+02	44	1.00E+00	45	5.00E-02	46	5.00E-02	47	1.00E-03	48	1.00E+01	49	1.00E+02
50	5.00E-02	51	5.00E-02	52	2.00E-01	53	1.00E+01	54	1.00E+01	55	5.00E-01	56	1.00E+00
57	1.00E+00	58	2.00E+00	59	1.00E+00	60	2.00E+00	61	1.00E+00	62	1.00E+00	63	1.00E+00
64	2.00E-01	65	2.00E-01	66	2.00E-01	67	1.00E-01	68	1.00E-01	69	2.00E+01	70	1.00E+01
71	1.00E+00	72	5.00E+01	73	5.00E+01	74	5.00E+01	75	5.00E+01	76	1.00E+00	77	8.00E-01
78	5.00E-02	79	2.00E-02	80	2.00E-03	81	5.00E-03	82	1.00E-03	83	1.00E-01	84	2.00E-01
85	1.00E+01	86	5.00E-01	87	8.00E-03	88	1.00E-03	89	2.00E-02	90	5.00E-04	91	5.00E-01
92	5.00E-01	93	1.00E-02	94	8.00E-04	95	4.00E-02	96	5.00E-01	97	5.00E-03	98	1.00E-02
99	1.00E-02												

OUTPUT UNIT = 6 PAGE 14

*Origen2 Triga fuel characterization
 POWER= 3.68000E-03 MW, BURNUP= 4.23398E-01 MWD, FLUX= 2.62E+13 N/CN**2-SEC

REACTIVITY AND BURNUP DATA
 BASIS=Triga fuel element: Al clad (Row C) + prior irradiation

	Initial	Discharge	6.DYR	10.DYR	20.DYR	40.DYR	100.DYR	1000.DYR
TIME SEC	2.21E+08	4.10E+08	1.89E+08	3.16E+08	6.31E+08	1.26E+09	3.16E+09	3.16E+10
NEUT FLUX	0.00E+00	2.62E+13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SP POW MW	0.00E+00	3.68E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BURNUP MWD	0.00E+00	1.41E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
K INFINITY	1.49641	1.47589	1.48491	1.48689	1.48684	1.48678	1.48664	1.48643
NEUT PROD	1.07E+01	1.06E+01	1.06E+01	1.06E+01	1.06E+01	1.06E+01	1.06E+01	1.06E+01
NEUT DEST	7.16E+00	7.18E+00	7.12E+00	7.12E+00	7.12E+00	7.12E+00	7.12E+00	7.12E+00
TOT BURNUP	4.23E-01	4.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
AVG N FLUX	2.62E+13	2.63E+13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
AVG SP POW	3.68E-03	3.68E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

SIZE OF MMAX(I): MMAX= 1 #= 876 MMAX= 2 #= 432 MMAX= 3 #= 142 MMAX= 4 #= 50 MMAX= 5 #= 89 MMAX= 6 #= 54
 MMAX= 7 #= 46 MMAX= 8 #= 0 MMAX= 9 #= 0 MMAX= 10 #= 0 MMAX= 11 #= 0 MMAX= 12 #= 0

THE NUMBER OF NON-ZERO TERMS IN A=6436
 THE NUMBER OF NON-ZERO FISSION PRODUCT YIELDS=3242
 ILITE= 688 IACT= 129 IFP= 879 ITOT=1696
 THE NUMBER OF NON-ZERO NATURAL ABUNDANCES= 437
 THE NUMBER OF NON-ZERO PHOTON YIELDS= 7903
 THE MAXIMUM NUMBER OF TERMS IN AP= 3371

ACTIVATION PRODUCTS

OUTPUT UNIT = 6 PAGE 15

*Origen2 Triga fuel characterization

POWER= 3.68000E+03 MW, BURNUP= 4.23989E-01 MWD, FLUX= 2.62E+13 M/CN**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
	Triga fuel element: All clad (Row C) + prior irradiation							
H 1	2.339E+01	2.339E+01	2.339E+01	2.339E+01	2.339E+01	2.339E+01	2.339E+01	2.339E+01
H 2	7.442E-03	7.870E-03	7.870E-03	7.870E-03	7.870E-03	7.870E-03	7.870E-03	7.870E-03
HE 4	2.677E-06	5.386E-06	5.386E-06	5.386E-06	5.386E-06	5.386E-06	5.386E-06	5.386E-06
B 11	1.468E-07	2.953E-07	2.953E-07	2.953E-07	2.953E-07	2.953E-07	2.953E-07	2.953E-07
C 14	1.287E-06	2.587E-06	2.585E-06	2.584E-06	2.578E-06	2.556E-06	2.292E-06	
N 14	2.733E-02	2.733E-02	2.733E-02	2.733E-02	2.733E-02	2.733E-02	2.733E-02	2.733E-02
N 15	1.076E-04	1.077E-04	1.077E-04	1.077E-04	1.077E-04	1.077E-04	1.077E-04	1.077E-04
O 16	8.377E-03	8.377E-03	8.377E-03	8.377E-03	8.377E-03	8.377E-03	8.377E-03	8.377E-03
O 17	3.391E-06	3.391E-06	3.391E-06	3.391E-06	3.391E-06	3.391E-06	3.391E-06	3.391E-06
O 18	1.927E-05	1.927E-05	1.927E-05	1.927E-05	1.927E-05	1.927E-05	1.927E-05	1.927E-05
MG 24	7.490E-06	1.501E-05	1.507E-05	1.507E-05	1.507E-05	1.507E-05	1.507E-05	1.507E-05
AL 27	1.630E-02	1.630E-02	1.630E-02	1.630E-02	1.630E-02	1.630E-02	1.630E-02	1.630E-02
SI 28	1.002E-03	2.016E-03	2.016E-03	2.016E-03	2.016E-03	2.016E-03	2.016E-03	2.016E-03
SR 87	3.004E-07	6.040E-07	6.040E-07	6.040E-07	6.040E-07	6.040E-07	6.040E-07	6.040E-07
SR 88	2.743E-05	5.524E-05	5.524E-05	5.524E-05	5.524E-05	5.524E-05	5.524E-05	5.524E-05
SR 89	2.088E-21	4.457E-07	4.444E-20	7.263E-29	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 89	4.20E-15	2.632E-06	9.267E-15	8.724E-15	6.441E-15	1.24E-15	9.891E-16	4.919E-25
Y 90	2.092E-15	2.632E-06	9.267E-15	8.724E-15	6.441E-15	1.24E-15	9.891E-16	4.919E-25
Y 91	8.151E-19	1.485E-06	7.877E-18	2.395E-25	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Zr 90	1.079E+03	1.079E+03	1.079E+03	1.079E+03	1.079E+03	1.079E+03	1.079E+03	1.079E+03
Zr 91	2.373E+02	2.373E+02	2.373E+02	2.373E+02	2.373E+02	2.373E+02	2.373E+02	2.373E+02
Zr 92	3.663E+02	3.663E+02	3.663E+02	3.663E+02	3.663E+02	3.663E+02	3.663E+02	3.663E+02
Zr 93	5.230E-03	1.052E-02	1.052E-02	1.052E-02	1.052E-02	1.052E-02	1.052E-02	1.052E-02
Zr 94	3.808E+02	3.808E+02	3.808E+02	3.808E+02	3.808E+02	3.808E+02	3.808E+02	3.808E+02
Zr 95	3.612E-15	5.390E-04	2.634E-14	3.521E-21	2.301E-38	0.000E+00	0.000E+00	0.000E+00
Zr 96	6.257E+01	6.257E+01	6.257E+01	6.257E+01	6.257E+01	6.257E+01	6.257E+01	6.257E+01
Zr 97	0.000E+00	2.608E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB 93	3.210E-09	2.316E-08	3.883E-08	5.123E-08	8.712E-08	1.711E-07	4.511E-07	4.740E-06
NB 95	4.406E-15	9.363E-05	3.213E-14	4.295E-21	2.081E-40	0.000E+00	0.000E+00	0.000E+00
NB 97	0.000E+00	1.895E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MO 95	1.944E-03	3.277E-03	3.910E-03	3.910E-03	3.910E-03	3.910E-03	3.910E-03	3.910E-03
MO 96	1.781E-07	3.108E-06	3.108E-06	3.108E-06	3.108E-06	3.108E-06	3.108E-06	3.108E-06
MO 97	2.907E-05	5.848E-05	5.848E-05	5.848E-05	5.848E-05	5.848E-05	5.848E-05	5.848E-05
MO 98	2.622E-07	1.067E-06	1.067E-06	1.067E-06	1.067E-06	1.067E-06	1.067E-06	1.067E-06
SUMTOT	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03
TOTAL	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03

OUTPUT UNIT = 6 PAGE 16
 *Origen2 Triga fuel characterization
 POWER= 3.68000E+03 MW, BURNUP= 4.23398E-01 MWD, FLUX= 2.62E+13 N/CM**2-SEC
 ACTIVATION PRODUCTS

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS
 Triga fuel element: Al clad (row C) + prior irradiation

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
H	2.340E+01	2.340E+01	2.340E+01	2.340E+01	2.340E+01	2.340E+01	2.340E+01	2.340E+01
He	2.677E-06	5.386E-06	5.386E-06	5.386E-06	5.386E-06	5.386E-06	5.386E-06	5.386E-06
Li	1.468E-07	2.953E-07	2.953E-07	2.953E-07	2.953E-07	2.953E-07	2.953E-07	2.953E-07
C	1.292E-06	2.597E-06	2.594E-06	2.591E-06	2.584E-06	2.566E-06	2.502E-06	
N	2.744E-02	2.744E-02	2.744E-02	2.744E-02	2.744E-02	2.744E-02	2.744E-02	2.744E-02
O	8.400E-03	8.400E-03	8.400E-03	8.400E-03	8.400E-03	8.400E-03	8.400E-03	8.400E-03
Mg	7.490E-06	1.507E-05	1.507E-05	1.507E-05	1.507E-05	1.507E-05	1.507E-05	1.507E-05
Al	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02
Si	1.002E-03	2.016E-03	2.016E-03	2.016E-03	2.016E-03	2.016E-03	2.016E-03	2.016E-03
SR	2.775E-05	5.584E-05	5.584E-05	5.584E-05	5.584E-05	5.584E-05	5.584E-05	5.584E-05
Y	2.088E-06	7.777E-06	4.201E-06	4.201E-06	4.201E-06	4.201E-06	4.201E-06	4.201E-06
Zr	2.126E+03	2.126E+03	2.126E+03	2.126E+03	2.126E+03	2.126E+03	2.126E+03	2.126E+03
NB	1.621E-08	9.578E-05	9.152E-08	1.106E-07	1.583E-07	2.536E-07	4.829E-06	
MO	4.951E-03	9.101E-03	9.762E-03	9.762E-03	9.762E-03	9.762E-03	9.762E-03	9.762E-03
SUMTOT	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03
TOTAL	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03

CUMULATIVE TABLE TOTALS

AP+FP	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03
ACT+FP	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AP+ACT+FP	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03

OUTPUT UNIT = 6 PAGE 17

ACTIVATION PRODUCTS

*Origen2 Triga fuel characterization
 POWER= 3.68000E+03 MW, BURNUP= 4.23590E-01 MWD, FLUX= 2.62E+13 N/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

		Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
H 3	9.042E-07	1.548E-06	1.105E-06	8.831E-07	5.038E-07	1.639E-07	5.650E-09	0.000E+00	0.000E+00
C 14	5.738E-06	1.154E-05	1.153E-05	1.152E-05	1.151E-05	1.148E-05	1.140E-05	1.022E-05	1.022E-05
C 15	0.000E+00	2.149E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
N 16	0.000E+00	1.261E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NA 24	0.000E+00	5.195E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MG 27	0.000E+00	2.484E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AL 28	0.000E+00	5.956E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 89	8.487E-17	1.598E-02	1.379E-15	2.693E-24	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 90	2.227E-09	5.817E-09	5.043E-09	4.585E-09	3.614E-09	2.245E-09	5.383E-10	2.677E-19	2.677E-19
SR 91	0.000E+00	7.519E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 93	0.000E+00	2.597E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 90	2.227E-09	1.432E+00	5.044E-09	4.586E-09	3.615E-09	2.246E-09	5.384E-10	2.677E-19	2.677E-19
Y 91	2.000E-14	3.644E-02	1.933E-13	5.875E-21	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 92	0.000E+00	8.457E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 93	0.000E+00	2.597E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 94	0.000E+00	5.380E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 96	0.000E+00	3.458E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Zr 95	1.743E-05	2.158E-01	2.645E-10	7.543E-17	0.000E+00	2.645E-05	2.645E-05	2.645E-05	2.645E-05
Zr 96	7.743E-11	1.598E+01	3.300E+00	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Zr 97	0.000E+00	1.988E+01	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NR 93M	3.677E-06	1.124E-05	1.490E-05	1.678E-05	2.012E-05	2.332E-05	2.504E-05	2.515E-05	2.515E-05
NR 94	1.351E-16	2.489E-13	2.488E-13	2.488E-13	2.487E-13	2.485E-13	2.480E-13	2.405E-13	2.405E-13
NR 95	1.724E-10	3.663E+00	1.257E-09	1.680E-16	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NR 95M	5.759E-13	8.108E-02	4.200E-12	5.614E-19	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NR 96	0.000E+00	3.630E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NR 97	0.000E+00	4.988E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NR 97M	0.000E+00	4.721E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MO 99	0.000E+00	1.117E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC 99	1.228E-14	9.163E-14	9.654E-14	9.654E-14	9.654E-14	9.654E-14	9.651E-14	9.623E-14	9.623E-14
SUMTOT	2.347E-05	2.264E+02	5.399E-05	5.565E-05	5.858E-05	6.142E-05	6.289E-05	6.177E-05	6.177E-05
TOTAL	2.347E-05	2.264E+02	5.399E-05	5.565E-05	5.858E-05	6.142E-05	6.289E-05	6.177E-05	6.177E-05

*Origens2 Triga fuel characterization
 POWER= 3.6000E-03 MW, BURNUP= 4.2339E-01 MW, FLUX= 2.62E+13 N/CN**2-SEC
 OUTPUT UNIT = 6 PAGE 18

ACTIVATION PRODUCTS

7 SUMMARY TABLE: RADIOACTIVITY, CURIES		Triga fuel element: Al clad (Rev C) + prior irradiation			
		Initial	Discharge	6.0YR	10.0YR
H	9.042E-07	1.548E-06	1.105E-06	8.831E-07	5.038E-07
C	5.738E-06	1.175E-05	1.153E-05	1.152E-05	1.151E-05
N	0.000E+00	1.261E-06	0.000E+00	0.000E+00	0.000E+00
NA	0.000E+00	5.195E-01	0.000E+00	0.000E+00	0.000E+00
MG	0.000E+00	2.484E+00	0.000E+00	0.000E+00	0.000E+00
AL	0.000E+00	5.956E+01	0.000E+00	0.000E+00	0.000E+00
SR	2.227E-09	2.353E-02	5.043E-09	4.585E-09	3.614E-09
Y	2.227E-09	1.559E+00	5.044E-09	4.586E-09	3.615E-09
ZR	1.315E-05	6.147E+01	2.645E-05	2.645E-05	2.645E-05
NB	3.677E-06	1.008E+02	1.490E-05	1.678E-05	2.012E-05
MO	0.000E+00	1.117E-06	0.000E+00	0.000E+00	0.000E+00
TC	1.228E-14	2.159E-10	9.654E-14	9.654E-14	9.653E-14
SUMTOT	2.347E-05	2.264E+02	5.399E-05	5.565E-05	5.858E-05
TOTAL	2.347E-05	2.264E+02	5.399E-05	5.565E-05	5.858E-05
CUMULATIVE TABLE TOTALS					
AP+FP	2.347E-05	2.264E+02	5.399E-05	5.565E-05	5.858E-05
ACT+FP	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AP+ACT+FP	2.347E-05	2.264E+02	5.399E-05	5.565E-05	5.858E-05

OUTPUT UNIT = 6 PAGE 19

ACTIVATION PRODUCTS

*Origen2 Triga fuel characterization
 POWER= 3.68000E+05 MW, BURNUP= 4.23598E-01 MWD, FLUX= 2.62E+13 M/CN*2-SEC

		9 SUMMARY TABLE: THERMAL POWER, WATTS Triga fuel element: AL clad (Row C) + prior irradiation									
		Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR		
H	3	3.045E-11	5.212E-11	3.722E-11	2.973E-11	1.696E-11	5.520E-12	1.902E-13	0.000E+00		
B	12	0.000E+00	1.478E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
C	14	1.683E-09	3.383E-09	3.380E-09	3.379E-09	3.375E-09	3.367E-09	3.342E-09	2.997E-09		
C	15	0.000E+00	3.658E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
N	16	0.000E+00	5.466E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
O	19	0.000E+00	4.352E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
MA	24	0.000E+00	1.440E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
MG	27	0.000E+00	2.346E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
AL	28	0.000E+00	1.068E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
SR	89	2.934E-19	5.526E-05	4.767E-18	9.308E-27	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
SR	90	2.584E-12	6.751E-12	5.853E-12	5.321E-12	4.194E-12	2.606E-12	6.247E-13	3.107E-22		
SR	91	0.000E+00	0.026E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
SR	93	0.000E+00	3.935E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
Y	90	1.234E-11	7.939E-03	2.796E-11	2.542E-11	2.003E-11	1.245E-11	2.984E-12	1.484E-21		
Y	91	7.183E-17	1.309E-04	6.941E-16	2.110E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
Y	92	0.000E+00	8.512E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
Y	93	0.000E+00	1.943E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
Y	94	0.000E+00	2.894E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
Y	96	1.527E-09	3.107E-09	3.107E-09	3.107E-09	3.107E-09	3.107E-09	3.107E-09	3.107E-09		
Zr	93	3.532E-13	5.847E-02	2.648E-12	3.833E-19	2.505E-26	0.000E+00	0.000E+00	0.000E+00		
Zr	95	0.000E+00	2.599E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
Zr	97	6.514E-10	1.991E-09	2.640E-09	2.974E-09	3.564E-09	4.131E-09	4.637E-09	4.650E-09		
NB	93M	1.376E-18	2.536E-15	2.535E-15	2.535E-15	2.536E-15	2.532E-15	2.527E-15	2.451E-15		
NB	94	8.267E-13	1.757E-02	6.029E-12	8.059E-19	3.904E-38	0.000E+00	0.000E+00	0.000E+00		
NB	95M	8.002E-16	1.127E-04	5.835E-15	7.801E-22	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
NB	96	0.000E+00	6.035E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
NB	97	0.000E+00	3.321E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
NB	97M	0.000E+00	2.078E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
MO	99	0.000E+00	3.588E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
TC	99	6.159E-18	4.595E-17	4.841E-17	4.841E-17	4.841E-17	4.841E-17	4.840E-17	4.826E-17		
SUMTOT		3.908E-09	9.1991E-09	9.173E-09	9.486E-09	1.005E-08	1.059E-08	1.086E-08	1.052E-08		
TOTAL		3.908E-09	1.991E+00	9.173E-09	9.486E-09	1.005E-08	1.059E-08	1.086E-08	1.052E-08		

OUTPUT UNIT = 6 PAGE 20

*Origens2 Triga fuel characterization
 POWER= 3.6000E-03 MW, BURNUP= 4.2339E-01 MWD, FLUX= 2.62E+13 N/CM**2-SEC

ACTIVATION PRODUCTS

9 SUMMARY TABLE: THERMAL POWER, WATTS
 Triga fuel element: AL clad (Row C) + prior irradiation

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
H	3.045E-11	5.212E-11	3.722E-11	2.973E-11	1.696E-11	5.520E-12	1.902E-13	0.000E+00
B	0.000E+00	1.478E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C	1.683E-09	7.041E-09	3.380E-09	3.379E-09	3.375E-09	3.367E-09	3.342E-09	2.997E-09
N	0.000E+00	5.466E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
O	0.000E+00	4.352E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NA	0.000E+00	1.440E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MG	0.000E+00	2.346E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AL	0.000E+00	1.068E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR	2.584E-12	1.159E-04	5.853E-12	5.321E-12	4.194E-12	2.606E-12	6.247E-13	3.107E-22
Y	1.234E-11	9.012E-03	2.796E-11	2.521E-11	2.003E-11	1.245E-11	2.984E-12	1.484E-21
ZR	1.528E-09	3.186E-01	3.076E-09	3.073E-09	3.073E-09	3.073E-09	3.073E-09	3.072E-09
NB	6.523E-10	5.376E-01	2.646E-09	2.974E-09	3.564E-09	4.131E-09	4.437E-09	4.450E-09
MO	0.000E+00	3.368E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC	6.159E-18	1.900E-12	4.841E-17	4.841E-17	4.841E-17	4.841E-17	4.840E-17	4.826E-17
SUMTOT	3.908E-09	1.991E+00	9.173E-09	9.486E-09	1.005E-08	1.059E-08	1.086E-08	1.052E-08
TOTAL	3.908E-09	1.991E+00	9.173E-09	9.486E-09	1.005E-08	1.059E-08	1.086E-08	1.052E-08

CUMULATIVE TABLE TOTALS

AP+FP	3.908E-09	1.991E+00	9.173E-09	9.486E-09	1.005E-08	1.059E-08	1.086E-08	1.052E-08
ACT+FP	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AP+ACT+FP	3.908E-09	1.991E+00	9.173E-09	9.486E-09	1.005E-08	1.059E-08	1.086E-08	1.052E-08

OUTPUT UNIT = 6 PAGE 21

ACTINIDES+DAUGHTERS

*origen2 Triga fuel characterization
POWER= 3.68000E+05 MW, BURUP= 4.23398E-01 MW, FLUX= 2.62E+13 M/CN**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
HE 4	2.527E-07	8.525E-07	1.188E-06	1.411E-06	1.968E-06	3.082E-06	6.398E-06	5.438E-05
PB206	9.813E-15	6.300E-13	1.733E-12	3.050E-12	9.204E-12	4.236E-11	5.209E-10	5.476E-07
PB207	1.147E-12	2.518E-11	5.566E-11	8.070E-11	1.798E-10	5.318E-10	3.017E-09	3.305E-07
PB210	1.972E-13	4.172E-12	8.775E-12	1.311E-11	2.903E-11	8.632E-11	5.005E-10	5.252E-08
RA226	2.220E-10	1.803E-09	3.041E-09	4.045E-09	7.178E-09	1.610E-08	6.384E-08	4.057E-06
AC227	1.684E-11	1.255E-10	2.044E-10	4.2627E-10	4.245E-10	7.965E-10	2.079E-09	2.298E-08
TH230	7.180E-08	2.039E-05	2.651E-05	3.059E-05	4.080E-05	6.119E-05	1.224E-04	1.035E-03
TH232	9.482E-08	2.904E-07	3.890E-07	4.548E-07	6.192E-07	9.480E-07	1.934E-06	3.519E-05
PA231	2.481E-07	7.781E-07	9.885E-07	1.128E-06	1.475E-06	2.171E-06	4.254E-06	3.519E-05
U233	5.359E-08	1.111E-07	1.155E-07	1.185E-07	1.258E-07	1.405E-07	1.847E-07	8.504E-07
U234	3.681E-01	3.662E-01	3.662E-01	3.662E-01	3.662E-01	3.662E-01	3.661E-01	3.652E-01
U235	3.647E+01	3.593E+01	3.593E+01	3.593E+01	3.593E+01	3.593E+01	3.593E+01	3.594E+01
U236	4.677E-01	5.649E-01	5.649E-01	5.649E-01	5.649E-01	5.649E-01	5.649E-01	5.649E-01
U237	1.024E-13	1.124E-04	6.402E-13	5.281E-13	3.263E-13	1.246E-13	6.936E-15	1.143E-25
U238	1.499E+02	1.498E+02	1.498E+02	1.498E+02	1.498E+02	1.498E+02	1.498E+02	1.498E+02
U239	0.000E+00	7.234E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP237	1.059E-03	2.199E-03	2.311E-03	2.311E-03	2.512E-03	2.513E-03	2.316E-03	2.338E-03
NP238	2.17E-19	5.102E-07	2.868E-15	5.836E-15	2.769E-15	2.473E-15	1.881E-15	3.109E-17
NP239	3.74E-19	1.631E-05	1.631E-05	1.631E-05	1.631E-05	1.631E-05	1.631E-05	1.631E-05
PU238	3.899E-06	1.631E-05	1.631E-05	1.631E-05	1.631E-05	1.631E-05	1.631E-05	1.631E-05
PU239	3.399E-02	6.564E-02	1.670E-02	6.669E-02	6.668E-02	6.664E-02	6.659E-02	6.659E-02
PU240	2.833E-04	1.120E-03	1.120E-03	1.118E-03	1.118E-03	1.115E-03	1.108E-03	1.098E-03
PU241	3.308E-06	2.760E-05	2.048E-05	1.706E-05	1.054E-05	4.024E-06	2.240E-07	3.695E-18
PU242	1.217E-08	1.683E-07	1.688E-07	1.688E-07	1.690E-07	1.692E-07	1.697E-07	1.711E-07
AM241	1.264E-06	8.384E-06	1.519E-05	1.871E-05	2.487E-05	3.048E-05	3.123E-05	7.430E-06
CM242	3.293E-14	6.405E-08	4.323E-11	3.668E-11	3.495E-11	3.190E-11	2.427E-11	4.004E-13
SUMTOT	1.872E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02
TOTAL	1.872E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02

*Origens2 Triga fuel characterization
 POWER= 3.6000E+03 MW, BURNUP= 4.23398E-01 MWd, FLUX= 2.62E+13 N/cm**2-SEC
 OUTPUT UNIT = 6 PAGE 22

ACTINIDES+DAUGHTERS

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS		Triga fuel elements: Al clad (Row C) + prior irradiation			
Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR 100.0YR 1000.0YR
HE	2.527E-07	8.525E-07	1.188E-06	1.411E-06	1.968E-06 3.082E-06 6.398E-06 5.438E-05
PB	5.221E-11	5.108E-10	1.003E-09	1.389E-09	2.358E-09 4.274E-09 1.070E-08 9.412E-07
RA	2.222E-10	1.804E-09	3.043E-09	4.047E-09	7.180E-09 1.610E-08 6.384E-08 4.057E-06
AC	1.684E-11	1.255E-10	2.044E-10	2.627E-10	4.245E-10 7.965E-10 2.079E-09 2.298E-08
TH	7.277E-06	2.069E-05	2.691E-05	3.105E-05	4.142E-05 6.214E-05 1.243E-04 1.051E-03
PA	2.481E-07	7.784E-07	9.886E-07	1.128E-06	1.476E-06 2.171E-06 4.254E-06 3.519E-05
U	1.872E+02	1.867E+02	1.867E+02	1.867E+02	1.867E+02 1.867E+02 1.867E+02 1.867E+02
NP	1.059E-03	3.242E-03	2.311E-03	2.312E-03	2.313E-03 2.316E-03 2.316E-03 2.338E-03
PU	3.425E-02	6.683E-02	6.784E-02	6.785E-02	6.782E-02 6.777E-02 6.764E-02 6.583E-02
AM	1.266E-06	8.403E-06	1.521E-05	1.872E-05	2.488E-05 3.049E-05 3.124E-05 7.431E-06
CM	8.418E-14	6.407E-08	6.509E-11	5.642E-11	4.115E-11 2.633E-11 4.028E-13
SUMTOT	1.872E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02 1.868E+02 1.868E+02 1.868E+02
TOTAL	1.872E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02 1.868E+02 1.868E+02 1.868E+02
CUMULATIVE TABLE TOTALS					
AP+FP	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03 2.312E+03 2.312E+03 2.312E+03
ACT+FP	1.872E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02 1.868E+02 1.868E+02 1.868E+02
AP+ACT+FP	2.500E+03	2.499E+03	2.499E+03	2.499E+03	2.499E+03 2.499E+03 2.499E+03 2.499E+03

ACTINIDES-DAUGHTERS

OUTPUT UNIT = 6 PAGE 23

*Origen2 Triga fuel characterization
 POWER= 3.68000E-03 MW, BURNUP= 4.23398E-01 MW, FLUX= 2.62E+13 N/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Triga fuel element: Al clad (R/C) C		* prior irradiation	
	Initial	Discharge	6.0YR	20.0YR
TL207	1.215E-09	9.008E-09	1.477E-08	3.066E-08
TL208	9.516E-04	4.652E-08	7.775E-08	7.217E-08
TL209	8.043E-15	1.078E-13	1.276E-13	1.608E-13
PB210	3.733E-13	5.036E-12	6.332E-12	7.443E-12
PB211	1.506E-11	3.184E-10	6.702E-10	1.001E-09
PB212	2.649E-08	1.295E-07	2.163E-07	3.075E-07
PB213	1.219E-09	9.034E-09	1.477E-08	3.066E-08
PB214	2.196E-10	1.784E-09	3.007E-09	4.000E-09
B1210	1.506E-11	3.179E-10	6.704E-10	1.001E-09
B1211	2.196E-09	9.034E-09	1.477E-08	3.066E-08
B1212	2.649E-08	1.295E-07	2.163E-07	3.075E-07
B1213	3.733E-13	5.036E-12	6.332E-12	7.443E-12
B1214	2.196E-10	1.784E-09	3.007E-09	4.000E-09
P0210	1.506E-11	3.179E-10	6.704E-10	1.001E-09
P0211	3.412E-12	2.529E-11	4.147E-11	5.331E-11
P0212	1.697E-08	8.296E-08	1.356E-07	1.936E-07
P0213	5.692E-13	4.883E-12	5.779E-12	6.651E-12
P0214	2.196E-10	1.784E-09	3.007E-09	4.000E-09
P0215	2.196E-09	9.034E-09	1.477E-08	3.066E-08
P0216	2.649E-08	1.295E-07	2.163E-07	3.075E-07
P0217	2.196E-10	1.784E-09	3.007E-09	4.000E-09
AT218	3.733E-13	5.036E-12	6.332E-12	7.443E-12
AT219	1.219E-09	9.034E-09	1.477E-08	3.066E-08
AT220	2.649E-08	1.295E-07	2.163E-07	3.075E-07
AT221	2.196E-10	1.784E-09	3.007E-09	4.000E-09
FR222	3.733E-13	5.036E-12	6.332E-12	7.443E-12
FR223	1.219E-09	9.034E-09	1.477E-08	3.066E-08
RA224	2.649E-08	1.295E-07	2.163E-07	3.075E-07
RA225	3.733E-13	5.036E-12	6.332E-12	7.443E-12
RA226	2.196E-10	1.784E-09	3.007E-09	4.000E-09
RA227	2.649E-08	1.295E-07	2.163E-07	3.075E-07
AC227	3.733E-13	5.036E-12	6.332E-12	7.443E-12
AC228	2.196E-10	1.784E-09	3.007E-09	4.000E-09
TH228	2.649E-08	1.295E-07	2.163E-07	3.075E-07
TH229	3.733E-13	5.036E-12	6.332E-12	7.443E-12
TH230	1.219E-09	9.034E-09	1.477E-08	3.066E-08
TH231	2.649E-08	1.295E-07	2.163E-07	3.075E-07
TH232	3.733E-13	5.036E-12	6.332E-12	7.443E-12
PA231	1.219E-09	9.034E-09	1.477E-08	3.066E-08
PA232	2.649E-08	1.295E-07	2.163E-07	3.075E-07
PA233	3.733E-13	5.036E-12	6.332E-12	7.443E-12
PA234	1.219E-09	9.034E-09	1.477E-08	3.066E-08
U234	2.649E-08	1.295E-07	2.163E-07	3.075E-07
U235	3.733E-13	5.036E-12	6.332E-12	7.443E-12
U236	1.219E-09	9.034E-09	1.477E-08	3.066E-08
U237	2.649E-08	1.295E-07	2.163E-07	3.075E-07
U238	3.733E-13	5.036E-12	6.332E-12	7.443E-12
U239	1.219E-09	9.034E-09	1.477E-08	3.066E-08
U240	2.649E-08	1.295E-07	2.163E-07	3.075E-07
U241	3.733E-13	5.036E-12	6.332E-12	7.443E-12
U242	1.219E-09	9.034E-09	1.477E-08	3.066E-08
U243	2.649E-08	1.295E-07	2.163E-07	3.075E-07
U244	3.733E-13	5.036E-12	6.332E-12	7.443E-12
U245	1.219E-09	9.034E-09	1.477E-08	3.066E-08

OUTPUT UNIT = 6 PAGE 24

ACTINIDES+DAUGHTERS

*origen2 Triga fuel characterization

POWER= 3.68000E+03 MW, BURNUP= 4.23398E-01 MWD, FLUX= 2.62E+13 N/C/M**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Initial	Discharge	Triga fuel element at clad (Row C) + prior irradiation	60.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
U236	3.027E-05	3.656E-05	3.656E-05	3.656E-05	3.656E-05	3.656E-05	3.656E-05	3.656E-05	3.657E-05
U237	8.365E-09	9.177E+00	5.228E-08	4.312E-08	2.665E-08	1.017E-08	5.666E-10	9.330E-21	5.039E-05
U238	5.040E-05	5.039E-05	5.039E-05	5.039E-05	5.039E-05	5.039E-05	5.039E-05	5.039E-05	5.039E-05
U239	0.000E+00	2.419E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U240	3.626E-21	4.878E-05	1.143E-19	1.143E-19	1.143E-19	1.143E-19	1.143E-19	1.143E-19	1.143E-19
NP235	6.336E-12	6.947E-10	1.500E-11	1.163E-12	1.950E-15	5.467E-21	0.000E+00	0.000E+00	0.000E+00
NP236A	0.000E+00	3.164E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP236	4.287E-13	1.872E-12	1.872E-12	1.872E-12	1.872E-12	1.871E-12	1.871E-12	1.861E-12	1.861E-12
NP237	7.470E-07	1.551E-06	1.630E-06	1.630E-06	1.630E-06	1.631E-06	1.633E-06	1.649E-06	1.649E-06
NP238	6.086E-13	1.318E-01	7.489E-10	7.353E-10	7.025E-10	6.413E-10	4.878E-10	8.052E-12	8.052E-12
NP239	4.102E-12	2.419E+02	1.176E-10	1.175E-10	1.174E-10	1.172E-10	1.165E-10	1.071E-10	1.071E-10
NP240M	3.626E-21	5.432E-03	1.143E-19	1.143E-19	1.143E-19	1.143E-19	1.143E-19	1.143E-19	1.143E-19
NP240	0.000E+00	2.141E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP236	4.708E-09	3.984E-08	9.582E-09	3.623E-09	3.187E-10	2.631E-12	1.684E-13	1.675E-13	1.675E-13
Pu238	2.112E-03	4.083E-03	4.148E-03	4.147E-03	4.146E-03	4.144E-03	4.137E-03	4.031E-03	4.031E-03
Pu240	6.458E-05	2.554E-04	2.552E-04	2.551E-04	2.548E-04	2.543E-04	2.527E-04	2.297E-04	2.297E-04
Pu241	3.410E-04	2.845E-05	2.131E-03	1.758E-03	1.086E-03	4.147E-04	2.309E-05	3.808E-16	3.808E-16
Pu242	4.647E-11	6.450E-06	6.447E-10	9.449E-10	9.434E-10	6.462E-10	6.482E-10	6.536E-10	6.536E-10
Pu243	0.347E-08	2.890E-07	3.106E-05	4.032E-05	8.518E-06	7.016E-06	7.015E-06	7.516E-06	7.516E-06
Am241	1.217E-10	1.539E-07	1.499E-07	1.470E-07	1.405E-07	1.282E-07	9.755E-08	2.510E-09	2.510E-09
Am242	1.211E-10	1.750E-03	1.490E-07	1.433E-07	1.398E-07	1.276E-07	7.045E-08	1.602E-09	1.602E-09
Am243	4.102E-12	1.169E-10	1.176E-10	1.175E-10	1.174E-10	1.172E-10	1.165E-10	1.071E-10	1.071E-10
Am244M	0.000E+00	4.972E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Am244	1.089E-10	2.119E-04	1.430E-07	1.213E-07	1.156E-07	1.055E-07	8.027E-08	1.325E-09	1.325E-09
Am245	8.540E-13	1.191E-09	1.030E-09	9.341E-10	7.324E-10	4.502E-10	1.047E-10	3.263E-20	3.263E-20
Am244	2.807E-12	1.958E-10	1.559E-10	1.337E-10	9.121E-11	4.242E-11	2.686E-12	4.677E-27	4.677E-27
SUMTOT	5.230E-03	4.932E+02	9.501E-03	9.130E-03	8.458E-03	7.767E-03	7.292E-03	6.988E-03	6.988E-03
TOTAL	5.230E-03	4.932E+02	9.501E-03	9.130E-03	8.458E-03	7.767E-03	7.292E-03	6.988E-03	6.988E-03

OUTPUT UNIT = 6 PAGE 25

ACTINIDES+DAUGHTERS

*Origen2 Triga fuel characterization
 POWER= 3.68000E-03 MW, BURNUP= 4.25396E-01 MWD, FLUX= 2.62E+13 N/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
TL	1.073E-08	5.553E-08	9.250E-08	9.737E-08	1.028E-07	1.171E-07	1.835E-07	1.658E-06
PB	2.794E-08	1.406E-07	2.348E-07	2.422E-07	2.409E-07	2.461E-07	3.449E-07	9.687E-06
BI	2.794E-08	1.406E-07	2.348E-07	2.422E-07	2.409E-07	2.461E-07	3.449E-07	9.687E-06
PO	4.513E-08	2.254E-07	3.765E-07	3.860E-07	3.768E-07	3.685E-07	4.680E-07	1.370E-05
AT	3.733E-13	4.991E-12	5.906E-12	6.332E-12	7.443E-12	9.864E-12	1.871E-11	4.291E-10
RN	2.792E-08	1.403E-07	2.342E-07	2.412E-07	2.387E-07	2.395E-07	3.067E-07	5.676E-06
FR	1.719E-11	1.303E-10	2.100E-10	2.687E-10	4.313E-10	8.053E-10	2.095E-09	2.338E-08
RA	2.792E-08	1.403E-07	2.342E-07	2.412E-07	2.387E-07	2.395E-07	3.067E-07	5.676E-06
AC	1.219E-09	2.041E-08	1.480E-08	1.902E-08	3.072E-08	5.765E-08	1.503E-07	1.663E-06
TH	1.294E-04	1.033E-04	1.289E-04	1.289E-04	1.292E-04	1.296E-04	1.308E-04	1.506E-04
PA	5.123E-05	1.511E-04	5.213E-05	5.214E-05	5.215E-05	5.219E-05	5.229E-05	5.377E-05
U	2.461E-03	2.511E-02	2.454E-03	2.454E-03	2.454E-03	2.454E-03	2.453E-03	2.448E-03
NP	7.470E-07	2.427E+02	1.631E-06	1.631E-06	1.631E-06	1.632E-06	1.634E-06	1.649E-06
PU	2.584E-03	7.472E-03	6.810E-03	6.427E-03	5.734E-03	5.024E-03	4.504E-03	4.261E-03
AM	4.347E-06	1.779E-05	5.246E-05	6.452E-05	8.566E-05	1.049E-04	1.074E-04	2.551E-05
CM	1.126E-10	2.118E-07	1.442E-07	1.224E-07	1.164E-07	1.060E-07	8.038E-08	1.325E-09
SUMTOT	5.230E-03	4.932E+02	9.501E-03	9.130E-03	8.458E-03	7.767E-03	7.292E-03	6.988E-03
TOTAL	5.230E-03	4.932E+02	9.501E-03	9.130E-03	8.458E-03	7.767E-03	7.292E-03	6.988E-03

CUMULATIVE TABLE TOTALS

AP+FP	2.347E-05	2.264E+02	5.399E-05	5.565E-05	5.858E-05	6.142E-05	6.289E-05	6.177E-05
ACT+FP	5.230E-03	4.932E+02	9.501E-03	9.130E-03	8.458E-03	7.767E-03	7.292E-03	6.988E-03
AP+ACT+FP	5.254E-03	7.196E+02	9.555E-03	9.186E-03	8.517E-03	7.829E-03	7.354E-03	7.049E-03

ACTINIDES-DAUGHTERS

OUTPUT UNIT = 6 PAGE 26

*Origen2 Triga fuel characterization
POWER= 3.68000E-03 MW, BURNUP= 4.23398E-01 MW, FLUX= 2.62E+13 N/C/M**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS

Triga fuel elements: At clad (Rxn C) * prior irradiation

Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
TL207	3.568E-12	2.645E-11	4.337E-11	5.576E-11	9.004E-11	1.689E-10	4.407E-10
TL208	2.340E-10	1.095E-09	1.820E-09	1.845E-09	1.698E-09	1.403E-09	7.864E-10
TL209	1.791E-15	2.120E-15	2.733E-15	2.671E-15	3.540E-15	6.715E-15	1.540E-13
PR209	4.292E-16	5.791E-15	6.792E-15	7.282E-15	8.559E-15	1.134E-14	2.152E-14
PR210	3.489E-15	7.381E-14	1.553E-13	2.319E-13	3.136E-13	1.527E-12	8.854E-12
PR211	3.651E-12	2.707E-11	4.439E-11	5.705E-11	9.214E-11	1.728E-10	4.509E-10
PR212	5.043E-11	2.465E-10	4.119E-10	4.153E-10	3.824E-10	3.159E-10	1.771E-10
PR214	7.003E-13	5.681E-12	9.591E-12	1.276E-11	2.264E-11	5.078E-11	2.013E-10
PR210	3.473E-14	3.330E-13	1.546E-12	2.309E-12	5.113E-12	1.520E-11	8.814E-11
RI211	4.864E-11	3.603E-10	5.907E-10	7.595E-10	3.710E-09	3.416E-09	2.821E-09
RI212	1.569E-15	2.098E-14	2.483E-14	2.652E-14	3.129E-14	4.147E-14	7.866E-14
RI213	2.814E-12	2.287E-11	3.854E-11	5.127E-11	9.098E-11	2.041E-10	8.991E-10
RI214	1.839E-13	1.008E-11	2.149E-11	3.211E-11	7.108E-11	2.114E-10	1.223E-09
PO211	8.992E-10	4.394E-09	1.286E-08	2.399E-08	3.875E-08	7.268E-08	1.894E-07
PO212	1.668E-10	2.447E-13	7.924E-13	3.135E-13	3.685E-13	4.884E-13	9.284E-13
PO213	1.076E-11	8.189E-11	1.394E-10	1.657E-10	1.797E-10	1.592E-10	2.931E-09
PO214	5.071E-09	1.839E-08	6.654E-08	8.030E-08	8.232E-08	7.932E-08	9.18E-07
PO215	1.084E-09	5.300E-09	6.654E-09	8.730E-09	8.232E-09	7.771E-09	9.08E-08
PO216	7.958E-12	2.447E-11	4.090E-11	5.150E-11	2.573E-10	5.771E-10	2.388E-09
PO218	1.593E-14	2.130E-13	2.520E-13	2.702E-13	3.174E-13	4.209E-13	7.984E-13
AT217	5.036E-11	3.748E-10	6.145E-10	7.901E-10	1.276E-09	2.393E-09	6.244E-09
RN219	1.006E-09	4.915E-09	8.214E-09	8.282E-09	7.626E-09	6.299E-09	5.532E-09
RN220	7.278E-12	9.14E-11	9.947E-11	1.326E-10	2.353E-10	5.277E-10	2.092E-09
FR221	1.441E-14	1.924E-13	2.280E-13	2.444E-13	2.873E-13	3.807E-13	7.221E-13
FR223	4.337E-11	3.253E-13	5.301E-13	6.813E-13	1.101E-12	2.066E-12	5.392E-12
RA223	6.369E-11	3.217E-10	5.272E-10	6.780E-10	1.095E-09	2.054E-09	5.358E-09
RA224	2.617E-16	4.443E-09	7.425E-09	7.487E-09	6.894E-09	5.694E-09	3.193E-09
RA225	6.342E-12	5.990E-15	4.142E-15	4.440E-15	5.220E-15	6.917E-15	1.312E-14
RA226	1.304E-14	1.743E-11	8.685E-11	1.155E-10	2.050E-10	4.598E-10	1.823E-09
AC225	5.901E-13	4.396E-12	7.163E-12	9.205E-12	1.487E-11	2.791E-11	7.284E-11
AC227	4.366E-11	3.255E-10	5.330E-10	6.853E-10	1.107E-09	2.076E-09	5.416E-09
TH228	8.661E-14	4.208E-10	7.073E-09	7.125E-09	6.568E-09	5.425E-09	3.042E-09
TH229	1.142E-14	1.618E-13	1.807E-13	1.937E-13	2.277E-13	3.018E-13	7.24E-13
TH230	4.402E-08	1.590E-07	4.150E-08	1.749E-08	4.360E-08	3.497E-08	6.992E-08
TH231	2.2519E-16	7.714E-16	1.035E-15	1.208E-15	1.645E-15	2.518E-15	5.138E-15
TH232	0.000E+00	4.183E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TH233	2.044E-08	2.043E-08	2.043E-08	2.043E-08	2.043E-08	2.043E-08	2.043E-08
TH234	0.000E+00	1.291E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PA232	0.000E+00	1.291E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PA233	1.495E-09	5.534E-09	3.699E-09	3.700E-09	3.700E-09	3.702E-09	3.704E-09
PA234	2.491E-07	2.490E-07	2.490E-07	2.490E-07	2.490E-07	2.490E-07	2.490E-07
PA235A	9.141E-10	7.933E-10	9.408E-10	9.408E-10	9.408E-10	9.408E-10	9.408E-10
PA236	9.143E-10	7.402E-09	7.174E-09	9.101E-09	6.280E-09	5.180E-09	2.907E-09
U232	1.507E-11	3.127E-11	3.252E-11	3.353E-11	3.542E-11	3.956E-11	5.200E-11
U233	6.629E-05	6.594E-05	6.593E-05	6.593E-05	6.593E-05	6.593E-05	6.592E-05
U235	2.065E-06	2.035E-06	2.035E-06	2.035E-06	2.035E-06	2.035E-06	2.035E-06
U236	8.200E-07	9.904E-07	9.904E-07	9.904E-07	9.904E-07	9.904E-07	9.904E-07
U237	1.583E-11	1.736E-02	9.891E-11	8.159E-11	5.042E-11	1.925E-11	1.072E-12

OUTPUT UNIT = 6 PAGE 27

ACTINIDES+DAUGHTERS

*origen2 Triga fuel characterization
 POWER= 3.68000E+03 MW, BURNUP= 4.23398E-01 MWD, FLUX= 2.62E+13 N/CM**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
U238	1.278E-06	1.278E-06	1.278E-06	1.278E-06	1.278E-06	1.278E-06	1.278E-06	1.278E-06
U239	0.000E+00	6.512E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U240	2.975E-24	4.002E-09	9.374E-23	9.374E-23	9.374E-23	9.374E-23	9.374E-23	9.374E-23
NP236M	0.000E+00	2.500E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP237	2.283E-08	4.739E-08	4.981E-08	4.982E-08	4.984E-08	4.991E-08	5.040E-08	
NP238	2.915E-15	6.311E-04	3.586E-12	3.522E-12	3.365E-12	3.071E-12	2.336E-12	3.856E-14
NP239	9.915E-15	5.848E-01	2.842E-13	2.841E-13	2.838E-13	2.833E-13	2.817E-13	2.588E-13
NP240M	2.101E-23	3.148E-05	6.621E-22	6.621E-22	6.621E-22	6.621E-22	6.621E-22	6.621E-22
NP240	0.000E+00	2.269E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu236	1.638E-10	1.366E-09	3.335E-10	1.261E-10	1.109E-11	9.157E-14	5.859E-15	5.828E-15
Pu238	2.207E-06	9.295E-06	9.137E-06	8.853E-06	8.181E-06	6.986E-06	4.350E-06	3.599E-09
Pu239	6.507E-05	1.258E-04	1.278E-04	1.278E-04	1.277E-04	1.277E-04	1.275E-04	1.242E-04
Pu240	2.011E-06	7.951E-06	7.946E-06	7.943E-06	7.934E-06	7.918E-06	7.867E-06	7.151E-06
Pu241	1.057E-08	8.819E-08	6.607E-08	5.449E-08	3.367E-08	1.286E-08	7.158E-10	1.181E-20
Pu242	1.372E-12	1.899E-11	1.904E-11	1.905E-11	1.906E-11	1.908E-11	1.914E-11	1.930E-11
Pu243	0.000E+00	1.104E-08	8.097E-29	8.097E-29	8.097E-29	8.097E-29	8.097E-29	8.097E-29
Am241	1.444E-07	9.562E-07	1.733E-06	2.133E-06	2.856E-06	3.476E-06	3.562E-06	8.474E-07
Am242N	4.808E-14	6.080E-11	5.166E-11	5.209E-11	5.590E-11	5.106E-11	3.485E-11	6.361E-15
Am243	1.319E-13	3.755E-09	1.691E-10	1.597E-10	1.587E-10	1.587E-10	1.619E-10	
Am244	1.319E-13	3.755E-10	3.779E-12	3.779E-12	3.779E-12	3.779E-12	3.779E-12	3.779E-12
Cm240	0.000E+00	1.506E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm242	4.014E-12	7.806E-06	5.248E-09	4.670E-09	4.264E-09	3.888E-09	2.958E-09	4.882E-11
Cm243	3.133E-14	4.370E-11	3.777E-11	3.427E-11	2.687E-11	1.652E-11	3.839E-12	1.197E-21
Cm244	9.819E-14	6.849E-12	5.452E-12	4.678E-12	3.190E-12	1.484E-12	1.493E-13	1.634E-28
SUMTOT	1.402E-04	1.254E+00	2.174E-04	2.175E-04	2.175E-04	2.168E-04	2.140E-04	2.044E-04
TOTAL	1.402E-04	1.254E+00	2.174E-04	2.175E-04	2.175E-04	2.168E-04	2.140E-04	2.044E-04

OUTPUT UNIT = 6 PAGE 28

ACTINIDES+DAUGHTERS

*origen2 Triga fuel characterization
 POWER= 3.6000E+03 MW, BURNUP= 4.23398E-01 MWD, FLUX= 2.62E+13 N/C/M**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS
 Triga fuel element: At clad (row C) * prior irradiation

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
TL	2.275E-10	1.121E-09	1.873E-09	1.900E-09	1.788E-09	1.572E-09	1.227E-09	4.870E-09
PS	5.478E-11	2.794E-10	4.660E-10	4.854E-10	4.977E-10	5.410E-10	8.382E-10	1.871E-08
BI	5.019E-10	2.586E-09	4.310E-09	4.523E-09	4.739E-09	5.341E-09	8.482E-09	1.270E-07
PO	2.057E-09	1.026E-08	1.714E-08	1.752E-08	1.708E-08	1.653E-08	2.015E-08	5.347E-07
AT	1.593E-14	2.130E-13	2.520E-13	2.702E-13	3.176E-13	4.209E-13	7.984E-13	1.831E-11
AI	1.063E-09	5.349E-09	8.928E-09	9.205E-09	9.137E-09	9.220E-09	1.187E-08	2.020E-07
FR	5.808E-14	5.180E-13	7.581E-13	9.257E-13	1.388E-12	2.446E-12	6.114E-12	7.615E-11
RA	9.587E-10	4.816E-09	8.039E-09	8.281E-09	8.194E-09	8.208E-09	1.037E-08	1.751E-07
AC	6.031E-13	1.025E-10	7.369E-10	9.427E-10	1.513E-09	2.826E-09	7.351E-09	8.202E-08
PA	6.970E-08	5.908E-07	8.679E-07	8.933E-07	9.502E-07	1.065E-07	1.424E-07	7.152E-07
TH	2.521E-07	8.987E-07	2.551E-07	2.553E-07	2.558E-07	2.568E-07	2.597E-07	3.038E-07
U	7.044E-05	6.687E-01	7.025E-05	7.024E-05	7.024E-05	7.024E-05	7.023E-05	7.006E-05
NP	2.833E-08	5.856E-01	4.982E-08	4.982E-08	4.983E-08	4.985E-08	4.991E-08	5.040E-08
PU	6.930E-05	1.431E-04	1.450E-04	1.447E-04	1.439E-04	1.426E-04	1.397E-04	1.314E-04
AM	1.444E-07	2.943E-06	1.733E-06	2.134E-06	2.836E-06	3.476E-06	5.562E-06	8.474E-07
CM	4.143E-12	7.806E-06	5.311E-09	4.509E-09	4.290E-09	5.906E-09	2.962E-09	4.882E-11
SUMTOT	1.402E-04	1.254E+00	2.174E-04	2.175E-04	2.175E-04	2.168E-04	2.140E-04	2.044E-04
TOTAL	1.402E-04	1.254E+00	2.174E-04	2.175E-04	2.175E-04	2.168E-04	2.140E-04	2.044E-04

CUMULATIVE TABLE TOTALS

AP+FP	3.908E-09	1.991E+00	9.173E-09	9.486E-09	1.005E-08	1.059E-08	1.086E-08	1.052E-08
ACT+FP	1.402E-04	1.254E+00	2.174E-04	2.175E-04	2.175E-04	2.168E-04	2.140E-04	2.044E-04
AP+ACT+FP	1.402E-04	3.246E+00	2.174E-04	2.175E-04	2.175E-04	2.168E-04	2.140E-04	2.044E-04

OUTPUT UNIT = 6 PAGE 30

FISSION PRODUCTS

*Origen2 Triga fuel characterization
 POWER= 3.58000E+03 MW, BURUP= 6.23398E-01 MW, FLUX= 2.62E+13 M/CN**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Triga fuel element: AL clad (Rev C) + prior irradiation			
	Initial	Discharge	6.0YR	10.0YR
BR 84M	0.000E+00	1.560E-09	0.000E+00	0.000E+00
BR 84	1.628E-03	3.258E-03	3.259E-03	3.259E-03
AS 85	0.000E+00	9.746E-11	0.000E+00	0.000E+00
SE 85	0.000E+00	5.660E-09	0.000E+00	0.000E+00
SE 85M	0.000E+00	2.009E-09	0.000E+00	0.000E+00
BR 85	0.000E+00	4.983E-06	0.000E+00	0.000E+00
KR 85	2.771E-04	4.154E-04	2.825E-04	2.181E-04
KR 85M	0.000E+00	4.724E-06	0.000E+00	0.000E+00
BR 85	1.753E-03	3.637E-03	3.775E-03	3.839E-03
SE 86	0.000E+00	5.101E-09	0.000E+00	0.000E+00
SE 86	0.000E+00	1.220E-08	0.000E+00	0.000E+00
BR 86M	0.000E+00	1.007E-09	0.000E+00	0.000E+00
BR 86	3.243E-03	6.481E-03	6.481E-03	6.481E-03
SE 87	0.000E+00	6.818E-08	0.000E+00	0.000E+00
SE 87	1.293E-09	4.457E-07	5.138E-07	5.138E-07
KR 87	0.000E+00	2.849E-08	0.000E+00	0.000E+00
KR 87	0.000E+00	2.705E-06	0.000E+00	0.000E+00
SE 87	5.785E-09	8.170E-08	8.172E-08	8.172E-08
SE 88	0.000E+00	1.370E-10	0.000E+00	0.000E+00
BR 88	0.000E+00	9.793E-09	0.000E+00	0.000E+00
BR 88	0.000E+00	8.849E-06	0.000E+00	0.000E+00
BR 88	0.000E+00	9.329E-07	0.000E+00	0.000E+00
BR 88	6.044E-03	1.207E-02	1.208E-02	1.208E-02
BR 89	0.000E+00	2.047E-09	0.000E+00	0.000E+00
BR 89	0.000E+00	2.114E-07	0.000E+00	0.000E+00
BR 89	0.000E+00	1.051E-06	0.000E+00	0.000E+00
SR 89	1.114E-17	2.062E-03	1.780E-16	3.476E-25
Y 89	7.980E-03	1.388E-02	1.595E-02	1.595E-02
BR 90	0.000E+00	4.957E-10	0.000E+00	0.000E+00
BR 90	0.000E+00	3.616E-08	0.000E+00	0.000E+00
BR 90	0.000E+00	1.770E-07	0.000E+00	0.000E+00
BR 90M	0.000E+00	6.205E-08	0.000E+00	0.000E+00
SR 90	8.195E-03	1.430E-02	1.240E-02	1.127E-02
Y 90	1.463E-03	5.004E-03	6.907E-03	8.034E-03
ZR 90	3.616E-06	3.109E-06	2.827E-06	2.228E-06
BR 91	0.000E+00	7.270E-09	0.000E+00	0.000E+00
SR 91	0.000E+00	8.057E-08	0.000E+00	0.000E+00
SR 91	1.495E-15	2.684E-03	1.419E-14	4.312E-22
Y 91M	9.875E-03	7.725E-02	1.092E-02	1.195E-02
BR 92	0.000E+00	1.840E-10	0.000E+00	0.000E+00
BR 92	0.000E+00	5.313E-09	0.000E+00	0.000E+00
SR 92	0.000E+00	1.457E-05	0.000E+00	0.000E+00
Y 92	0.000E+00	1.904E-05	0.000E+00	0.000E+00
ZR 92	1.035E-02	2.064E-02	2.069E-02	2.069E-02
BR 93	0.000E+00	1.635E-10	0.000E+00	0.000E+00
SR 93	0.000E+00	5.165E-09	0.000E+00	0.000E+00
SR 93	0.000E+00	7.223E-07	0.000E+00	0.000E+00
Y 93	0.000E+00	5.926E-05	0.000E+00	0.000E+00

FISSION PRODUCTS

OUTPUT UNIT = 6 PAGE 31

*origen2 Triga fuel characterization

POWER= 3.68000E+03 MW, BURNUP= 4.23399E-01 MWD, FLUX= 2.62E+13 M/C/M**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Initial	Discharge	Triga fuel element clad (hot C) + prior irradiation		
			6.0YR	10.0YR	40.0YR
Zr 93	1.127E-02	2.246E-02	2.252E-02	2.252E-02	2.252E-02
NB 93	6.937E-09	4.987E-08	8.349E-08	1.101E-07	1.870E-07
NB 93M	2.803E-08	8.541E-08	1.130E-07	1.273E-07	1.766E-07
SR 94	0.000E+00	2.116E-09	0.000E+00	0.000E+00	0.000E+00
SR 94	0.000E+00	1.133E-07	0.000E+00	0.000E+00	0.000E+00
Y 94	0.000E+00	1.821E-06	0.000E+00	0.000E+00	0.000E+00
Zr 94	1.099E-02	2.197E-02	2.198E-02	2.198E-02	2.198E-02
NB 94	1.537E-09	3.180E-09	3.180E-09	3.179E-09	3.178E-09
SR 95	0.000E+00	3.646E-08	0.000E+00	0.000E+00	0.000E+00
Y 95	2.121E-14	3.111E-03	1.523E-13	2.035E-10	1.330E-07
NB 95	2.588E-14	5.415E-04	1.857E-13	2.483E-10	1.203E-07
NB 95M	8.877E-18	1.240E-06	6.371E-17	8.517E-24	0.000E+00
NB 95	1.143E-02	1.919E-02	2.284E-02	2.284E-02	2.284E-02
SR 96	0.000E+00	3.930E-09	0.000E+00	0.000E+00	0.000E+00
Y 96	0.000E+00	2.160E-07	0.000E+00	0.000E+00	0.000E+00
Zr 96	1.134E-02	2.268E-02	2.268E-02	2.268E-02	2.268E-02
NB 96	2.100E-09	4.702E-08	6.300E-08	8.100E-08	1.030E-07
SR 97	0.000E+00	1.033E-05	2.038E-05	2.038E-05	2.038E-05
Y 97	0.000E+00	1.278E-09	0.000E+00	0.000E+00	0.000E+00
Zr 97	0.000E+00	9.406E-05	0.000E+00	0.000E+00	0.000E+00
NB 97	0.000E+00	6.715E-06	0.000E+00	0.000E+00	0.000E+00
NB 97M	0.000E+00	8.789E-08	0.000E+00	0.000E+00	0.000E+00
NB 97	1.072E-02	2.134E-02	2.144E-02	2.144E-02	2.144E-02
SR 98	0.000E+00	1.615E-10	0.000E+00	0.000E+00	0.000E+00
Y 98	0.000E+00	2.899E-10	0.000E+00	0.000E+00	0.000E+00
Zr 98	0.000E+00	4.774E-08	0.000E+00	0.000E+00	0.000E+00
NB 98	0.000E+00	4.346E-09	0.000E+00	0.000E+00	0.000E+00
NB 98M	0.000E+00	2.252E-08	0.000E+00	0.000E+00	0.000E+00
NB 98	1.077E-02	2.154E-02	2.154E-02	2.154E-02	2.154E-02
TC 98	8.486E-10	3.489E-09	3.485E-09	3.485E-09	3.485E-09
Y 99	0.000E+00	4.371E-10	0.000E+00	0.000E+00	0.000E+00
Zr 99	0.000E+00	3.699E-09	0.000E+00	0.000E+00	0.000E+00
NB 99	0.000E+00	2.251E-08	0.000E+00	0.000E+00	0.000E+00
NB 99M	0.000E+00	6.259E-09	0.000E+00	0.000E+00	0.000E+00
MO 99	0.000E+00	3.039E-04	0.000E+00	0.000E+00	0.000E+00
TC 99M	1.114E-02	2.104E-02	2.228E-02	2.228E-02	2.228E-02
TC 99M	2.000E-07	1.590E-07	3.000E-07	2.407E-06	8.200E-06
Y100	0.000E+00	1.835E-10	0.000E+00	0.000E+00	0.000E+00
Zr100	0.000E+00	1.030E-08	0.000E+00	0.000E+00	0.000E+00
NB100	0.000E+00	2.047E-09	0.000E+00	0.000E+00	0.000E+00
NB100M	0.000E+00	2.053E-09	0.000E+00	0.000E+00	0.000E+00
TC100	1.183E-02	2.364E-02	2.366E-02	2.366E-02	2.366E-02
TC100	0.000E+00	1.223E-10	0.000E+00	0.000E+00	0.000E+00
Zr101	1.295E-05	5.308E-05	5.308E-05	5.308E-05	5.308E-05
NB101	0.000E+00	3.160E-09	0.000E+00	0.000E+00	0.000E+00
NB101	0.000E+00	9.589E-09	0.000E+00	0.000E+00	0.000E+00
TC101	0.000E+00	1.229E-06	0.000E+00	0.000E+00	0.000E+00
TC101	0.000E+00	1.194E-06	0.000E+00	0.000E+00	0.000E+00
Zr101	9.667E-03	1.933E-02	1.933E-02	1.933E-02	1.933E-02

FISSION PRODUCTS

OUTPUT UNIT = 6 PAGE 32

*Origen2 Triga fuel characterization
 PWR= 3.68000E-03 MW, BURNUP= 4.23590E-01 MWD, FLUX= 2.62E+13 W/CM**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Triga fuel element: Al clad (row C) + prior irradiation				
	Initial	Discharge	6.0YR	20.0YR	40.0YR 100.0YR 1000.0YR
Zr102	0.000E+00	1.432E-08	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
NB102	0.000E+00	3.203E-09	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Mo102	0.000E+00	7.882E-07	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Tc102	0.000E+00	6.251E-09	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Tc102M	0.000E+00	9.665E-11	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Ru102	8.169E-03	1.635E-02	1.635E-02	1.635E-02	1.635E-02 1.635E-02 1.635E-02
Rh102	1.531E-11	2.370E-10	5.649E-11	2.172E-11	1.989E-12 1.670E-14 9.874E-21 0.000E+00
Zr103	0.000E+00	2.704E-10	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
NB103	0.000E+00	9.834E-09	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Mo103	0.000E+00	5.333E-08	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Tc103	0.000E+00	4.470E-08	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Ru103	5.104E-23	1.694E-03	2.402E-20	1.529E-31	0.000E+00 0.000E+00 0.000E+00
Rh103	1.232E-03	1.072E-02	1.222E-02	1.222E-02	1.222E-02 1.222E-02 1.222E-02
Zr104	4.367E-25	1.335E-16	2.148E-23	1.368E-34	0.000E+00 0.000E+00 0.000E+00
NB104	0.000E+00	9.688E-08	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Mo104	0.000E+00	5.205E-08	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Tc104	0.000E+00	5.983E-07	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Ru104	3.757E-03	7.532E-03	7.532E-03	7.532E-03	7.532E-03 7.532E-03 7.532E-03
Rh104	0.000E+00	6.968E-10	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Pb104M	0.000E+00	3.104E-10	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Pb104	1.390E-05	1.016E-04	1.016E-04	1.016E-04	1.016E-04 1.016E-04 1.016E-04
NB105	0.000E+00	1.149E-10	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Tc105	0.000E+00	1.500E-08	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Ru105	0.000E+00	1.475E-07	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Rh105	0.000E+00	4.924E-06	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Rh105M	0.000E+00	3.913E-05	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Pb105	0.000E+00	3.883E-09	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Pb105M	2.092E-03	1.159E-03	4.203E-03	4.203E-03	4.203E-03 4.203E-03 4.203E-03
Mo106	0.000E+00	1.009E-09	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Tc106	0.000E+00	4.797E-09	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Ru106	7.981E-06	2.928E-04	4.725E-06	3.019E-07	3.125E-10 3.327E-16 4.013E-34 0.000E+00
Rh106	0.432E-12	3.172E-10	4.442E-12	2.838E-13	2.937E-16 3.127E-22 3.780E-40 0.000E+00
Pb106M	8.861E-04	1.515E-03	1.803E-03	1.803E-03	1.803E-03 1.803E-03 1.803E-03
Pb106	0.000E+00	2.672E-10	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Tc107	0.000E+00	1.747E-09	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Ru107	0.000E+00	1.602E-08	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Rh107	0.000E+00	8.281E-08	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Pb107	4.182E-04	8.501E-04	8.502E-04	8.502E-04	8.502E-04 8.502E-04 8.501E-04
Ag107	3.053E-10	1.188E-09	1.723E-09	2.096E-09	3.003E-09 4.817E-09 1.026E-08 9.190E-08
Tc108	0.000E+00	1.408E-10	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Rh108	0.000E+00	8.638E-09	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Pb108	2.067E-04	5.383E-10	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Tc109	0.000E+00	4.233E-04	4.233E-04	4.233E-04	4.233E-04 4.233E-04 4.233E-04
Ru109	0.000E+00	5.038E-10	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Rh109	0.000E+00	5.859E-10	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Pb109	0.000E+00	1.530E-09	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Pb109M	0.000E+00	4.250E-10	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Pb109	0.000E+00	8.297E-07	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Pb109M	0.000E+00	2.376E-09	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Ag109	1.072E-04	2.195E-04	2.203E-04	2.203E-04	2.203E-04 2.203E-04 2.203E-04

FISSION PRODUCTS

OUTPUT UNIT = 6 PAGE 33

*Origen2 Trips fuel characterization
 POWER= 3.6000E+03 MW, BURNUP= 4.2359E-01 MWd, FLUX= 2.62E+13 n/cm**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Trips fuel element: AL clad (Row C) + prior irradiation			
	Initial	Discharge	6.0YR	10.0YR
AG109M	3.835E-24	6.776E-10	2.065E-23	2.328E-27
RU110	0.000E+00	1.817E-10	0.000E+00	0.000E+00
RH110	0.000E+00	3.399E-10	0.000E+00	0.000E+00
PD110	7.922E-05	1.613E-04	1.613E-04	1.613E-04
AG170M	2.995E-11	3.529E-08	8.068E-11	1.402E-12
CU110	5.663E-07	2.298E-06	2.334E-06	2.334E-06
RU111	0.000E+00	1.211E-10	0.000E+00	0.000E+00
RH111	0.000E+00	6.966E-10	0.000E+00	0.000E+00
PD111	0.000E+00	1.285E-08	0.000E+00	0.000E+00
AG111M	0.000E+00	1.617E-09	0.000E+00	0.000E+00
AG111M	0.000E+00	6.100E-06	0.000E+00	0.000E+00
CU111	6.543E-03	1.260E-04	1.321E-04	1.321E-04
PD112	0.000E+00	8.721E-06	0.000E+00	0.000E+00
AG112M	4.890E-05	9.941E-05	1.002E-04	1.002E-04
PD113	0.000E+00	6.327E-10	0.000E+00	0.000E+00
AG113M	2.925E-05	3.944E-05	3.944E-05	3.944E-05
CU113M	6.192E-07	1.053E-06	7.932E-07	4.078E-07
PD114	0.000E+00	9.197E-10	0.000E+00	0.000E+00
CU114	6.221E-05	1.443E-04	1.443E-04	1.443E-04
IN114M	3.103E-27	2.788E-10	1.323E-23	1.734E-32
SN114	6.967E-12	1.324E-09	1.582E-09	1.582E-09
AG115	0.000E+00	2.298E-10	0.000E+00	0.000E+00
CU115	0.000E+00	5.476E-09	0.000E+00	0.000E+00
CU115M	5.941E-23	9.809E-07	1.579E-21	2.168E-31
IN115	4.114E-05	8.064E-05	8.064E-05	8.064E-05
IN115M	1.677E-29	8.946E-08	4.458E-28	6.143E-38
SN115	1.463E-06	2.889E-06	2.933E-06	2.933E-06
AG116	0.000E+00	5.079E-10	0.000E+00	0.000E+00
IN116M	4.340E-05	9.714E-05	8.714E-05	8.714E-05
SN116	8.580E-07	3.398E-06	3.597E-06	3.597E-06
AG117	0.000E+00	1.813E-08	0.000E+00	0.000E+00
CU117M	0.000E+00	2.770E-08	0.000E+00	0.000E+00
IN117	0.000E+00	9.964E-09	0.000E+00	0.000E+00
IN117M	0.000E+00	3.337E-08	0.000E+00	0.000E+00
SN117	4.321E-05	8.650E-05	8.661E-05	8.661E-05
CU118	0.000E+00	2.062E-08	0.000E+00	0.000E+00
SN118	4.694E-05	9.404E-05	9.406E-05	9.406E-05
CU119M	0.000E+00	1.854E-09	0.000E+00	0.000E+00
IN119	0.000E+00	6.311E-10	0.000E+00	0.000E+00
IN119M	0.000E+00	2.854E-10	0.000E+00	0.000E+00
SN119	4.528E-05	9.053E-05	9.075E-05	9.075E-05
CU120	5.619E-10	2.088E-07	4.230E-10	6.782E-16
IN120	0.000E+00	3.427E-10	0.000E+00	0.000E+00

OUTPUT UNIT = 6 PAGE 34

FISSION PRODUCTS

*Origen2 Triaga fuel characterization
 POWER= 3.68000E+03 MW, BURNUP= 4.23598E-01 MW, FLUX= 2.62E+13 N/CM**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

Initial	Discharge	Triaga fuel element: AL clad (Row C) + prior irradiation	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
SN120	4.717E-05	9.453E-05	9.453E-05	9.453E-05	9.453E-05	9.453E-05	9.453E-05
SN121	0.000E+00	1.602E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN121M	0.000E+00	3.028E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN121	0.000E+00	6.999E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN121M	1.819E-08	3.366E-08	3.097E-08	2.930E-08	2.551E-08	1.933E-08	8.409E-09
SB121	4.982E-05	9.905E-05	9.975E-05	9.975E-05	9.975E-05	9.975E-05	9.975E-05
SN122	5.278E-05	1.058E-04	1.058E-04	1.058E-04	1.058E-04	1.058E-04	1.058E-04
SN122M	0.000E+00	4.911E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE122	3.590E-08	1.382E-07	1.430E-07	1.430E-07	1.430E-07	1.430E-07	1.430E-07
IN123M	0.000E+00	1.219E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN123	2.199E-11	4.374E-06	3.476E-11	1.345E-14	4.133E-23	3.904E-40	0.000E+00
SN123M	0.000E+00	1.679E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN123	6.230E-05	1.639E-04	1.249E-04	1.249E-04	1.249E-04	1.249E-04	1.249E-04
SD124	8.000E-10	1.028E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN124	1.907E-20	1.500E-08	3.845E-19	1.900E-24	0.000E+00	0.000E+00	0.000E+00
TE124	5.141E-08	3.27E-07	1.677E-07	1.677E-07	1.677E-07	1.677E-07	1.677E-07
SN125	0.000E+00	4.608E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN125M	0.000E+00	3.07E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SB125	1.887E-05	3.837E-05	9.575E-06	3.519E-06	2.882E-07	1.931E-09	5.821E-16
TE125M	2.639E-07	1.900E-07	1.339E-07	4.922E-08	4.031E-09	2.702E-11	8.143E-18
SN126	1.829E-04	3.666E-04	3.666E-04	3.665E-04	3.665E-04	3.663E-04	3.640E-04
SB126M	8.689E-12	3.487E-07	1.741E-11	1.741E-11	1.741E-11	1.740E-11	1.730E-11
TE126	6.606E-16	2.015E-10	1.324E-13	1.324E-13	1.324E-13	1.323E-13	3.151E-13
SN127	3.580E-06	6.879E-06	7.243E-06	7.253E-06	7.278E-06	7.329E-06	7.482E-06
SN127M	0.000E+00	2.817E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN127	0.000E+00	4.473E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE127	2.541E-14	1.726E-06	5.333E-14	4.904E-18	4.015E-28	0.000E+00	0.000E+00
1127M	7.259E-12	1.430E-05	1.518E-11	1.401E-15	1.147E-25	0.000E+00	0.000E+00
SN128	3.973E-04	7.659E-04	8.014E-04	8.014E-04	8.014E-04	8.014E-04	8.014E-04
SN128M	0.000E+00	4.676E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN128	0.000E+00	1.878E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE128M	0.000E+00	8.159E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE128	9.800E-04	1.942E-03	1.963E-03	1.963E-03	1.963E-03	1.963E-03	1.963E-03
SN128	2.290E-07	6.541E-07	9.543E-07	9.543E-07	9.543E-07	9.543E-07	9.543E-07
SN129	0.000E+00	1.631E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN129M	0.000E+00	1.837E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SB129	0.000E+00	8.264E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE129	0.000E+00	9.481E-07	1.259E-27	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE129M	0.000E+00	5.743E-03	1.345E-24	1.094E-37	0.000E+00	0.000E+00	0.000E+00
1129	1.754E-03	3.522E-03	3.514E-03	3.514E-03	3.514E-03	3.514E-03	3.514E-03
XE129	1.315E-09	3.706E-09	4.640E-09	5.260E-09	6.812E-09	9.915E-09	1.922E-08
SN130	0.000E+00	7.556E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN130M	0.000E+00	1.864E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SB130M	0.000E+00	1.684E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE130	3.718E-03	7.440E-03	7.441E-03	7.441E-03	7.441E-03	7.441E-03	7.441E-03
1130	0.000E+00	3.318E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1130M	0.000E+00	1.634E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE130	1.738E-06	5.999E-06	6.032E-06	6.032E-06	6.032E-06	6.032E-06	6.032E-06

OUTPUT UNIT = 6 PAGE 35

FISSION PRODUCTS

*Origin2 Trips fuel characterization
 POWER= 3.6000E-03 MW, BURNUP= 4.23598E-01 MWD, FLUX= 2.62E+13 N/CN**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
SN131	0.000E+00	2.225E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SB131	0.000E+00	1.269E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE131	0.000E+00	1.394E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE131M	0.000E+00	1.411E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I131	0.000E+00	6.866E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE131	7.095E-03	1.343E-02	1.414E-02	1.414E-02	1.414E-02	1.414E-02	1.414E-02	1.414E-02
XE131M	0.000E+00	8.744E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN132	0.000E+00	8.635E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SB132	0.000E+00	1.015E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE132	0.000E+00	9.695E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE132M	0.000E+00	4.341E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I132	0.000E+00	1.283E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE132	1.072E-02	2.105E-02	2.150E-02	2.150E-02	2.150E-02	2.150E-02	2.150E-02	2.150E-02
XE132M	0.000E+00	4.001E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA132	2.660E-10	9.538E-10	1.044E-09	1.044E-09	1.044E-09	1.044E-09	1.044E-09	1.044E-09
SN133	0.000E+00	7.71E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SB133	0.000E+00	1.71E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE133	0.000E+00	1.057E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE133M	0.000E+00	3.505E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I133	0.000E+00	1.827E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE133	0.000E+00	4.213E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE133M	0.000E+00	1.061E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS133	0.000E+00	1.350E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SB134	1.683E-02	3.234E-02	3.360E-02	3.360E-02	3.360E-02	3.360E-02	3.360E-02	3.360E-02
TE134	0.000E+00	1.110E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SB134M	0.000E+00	1.028E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE134	0.000E+00	6.135E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I134M	0.000E+00	8.765E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE134	0.000E+00	3.677E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS134	1.934E-02	3.867E-02	3.867E-02	3.867E-02	3.867E-02	3.867E-02	3.867E-02	3.867E-02
CS134M	2.462E-06	3.565E-06	4.454E-06	1.161E-06	4.025E-08	4.829E-11	8.400E-20	0.000E+00
BA134	0.000E+00	1.422E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN135	2.766E-05	6.664E-05	9.566E-05	1.001E-04	1.001E-04	1.001E-04	1.001E-04	1.001E-04
SB135	0.000E+00	1.256E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE135	0.000E+00	2.323E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I135	0.000E+00	3.489E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE135	0.000E+00	6.024E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE135M	1.000E+00	1.100E+00	1.100E+00	1.100E+00	1.100E+00	1.100E+00	1.100E+00	1.100E+00
CS135M	1.000E+00	3.377E-02	2.558E-02	2.558E-02	2.558E-02	2.558E-02	2.558E-02	2.558E-02
BA135	2.804E-08	1.58E-07	1.621E-07	1.929E-07	2.700E-07	4.242E-07	8.867E-07	7.824E-06
TE136	0.000E+00	1.645E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I136M	0.000E+00	9.530E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE136	2.028E-02	4.054E-02	4.054E-02	4.054E-02	4.054E-02	4.054E-02	4.054E-02	4.054E-02
CS136	0.000E+00	5.009E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA136	2.298E-05	4.972E-05	5.473E-05	5.473E-05	5.473E-05	5.473E-05	5.473E-05	5.473E-05
TE137	0.000E+00	5.633E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I137M	0.000E+00	2.994E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE137	0.000E+00	5.131E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS137	1.344E-02	2.356E-02	2.051E-02	1.870E-02	1.484E-02	9.349E-03	2.337E-03	2.175E-12
BA137	2.304E-03	7.934E-03	1.098E-02	1.279E-02	1.665E-02	2.214E-02	2.916E-02	3.149E-02

FISSION PRODUCTS

OUTPUT UNIT = 6 PAGE 36

*Or-igen2 Triga fuel characterization

POWER= 3.68000E+03 MW, BURNUP= 4.23598E-01 MWD, FLUX= 2.62E+13 W/CM**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Triga fuel element: Al clad (Row C) + prior irradiation		100.0YR		1000.0YR	
	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR
BA137M	2.057E-09	3.619E-09	3.138E-09	2.271E-09	1.430E-09	3.576E-10
1138	0.000E+00	4.005E-09	0.000E+00	0.000E+00	0.000E+00	3.328E-19
XE138	0.000E+00	1.990E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS138	0.000E+00	4.877E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS138M	0.000E+00	4.615E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA138	1.762E-02	3.523E-02	3.523E-02	3.523E-02	3.523E-02	3.523E-02
LA138	1.480E-07	2.949E-07	2.949E-07	2.949E-07	2.949E-07	2.949E-07
1139	0.000E+00	6.732E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE139	0.000E+00	7.575E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS139	0.000E+00	1.361E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA139	0.000E+00	1.210E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA139	1.685E-02	3.367E-02	3.369E-02	3.369E-02	3.369E-02	3.369E-02
XE140	0.000E+00	1.837E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS140	0.000E+00	1.402E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA140	0.000E+00	2.287E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA140	0.000E+00	3.002E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE140	1.667E-02	3.112E-02	3.371E-02	3.371E-02	3.371E-02	3.371E-02
CS141	0.000E+00	2.233E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA141	0.000E+00	7.468E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA141	0.000E+00	3.197E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE141	0.000E+00	3.528E-03	1.821E-23	5.403E-37	0.000E+00	0.000E+00
PR141	1.560E-02	2.763E-02	3.120E-02	3.120E-02	3.120E-02	3.120E-02
XE142	0.000E+00	1.834E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS142	0.000E+00	1.866E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA142	0.000E+00	1.431E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA142	0.000E+00	1.261E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE142	1.567E-02	3.132E-02	3.133E-02	3.133E-02	3.133E-02	3.133E-02
PR142	0.000E+00	1.408E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA142M	0.000E+00	3.823E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND142	1.955E-06	1.274E-05	1.288E-05	1.288E-05	1.288E-05	1.288E-05
CS143	0.000E+00	1.006E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA143	0.000E+00	2.790E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA143	0.000E+00	1.919E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE143	0.000E+00	2.727E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR143	0.000E+00	2.193E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND143	1.581E-02	2.903E-02	3.149E-02	3.149E-02	3.149E-02	3.149E-02
BA144	0.000E+00	1.294E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE144	0.000E+00	1.626E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA144	0.000E+00	8.103E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS144	3.100E-05	1.859E-03	2.227E-05	2.318E-07	8.542E-11	1.579E-18
PR144M	1.309E-09	1.979E-07	9.404E-10	2.448E-11	3.415E-15	6.440E-23
ND144	6.995E-12	9.893E-04	4.701E-12	1.336E-13	1.807E-17	3.319E-23
BA145	1.645E-02	2.481E-02	2.945E-02	2.947E-02	2.947E-02	2.947E-02
CE145	0.000E+00	4.876E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA145	0.000E+00	2.04E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR145	0.000E+00	2.772E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND145	1.063E-02	2.120E-02	2.123E-02	2.123E-02	2.123E-02	2.123E-02
BA146	0.000E+00	9.975E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA146	0.000E+00	7.582E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE146	0.000E+00	1.005E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00

OUTPUT UNIT = 6 PAGE 37

FISSION PRODUCTS

*Origen2 Triga fuel characterization
 POWER= 3.68000E-03 MW, BURNUP= 4.23598E-01 MWd, FLUX= 2.62E+13 N/CN**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
PR146	0.000E+00	1.718E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR146	8.185E-03	1.639E-02	1.639E-02	1.639E-02	1.639E-02	1.639E-02	1.639E-02	1.639E-02
PM146	8.835E-10	6.302E-10	2.959E-10	1.787E-10	5.064E-11	4.076E-12	2.120E-15	0.000E+00
SM146	5.762E-10	1.509E-08	1.522E-08	1.526E-08	1.531E-08	1.532E-08	1.533E-08	1.533E-08
BA147	0.000E+00	1.201E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA147	0.000E+00	4.294E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE147	0.000E+00	6.239E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR147	0.000E+00	6.572E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR147	0.000E+00	7.939E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM147	0.000E+00	1.724E-03	5.179E-04	1.800E-04	1.282E-05	6.499E-08	8.474E-15	0.000E+00
SM147	5.271E-03	9.871E-03	1.198E-02	1.232E-02	1.232E-02	1.250E-02	1.250E-02	1.250E-02
LA148	0.000E+00	1.900E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE148	0.000E+00	2.652E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR148	0.000E+00	9.402E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM148	4.716E-03	9.430E-03	9.430E-03	9.430E-03	9.430E-03	9.430E-03	9.430E-03	9.430E-03
BA148	1.240E-25	1.513E-08	2.527E-24	3.145E-33	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM148A	1.240E-25	1.513E-08	2.527E-24	3.145E-33	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE148	6.399E-06	1.377E-06	4.411E-06	1.444E-06	4.411E-06	4.411E-06	4.411E-06	4.411E-06
PR149	0.000E+00	3.190E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE149	0.000E+00	0.017E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM149	0.000E+00	2.763E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA149	0.000E+00	8.472E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM149	1.419E-03	1.523E-03	1.610E-03	1.610E-03	1.610E-03	1.610E-03	1.610E-03	1.610E-03
CE150	0.000E+00	2.235E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR150	0.000E+00	3.056E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM150	1.849E-03	3.700E-03	3.700E-03	3.700E-03	3.700E-03	3.700E-03	3.700E-03	3.700E-03
PM150	0.000E+00	6.169E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM150	1.653E-03	4.532E-03	4.532E-03	4.532E-03	4.532E-03	4.532E-03	4.532E-03	4.532E-03
PR151	0.000E+00	5.021E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM151	0.000E+00	1.500E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM151	0.000E+00	1.793E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM151	1.048E-03	1.827E-03	1.762E-03	1.708E-03	1.582E-03	1.356E-03	8.542E-04	8.338E-07
EU151	5.672E-05	1.730E-04	2.564E-04	3.098E-04	4.365E-04	6.623E-04	1.164E-03	2.017E-03
PR152	0.000E+00	4.283E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM152	0.000E+00	7.724E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM152	0.000E+00	2.793E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM152A	0.000E+00	6.902E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM152	8.895E-04	1.940E-03	1.944E-03	1.945E-03	1.945E-03	1.952E-03	1.953E-03	1.953E-03
EU152	6.710E-08	1.841E-08	1.356E-08	1.00E-08	6.645E-08	2.398E-08	1.127E-07	1.353E-27
CE152	3.531E-06	6.053E-06	8.804E-06	9.523E-06	1.077E-05	1.194E-05	0.000E+00	0.000E+00
PR152	0.000E+00	1.105E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM153	0.000E+00	4.280E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM153	0.000E+00	2.283E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM153	0.000E+00	1.281E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU153	4.895E-04	9.912E-04	9.912E-04	9.912E-04	9.912E-04	9.912E-04	9.912E-04	9.912E-04
GO153	2.672E-13	8.002E-08	1.504E-10	2.291E-12	6.558E-17	5.376E-26	0.000E+00	0.000E+00
PM154	0.000E+00	9.808E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM154A	0.000E+00	4.863E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM154H	0.000E+00	4.347E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM154	2.263E-04	4.539E-04	4.539E-04	4.539E-04	4.539E-04	4.539E-04	4.539E-04	4.539E-04
EU154	2.564E-06	1.038E-05	6.399E-06	4.636E-06	2.071E-06	4.131E-07	3.280E-09	0.000E+00

OUTPUT UNIT = 6 PAGE 38

FISSION PRODUCTS

*Origen2 Triga fuel characterization
 POWER= 3.68000E+03 MW, BURNUP= 4.23398E-01 MWD, FLUX= 2.62E+13 M/CMT*2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
G0154	1.869E-06	7.786E-06	1.177E-05	1.353E-05	1.609E-05	1.775E-05	1.816E-05	1.816E-05
G0155	0.000E+00	2.078E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM155	0.000E+00	5.409E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM155	0.000E+00	2.125E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU155	3.087E-05	6.052E-05	2.617E-05	1.496E-05	3.698E-06	2.259E-07	5.151E-11	0.000E+00
G0156	6.344E-05	8.979E-05	1.242E-04	1.354E-04	1.466E-04	1.501E-04	1.503E-04	1.503E-04
SM156	0.000E+00	1.005E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU156	0.000E+00	2.312E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM156	0.000E+00	8.036E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU156	5.215E-05	1.546E-04	1.629E-04	1.629E-04	1.629E-04	1.629E-04	1.629E-04	1.629E-04
PM157	0.000E+00	1.344E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM157	0.000E+00	1.720E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU157	0.000E+00	2.002E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM157	7.849E-06	8.066E-06	8.269E-06	8.269E-06	8.269E-06	8.269E-06	8.269E-06	8.269E-06
EU158	0.000E+00	4.623E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM158	0.000E+00	5.152E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU158	2.938E-05	6.899E-05	6.700E-05	6.700E-05	6.700E-05	6.700E-05	6.700E-05	6.700E-05
G0159	0.000E+00	9.192E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM159	0.000E+00	1.920E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU159	0.000E+00	1.570E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM159	4.645E-06	8.998E-06	9.044E-06	9.044E-06	9.044E-06	9.044E-06	9.044E-06	9.044E-06
G0160	1.834E-06	3.746E-06	3.746E-06	3.746E-06	3.746E-06	3.746E-06	3.746E-06	3.746E-06
T8160	4.377E-19	9.274E-09	6.948E-08	5.758E-08	3.575E-08	0.000E+00	0.000E+00	0.000E+00
T8160	9.047E-09	2.648E-08	3.575E-08	3.575E-08	3.575E-08	3.575E-08	3.575E-08	3.575E-08
T8161	0.000E+00	5.463E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
DY161	5.851E-07	1.142E-06	1.197E-06	1.197E-06	1.197E-06	1.197E-06	1.197E-06	1.197E-06
DY162	3.119E-07	6.494E-07	6.495E-07	6.495E-07	6.495E-07	6.495E-07	6.495E-07	6.495E-07
DY163	1.219E-07	2.573E-07	2.573E-07	2.573E-07	2.573E-07	2.573E-07	2.573E-07	2.573E-07
DY164	5.612E-08	1.128E-07	1.128E-07	1.128E-07	1.128E-07	1.128E-07	1.128E-07	1.128E-07
H0165	3.203E-08	7.065E-08	7.070E-08	7.070E-08	7.070E-08	7.070E-08	7.070E-08	7.070E-08
DY166	0.000E+00	7.558E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
H0166	0.000E+00	2.555E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ER166	1.632E-08	3.291E-08	3.392E-08	3.392E-08	3.392E-08	3.392E-08	3.392E-08	3.392E-08
ER167	9.234E-09	1.841E-08	1.841E-08	1.841E-08	1.841E-08	1.841E-08	1.841E-08	1.841E-08
ER168	2.585E-10	1.040E-09	1.040E-09	1.040E-09	1.040E-09	1.040E-09	1.040E-09	1.040E-09
SUMT08	4.395E-01	8.793E-01	8.793E-01	8.793E-01	8.793E-01	8.793E-01	8.793E-01	8.793E-01
TOTAL	4.395E-01	8.793E-01	8.793E-01	8.793E-01	8.793E-01	8.793E-01	8.793E-01	8.793E-01

This page cannot be converted.
Please view the native document
for the original page.

OUTPUT UNIT = 6 PAGE 40

FISSION PRODUCTS

*Origen2 Triga fuel characterization
 POWER= 3.68000E-03 MW, BURNUP= 4.23590E-01 MWD, FLUX= 2.62E+13 N/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY CURIES

Triga fuel element: Al clad (Rev C) + prior irradiation

Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
H 3	4.120E-03	6.343E-03	4.529E-03	3.3619E-03	2.064E-03	6.718E-04	2.315E-05
BE 10	3.781E-11	7.562E-11	7.562E-11	7.562E-11	7.562E-11	7.562E-11	7.559E-11
C 14	1.524E-09	3.045E-09	3.043E-09	3.042E-09	3.038E-09	3.031E-09	2.698E-09
C 17	0.000E+00	4.343E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CO 72	0.000E+00	1.162E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU 72	0.000E+00	2.343E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CN 72	0.000E+00	2.571E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 72	0.000E+00	2.572E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CO 73	0.000E+00	8.385E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU 73	0.000E+00	7.110E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CN 73	0.000E+00	4.096E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 73	0.000E+00	8.113E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BE 74	0.000E+00	8.129E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CO 74	0.000E+00	8.350E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU 74	0.000E+00	3.267E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CN 74	0.000E+00	8.172E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 74	0.000E+00	1.992E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BE 75	0.000E+00	2.062E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CN 75	0.000E+00	3.584E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU 75	0.000E+00	9.239E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 75	0.000E+00	4.363E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BE 76	0.000E+00	4.935E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU 76	0.000E+00	2.035E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 76	0.000E+00	1.125E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BE 77	0.000E+00	8.764E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CN 77	0.000E+00	1.006E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU 77	0.000E+00	1.401E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 77	0.000E+00	6.162E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BE 78	0.000E+00	3.804E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CN 78	0.000E+00	1.167E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU 78	0.000E+00	2.800E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 78	0.000E+00	1.096E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BE 79	0.000E+00	2.611E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CN 79	0.000E+00	7.845E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU 79	0.000E+00	1.824E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 79	0.000E+00	1.335E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BE 80	0.000E+00	1.332E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CN 80	0.000E+00	6.482E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU 80	0.000E+00	3.322E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 80	0.000E+00	6.389E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BE 81	0.000E+00	1.926E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CN 81	0.000E+00	5.385E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU 81	0.000E+00	5.272E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 81	0.000E+00	1.350E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BE 82	0.000E+00	1.636E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CN 82	5.514E-06	1.103E-05	1.103E-05	1.102E-05	1.102E-05	1.102E-05	1.091E-05
CU 82	0.000E+00	1.636E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 82	0.000E+00	2.486E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

OUTPUT UNIT = 6 PAGE 41

FISSION PRODUCTS

Wogens2 Triga fuel characterization
 POWER= 3.48000E+03 MW, BURUP= 4.23598E-01 MW, FLUX= 2.62E+13 N/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Triga fuel element: Al clad (8cm C) + prior irradiation			
	Initial	Discharge	6.0YR	10.0YR
ZN 80	0.000E+00	2.406E-02	0.000E+00	0.000E+00
GA 80	0.000E+00	6.810E-01	0.000E+00	0.000E+00
GE 80	0.000E+00	3.392E+00	0.000E+00	0.000E+00
AS 80	0.000E+00	3.850E+00	0.000E+00	0.000E+00
BR 80	0.000E+00	2.168E-05	0.000E+00	0.000E+00
BR 80M	0.000E+00	9.361E-06	0.000E+00	0.000E+00
ZN 81	0.000E+00	4.330E-03	0.000E+00	0.000E+00
GA 81	0.000E+00	3.660E-01	0.000E+00	0.000E+00
GE 81	0.000E+00	4.448E+00	0.000E+00	0.000E+00
SE 81	0.000E+00	6.598E+00	0.000E+00	0.000E+00
SE 81M	0.000E+00	2.084E-01	0.000E+00	0.000E+00
BR 81M	7.670E-14	1.975E-13	1.975E-13	1.975E-13
CA 82	0.000E+00	1.215E-04	0.000E+00	0.000E+00
GE 82	0.000E+00	4.153E+00	0.000E+00	0.000E+00
AS 82	0.000E+00	6.658E+00	0.000E+00	0.000E+00
BR 82	0.000E+00	2.491E+00	0.000E+00	0.000E+00
BR 82M	0.000E+00	1.517E-02	0.000E+00	0.000E+00
ZN 83	0.000E+00	6.928E-03	0.000E+00	0.000E+00
GA 83	0.000E+00	3.573E-05	0.000E+00	0.000E+00
GE 83	0.000E+00	3.043E-02	0.000E+00	0.000E+00
AS 83	0.000E+00	3.037E+00	0.000E+00	0.000E+00
SE 83	0.000E+00	1.293E+01	0.000E+00	0.000E+00
SE 83M	0.000E+00	6.152E+00	0.000E+00	0.000E+00
BR 83M	0.000E+00	1.024E+01	0.000E+00	0.000E+00
KR 83M	0.000E+00	1.650E+01	0.000E+00	0.000E+00
GA 84	0.000E+00	1.650E+01	0.000E+00	0.000E+00
GE 84	0.000E+00	1.958E-03	0.000E+00	0.000E+00
AS 84	0.000E+00	6.127E-01	0.000E+00	0.000E+00
BR 84	0.000E+00	2.777E+00	0.000E+00	0.000E+00
BR 84M	0.000E+00	3.709E-01	0.000E+00	0.000E+00
GE 85	0.000E+00	5.823E-01	0.000E+00	0.000E+00
BR 85	0.000E+00	2.020E-01	0.000E+00	0.000E+00
SE 85	0.000E+00	6.375E+00	0.000E+00	0.000E+00
SE 85M	0.000E+00	1.927E+01	0.000E+00	0.000E+00
BR 85	0.000E+00	3.847E+01	0.000E+00	0.000E+00
KR 85M	1.088E-01	1.631E-01	1.109E-01	8.562E-02
GE 86	0.000E+00	3.680E-02	0.000E+00	0.000E+00
AS 86	0.000E+00	3.510E+00	0.000E+00	0.000E+00
SE 86	0.000E+00	4.033E-01	0.000E+00	0.000E+00
BR 86	0.000E+00	2.912E+01	0.000E+00	0.000E+00
BR 86M	0.000E+00	2.937E+01	0.000E+00	0.000E+00
BR 86M	0.000E+00	5.551E-03	0.000E+00	0.000E+00
BR 86M	0.000E+00	2.184E-03	0.000E+00	0.000E+00
GE 87	0.000E+00	5.172E-03	0.000E+00	0.000E+00
AS 87	0.000E+00	2.977E-01	0.000E+00	0.000E+00
BR 87	0.000E+00	6.623E-01	0.000E+00	0.000E+00

FISSION PRODUCTS

*Onigens2 Triga fuel characterization
 POWER= 3.68000E+03 MW, BURNUP= 4.23598E-01 MWd, FLUX= 2.62E+13 N/CN*2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Triga fuel element: Al clad (Row C) + prior irradiation			
	Initial	Discharge	6.0YR	20.0YR
KR 87	0.000E+00	7.863E+01	0.000E+00	0.000E+00
KR 87	3.676E-10	7.343E-10	7.346E-10	7.346E-10
KR 87M	0.000E+00	3.221E-05	0.000E+00	0.000E+00
GE 88	0.000E+00	7.639E-05	0.000E+00	0.000E+00
AS 88	0.000E+00	8.450E-02	0.000E+00	0.000E+00
SE 88	0.000E+00	1.104E+01	0.000E+00	0.000E+00
BR 88	0.000E+00	7.635E+01	0.000E+00	0.000E+00
KR 88	0.000E+00	1.111E+02	0.000E+00	0.000E+00
KR 88	0.000E+00	1.120E+02	0.000E+00	0.000E+00
SE 89	0.000E+00	6.879E-03	0.000E+00	0.000E+00
SE 89	0.000E+00	2.897E+00	0.000E+00	0.000E+00
KR 89	0.000E+00	5.767E+01	0.000E+00	0.000E+00
KR 89	0.000E+00	1.409E+02	0.000E+00	0.000E+00
KR 89	0.000E+00	1.461E+02	0.000E+00	0.000E+00
KR 89	3.239E-13	5.994E+01	5.179E-12	1.010E-20
SE 89M	0.000E+00	9.138E-06	0.000E+00	0.000E+00
SE 90	0.000E+00	3.895E-01	0.000E+00	0.000E+00
KR 90	0.000E+00	1.403E+02	0.000E+00	0.000E+00
BR 90	0.000E+00	1.451E+02	0.000E+00	0.000E+00
BR 90M	0.000E+00	3.016E+01	0.000E+00	0.000E+00
SR 90	1.118E+00	1.951E+00	1.692E+00	1.538E+00
Y 90	0.000E+00	3.696E-04	0.000E+00	0.000E+00
SE 91	0.000E+00	1.031E-01	0.000E+00	0.000E+00
BR 91	0.000E+00	1.212E+01	0.000E+00	0.000E+00
KR 91	0.000E+00	1.037E+02	0.000E+00	0.000E+00
BR 91	0.000E+00	1.717E+02	0.000E+00	0.000E+00
SR 91	0.000E+00	1.787E+02	0.000E+00	0.000E+00
Y 91	3.664E-11	6.439E+01	3.480E-10	1.058E-17
Y 91M	0.000E+00	1.037E+02	0.000E+00	0.000E+00
SE 92	0.000E+00	1.892E-03	0.000E+00	0.000E+00
KR 92	0.000E+00	4.196E+01	0.000E+00	0.000E+00
KR 92	0.000E+00	4.566E+01	0.000E+00	0.000E+00
SR 92	0.000E+00	1.435E+02	0.000E+00	0.000E+00
Y 92	0.000E+00	1.833E+02	0.000E+00	0.000E+00
BR 93	0.000E+00	1.499E-01	0.000E+00	0.000E+00
KR 93	0.000E+00	1.588E+01	0.000E+00	0.000E+00
KR 93	0.000E+00	1.948E+02	0.000E+00	0.000E+00
Y 93	0.000E+00	1.978E+02	0.000E+00	0.000E+00
BR 93	2.833E-05	6.47E-05	5.642E-05	5.642E-05
BR 93M	7.926E-06	2.415E-05	3.196E-05	3.999E-05
BR 94	0.000E+00	1.059E-02	0.000E+00	0.000E+00
KR 94	0.000E+00	6.976E+00	0.000E+00	0.000E+00
SR 94	0.000E+00	5.426E+01	0.000E+00	0.000E+00
Y 94	0.000E+00	1.800E+02	0.000E+00	0.000E+00
BR 94	0.000E+00	1.908E+02	0.000E+00	0.000E+00
NB 94M	2.917E-10	5.961E-10	5.960E-10	5.959E-10
BR 95	0.000E+00	1.450E-05	0.000E+00	0.000E+00
BR 95	0.000E+00	3.045E-04	0.000E+00	0.000E+00

OUTPUT UNIT = 6 PAGE 43

FISSION PRODUCTS

*On-igen2 Triga fuel characterization
 POWER= 3.68000E-03 MW, BURNUP= 4.23598E-01 MW, FLUX= 2.62E+13 M/CN*2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
KR 95	0.000E+00	3.648E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 95	0.000E+00	2.795E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 95	0.000E+00	1.666E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 95	0.000E+00	1.956E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR 95	4.559E-10	6.693E+01	3.272E-09	4.374E-16	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MB 95M	1.012E-09	2.118E+01	7.265E-09	9.712E-16	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MB 95H	3.382E-12	4.725E-01	2.428E-11	3.245E-18	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 96	0.000E+00	1.467E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 96	0.000E+00	5.661E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 96	0.000E+00	6.327E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 96	0.000E+00	1.155E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MB 96	0.000E+00	1.840E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 96	0.000E+00	2.056E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MB 96	0.000E+00	1.658E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 97	0.000E+00	1.150E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 97	0.000E+00	5.91E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 97	0.000E+00	1.350E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR 97	0.000E+00	1.804E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MB 97M	0.000E+00	1.704E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MB 97H	0.000E+00	1.827E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 98	0.000E+00	1.757E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 98	0.000E+00	2.188E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 98	0.000E+00	1.113E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR 98	0.000E+00	1.774E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MB 98M	0.000E+00	1.789E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MB 98H	0.000E+00	8.392E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC 98	7.374E-13	3.029E-12	3.029E-12	3.029E-12	3.029E-12	3.029E-12	3.029E-12	3.029E-12
BR 99	0.000E+00	1.409E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 99	0.000E+00	4.924E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 99	0.000E+00	6.228E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR 99	0.000E+00	1.753E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MB 99M	0.000E+00	1.795E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MB 99H	0.000E+00	4.574E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC 99	0.000E+00	1.842E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 99	1.890E-04	3.704E-04	3.775E-04	3.775E-04	3.775E-04	3.774E-04	3.763E-04	3.763E-04
ZR 99M	0.000E+00	1.613E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR100	0.000E+00	7.035E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y100	0.000E+00	7.828E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR100	0.000E+00	2.139E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MB100M	0.000E+00	9.625E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC100	0.000E+00	8.733E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR100	0.000E+00	9.951E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y101	0.000E+00	6.538E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR101	0.000E+00	1.070E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MB101	0.000E+00	1.531E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC101	0.000E+00	1.566E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR102	0.000E+00	6.974E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y102	0.000E+00	1.726E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

OUTPUT UNIT = 6 PAGE 44

FISSION PRODUCTS

*Origen2 Triga fuel characterization
 POWER= 3.6000E+03 MW, BURNUP= 4.23309E-01 MWD, FLUX= 2.62E+13 N/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Triga fuel element: Al clad (Rev C) + prior irradiation			
	Initial	Discharge	6.0YR	10.0YR
Zr102	0.000E+00	5.533E+01	0.000E+00	0.000E+00
Nb102	0.000E+00	1.182E+02	0.000E+00	0.000E+00
Mo102	0.000E+00	1.310E+02	0.000E+00	0.000E+00
Tc102	0.000E+00	1.310E+02	0.000E+00	0.000E+00
Tc102M	0.000E+00	4.098E-02	0.000E+00	0.000E+00
Rh102	1.851E-08	2.866E-07	6.830E-08	2.405E-09
Sr103	0.000E+00	1.795E-04	0.000E+00	0.000E+00
Y103	0.000E+00	1.792E-01	0.000E+00	0.000E+00
Zr103	0.000E+00	1.674E+01	0.000E+00	0.000E+00
Nb103	0.000E+00	6.877E+01	0.000E+00	0.000E+00
Mo103	0.000E+00	7.740E+01	0.000E+00	0.000E+00
Tc103	0.000E+00	9.797E+01	0.000E+00	0.000E+00
Tc103M	7.649E-17	4.824E+07	7.754E-16	4.938E-27
Rh103M	1.486E-17	4.345E+01	6.990E-16	4.452E-27
Sr104	0.000E+00	3.959E-06	0.000E+00	0.000E+00
Y104	0.000E+00	2.537E-03	0.000E+00	0.000E+00
Zr104	0.000E+00	2.569E+01	0.000E+00	0.000E+00
Nb104	0.000E+00	5.742E+01	0.000E+00	0.000E+00
Mo104	0.000E+00	5.945E+01	0.000E+00	0.000E+00
Tc104	0.000E+00	1.789E+01	0.000E+00	0.000E+00
Rh104M	0.000E+00	1.294E-01	0.000E+00	0.000E+00
Y105	0.000E+00	7.528E-04	0.000E+00	0.000E+00
Zr105	0.000E+00	3.599E-01	0.000E+00	0.000E+00
Nb105	0.000E+00	6.864E+00	0.000E+00	0.000E+00
Mo105	0.000E+00	2.986E+01	0.000E+00	0.000E+00
Tc105	0.000E+00	3.303E+01	0.000E+00	0.000E+00
Rh105	0.000E+00	3.312E+01	0.000E+00	0.000E+00
Rh105M	0.000E+00	3.304E+01	0.000E+00	0.000E+00
Zr106	0.000E+00	9.275E+00	0.000E+00	0.000E+00
Nb106	0.000E+00	7.724E-02	0.000E+00	0.000E+00
Mo106	0.000E+00	2.291E+00	0.000E+00	0.000E+00
Tc106	0.000E+00	1.193E+01	0.000E+00	0.000E+00
Rh106	0.000E+00	1.381E+01	0.000E+00	0.000E+00
Rh106M	2.665E-02	9.179E-01	1.352E-02	1.011E-03
Zr107	0.000E+00	7.188E-02	0.000E+00	0.000E+00
Nb107	0.000E+00	3.713E-02	0.000E+00	0.000E+00
Mo107	0.000E+00	3.633E-01	0.000E+00	0.000E+00
Tc107	0.000E+00	4.409E+00	0.000E+00	0.000E+00
Rh107	0.000E+00	6.354E+00	0.000E+00	0.000E+00
Rh107M	0.000E+00	6.705E+00	0.000E+00	0.000E+00
Pd107M	2.152E-07	4.374E-07	4.374E-07	4.374E-07
Nb108	0.000E+00	4.612E-05	0.000E+00	0.000E+00
Nb108M	0.000E+00	1.865E-04	0.000E+00	0.000E+00
Tc108	0.000E+00	3.761E-02	0.000E+00	0.000E+00
Tc108M	0.000E+00	1.208E+00	0.000E+00	0.000E+00
Rh108	0.000E+00	2.829E+00	0.000E+00	0.000E+00
Rh108M	0.000E+00	3.343E+00	0.000E+00	0.000E+00
Rh108M	0.000E+00	3.349E+00	0.000E+00	0.000E+00
Rh108M	0.000E+00	5.174E-03	0.000E+00	0.000E+00

OUTPUT UNIT = 6 PAGE 45

FISSION PRODUCTS

*Origen2 Triga fuel characterization
 POWER= 3.6800E+03 MW, BURNUP= 4.2339E-01 MWd, FLUX= 2.62E+13 N/cm**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY CURIES

Triga fuel element: A1 clad (Row C) + prior irradiation

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
Zr109	0.000E+00	8.453E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Nb109	0.000E+00	3.315E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Mo109	0.000E+00	2.145E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Tc109	0.000E+00	1.023E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ru109	0.000E+00	1.733E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rh109	0.000E+00	1.760E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rh109M	0.000E+00	8.802E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pd109	0.000E+00	1.773E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pd109M	0.000E+00	8.805E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ag109M	1.003E-14	1.772E+00	5.399E-14	6.088E-15	2.602E-17	4.744E-22	0.000E+00	0.000E+00
Nb110	0.000E+00	3.497E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Mo110	0.000E+00	4.778E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Tc110	0.000E+00	4.147E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ru110	0.000E+00	1.165E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rh110	0.000E+00	1.729E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rh110M	1.423E-07	1.677E-04	3.334E-07	6.629E-09	2.652E-13	4.201E-22	0.000E+00	0.000E+00
Ag110M	1.893E-09	3.398E-02	5.109E-09	8.184E-11	3.527E-15	5.588E-24	0.000E+00	0.000E+00
Ag110M	1.423E-07	1.677E-04	3.334E-07	6.629E-09	2.652E-13	4.201E-22	0.000E+00	0.000E+00
Nb111	0.000E+00	2.477E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Mo111	0.000E+00	8.040E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Tc111	0.000E+00	1.482E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ru111	0.000E+00	7.988E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rh111	0.000E+00	9.839E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pd111M	0.000E+00	9.902E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ag111	0.000E+00	8.302E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ag111M	0.000E+00	9.634E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Mo111M	0.000E+00	9.849E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ag111M	0.000E+00	1.422E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Tc112	0.000E+00	4.663E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ru112	0.000E+00	4.507E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rh112	0.000E+00	7.009E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pd112	0.000E+00	7.299E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ag112	0.000E+00	7.352E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Tc113	0.000E+00	1.006E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ru113	0.000E+00	1.230E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rh113	0.000E+00	2.051E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pd113	0.000E+00	7.023E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ag113	0.000E+00	6.324E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ag113M	0.000E+00	7.071E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Co113M	1.436E-04	2.285E-04	1.721E-04	1.423E-04	8.848E-05	3.421E-05	1.978E-06	5.318E-25
Tc114	0.000E+00	1.003E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ru114	0.000E+00	2.483E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rh114	0.000E+00	1.152E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pd114	0.000E+00	4.270E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ag114	0.000E+00	6.324E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Mo114	0.000E+00	6.376E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ag114	6.872E-23	7.734E-05	2.930E-19	3.841E-28	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Mo114M	7.181E-23	6.451E-06	3.062E-19	4.013E-28	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Tc115	0.000E+00	4.703E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ru115	0.000E+00	4.171E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Rh115	0.000E+00	2.710E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

OUTPUT UNIT = 6 PAGE 46

FISSION PRODUCTS

*origen2 Triga fuel characterization
PWR= 3.68000E+03 MW, BURNUP= 4.23599E-01 MWD, FLUX= 2.62E+13 M/CN**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR
	Triga fuel element: Al clad (Ref C) + prior irradiation						
PD115	0.000E+00	5.934E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG15	0.000E+00	4.479E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG15M	0.000E+00	1.7715E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD115	0.000E+00	5.667E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD115M	1.513E-18	2.499E-02	4.022E-17	5.523E-27	0.000E+00	0.000E+00	0.000E+00
IN115M	1.063E-22	5.672E-01	2.827E-21	3.879E-31	0.000E+00	0.000E+00	0.000E+00
TC116	0.000E+00	2.900E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU116	0.000E+00	8.749E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU116M	0.000E+00	1.303E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD116	0.000E+00	5.439E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG116	0.000E+00	3.073E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG116M	0.000E+00	3.073E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN116	0.000E+00	2.941E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN116M	0.000E+00	2.941E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU117	0.000E+00	2.336E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU117M	0.000E+00	2.072E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD117	0.000E+00	5.760E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG117	0.000E+00	3.035E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG117M	0.000E+00	3.035E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD117	0.000E+00	3.949E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN117	0.000E+00	2.128E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN117M	0.000E+00	2.634E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN117M	0.000E+00	4.609E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU118	0.000E+00	2.745E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU118M	0.000E+00	6.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU118	0.000E+00	5.550E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD118	0.000E+00	2.983E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG118	0.000E+00	4.573E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG118M	0.000E+00	2.400E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD118	0.000E+00	6.358E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN118	0.000E+00	3.277E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN118M	0.000E+00	3.277E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU119	0.000E+00	3.967E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD119	0.000E+00	1.608E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG119	0.000E+00	4.830E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD119	0.000E+00	3.117E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN119	0.000E+00	1.804E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN119M	0.000E+00	4.687E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN119M	2.517E-06	9.353E-04	1.895E-06	3.038E-08	9.891E-13	1.048E-21	0.000E+00
RU120	0.000E+00	7.417E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD120	0.000E+00	6.522E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG120	0.000E+00	3.511E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD120	0.000E+00	6.345E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN120	0.000E+00	2.331E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN120M	0.000E+00	3.231E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU121	0.000E+00	1.083E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD121	0.000E+00	2.132E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG121	0.000E+00	2.699E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD121	0.000E+00	2.920E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN121	0.000E+00	5.537E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN121M	0.000E+00	1.427E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Worgens2 Trips fuel characterization
 POWER= 3.68000E+03 MW, BURNUP= 4.23398E+01 MWD, FLUX= 2.62E+13 N/CM*2-SEC
 OUTPUT UNIT = 6 PAGE 47

FISSION PRODUCTS

7 SUMMARY TABLE: RADIOACTIVITY, CURIES		Trips fuel element: A1 clad (Row C) * prior irradiation			
Initial	Discharge	6.0YR	10.0YR	40.0YR	100.0YR
SN121	0.000E+00	6.766E-01	0.000E+00	0.000E+00	0.000E+00
SN121M	1.076E-06	1.991E-06	1.832E-06	1.509E-06	1.143E-06
RH122	0.000E+00	1.284E-05	0.000E+00	0.000E+00	0.000E+00
PD122	0.000E+00	5.986E-03	0.000E+00	0.000E+00	0.000E+00
AG122	0.000E+00	1.222E-01	0.000E+00	0.000E+00	0.000E+00
CI122	0.000E+00	6.083E-01	0.000E+00	0.000E+00	0.000E+00
IN122M	0.000E+00	6.581E-01	0.000E+00	0.000E+00	0.000E+00
IN122N	0.000E+00	4.976E-02	0.000E+00	0.000E+00	0.000E+00
SB122	0.000E+00	1.947E-03	0.000E+00	0.000E+00	0.000E+00
SB122M	0.000E+00	1.849E-05	0.000E+00	0.000E+00	0.000E+00
PD123	0.000E+00	1.360E-03	0.000E+00	0.000E+00	0.000E+00
AG123	0.000E+00	6.217E-02	0.000E+00	0.000E+00	0.000E+00
CI123	0.000E+00	5.676E-01	0.000E+00	0.000E+00	0.000E+00
IN123	0.000E+00	5.419E-01	0.000E+00	0.000E+00	0.000E+00
IN123M	0.000E+00	2.530E-01	0.000E+00	0.000E+00	0.000E+00
SN123	1.800E-07	3.797E-02	2.809E-07	1.106E-07	4.398E-08
PD123M	0.000E+00	2.539E-01	0.000E+00	0.000E+00	0.000E+00
PD123N	0.000E+00	2.808E-02	0.000E+00	0.000E+00	0.000E+00
AG124	0.000E+00	5.447E-01	0.000E+00	0.000E+00	0.000E+00
CI124	0.000E+00	9.884E-01	0.000E+00	0.000E+00	0.000E+00
SN124	3.337E-16	6.125E-04	6.728E-15	3.325E-22	0.000E+00
SB124M	0.000E+00	2.150E-04	0.000E+00	0.000E+00	0.000E+00
AG125	0.000E+00	7.294E-03	0.000E+00	0.000E+00	0.000E+00
CI125	0.000E+00	3.088E-01	0.000E+00	0.000E+00	0.000E+00
IN125	0.000E+00	4.874E-01	0.000E+00	0.000E+00	0.000E+00
IN125M	0.000E+00	6.645E-01	0.000E+00	0.000E+00	0.000E+00
SN125	0.000E+00	4.936E-01	0.000E+00	0.000E+00	0.000E+00
SN125M	0.000E+00	8.390E-01	0.000E+00	0.000E+00	0.000E+00
SB125	1.949E-02	3.958E-02	9.891E-03	3.635E-03	2.977E-04
PD125M	4.755E-03	3.424E-03	6.413E-03	8.869E-04	7.262E-05
PD126	0.000E+00	3.377E-06	0.000E+00	0.000E+00	0.000E+00
AG126	0.000E+00	2.523E-03	0.000E+00	0.000E+00	0.000E+00
CI126	0.000E+00	2.982E-01	0.000E+00	0.000E+00	0.000E+00
IN126	0.000E+00	1.609E+00	0.000E+00	0.000E+00	0.000E+00
SN126	5.191E-06	1.040E-05	1.040E-05	1.040E-05	1.040E-05
SB126M	2.197E-02	1.457E-06	1.456E-06	1.456E-06	1.447E-06
CI127	5.191E-06	1.359E-02	1.040E-05	1.040E-05	1.040E-05
IN127M	0.000E+00	8.919E-01	0.000E+00	0.000E+00	0.000E+00
IN127N	0.000E+00	8.945E-01	0.000E+00	0.000E+00	0.000E+00
SN127	0.000E+00	3.375E+00	0.000E+00	0.000E+00	0.000E+00
SB127M	0.000E+00	1.403E+00	0.000E+00	0.000E+00	0.000E+00
SB127	0.000E+00	5.137E+00	0.000E+00	0.000E+00	0.000E+00
TE127	6.710E-08	4.554E+00	1.403E-07	1.295E-11	1.064E-21
TE127M	6.850E-08	1.340E-01	1.432E-07	1.322E-11	1.082E-21
CI128	0.000E+00	7.609E-05	0.000E+00	0.000E+00	0.000E+00
IN128	0.000E+00	6.402E-02	0.000E+00	0.000E+00	0.000E+00
IN128M	0.000E+00	2.047E+00	0.000E+00	0.000E+00	0.000E+00
SN128	0.000E+00	1.165E+01	0.000E+00	0.000E+00	0.000E+00
SB128	0.000E+00	5.105E-01	0.000E+00	0.000E+00	0.000E+00
SB128M	0.000E+00	1.204E+01	0.000E+00	0.000E+00	0.000E+00

FISSION PRODUCTS

OUTPUT UNIT = 6 PAGE 48

*Origen2 Triga fuel characterization

POWER= 3.68000E+03 MW, BURNUP= 4.23598E-01 MAD, FLUX= 2.62E+13 M/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Triga fuel element: AL clad (K&C)				C + prior irradiation	
	Initial	Discharge	6.0YR	10.0YR	20.0YR	100.0YR 1000.0YR
I128	0.000E+00	1.4302E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
IM129	0.000E+00	1.426E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
CM129	0.000E+00	1.4232E-00	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SN129	0.000E+00	7.060E-00	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SN129M	0.000E+00	1.089E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SB129	0.000E+00	2.152E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
TE129	0.000E+00	2.028E+01	2.638E-20	0.000E+00	0.000E+00	0.000E+00 0.000E+00
TE129M	0.000E+00	1.731E+00	4.052E-20	0.000E+00	0.000E+00	0.000E+00 0.000E+00
I129	3.101E-07	6.096E-07	6.206E-07	6.206E-07	6.206E-07	6.206E-07 6.206E-07
CM130	0.000E+00	2.904E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
IM130	0.000E+00	2.559E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SN130	0.000E+00	2.739E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SB130M	0.000E+00	6.743E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
TE130	0.000E+00	2.72E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
I130M	0.000E+00	2.428E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
CM131	0.000E+00	3.170E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
IM131	0.000E+00	7.942E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SN131	0.000E+00	3.043E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SB131	0.000E+00	7.924E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
TE131	0.000E+00	8.005E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
TE131M	0.000E+00	1.126E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
I131	0.000E+00	8.516E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
CM132	0.000E+00	7.328E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
IM132	0.000E+00	2.666E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SN132	0.000E+00	2.169E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SB132M	0.000E+00	1.844E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
TE132	0.000E+00	3.165E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
I132M	0.000E+00	3.289E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
CM132M	0.000E+00	1.32E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
I132	0.000E+00	1.32E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
CM132	0.000E+00	1.442E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
IM133	0.000E+00	5.332E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SN133	0.000E+00	6.931E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
TE133	0.000E+00	1.201E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
TE133M	0.000E+00	8.947E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
I133	0.000E+00	2.070E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
CM133	0.000E+00	3.973E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
IM133M	0.000E+00	1.986E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
TE133M	0.000E+00	6.055E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SN134	0.000E+00	3.777E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
IM134	0.000E+00	4.104E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SB134	0.000E+00	8.500E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SB134M	0.000E+00	8.089E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
TE134	0.000E+00	2.060E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
I134	0.000E+00	2.339E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
CM134M	0.000E+00	7.931E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
TE134M	0.000E+00	7.331E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
CM134M	3.184E-03	4.331E-02	5.720E-03	5.720E-03	5.720E-03	5.720E-03 1.087E-16
CM134M	0.000E+00	1.148E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
CM134M	0.000E+00	4.405E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00
SN135	0.000E+00	1.4302E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00

FISSION PRODUCTS

PAGE 49

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
 POWER= 3.6000E+03 MW, BURNUP= 4.2359E-01 MWD, FLUX= 2.62E+13 N/CW*2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Triga fuel element: A1 clad (Row C) + prior irradiation				
	Initial	Discharge	6.0YR	10.0YR	20.0YR
SR135	0.000E+00	6.177E+00	0.000E+00	0.000E+00	0.000E+00
TE135	0.000E+00	1.012E+02	0.000E+00	0.000E+00	0.000E+00
I135	0.000E+00	1.928E+02	0.000E+00	0.000E+00	0.000E+00
XE135	0.000E+00	1.539E+02	0.000E+00	0.000E+00	0.000E+00
XE135M	0.000E+00	3.497E+01	0.000E+00	0.000E+00	0.000E+00
CS135	1.472E-05	2.933E-05	2.946E-05	2.946E-05	2.946E-05
CS135M	0.000E+00	2.014E-02	0.000E+00	0.000E+00	0.000E+00
BN135M	0.000E+00	2.196E-05	0.000E+00	0.000E+00	0.000E+00
SM135	0.000E+00	2.317E-03	0.000E+00	0.000E+00	0.000E+00
SR136	0.000E+00	9.651E-01	0.000E+00	0.000E+00	0.000E+00
TE136	0.000E+00	5.790E+01	0.000E+00	0.000E+00	0.000E+00
I136M	0.000E+00	9.429E+01	0.000E+00	0.000E+00	0.000E+00
CS136	0.000E+00	3.672E-01	0.000E+00	0.000E+00	0.000E+00
BA136M	0.000E+00	6.052E-02	0.000E+00	0.000E+00	0.000E+00
SR137	0.000E+00	7.747E-02	0.000E+00	0.000E+00	0.000E+00
TE137	0.000E+00	1.302E+01	0.000E+00	0.000E+00	0.000E+00
I137M	0.000E+00	1.839E+02	0.000E+00	0.000E+00	0.000E+00
XE137	0.000E+00	1.839E+02	0.000E+00	0.000E+00	0.000E+00
CS137	1.170E+00	2.050E+00	1.785E+00	1.627E+00	1.292E+00
BA137M	0.000E+00	1.947E+00	1.680E+00	1.539E+00	1.222E+00
SR138	0.000E+00	5.907E-03	0.000E+00	0.000E+00	0.000E+00
TE138	0.000E+00	2.825E+00	0.000E+00	0.000E+00	0.000E+00
XE138	0.000E+00	5.118E+01	0.000E+00	0.000E+00	0.000E+00
CS138	0.000E+00	2.064E+02	0.000E+00	0.000E+00	0.000E+00
CS138M	0.000E+00	7.590E+00	0.000E+00	0.000E+00	0.000E+00
SR139	0.000E+00	3.266E-04	0.000E+00	0.000E+00	0.000E+00
TE139	0.000E+00	4.377E-01	0.000E+00	0.000E+00	0.000E+00
I139	0.000E+00	2.286E+01	0.000E+00	0.000E+00	0.000E+00
CS139	0.000E+00	1.557E+02	0.000E+00	0.000E+00	0.000E+00
TE139M	0.000E+00	1.959E+02	0.000E+00	0.000E+00	0.000E+00
BA139	0.000E+00	1.980E+02	0.000E+00	0.000E+00	0.000E+00
TE140	0.000E+00	4.304E-02	0.000E+00	0.000E+00	0.000E+00
XE140	0.000E+00	6.750E+00	0.000E+00	0.000E+00	0.000E+00
CS140	0.000E+00	1.177E+02	0.000E+00	0.000E+00	0.000E+00
BA140	0.000E+00	1.695E+02	0.000E+00	0.000E+00	0.000E+00
PR140	0.000E+00	1.871E-02	0.000E+00	0.000E+00	0.000E+00
TE141	0.000E+00	4.59E-05	0.000E+00	0.000E+00	0.000E+00
XE141	0.000E+00	9.803E-01	0.000E+00	0.000E+00	0.000E+00
CS141	0.000E+00	3.632E+01	0.000E+00	0.000E+00	0.000E+00
BA141	0.000E+00	1.355E+02	0.000E+00	0.000E+00	0.000E+00
CE141	0.000E+00	1.803E+02	0.000E+00	0.000E+00	0.000E+00
TE141	0.000E+00	1.809E+02	0.000E+00	0.000E+00	0.000E+00
I142	0.000E+00	1.005E+02	5.189E-19	2.282E-32	0.000E+00
TE142	0.000E+00	6.402E-05	0.000E+00	0.000E+00	0.000E+00
I142	0.000E+00	7.792E-02	0.000E+00	0.000E+00	0.000E+00
XE142	0.000E+00	1.195E+01	0.000E+00	0.000E+00	0.000E+00
CS142	0.000E+00	8.726E+01	0.000E+00	0.000E+00	0.000E+00
BA142	0.000E+00	1.772E+02	0.000E+00	0.000E+00	0.000E+00

OUTPUT UNIT = 6 PAGE 50

FISSION PRODUCTS

*Oigen-2 Triga fuel characterization
 POWER= 3.6800E-03 MW, BURNUP= 4.23598E-01 MW, FLUX= 2.62E+13 N/CW*2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Triga fuel element: Al clad (Row C) + prior irradiation				
	Initial	Discharge	6.0YR	10.0YR	100.0YR
LA142	0.000E+00	1.802E+02	0.000E+00	0.000E+00	0.000E+00
CE142	3.762E-10	7.519E-10	7.522E-10	7.522E-10	7.522E-10
PR142	0.000E+00	1.625E-01	0.000E+00	0.000E+00	0.000E+00
LA143	0.000E+00	3.468E-02	0.000E+00	0.000E+00	0.000E+00
CE143	0.000E+00	3.506E-03	0.000E+00	0.000E+00	0.000E+00
PR143	0.000E+00	1.656E+00	0.000E+00	0.000E+00	0.000E+00
LA144	0.000E+00	4.673E+01	0.000E+00	0.000E+00	0.000E+00
CE144	0.000E+00	1.619E+02	0.000E+00	0.000E+00	0.000E+00
PR144	0.000E+00	1.803E+02	0.000E+00	0.000E+00	0.000E+00
LA145	0.000E+00	1.811E+02	0.000E+00	0.000E+00	0.000E+00
CE145	0.000E+00	1.477E+02	0.000E+00	0.000E+00	0.000E+00
PR145	0.000E+00	1.737E-04	0.000E+00	0.000E+00	0.000E+00
LA146	0.000E+00	9.943E+00	0.000E+00	0.000E+00	0.000E+00
CE146	0.000E+00	1.301E+02	0.000E+00	0.000E+00	0.000E+00
PR146	0.000E+00	1.640E+02	0.000E+00	0.000E+00	0.000E+00
LA147	1.059E-01	1.495E-01	7.109E-02	2.014E-03	2.733E-07
CE147	1.240E-03	1.795E-01	8.530E-04	2.620E-05	3.279E-09
PR147	0.000E+00	7.514E-03	0.000E+00	0.000E+00	0.000E+00
LA148	0.000E+00	2.282E+00	0.000E+00	0.000E+00	0.000E+00
CE148	0.000E+00	6.121E+01	0.000E+00	0.000E+00	0.000E+00
PR148	0.000E+00	1.128E+02	0.000E+00	0.000E+00	0.000E+00
LA149	0.000E+00	1.199E+02	0.000E+00	0.000E+00	0.000E+00
CE149	0.000E+00	1.199E+02	0.000E+00	0.000E+00	0.000E+00
PR149	0.000E+00	6.207E-04	0.000E+00	0.000E+00	0.000E+00
LA150	0.000E+00	2.668E-01	0.000E+00	0.000E+00	0.000E+00
CE150	0.000E+00	2.100E+01	0.000E+00	0.000E+00	0.000E+00
PR150	0.000E+00	7.062E+01	0.000E+00	0.000E+00	0.000E+00
LA151	0.000E+00	9.118E+01	0.000E+00	0.000E+00	0.000E+00
CE151	0.000E+00	9.144E+01	0.000E+00	0.000E+00	0.000E+00
PR151	3.925E-07	2.807E-07	1.318E-07	7.960E-08	2.257E-08
LA152	2.016E-14	5.282E-13	5.325E-13	5.340E-13	5.357E-13
CE152	0.000E+00	2.726E-05	0.000E+00	0.000E+00	0.000E+00
PR152	0.000E+00	2.327E-02	0.000E+00	0.000E+00	0.000E+00
LA153	0.000E+00	4.142E+00	0.000E+00	0.000E+00	0.000E+00
CE153	0.000E+00	3.297E+01	0.000E+00	0.000E+00	0.000E+00
PR153	0.000E+00	6.843E+01	0.000E+00	0.000E+00	0.000E+00
LA154	0.000E+00	7.792E+01	0.000E+00	0.000E+00	0.000E+00
CE154	0.000E+00	6.379E+01	0.000E+00	0.000E+00	0.000E+00
PR154	9.550E-01	6.599E+01	0.000E+00	0.000E+00	0.000E+00
LA155	1.186E-10	2.247E-10	2.247E-10	2.247E-10	2.247E-10
CE155	0.000E+00	9.407E-01	0.000E+00	0.000E+00	0.000E+00
PR155	0.000E+00	5.114E+01	0.000E+00	0.000E+00	0.000E+00
LA156	0.000E+00	1.114E+01	0.000E+00	0.000E+00	0.000E+00
CE156	0.000E+00	4.703E+01	0.000E+00	0.000E+00	0.000E+00
PR156	0.000E+00	5.195E+01	0.000E+00	0.000E+00	0.000E+00
LA157	2.039E-20	2.480E-01	2.509E-19	5.613E-20	0.000E+00
CE157	3.620E-19	4.205E-02	4.455E-18	9.973E-20	0.000E+00
PR157	0.000E+00	3.556E-02	0.000E+00	0.000E+00	0.000E+00
LA158	0.000E+00	2.270E+00	0.000E+00	0.000E+00	0.000E+00
CE158	0.000E+00	2.416E+01	0.000E+00	0.000E+00	0.000E+00
PR158	0.000E+00	2.270E+00	0.000E+00	0.000E+00	0.000E+00
LA159	0.000E+00	2.270E+00	0.000E+00	0.000E+00	0.000E+00
CE159	0.000E+00	2.270E+00	0.000E+00	0.000E+00	0.000E+00

OUTPUT UNIT = 6 PAGE 51

FISSION PRODUCTS

*Origins2 Triga fuel characterization
POWER= 3.68000E+05 MW, BURNUP= 4.23590E-01 MWD, FLUX= 2.62E+13 N/CN**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CUBES

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
PR149	0.000E+00	3.303E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NO149	0.000E+00	3.361E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM149	0.000E+00	3.358E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA150	0.000E+00	1.934E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA150	0.000E+00	3.366E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE150	0.000E+00	9.294E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR150	0.000E+00	1.855E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM150	0.000E+00	4.811E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU150	8.661E-12	2.153E-09	1.978E-09	1.776E-09	1.465E-09	9.968E-10	3.140E-10	9.357E-18
LA151	0.000E+00	3.193E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE151	0.000E+00	2.466E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR151	0.000E+00	9.382E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NO151	0.000E+00	1.307E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM151	0.000E+00	1.307E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA152	2.35E-02	4.711E+02	4.437E-02	2.100E+00	4.10E-02	3.000E-02	2.000E-02	2.000E-05
LA152	0.000E+00	2.504E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE152	0.000E+00	4.201E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR152	0.000E+00	8.824E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NO152	0.000E+00	8.312E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM152	0.000E+00	8.431E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM152M	0.000E+00	1.139E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU152	1.162E-05	3.186E-03	2.346E-03	1.914E-03	1.150E-03	4.148E-04	1.949E-05	2.342E-25
EU152M	0.000E+00	1.472E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA153	0.000E+00	1.298E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE153	0.000E+00	4.976E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR153	0.000E+00	1.051E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NO153	0.000E+00	4.685E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM153	0.000E+00	5.197E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU153	0.000E+00	5.622E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA154	9.427E-10	2.823E-04	5.368E-07	8.081E-09	2.514E-13	1.896E-22	0.000E+00	0.000E+00
CE154	0.000E+00	1.899E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR154	0.000E+00	1.884E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NO154	0.000E+00	1.797E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM154	0.000E+00	2.122E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM154M	0.000E+00	2.950E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU154	6.925E-04	2.803E-03	1.728E-03	1.252E-03	5.591E-04	1.115E-04	8.857E-07	0.000E+00
CE155	0.000E+00	2.814E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR155	0.000E+00	2.590E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NO155	0.000E+00	5.808E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM155	0.000E+00	1.077E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU155	1.855E-02	2.816E-02	1.218E-02	6.962E-03	1.721E-03	1.051E-04	2.397E-08	0.000E+00
CE156	0.000E+00	2.046E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR156	0.000E+00	1.243E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NO156	0.000E+00	3.861E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM156	0.000E+00	4.942E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU156	0.000E+00	4.431E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR157	0.000E+00	1.103E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NO157	0.000E+00	2.434E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

FISSION PRODUCTS

OUTPUT UNIT = 6 PAGE 52

*origen2 Triga fuel characterization
 POWER= 3.6800E+03 MW, BURNUP= 4.2359E-01 MW, FLUX= 2.62E+13 M/CN**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR
PM157	0.000E+00	1.421E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM157	0.000E+00	2.576E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU157	0.000E+00	2.635E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM158	0.000E+00	2.144E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP158	0.000E+00	3.108E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM158	0.000E+00	3.945E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM158	0.000E+00	1.251E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU158	0.000E+00	1.336E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP159	0.000E+00	2.331E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM159	0.000E+00	6.050E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM159	0.000E+00	3.864E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU159	0.000E+00	4.068E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP160	0.000E+00	4.805E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM160	0.000E+00	4.205E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM160	0.000E+00	1.839E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU160	0.000E+00	1.502E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP160	0.000E+00	1.956E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM161	4.943E-15	1.047E-04	7.868E-14	6.502E-20	0.000E+00	0.000E+00	0.000E+00
SM161	0.000E+00	8.363E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU161	0.000E+00	2.229E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP161	0.000E+00	5.496E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM161	0.000E+00	6.551E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM161	0.000E+00	6.405E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU161	0.000E+00	5.698E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP162	0.000E+00	4.721E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM162	0.000E+00	2.132E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM162	0.000E+00	3.387E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU162	0.000E+00	3.340E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP162M	0.000E+00	8.894E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM163	0.000E+00	2.946E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU163	0.000E+00	1.240E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP163	0.000E+00	1.240E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM164	0.000E+00	5.084E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU164	0.000E+00	1.115E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP164	0.000E+00	5.387E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PM164	0.000E+00	6.311E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM165	0.000E+00	2.013E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU165	0.000E+00	2.120E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP165	0.000E+00	3.093E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM165	0.000E+00	4.162E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP165M	0.000E+00	2.030E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU166	0.000E+00	1.752E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP166	0.000E+00	1.800E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM166	2.835E-11	8.011E-11	7.983E-11	7.965E-11	7.919E-11	7.828E-11	4.496E-11
EU166M	5.923E-00	1.688E+04	7.709E+00	6.567E+00	5.043E+00	3.140E+00	7.803E-01
SUMTOT	5.923E-00	1.688E+04	7.709E+00	6.567E+00	5.043E+00	3.140E+00	7.803E-01
TOTAL	5.923E-00	1.688E+04	7.709E+00	6.567E+00	5.043E+00	3.140E+00	7.803E-01

FISSION PRODUCTS

OUTPUT UNIT = 6 PAGE 53

*Origem2 Triga fuel characterization

POWER= 3.68000E+03 MW, BURNUP= 4.23599E-01 MWD, FLUX= 2.62E+13 N/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES									
Triga fuel element AL clad (Row C) + prior irradiation									
Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR		
H	4.120E-01	6.343E-03	5.299E-03	3.619E-03	2.064E-03	6.718E-04	2.315E-05	0.000E+00	
He	3.781E-11	7.562E-11	7.562E-11	7.562E-11	7.562E-11	7.562E-11	7.562E-11	7.559E-11	
B	1.524E-09	3.045E-09	3.045E-09	3.038E-09	3.038E-09	3.031E-09	3.009E-09	2.698E-09	
C	0.000E+00	5.551E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
Co	0.000E+00	2.238E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
NI	0.000E+00	3.837E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
CU	0.000E+00	5.074E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
ZN	0.000E+00	2.797E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
GA	0.000E+00	1.830E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
GE	0.000E+00	5.653E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
AS	5.514E-06	1.759E-02	1.103E-05	1.102E-05	1.102E-05	1.102E-05	1.101E-05	1.091E-05	
SE	0.000E+00	3.971E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
BR	0.000E+00	6.789E-02	7.109E-01	8.562E-02	4.485E-02	1.235E-02	2.543E-04	1.968E-13	
KR	1.078E-01	9.483E-02	7.346E-01	7.346E-01	7.346E-01	7.346E-01	7.346E-01	7.346E-01	
Sr	1.676E-01	1.683E-02	1.683E-02	1.538E+00	1.212E+00	7.531E-01	1.806E-01	8.980E-11	
Y	1.19E+00	1.88E-03	1.692E-01	1.23E-02	5.62E-05	5.44E-05	5.44E-05	5.44E-05	
Zr	2.833E-05	9.454E-02	5.642E-05	5.62E-05	5.62E-05	5.62E-05	5.361E-05	5.377E-05	
NB	9.927E-06	1.304E-03	3.197E-05	3.599E-05	4.309E-05	4.993E-05	5.361E-05	5.377E-05	
MO	0.000E+00	6.744E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
TC	1.890E-04	6.494E-02	3.775E-04	3.775E-04	3.775E-04	3.774E-04	3.774E-04	3.763E-04	
RU	2.665E-02	6.698E-01	1.582E-02	1.011E-03	1.046E-06	1.113E-12	1.346E-30	0.000E+00	
RH	2.665E-02	1.062E-02	1.582E-02	1.011E-03	1.046E-06	2.130E-11	1.194E-17	0.000E+00	
PD	2.152E-07	7.983E+00	4.374E-07	4.374E-07	4.374E-07	4.374E-07	4.374E-07	4.374E-07	
AG	1.442E-07	9.664E+00	3.885E-07	6.759E-09	7.598E-12	6.572E-12	4.737E-12	3.484E-14	
CD	1.434E-04	6.323E+00	1.721E-04	1.423E-04	8.848E-05	3.421E-05	1.978E-06	5.318E-25	
Co	2.560E-16	1.754E-01	5.025E-16	5.019E-16	5.019E-16	5.019E-16	5.019E-16	5.019E-16	
IN	8.965E-02	1.213E-02	1.441E-05	1.217E-05	1.191E-05	1.154E-05	1.089E-05	1.033E-05	
SN	1.949E-02	3.474E-02	9.903E-03	3.647E-03	3.095E-04	1.385E-05	1.185E-05	1.178E-05	
TE	4.733E-03	8.412E-02	2.414E-03	8.869E-04	7.262E-05	8.869E-07	1.467E-13	2.342E-20	
SB	3.101E-07	1.206E-03	6.206E-07	6.206E-07	6.206E-07	6.206E-07	6.206E-07	6.206E-07	
I	1.41E-30	1.083E-03	5.372E-28	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
XE	1.41E-30	8.108E-02	1.791E-01	1.629E+00	1.292E+00	8.136E-01	2.034E-01	2.946E-05	
BS	1.07E-02	1.03E-03	5.641E-05	5.359E+00	5.222E+00	5.169E-01	5.924E-01	1.791E-10	
LA	2.842E-15	1.03E-03	5.641E-05	5.359E+00	5.222E+00	5.169E-01	5.924E-01	1.791E-10	
LI	1.07E-02	1.03E-03	5.641E-05	5.359E+00	5.222E+00	5.169E-01	5.924E-01	1.791E-10	
PR	1.070E-01	6.594E-02	7.108E-02	2.041E-03	2.705E-07	5.079E-15	0.000E+00	0.000E+00	
CE	1.070E-01	6.594E-02	7.108E-02	2.041E-03	2.705E-07	5.079E-15	0.000E+00	0.000E+00	
PM	9.560E-01	6.644E+01	8.803E-01	1.669E-01	1.189E-02	6.027E-05	8.803E-12	3.487E-14	
ND	2.757E-02	7.765E+00	6.637E-02	4.494E-02	4.163E-02	3.569E-02	2.248E-02	2.194E-05	
SM	1.925E-02	1.097E+00	1.625E-02	1.013E-02	4.249E-03	6.315E-04	2.040E-05	9.357E-18	
EU	9.427E-10	6.048E-02	5.306E-07	8.081E-09	2.316E-13	2.605E-16	2.744E-16	2.751E-16	
TB	4.943E-15	1.221E-02	7.868E-14	6.502E-20	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
GD	0.000E+00	7.943E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
DY	2.835E-11	1.800E-04	7.983E-11	7.965E-11	7.919E-11	7.828E-11	7.561E-11	4.496E-11	
HO	5.923E-01	1.688E+04	7.709E+00	6.567E+00	5.043E+00	3.140E+00	7.803E-01	5.721E-04	
SUMTOT	5.923E-01	1.688E+04	7.709E+00	6.567E+00	5.043E+00	3.140E+00	7.803E-01	5.721E-04	
TOTAL	5.923E-01	1.688E+04	7.709E+00	6.567E+00	5.043E+00	3.140E+00	7.803E-01	5.721E-04	

CUMULATIVE TABLE TOTALS

AP+FP	5.923E-01	1.711E+04	7.709E+00	6.567E+00	5.043E+00	3.140E+00	7.804E-01	6.339E-04	
ACT+FP	5.923E-01	1.738E+04	7.718E+00	6.576E+00	5.052E+00	3.141E+00	7.819E-01	7.586E-03	
AP+ACT+FP	5.923E-01	1.760E+04	7.718E+00	6.576E+00	5.052E+00	3.140E+00	7.877E-01	7.622E-03	

OUTPUT UNIT = 6 PAGE 54

FISSION PRODUCTS

*origen2 Trips fuel characterization
 POWER= 3.68000E-03 MW, BURNUP= 4.23598E-01 MW, FLUX= 2.62E+13 N/CM*2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS

Trips fuel element: Al clad (Row C) + prior irradiation

Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
H 3	1.387E-07	2.136E-07	1.525E-07	1.218E-07	6.950E-08	2.262E-08	7.795E-10
BE 10	4.539E-14	9.077E-14	9.077E-14	9.077E-14	9.077E-14	9.077E-14	9.077E-14
C 14	4.469E-13	8.931E-13	8.924E-13	8.920E-13	8.909E-13	8.887E-13	8.873E-13
C 72	0.000E+00	2.208E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
N 72	0.000E+00	2.209E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 72	0.000E+00	6.514E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 72	0.000E+00	3.891E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 72	0.000E+00	4.890E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 72	0.000E+00	3.789E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 73	0.000E+00	2.265E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 73	0.000E+00	8.397E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 73	0.000E+00	1.181E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 73	0.000E+00	3.767E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 73	0.000E+00	3.308E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 74	0.000E+00	1.847E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 74	0.000E+00	2.815E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 74	0.000E+00	2.815E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 74	0.000E+00	5.304E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 74	0.000E+00	1.344E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 75	0.000E+00	2.468E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 75	0.000E+00	8.478E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 75	0.000E+00	4.029E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 75	0.000E+00	1.363E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 75	0.000E+00	1.677E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 75	0.000E+00	3.517E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 76	0.000E+00	3.444E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 76	0.000E+00	1.311E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 76	0.000E+00	4.043E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 76	0.000E+00	5.457E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 76	0.000E+00	4.543E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 77	0.000E+00	7.089E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 77	0.000E+00	1.245E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 77	0.000E+00	2.923E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 77	0.000E+00	2.245E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 77	0.000E+00	1.126E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 77	0.000E+00	1.690E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 77	0.000E+00	4.434E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 77	0.000E+00	6.823E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 77	0.000E+00	2.457E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 77	0.000E+00	2.442E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 78	0.000E+00	1.544E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 78	0.000E+00	1.930E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 78	0.000E+00	9.997E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 79	0.000E+00	7.463E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 79	0.000E+00	1.679E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 79	0.000E+00	1.094E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 79	0.000E+00	1.715E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 79	0.000E+00	8.525E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 79	1.373E-09	2.745E-09	2.745E-09	2.745E-09	2.744E-09	2.742E-09	2.716E-09
C 79	0.000E+00	9.215E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 79	0.000E+00	1.406E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C 80	0.000E+00	1.406E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

*origen2 Triga fuel characterization
 POWER= 3.68000E+03 MW, BURNUP= 4.23399E-01 MWD, FLUX= 2.62E+13 N/CM**2-SEC

OUTPUT UNIT = 6 PAGE 55

9 SUMMARY TABLE: THERMAL POWER, WATTS		Triga fuel element: Al clad (Row C) + prior irradiation				
Initial	Discharge	6.0YR	10.0YR	40.0YR	100.0YR	1000.0YR
ZN 80	0.000E+00	5.799E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 80	0.000E+00	2.270E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 80	0.000E+00	2.069E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 80	0.000E+00	7.140E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 80	0.000E+00	1.030E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU 81	0.000E+00	7.545E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZN 81	0.000E+00	1.865E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 81	0.000E+00	9.719E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 81	0.000E+00	8.560E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 81	0.000E+00	6.214E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 81	0.000E+00	2.383E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 81M	0.000E+00	1.272E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZN 82	0.000E+00	1.799E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 82	0.000E+00	5.465E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 82	0.000E+00	5.081E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 82	0.000E+00	3.377E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 82	0.000E+00	4.49E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 82M	0.000E+00	2.49E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZN 83	0.000E+00	3.208E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 83	0.000E+00	1.742E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 83	0.000E+00	1.288E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 83	0.000E+00	9.074E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 83	0.000E+00	2.040E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 83M	0.000E+00	1.094E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 83	0.000E+00	1.342E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 83M	0.000E+00	3.215E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 84	0.000E+00	3.986E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 84	0.000E+00	9.814E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 84	0.000E+00	1.575E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 84	0.000E+00	3.397E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 84	0.000E+00	1.694E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 84M	0.000E+00	5.576E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 85	0.000E+00	1.265E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 85	0.000E+00	7.265E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 85	0.000E+00	3.783E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 85M	0.000E+00	2.907E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 85	0.000E+00	3.000E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 85	1.629E-04	2.474E-04	1.661E-04	1.283E-04	6.710E-05	3.809E-07
KR 85M	0.000E+00	9.522E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 86	0.000E+00	1.186E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 86	0.000E+00	1.416E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 86M	0.000E+00	8.791E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 86M	0.000E+00	8.273E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB 86	0.000E+00	2.508E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB 86M	0.000E+00	7.251E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 87	0.000E+00	2.419E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 87	0.000E+00	6.910E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 87	0.000E+00	7.528E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 87	0.000E+00	1.576E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 87	0.000E+00	9.881E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00

FISSION PRODUCTS

OUTPUT UNIT = 6 PAGE 56

*Origin2 Trips fuel characterization
POWER= 3.68000E-03 MW, BURNUP= 4.23598E-01 MWD, FLUX= 2.62E+13 N/CM**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS

	Initial	Discharge	Trips fuel element: Al clad (Row C) + prior irradiation									
			6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR				
R8 B7	3.072E-13	6.139E-13	6.140E-13	6.140E-13	6.140E-13	6.140E-13	6.140E-13	6.140E-13	6.140E-13	6.140E-13	6.140E-13	6.140E-13
SR 87M	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 88	0.000E+00	2.943E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 88	0.000E+00	3.960E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 88	0.000E+00	2.439E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 88	0.000E+00	1.145E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 88	0.000E+00	1.527E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 88	0.000E+00	1.782E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 89	0.000E+00	2.990E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 89	0.000E+00	8.750E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 89	0.000E+00	1.640E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 89	0.000E+00	2.672E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 89	0.000E+00	2.685E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 89M	1.120E-15	2.072E-01	1.789E-14	3.493E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 90	0.000E+00	4.968E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 90	0.000E+00	2.107E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 90	0.000E+00	2.155E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 90	0.000E+00	2.157E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
R8 90M	0.000E+00	3.457E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 90	1.298E-03	2.265E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 90M	6.201E-03	1.091E-02	9.379E-03	8.527E-03	6.721E-03	4.175E-04	1.001E-03	1.001E-03	1.001E-03	1.001E-03	1.001E-03	1.001E-03
SE 91	0.000E+00	1.607E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 91	0.000E+00	3.999E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 91	0.000E+00	3.875E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 91	0.000E+00	2.030E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 91	0.000E+00	4.139E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 91M	1.316E-13	2.312E-01	1.250E-12	3.800E-20	6.124E-39	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 92	0.000E+00	3.426E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 92	0.000E+00	6.246E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 92	0.000E+00	8.632E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
R8 92	0.000E+00	3.220E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 92	0.000E+00	1.667E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 93	0.000E+00	1.648E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 93	0.000E+00	5.022E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
R8 93	0.000E+00	2.702E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 93	0.000E+00	1.951E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 93	0.000E+00	1.480E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR 93M	3.291E-09	6.581E-09	6.578E-09	6.578E-09	6.578E-09	6.578E-09	6.578E-09	6.578E-09	6.578E-09	6.578E-09	6.578E-09	6.578E-09
BR 93M	1.404E-09	5.635E-09	5.633E-09	5.633E-09	5.633E-09	5.633E-09	5.633E-09	5.633E-09	5.633E-09	5.633E-09	5.633E-09	5.633E-09
BR 94	0.000E+00	1.507E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 94	0.000E+00	1.523E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 94	0.000E+00	2.253E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 94	0.000E+00	3.179E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB 94	2.973E-12	6.073E-12	6.073E-12	6.073E-12	6.073E-12	6.073E-12	6.073E-12	6.073E-12	6.073E-12	6.073E-12	6.073E-12	6.073E-12
BR 95	0.000E+00	1.353E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 95	0.000E+00	1.211E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
R8 95	0.000E+00	7.492E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

OUTPUT UNIT = 6 PAGE 57

FISSION PRODUCTS

*Origen2 Triga fuel characterization
 POWER = 3.68000E+05 MW, BURNUP = 4.23599E-01 MWD, FLUX = 2.62E+13 M/CN**2-SEC

	9 SUMMARY TABLE: THERMAL POWER, WATTS									
	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR		
SR 95	0.000E+00	3.260E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 95	0.000E+00	2.590E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR 95	2.309E-12	3.990E-01	1.658E-11	2.216E-18	1.448E-35	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB 95	4.875E-12	0.165E-01	3.485E-11	4.658E-18	2.257E-37	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB 95M	4.700E-15	6.565E-04	3.373E-14	4.509E-21	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 96	0.000E+00	8.145E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 96	0.000E+00	1.628E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 96	0.000E+00	2.314E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 96	0.000E+00	1.693E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 96	0.000E+00	4.220E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB 96	0.000E+00	3.418E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 97	0.000E+00	6.876E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 97	0.000E+00	1.477E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 97	0.000E+00	2.846E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR 97	0.000E+00	9.374E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 97M	0.000E+00	1.620E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB 97M	0.000E+00	7.338E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 98	0.000E+00	1.089E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 98	0.000E+00	1.135E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 98	0.000E+00	3.158E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR 98	0.000E+00	9.494E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB 98	0.000E+00	2.204E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB 98M	0.000E+00	1.614E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC 98	6.698E-15	2.751E-14	2.751E-14	2.751E-14	2.751E-14	2.751E-14	2.751E-14	2.751E-14	2.751E-14	2.751E-14
SR 99	0.000E+00	5.030E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 99	0.000E+00	1.519E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 99	0.000E+00	1.380E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR 99	0.000E+00	2.508E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB 99	0.000E+00	1.657E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB 99M	0.000E+00	5.881E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 99	0.000E+00	5.915E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC 99	9.477E-08	1.853E-07	1.893E-07	1.893E-07	1.893E-07	1.893E-07	1.893E-07	1.893E-07	1.893E-07	1.893E-07
ZR 99M	0.000E+00	1.359E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB100	0.000E+00	3.527E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR100	0.000E+00	1.839E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y100	0.000E+00	9.145E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR100	0.000E+00	1.325E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR100M	0.000E+00	2.569E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB100M	0.000E+00	1.769E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC100	0.000E+00	1.595E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR101	0.000E+00	2.335E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR101	0.000E+00	1.981E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB101	0.000E+00	2.024E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
M0101	0.000E+00	1.789E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC101	0.000E+00	2.516E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR102	0.000E+00	2.017E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y102	0.000E+00	6.889E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR102	0.000E+00	7.123E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB102	0.000E+00	2.924E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

OUTPUT UNIT = 6 PAGE 58

FISSION PRODUCTS

*origen2 Triga fuel characterization
 POWER = 3.68000E+03 MW, BURNDUP = 4.23398E-01 MWD, FLUX = 2.62E+13 W/CM**2-SEC

	9 SUMMARY TABLE: THERMAL POWER, WATTS				Triga fuel elements: At clad (Row C) + prior irradiation			
	Initial	Discharge	5.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
M0102	0.000E+00	2.414E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC102	0.000E+00	1.351E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC102M	0.000E+00	7.778E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH102	2.361E-10	3.655E-09	8.713E-10	3.349E-10	3.068E-11	2.576E-13	1.523E-19	0.000E+00
SR103	0.000E+00	7.470E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y103	0.000E+00	5.850E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR103	0.000E+00	4.105E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB103	0.000E+00	1.271E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
M0103	0.000E+00	1.324E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC103	0.000E+00	7.125E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH103	5.516E+20	2.614E-01	2.594E-18	1.652E-29	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC103M	3.421E-21	1.609E-19	1.025E-30	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR104	0.000E+00	1.401E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y104	0.000E+00	4.202E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR104	0.000E+00	4.641E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB104	0.000E+00	7.125E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC104	0.000E+00	1.202E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH104	0.000E+00	1.075E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y104M	0.000E+00	1.074E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y105	0.000E+00	2.964E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR105	0.000E+00	1.009E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB105	0.000E+00	1.609E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
M0105	0.000E+00	5.513E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC105	0.000E+00	3.644E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH105	0.000E+00	2.325E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC105M	0.000E+00	4.522E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH105M	0.000E+00	7.087E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR106	0.000E+00	1.813E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB106	0.000E+00	8.155E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
M0106	0.000E+00	1.270E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC106	0.000E+00	3.182E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH106	1.584E-06	5.623E-05	9.404E-07	6.008E-08	6.219E-11	6.620E-17	7.987E-32	0.000E+00
Y106M	2.350E+04	1.097E-02	1.517E-04	0.692E-06	1.003E-08	1.068E-14	1.291E-35	0.000E+00
NB106M	0.000E+00	1.322E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y107	0.000E+00	1.320E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR107	0.000E+00	1.320E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB107	0.000E+00	1.070E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC107	0.000E+00	1.055E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH107	0.000E+00	5.771E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y107M	0.000E+00	3.209E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC107M	1.275E-11	2.593E-11	2.593E-11	2.593E-11	2.593E-11	2.593E-11	2.593E-11	2.593E-11
ZR107M	0.000E+00	5.742E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB108	0.000E+00	5.367E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
M0108	0.000E+00	1.563E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC108	0.000E+00	1.928E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH108	0.000E+00	7.749E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y108M	0.000E+00	1.023E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH108M	0.000E+00	4.629E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y109M	0.000E+00	9.749E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG100M	1.453E-14	7.271E-14	7.037E-14	6.885E-14	6.519E-14	5.845E-14	4.215E-14	3.100E-16

*onigen2 Triga fuel characterization
 POWER= 3.68000E+03 MW, BURNUP= 4.23399E-01 MWD, FLUX= 2.62E+13 N/CW*2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS

	Triga fuel element: Al clad (Row C) + prior irradiation				
	Initial	Discharge	10.0YR	20.0YR	40.0YR 100.0YR 1000.0YR
Z8109	0.000E+00	3.438E-07	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
N8109	0.000E+00	1.158E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
M0109	0.000E+00	5.837E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
TC109	0.000E+00	2.257E-02	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
R0109	0.000E+00	2.448E-02	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH109	0.000E+00	1.330E-02	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH109M	0.000E+00	1.304E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
P0109	0.000E+00	4.714E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
P0109M	0.000E+00	9.812E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
A6109M	5.169E-18	9.133E-04	2.783E-17	3.138E-17	1.341E-20 2.445E-25 0.000E+00 0.000E+00
N8110	0.000E+00	1.624E-05	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
TC110	0.000E+00	9.935E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
R0110	0.000E+00	1.368E-02	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH110	0.000E+00	1.063E-02	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH110M	0.000E+00	5.629E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
A6110M	3.380E-18	5.535E-04	6.160E-17	6.160E-17	2.235E-15 7.015E-20 0.000E+00 0.000E+00
N8111	2.377E-09	2.818E-04	4.020E-13	4.020E-13	7.015E-20 0.000E+00 0.000E+00
TC111	0.000E+00	1.133E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
R0111	0.000E+00	2.624E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH111	0.000E+00	4.013E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH111M	0.000E+00	1.535E-02	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG111	0.000E+00	1.327E-02	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG111M	0.000E+00	5.265E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
M0111M	0.000E+00	2.894E-05	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG111M	0.000E+00	2.159E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
M0112	0.000E+00	3.795E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
TC112	0.000E+00	3.653E-05	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
R0112	0.000E+00	1.810E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH112	0.000E+00	5.894E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG112	0.000E+00	1.691E-02	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG112M	0.000E+00	6.707E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
M0113	0.000E+00	9.121E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
TC113	0.000E+00	3.568E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
R0113	0.000E+00	1.019E-02	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH113	0.000E+00	1.081E-02	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG113	0.000E+00	8.264E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG113M	0.000E+00	3.948E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
CG113M	0.000E+00	4.950E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
TC114	2.417E-07	3.846E-07	2.897E-07	2.395E-07	1.490E-07 5.759E-08 3.329E-09 8.953E-28
R0114	0.000E+00	3.090E-07	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH114	0.000E+00	1.101E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
P0114	0.000E+00	2.012E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG114	0.000E+00	4.394E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
TC114	0.000E+00	7.748E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
M0115	3.273E-25	1.302E-07	1.396E-21	1.829E-30	0.000E+00 0.000E+00 0.000E+00
TC115	0.000E+00	2.809E-08	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
R0115	0.000E+00	1.763E-05	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH115	0.000E+00	1.209E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH115M	0.000E+00	6.081E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00

FISSION PRODUCTS

OUTPUT UNIT = 6 PAGE 60

*origen2 Triga fuel characterization
 PWR= 3.6800E-03 MW, BURNUP= 4.23598E-01 MWD, FLUX= 2.62E+13 M/CM**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS

	Triga fuel element: Al clad (Row C) + prior irradiation				
	Initial	Discharge	6.0YR	10.0YR	40.0YR 100.0YR 1000.0YR
P0115	0.000E+00	9.072E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG115	0.000E+00	4.580E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG115M	0.000E+00	1.939E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
C0115	0.000E+00	1.799E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
C0115M	5.644E-21	9.319E-05	1.500E-19	2.060E-29	0.000E+00 0.000E+00 0.000E+00
IN115M	2.121E-25	1.131E-03	5.637E-24	7.766E-34	0.000E+00 0.000E+00 0.000E+00
TC116	0.000E+00	1.420E-06	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RU116	0.000E+00	1.934E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RU116	0.000E+00	4.431E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
P0116	0.000E+00	5.059E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG116	0.000E+00	6.237E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG116M	0.000E+00	7.304E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
IN116	0.000E+00	2.328E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
IN116M	0.000E+00	3.687E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
TC117	0.000E+00	6.102E-08	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RU117	0.000E+00	8.592E-05	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RU117	0.000E+00	1.639E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
P0117	0.000E+00	1.832E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG117	0.000E+00	4.406E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG117M	0.000E+00	4.677E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
C0117	0.000E+00	2.844E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
C0117M	0.000E+00	1.729E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
IN117	0.000E+00	1.637E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
IN117M	0.000E+00	1.740E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RU118	0.000E+00	1.680E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RU118	0.000E+00	2.200E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
P0118	0.000E+00	3.989E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG118	0.000E+00	8.630E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG118M	0.000E+00	3.272E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
C0118	0.000E+00	1.701E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
IN118	0.000E+00	7.893E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
IN118M	0.000E+00	2.595E-06	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH119	0.000E+00	1.250E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
P0119	0.000E+00	6.081E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG119	0.000E+00	3.190E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG119M	0.000E+00	3.814E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
C0119M	0.000E+00	1.443E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
IN119	0.000E+00	3.959E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
IN119M	1.301E-09	4.835E-07	9.795E-10	1.570E-11	5.113E-16 5.419E-25 0.000E+00 0.000E+00
SU120	0.000E+00	4.397E-08	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH120	0.000E+00	3.246E-05	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
P0120	0.000E+00	1.141E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG120	0.000E+00	5.347E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
C0120	0.000E+00	3.566E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
IN120	0.000E+00	7.481E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
IN120M	0.000E+00	5.177E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
RH121	0.000E+00	4.003E-06	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
P0121	0.000E+00	6.266E-04	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AG121	0.000E+00	5.072E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
C0121	0.000E+00	1.038E-02	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
IN121	0.000E+00	6.428E-03	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00

OUTPUT UNIT = 6 PAGE 61

FISSION PRODUCTS

*origen2 Triga fuel characterization
 POWER= 3.68000E-05 MW, BURNUP= 4.23190E-01 MW, FLUX= 2.62E+13 N/C/M**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS

Triga fuel element: AL clad (Row C) + prior irradiation		100.0YR		40.0YR		100.0YR	
Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
IN121M	0.000E+00	1.433E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN121	0.000E+00	8.182E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN121M	2.155E-09	3.989E-09	3.472E-09	3.023E-09	2.290E-09	9.965E-10	3.775E-15
RH122	0.000E+00	6.068E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PO122	0.000E+00	1.336E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG122	0.000E+00	4.257E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD122	0.000E+00	5.225E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN122M	0.000E+00	1.813E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN122	0.000E+00	9.761E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH122	0.000E+00	1.161E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PO122	0.000E+00	4.590E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG123	0.000E+00	4.598E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD123	0.000E+00	1.732E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN123M	0.000E+00	1.135E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN123	0.000E+00	3.753E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH123	3.000E-10	1.772E-10	3.453E-13	1.061E-21	1.003E-38	0.000E+00	0.000E+00
PO123	0.000E+00	2.335E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG124	0.000E+00	8.800E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD124	0.000E+00	1.104E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN124	0.000E+00	7.384E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN124	0.000E+00	2.610E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH124	4.431E-18	8.133E-06	8.934E-17	4.415E-24	0.000E+00	0.000E+00	0.000E+00
PO124	0.000E+00	5.528E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG125	0.000E+00	2.370E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD125	0.000E+00	7.395E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN125M	0.000E+00	9.335E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN125	0.000E+00	7.240E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH125	0.000E+00	3.311E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PO125	0.000E+00	5.644E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN125M	0.000E+00	5.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG125	6.997E-05	2.237E-04	3.092E-05	1.136E-05	9.306E-07	6.237E-09	1.880E-15
CD125	3.097E-06	2.178E-06	2.029E-06	7.455E-07	6.104E-08	4.093E-10	2.233E-16
IN125M	0.000E+00	1.068E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN126	0.000E+00	1.087E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH126	0.000E+00	5.232E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PO126	0.000E+00	4.894E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG126	6.474E-09	1.290E-08	1.297E-08	1.297E-08	1.297E-08	1.297E-08	1.289E-08
CD126	1.343E-08	2.010E-04	1.325E-07	1.325E-07	1.325E-07	1.324E-07	1.316E-07
IN126M	6.609E-08	2.010E-04	1.325E-07	1.325E-07	1.325E-07	1.324E-07	1.316E-07
SN126	0.000E+00	4.170E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH127	0.000E+00	2.353E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PO127	0.000E+00	7.945E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG127	0.000E+00	1.567E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD127	0.000E+00	3.048E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN127M	9.060E-11	6.152E-03	1.894E-10	1.748E-16	1.432E-24	0.000E+00	0.000E+00
SN127	3.685E-11	7.257E-05	7.702E-11	7.110E-15	5.822E-25	0.000E+00	0.000E+00
TE127M	0.000E+00	3.560E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG128	0.000E+00	1.402E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CD128	0.000E+00	7.121E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
IN128	0.000E+00	5.620E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN128	0.000E+00	5.620E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE128	0.000E+00	1.054E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN128	0.000E+00	1.054E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

FISSION PRODUCTS

OUTPUT UNIT = 6 PAGE 62

*Origen2 Triga fuel characterization

POWER= 3.68000E+03 MW, BURNUP= 4.23390E-01 MW, FLUX= 2.62E+13 N/C/M**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS

	Triga fuel elements: AL clad (Row C) + prior irradiation			
	Initial	Discharge	6.0YR	20.0YR 40.0YR 100.0YR 1000.0YR
SB128M	0.000E+00	2.112E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
I128	0.000E+00	6.460E-05	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
CD129	0.000E+00	4.588E-04	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
IN129	0.000E+00	3.622E-02	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SN129	0.000E+00	1.059E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SN129M	0.000E+00	1.735E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SB129	0.000E+00	2.404E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
TE129	0.000E+00	7.246E-02	9.424E-23	0.000E+00 0.000E+00 0.000E+00 0.000E+00
TE129M	0.000E+00	3.035E-03	7.105E-23	5.781E-36 0.000E+00 0.000E+00 0.000E+00
I129	1.435E-10	2.820E-10	2.871E-10	2.871E-10 2.871E-10 2.871E-10 2.871E-10
CD130	0.000E+00	7.881E-04	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
IN130	0.000E+00	7.515E-02	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SN130	0.000E+00	2.291E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SN130M	0.000E+00	1.578E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SB130	0.000E+00	8.520E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
I130	0.000E+00	4.791E-04	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
CD131	0.000E+00	1.591E-04	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
IN131	0.000E+00	2.731E-02	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SN131	0.000E+00	1.147E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SN131M	0.000E+00	1.147E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
TE131	0.000E+00	5.403E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
TE131M	0.000E+00	2.892E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
I131	0.000E+00	7.050E-04	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
CD132	0.000E+00	1.057E-05	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
IN132	0.000E+00	1.091E-02	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SN132	0.000E+00	2.256E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SN132M	0.000E+00	1.205E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SB132M	0.000E+00	7.664E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
TE132	0.000E+00	2.612E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
I132	0.000E+00	2.179E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
CD133	0.000E+00	2.640E-06	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
IN133	0.000E+00	6.669E-04	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SN133	0.000E+00	1.550E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SN133M	0.000E+00	1.520E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
TE133	0.000E+00	1.243E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
I133	0.000E+00	1.582E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
CD134	0.000E+00	1.243E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
IN134	0.000E+00	3.841E-02	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SN134	0.000E+00	2.127E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SN134M	0.000E+00	5.117E-05	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SB134	0.000E+00	1.147E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
SB134M	0.000E+00	2.148E-02	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
TE134	0.000E+00	2.421E-01	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
TE134M	0.000E+00	1.444E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
I134	0.000E+00	4.504E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
IN134M	0.000E+00	2.864E-02	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
TE134M	0.000E+00	8.307E-03	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00
CS134	3.243E-05	4.408E-04	5.867E-05	1.529E-05 5.303E-07 6.362E-10 1.107E-18 0.000E+00
CS134M	0.000E+00	9.197E-05	0.000E+00	0.000E+00 0.000E+00 0.000E+00 0.000E+00

OUTPUT UNIT = 6 PAGE 63

FISSION PRODUCTS

*Origen2 Triga fuel characterization
 POWER= 3.68000E+03 MW, BURNUP= 4.23399E-01 MW, FLUX= 2.62E+13 N/CM**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS		Triga fuel element: At clad (Row C) + prior irradiation			
Initial	Discharge	6.0YR	20.0YR	40.0YR	100.0YR
SN135	0.000E+00	1.473E-03	0.000E+00	0.000E+00	0.000E+00
SR135	0.000E+00	1.784E-01	0.000E+00	0.000E+00	0.000E+00
TE135	0.000E+00	1.864E+00	0.000E+00	0.000E+00	0.000E+00
1I135	0.000E+00	2.213E+00	0.000E+00	0.000E+00	0.000E+00
XE135	0.000E+00	5.151E-01	0.000E+00	0.000E+00	0.000E+00
XE135M	0.000E+00	1.092E-01	0.000E+00	0.000E+00	0.000E+00
CS135	4.914E-09	9.789E-09	9.833E-09	9.833E-09	9.833E-09
CS135M	0.000E+00	1.933E-04	0.000E+00	0.000E+00	0.000E+00
BA135M	0.000E+00	3.470E-08	0.000E+00	0.000E+00	0.000E+00
SN136	0.000E+00	6.726E-05	0.000E+00	0.000E+00	0.000E+00
SR136	0.000E+00	3.762E-02	0.000E+00	0.000E+00	0.000E+00
TE136	0.000E+00	9.751E-01	0.000E+00	0.000E+00	0.000E+00
1I136	0.000E+00	2.379E+00	0.000E+00	0.000E+00	0.000E+00
XE136M	0.000E+00	1.352E+00	0.000E+00	0.000E+00	0.000E+00
BA136M	0.000E+00	5.106E-03	0.000E+00	0.000E+00	0.000E+00
SN137	0.000E+00	7.310E-04	0.000E+00	0.000E+00	0.000E+00
SR137	0.000E+00	3.379E-01	0.000E+00	0.000E+00	0.000E+00
TE137	0.000E+00	2.140E+00	0.000E+00	0.000E+00	0.000E+00
1I137	0.000E+00	2.140E+00	0.000E+00	0.000E+00	0.000E+00
XE137	0.000E+00	2.140E+00	0.000E+00	0.000E+00	0.000E+00
CS137	1.294E-03	2.268E-03	1.974E-03	1.800E-03	1.429E-03
BA137M	4.345E-03	7.647E-03	6.629E-03	6.164E-03	4.797E-03
SR138	0.000E+00	2.608E-04	0.000E+00	0.000E+00	0.000E+00
TE138	0.000E+00	6.008E-02	0.000E+00	0.000E+00	0.000E+00
1I138	0.000E+00	1.214E+00	0.000E+00	0.000E+00	0.000E+00
XE138	0.000E+00	2.044E+00	0.000E+00	0.000E+00	0.000E+00
CS138	0.000E+00	4.201E-02	0.000E+00	0.000E+00	0.000E+00
CS138M	2.084E-17	4.151E-17	4.151E-17	4.151E-17	4.151E-17
LA138	0.000E+00	1.258E-05	0.000E+00	0.000E+00	0.000E+00
SR139	0.000E+00	1.362E-02	0.000E+00	0.000E+00	0.000E+00
TE139	0.000E+00	5.720E-01	0.000E+00	0.000E+00	0.000E+00
1I139	0.000E+00	2.468E+00	0.000E+00	0.000E+00	0.000E+00
XE139	0.000E+00	2.319E+00	0.000E+00	0.000E+00	0.000E+00
CS139	0.000E+00	1.103E+00	0.000E+00	0.000E+00	0.000E+00
BA139M	0.000E+00	2.109E-03	0.000E+00	0.000E+00	0.000E+00
TE140	0.000E+00	2.109E+00	0.000E+00	0.000E+00	0.000E+00
1I140	0.000E+00	2.109E+00	0.000E+00	0.000E+00	0.000E+00
XE140	0.000E+00	1.448E+00	0.000E+00	0.000E+00	0.000E+00
CS140	0.000E+00	4.267E+00	0.000E+00	0.000E+00	0.000E+00
BA140	0.000E+00	4.655E-01	0.000E+00	0.000E+00	0.000E+00
LA140	0.000E+00	2.802E+00	0.000E+00	0.000E+00	0.000E+00
PR140	0.000E+00	2.050E-07	0.000E+00	0.000E+00	0.000E+00
TE141	0.000E+00	5.646E-05	0.000E+00	0.000E+00	0.000E+00
1I141	0.000E+00	2.809E-02	0.000E+00	0.000E+00	0.000E+00
XE141	0.000E+00	8.270E-01	0.000E+00	0.000E+00	0.000E+00
CS141	0.000E+00	2.573E+00	0.000E+00	0.000E+00	0.000E+00
CS141M	0.000E+00	1.848E+00	0.000E+00	0.000E+00	0.000E+00
LA141	0.000E+00	1.062E+00	0.000E+00	0.000E+00	0.000E+00
CE141	0.000E+00	1.472E-01	7.597E-22	2.254E-35	0.000E+00
TE142	0.000E+00	1.757E-06	0.000E+00	0.000E+00	0.000E+00
1I142	0.000E+00	3.157E-03	0.000E+00	0.000E+00	0.000E+00
XE142	0.000E+00	2.028E-01	0.000E+00	0.000E+00	0.000E+00

FISSION PRODUCTS

OUTPUT UNIT = 6 PAGE 64

*origen2 Triga fuel characterization

POWER= 3.68000E+03 MW, BURNUP= 4.23599E-01 MWD, FLUX= 2.62E+13 N/C/M**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS

	Triga fuel element: Al clad (Row C) + prior irradiation			
	Initial	Discharge	6.0YR	10.0YR
CS142	0.000E+00	2.374E+00	0.000E+00	0.000E+00
BA142	0.000E+00	1.543E+00	0.000E+00	0.000E+00
LA142	0.000E+00	3.816E+00	0.000E+00	0.000E+00
PR142	0.000E+00	8.350E-04	0.000E+00	0.000E+00
PR142M	0.000E+00	5.140E-05	0.000E+00	0.000E+00
1143	0.000E+00	1.145E-04	0.000E+00	0.000E+00
XE143	0.000E+00	4.404E-02	0.000E+00	0.000E+00
CS143	0.000E+00	1.034E+00	0.000E+00	0.000E+00
BA143	0.000E+00	2.552E+00	0.000E+00	0.000E+00
LA143	0.000E+00	2.107E+00	0.000E+00	0.000E+00
CE143	0.000E+00	7.629E-01	0.000E+00	0.000E+00
PR143	0.000E+00	7.752E-01	0.000E+00	0.000E+00
1144	0.000E+00	7.433E-06	0.000E+00	0.000E+00
XE144	0.000E+00	4.159E-03	0.000E+00	0.000E+00
CS144	0.000E+00	3.177E-01	0.000E+00	0.000E+00
BA144	0.000E+00	1.306E+00	0.000E+00	0.000E+00
LA144	0.000E+00	3.351E+00	0.000E+00	0.000E+00
CE144	7.013E-05	9.680E-03	6.715E-05	1.337E-06
PR144	7.74E-04	1.079E-06	5.223E-04	1.962E-05
PR144M	6.33E-07	6.24E-08	3.07E-07	1.122E-12
XE145	0.000E+00	5.741E-02	0.000E+00	0.000E+00
CS145	0.000E+00	1.164E+00	0.000E+00	0.000E+00
BA145	0.000E+00	1.724E+00	0.000E+00	0.000E+00
LA145	0.000E+00	4.914E-01	0.000E+00	0.000E+00
CE145	0.000E+00	1.055E+00	0.000E+00	0.000E+00
PR145	0.000E+00	1.454E-05	0.000E+00	0.000E+00
CS146	0.000E+00	9.175E-03	0.000E+00	0.000E+00
BA146	0.000E+00	2.414E-01	0.000E+00	0.000E+00
LA146	0.000E+00	1.727E+00	0.000E+00	0.000E+00
CE146	0.000E+00	2.373E-01	0.000E+00	0.000E+00
PR146	0.000E+00	1.389E+00	0.000E+00	0.000E+00
PM146	1.985E-09	1.416E-09	6.646E-10	4.0715E-10
SM146	3.034E-16	7.952E-15	8.040E-15	8.075E-15
XE147	0.000E+00	9.237E-07	0.000E+00	0.000E+00
CS147	0.000E+00	6.768E-04	0.000E+00	0.000E+00
BA147	0.000E+00	8.981E-02	0.000E+00	0.000E+00
LA147	0.000E+00	5.618E-01	0.000E+00	0.000E+00
CE147	0.000E+00	8.612E-01	0.000E+00	0.000E+00
PR147	0.000E+00	6.515E-01	0.000E+00	0.000E+00
PM147	0.000E+00	1.539E-01	0.000E+00	0.000E+00
SM147	3.105E-14	3.105E-12	1.753E-13	8.891E-12
XE148	0.000E+00	7.945E-05	0.000E+00	0.000E+00
CS148	0.000E+00	3.613E+00	0.000E+00	0.000E+00
BA148	0.000E+00	6.039E-01	0.000E+00	0.000E+00
LA148	0.000E+00	2.749E-01	0.000E+00	0.000E+00
PR148	0.000E+00	6.688E-01	0.000E+00	0.000E+00
PM148	1.570E-22	1.917E-03	1.932E-21	4.322E-32
PM148M	4.589E-21	5.332E-04	5.648E-20	1.265E-30
BA149	0.000E+00	9.080E-04	0.000E+00	0.000E+00
LA149	0.000E+00	4.820E-02	0.000E+00	0.000E+00

OUTPUT UNIT = 6 PAGE 65

FISSION PRODUCTS

*Origen2 Triga fuel characterization
 POWER= 3.68000E+03 MW, BURNUP= 4.23599E-01 MW, FLUX= 2.62E+13 W/CM**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS		Triga fuel element (A1 clad (Row C) + prior irradiation	
Initial	Discharge	6.0YR	20.0YR
CE149	0.000E+00	3.601E-01	0.000E+00
PR149	0.000E+00	2.759E-01	0.000E+00
ND149	0.000E+00	1.773E-01	0.000E+00
CE150	0.000E+00	7.502E-02	0.000E+00
CS150	0.000E+00	2.268E-08	0.000E+00
BA150	0.000E+00	3.911E-05	0.000E+00
LA150	0.000E+00	1.051E-02	0.000E+00
CE151	0.000E+00	8.374E-02	0.000E+00
PR151	0.000E+00	3.531E-01	0.000E+00
ND151	0.000E+00	6.510E-04	0.000E+00
CE152	7.906E-14	1.966E-11	1.621E-11
PR152	0.000E+00	8.328E-04	0.000E+00
ND152	0.000E+00	4.474E-02	0.000E+00
CE153	0.000E+00	1.322E-01	0.000E+00
PR153	0.000E+00	1.149E-01	0.000E+00
ND153	0.000E+00	4.828E-02	0.000E+00
CE154	3.233E-06	5.437E-06	5.272E-06
PR154	0.000E+00	6.226E-08	0.000E+00
ND154	0.000E+00	7.797E-03	0.000E+00
CE155	0.000E+00	0.045E-03	0.000E+00
PR155	0.000E+00	2.739E-02	0.000E+00
ND155	0.000E+00	8.631E-02	0.000E+00
CE156	0.000E+00	1.152E-03	0.000E+00
PR156	8.788E-08	2.410E-05	1.775E-05
ND156	0.000E+00	7.073E-04	0.000E+00
CE157	0.000E+00	4.004E-06	0.000E+00
PR157	0.000E+00	1.124E-03	0.000E+00
ND157	0.000E+00	1.958E-02	0.000E+00
CE158	0.000E+00	5.798E-02	0.000E+00
PR158	0.000E+00	2.310E-02	0.000E+00
ND158	0.000E+00	1.103E-02	0.000E+00
CE159	8.516E-13	2.250E-07	4.793E-10
PR159	0.000E+00	2.013E-07	0.000E+00
ND159	0.000E+00	6.688E-05	0.000E+00
CE160	0.000E+00	5.274E-03	0.000E+00
PR160	0.000E+00	1.149E-02	0.000E+00
ND160	0.000E+00	3.326E-02	0.000E+00
CE161	0.000E+00	4.470E-03	0.000E+00
PR161	6.194E-06	2.507E-05	1.546E-05
ND161	0.000E+00	7.626E-06	0.000E+00
CE162	0.000E+00	3.799E-03	0.000E+00
PR162	0.000E+00	8.799E-03	0.000E+00
ND162	0.000E+00	2.525E-02	0.000E+00
CE163	0.000E+00	1.776E-03	0.000E+00
PR163	1.349E-05	2.048E-06	8.857E-06
ND163	0.000E+00	4.644E-07	0.000E+00
CE164	0.000E+00	8.734E-05	0.000E+00
PR164	0.000E+00	1.271E-03	0.000E+00
ND164	0.000E+00	7.359E-03	0.000E+00
CE165	0.000E+00	1.251E-03	0.000E+00
PR165	0.000E+00	4.573E-03	0.000E+00
ND165	0.000E+00	1.573E-03	0.000E+00
CE166	0.000E+00	1.573E-03	0.000E+00
PR166	0.000E+00	1.573E-03	0.000E+00
ND166	0.000E+00	1.573E-03	0.000E+00
CE167	0.000E+00	1.573E-03	0.000E+00
PR167	0.000E+00	1.573E-03	0.000E+00
ND167	0.000E+00	1.573E-03	0.000E+00
CE168	0.000E+00	1.573E-03	0.000E+00
PR168	0.000E+00	1.573E-03	0.000E+00
ND168	0.000E+00	1.573E-03	0.000E+00
CE169	0.000E+00	1.573E-03	0.000E+00
PR169	0.000E+00	1.573E-03	0.000E+00
ND169	0.000E+00	1.573E-03	0.000E+00
CE170	0.000E+00	1.573E-03	0.000E+00
PR170	0.000E+00	1.573E-03	0.000E+00
ND170	0.000E+00	1.573E-03	0.000E+00
CE171	0.000E+00	1.573E-03	0.000E+00
PR171	0.000E+00	1.573E-03	0.000E+00
ND171	0.000E+00	1.573E-03	0.000E+00
CE172	0.000E+00	1.573E-03	0.000E+00
PR172	0.000E+00	1.573E-03	0.000E+00
ND172	0.000E+00	1.573E-03	0.000E+00
CE173	0.000E+00	1.573E-03	0.000E+00
PR173	0.000E+00	1.573E-03	0.000E+00
ND173	0.000E+00	1.573E-03	0.000E+00
CE174	0.000E+00	1.573E-03	0.000E+00
PR174	0.000E+00	1.573E-03	0.000E+00
ND174	0.000E+00	1.573E-03	0.000E+00
CE175	0.000E+00	1.573E-03	0.000E+00
PR175	0.000E+00	1.573E-03	0.000E+00
ND175	0.000E+00	1.573E-03	0.000E+00
CE176	0.000E+00	1.573E-03	0.000E+00
PR176	0.000E+00	1.573E-03	0.000E+00
ND176	0.000E+00	1.573E-03	0.000E+00
CE177	0.000E+00	1.573E-03	0.000E+00
PR177	0.000E+00	1.573E-03	0.000E+00
ND177	0.000E+00	1.573E-03	0.000E+00
CE178	0.000E+00	1.573E-03	0.000E+00
PR178	0.000E+00	1.573E-03	0.000E+00
ND178	0.000E+00	1.573E-03	0.000E+00
CE179	0.000E+00	1.573E-03	0.000E+00
PR179	0.000E+00	1.573E-03	0.000E+00
ND179	0.000E+00	1.573E-03	0.000E+00
CE180	0.000E+00	1.573E-03	0.000E+00
PR180	0.000E+00	1.573E-03	0.000E+00
ND180	0.000E+00	1.573E-03	0.000E+00
CE181	0.000E+00	1.573E-03	0.000E+00
PR181	0.000E+00	1.573E-03	0.000E+00
ND181	0.000E+00	1.573E-03	0.000E+00
CE182	0.000E+00	1.573E-03	0.000E+00
PR182	0.000E+00	1.573E-03	0.000E+00
ND182	0.000E+00	1.573E-03	0.000E+00
CE183	0.000E+00	1.573E-03	0.000E+00
PR183	0.000E+00	1.573E-03	0.000E+00
ND183	0.000E+00	1.573E-03	0.000E+00
CE184	0.000E+00	1.573E-03	0.000E+00
PR184	0.000E+00	1.573E-03	0.000E+00
ND184	0.000E+00	1.573E-03	0.000E+00
CE185	0.000E+00	1.573E-03	0.000E+00
PR185	0.000E+00	1.573E-03	0.000E+00
ND185	0.000E+00	1.573E-03	0.000E+00
CE186	0.000E+00	1.573E-03	0.000E+00
PR186	0.000E+00	1.573E-03	0.000E+00
ND186	0.000E+00	1.573E-03	0.000E+00
CE187	0.000E+00	1.573E-03	0.000E+00
PR187	0.000E+00	1.573E-03	0.000E+00
ND187	0.000E+00	1.573E-03	0.000E+00
CE188	0.000E+00	1.573E-03	0.000E+00
PR188	0.000E+00	1.573E-03	0.000E+00
ND188	0.000E+00	1.573E-03	0.000E+00
CE189	0.000E+00	1.573E-03	0.000E+00
PR189	0.000E+00	1.573E-03	0.000E+00
ND189	0.000E+00	1.573E-03	0.000E+00
CE190	0.000E+00	1.573E-03	0.000E+00
PR190	0.000E+00	1.573E-03	0.000E+00
ND190	0.000E+00	1.573E-03	0.000E+00
CE191	0.000E+00	1.573E-03	0.000E+00
PR191	0.000E+00	1.573E-03	0.000E+00
ND191	0.000E+00	1.573E-03	0.000E+00
CE192	0.000E+00	1.573E-03	0.000E+00
PR192	0.000E+00	1.573E-03	0.000E+00
ND192	0.000E+00	1.573E-03	0.000E+00
CE193	0.000E+00	1.573E-03	0.000E+00
PR193	0.000E+00	1.573E-03	0.000E+00
ND193	0.000E+00	1.573E-03	0.000E+00
CE194	0.000E+00	1.573E-03	0.000E+00
PR194	0.000E+00	1.573E-03	0.000E+00
ND194	0.000E+00	1.573E-03	0.000E+00
CE195	0.000E+00	1.573E-03	0.000E+00
PR195	0.000E+00	1.573E-03	0.000E+00
ND195	0.000E+00	1.573E-03	0.000E+00
CE196	0.000E+00	1.573E-03	0.000E+00
PR196	0.000E+00	1.573E-03	0.000E+00
ND196	0.000E+00	1.573E-03	0.000E+00
CE197	0.000E+00	1.573E-03	0.000E+00
PR197	0.000E+00	1.573E-03	0.000E+00
ND197	0.000E+00	1.573E-03	0.000E+00
CE198	0.000E+00	1.573E-03	0.000E+00
PR198	0.000E+00	1.573E-03	0.000E+00
ND198	0.000E+00	1.573E-03	0.000E+00
CE199	0.000E+00	1.573E-03	0.000E+00
PR199	0.000E+00	1.573E-03	0.000E+00
ND199	0.000E+00	1.573E-03	0.000E+00
CE200	0.000E+00	1.573E-03	0.000E+00
PR200	0.000E+00	1.573E-03	0.000E+00
ND200	0.000E+00	1.573E-03	0.000E+00

*Origen2 Triga fuel characterization
POWER= 3.68000E+03 MW, BURNUP= 4.23399E-01 MWD, FLUX= 2.62E+13 M/CM**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS									
Triga fuel element: Al clad (Row C) + prior irradiation									
Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR		
CE157	0.000E+00	4.833E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR157	0.000E+00	8.804E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND157	0.000E+00	4.682E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND157	0.000E+00	2.211E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM157	0.000E+00	2.323E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM157	0.000E+00	1.175E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR158	0.000E+00	8.030E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND158	0.000E+00	4.672E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM158	0.000E+00	9.693E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM158	0.000E+00	5.244E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR159	0.000E+00	1.687E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND159	0.000E+00	2.707E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM159	0.000E+00	5.470E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM159	0.000E+00	1.239E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU159	0.000E+00	4.528E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU159	0.000E+00	4.470E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GD159	0.000E+00	1.579E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GD159	0.000E+00	8.405E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU160	0.000E+00	3.354E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU160	0.000E+00	1.334E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU160	0.000E+00	4.230E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU160	4.024E-17	6.529E-07	6.408E-16	5.294E-22	3.298E-37	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TD160	0.000E+00	3.811E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND161	0.000E+00	2.142E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM161	0.000E+00	3.629E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU161	0.000E+00	4.753E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TD161	0.000E+00	1.283E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM162	0.000E+00	1.965E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM162	0.000E+00	6.098E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU162	0.000E+00	4.233E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GD162	0.000E+00	1.231E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TD162	0.000E+00	3.330E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM162M	0.000E+00	9.658E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM163	0.000E+00	1.134E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU163	0.000E+00	8.797E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU163	0.000E+00	1.245E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TD163	0.000E+00	8.074E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SM164	0.000E+00	8.851E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU164	0.000E+00	2.914E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GD164	0.000E+00	3.433E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TD164	0.000E+00	8.840E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU165	0.000E+00	4.302E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU165	0.000E+00	1.729E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TD165	0.000E+00	1.027E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
EU165M	0.000E+00	1.516E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
DY166	0.000E+00	2.045E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
HO166	0.000E+00	7.716E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
HO166M	3.141E-13	8.875E-13	8.844E-13	8.824E-13	8.773E-13	8.672E-13	8.377E-13	4.981E-13	
SUMTOT	1.487E-02	2.213E+02	2.115E-02	1.843E-02	1.445E-02	8.999E-03	2.195E-03	3.914E-07	
TOTAL	1.487E-02	2.213E+02	2.115E-02	1.843E-02	1.445E-02	8.999E-03	2.195E-03	3.914E-07	

FISSION PRODUCTS

PAGE 67

OUTPUT UNIT = 6

*origen2 Triga fuel characterization

POWER= 3.68000E-03 MW, BURNUP= 4.23398E-01 MM, FLUX= 2.62E+13 N/CMM**2-SEC

	9 SUMMARY TABLE: THERMAL POWER, WATTS									
	Initial	Discharge	6.0YR	10.0YR	10.0YR	40.0YR	100.0YR	1000.0YR	1000.0YR	1000.0YR
H	1.387E-07	2.134E-07	1.525E-07	1.218E-07	6.950E-08	2.262E-08	7.795E-10	0.000E+00		
BE	4.077E-14	9.077E-14	9.077E-14	9.077E-14	9.077E-14	9.077E-14	9.077E-14	9.077E-14		
C	4.449E-13	8.931E-13	8.924E-13	8.920E-13	8.909E-13	8.887E-13	8.823E-13	7.913E-14		
CO	0.000E+00	2.704E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
NI	0.000E+00	8.475E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
CU	0.000E+00	1.220E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
ZN	0.000E+00	1.024E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
GA	0.000E+00	7.494E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
GE	0.000E+00	2.942E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
AS	0.000E+00	1.323E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
SE	0.000E+00	2.810E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
BR	0.000E+00	8.572E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
KR	1.629E-04	1.095E-01	1.661E-04	1.283E-04	6.718E-05	1.843E-05	3.809E-07	2.427E-17		
RB	3.072E-13	2.003E-01	6.140E-13	6.140E-13	6.140E-13	6.140E-13	6.140E-13	6.140E-13		
SR	1.298E-03	1.553E-01	1.964E-03	1.785E-03	1.407E-03	8.741E-04	2.096E-04	1.042E-13		
Y	6.201E-03	2.254E+01	9.379E-03	8.527E-03	6.721E-03	4.179E-03	1.001E-03	4.978E-13		
ZR	3.294E+00	9.225E+00	6.592E+00	6.578E+00	6.578E+00	6.578E+00	6.578E+00	6.578E+00		
NB	1.412E-09	1.750E-09	5.704E-09	6.382E-09	7.641E-09	8.852E-09	9.504E-09	9.532E-09		
TC	0.000E+00	5.101E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
RU	9.47E-08	2.381E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
PD	2.584E-06	2.382E-06	9.00E-07	6.00E-08	6.219E-07	6.432E-07	1.587E-07	1.887E-07		
PR	2.554E-04	2.762E-01	1.517E-04	9.629E-06	1.004E-08	2.682E-11	1.523E-10	0.000E+00		
PD	1.275E-11	5.998E-02	2.593E-11	2.593E-11	2.593E-11	2.593E-11	2.593E-11	2.593E-11		
AG	2.391E-09	9.301E-02	6.539E-09	1.120E-10	7.187E-16	6.045E-14	4.357E-14	3.204E-16		
CD	2.417E-07	2.778E-02	2.897E-07	2.395E-07	1.490E-07	5.759E-08	3.329E-09	8.953E-28		
IN	3.672E-19	4.242E-01	7.218E-19	7.200E-19	7.200E-19	7.200E-19	7.200E-19	7.200E-19		
SM	1.040E-08	1.576E+00	1.850E-08	1.664E-08	1.600E-08	1.524E-08	1.394E-08	1.289E-08		
S8	6.100E-05	6.851E+00	3.108E-05	1.152E-05	1.090E-06	1.654E-07	1.593E-07	1.583E-07		
TE	3.997E-06	8.511E+00	2.029E-06	7.455E-07	6.104E-08	4.093E-10	2.233E-16	2.374E-24		
I	1.435E-10	1.835E-01	2.871E-10	2.871E-10	2.871E-10	2.871E-10	2.871E-10	2.871E-10		
XE	2.104E-33	1.003E-01	9.843E-31	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
CS	1.324E-03	1.735E-01	2.033E-03	1.815E-03	1.429E-03	8.999E-04	2.250E-04	9.830E-09		
BA	4.343E-03	1.033E-01	6.629E-03	6.044E-03	4.797E-03	3.022E-03	7.555E-04	7.032E-13		
LA	2.084E-17	1.751E+01	4.151E-17	4.151E-17	4.151E-17	4.151E-17	4.151E-17	4.151E-17		
CE	7.015E-05	3.844E+00	4.715E-05	1.337E-06	1.812E-10	3.329E-18	0.000E+00	0.000E+00		
PR	7.778E-04	4.664E+00	5.228E-04	1.483E-05	2.010E-09	3.691E-17	0.000E+00	0.000E+00		
MD	0.000E+00	5.538E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
PM	3.422E-04	2.989E-01	1.723E-04	2.988E-03	4.264E-06	2.188E-08	7.268E-15	0.000E+00		
SN	2.232E-06	2.627E-02	3.170E-06	3.072E-06	1.861E-06	4.213E-06	1.556E-07	2.564E-20		
EU	8.514E-17	2.349E-04	7.03E-18	7.300E-12	1.212E-16	3.394E-18	3.375E-18	3.584E-18		
TR	4.024E-17	6.793E-05	4.08E-16	5.296E-22	2.268E-37	0.000E+00	0.000E+00	0.000E+00		
DY	0.000E+00	2.283E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
HO	3.141E-13	7.114E-07	8.844E-13	8.824E-13	8.773E-13	8.672E-13	8.377E-13	4.981E-13		
SUMTOT	1.487E-02	2.213E+02	2.115E-02	1.843E-02	1.445E-02	8.999E-03	2.195E-03	3.914E-07		
TOTAL	1.487E-02	2.213E+02	2.115E-02	1.843E-02	1.445E-02	8.999E-03	2.195E-03	3.914E-07		

CUMULATIVE TABLE TOTALS

AP+FP	1.487E-02	2.233E+02	2.115E-02	1.843E-02	1.445E-02	8.999E-03	2.195E-03	4.019E-07		
ACT+FP	1.501E-02	2.225E+02	2.134E-02	1.865E-02	1.466E-02	9.215E-03	2.409E-03	2.048E-04		
AP+ACT+FP	1.501E-02	2.245E+02	2.136E-02	1.865E-02	1.466E-02	9.215E-03	2.409E-03	2.048E-04		

PAGE 68

OUTPUT UNIT = 6

Origen2 Triga fuel characterization
 (ALPHA,N) NEUTRON SOURCE, NEUTRONS/SEC
 BASIS=Triga fuel element; Al clad (Row C) + prior irradiation
 Initial Discharge 6.0YR 10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR

P0214	5.188E-07	4.216E-06	7.105E-06	9.451E-06	1.677E-05	3.762E-05	1.492E-04	9.480E-03
P0218	2.804E-07	2.278E-06	3.840E-06	5.108E-06	9.064E-06	2.033E-05	8.061E-05	5.123E-03
T0230	7.476E-05	2.123E-04	2.761E-04	3.186E-04	4.248E-04	6.372E-04	1.274E-03	1.07E-02
U234	1.278E+00	1.271E+00	1.271E+00	1.271E+00	1.271E+00	1.271E+00	1.271E+00	1.271E+00
U235	2.883E-02	2.840E-02	2.840E-02	2.840E-02	2.840E-02	2.840E-02	2.840E-02	2.840E-02
U236	1.270E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02
U238	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02
P0238	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02
P0239	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02
P0240	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02	1.258E-02
AM241	4.893E-02	1.935E-01	1.935E-01	1.935E-01	1.935E-01	1.935E-01	1.935E-01	1.935E-01
AM242	4.169E-03	2.761E-02	5.003E-02	6.160E-02	8.190E-02	1.004E-01	1.029E-01	2.447E-01
	1.462E-07	2.844E-01	1.919E-04	1.629E-04	1.552E-04	1.417E-04	1.078E-04	1.779E-06

TOTALS

TABLE	2.991E+00	5.079E+00	4.862E+00	4.865E+00	4.865E+00	4.847E+00	4.768E+00	4.513E+00
ACTUAL	2.991E+00	5.079E+00	4.862E+00	4.865E+00	4.865E+00	4.847E+00	4.768E+00	4.513E+00

OUTPUT UNIT = 6 PAGE 69

Origen2 Triga fuel characterization
 SPONTANEOUS FISSION NEUTRON SOURCE, NEUTRONS/SEC
 BASIS=Triga fuel element: Al clad (Row C) + prior irradiation

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
U235	1.285E-02	1.267E-02	1.267E-02	1.267E-02	1.267E-02	1.267E-02	1.267E-02	1.267E-02
U236	2.217E-03	2.677E-03	2.677E-03	2.677E-03	2.677E-03	2.677E-03	2.677E-03	2.677E-03
U238	1.901E+00	1.901E+00	1.901E+00	1.901E+00	1.901E+00	1.901E+00	1.901E+00	1.901E+00
Pu238	1.033E-02	4.333E-02	4.278E-02	4.145E-02	3.830E-02	3.270E-02	2.034E-02	1.489E-05
Pu240	2.579E-01	1.020E+00	1.019E+00	1.018E+00	1.016E+00	1.009E+00	1.009E+00	9.174E-01
CM242	7.095E-07	1.380E+00	9.313E-04	7.902E-04	7.530E-04	6.874E-04	5.229E-04	8.631E-06

TOTALS

TABLE	2.187E+00	4.363E+00	2.982E+00	2.981E+00	2.976E+00	2.969E+00	2.950E+00	2.837E+00
ACTUAL	2.187E+00	4.363E+00	2.982E+00	2.981E+00	2.976E+00	2.969E+00	2.950E+00	2.837E+00

OVERALL

TOTALS	5.178E+00	9.442E+00	7.845E+00	7.846E+00	7.841E+00	7.816E+00	7.718E+00	7.350E+00
ACTUAL	5.178E+00	9.442E+00	7.845E+00	7.846E+00	7.841E+00	7.816E+00	7.718E+00	7.350E+00

PHOTON SPECTRUM FOR ACTIVATION PRODUCTS
 OUTPUT UNIT = 6 PAGE 70
 Origen2 Triga fuel characterization
 POWER= 0.00 MW, BURNUP= 0. MW, FLUX= 2.62E+13 N/CM**2-SEC
 18 GROUP PHOTON RELEASE RATES, PHOTONS/SECOND
 BASIS=Triga fuel element: Al clad (Row C) + prior irradiation

ELEM	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
1.500E-02	3.395E+04	3.049E+12	1.207E+05	1.339E+05	1.571E+05	1.795E+05	1.914E+05	1.909E+05
2.500E-02	9.210E+02	6.410E+11	1.854E+03	1.851E+03	1.844E+03	1.833E+03	1.814E+03	1.667E+03
3.750E-02	3.854E+02	4.235E+11	7.765E+02	7.743E+02	7.702E+02	7.638E+02	7.530E+02	6.819E+02
5.750E-02	2.795E+02	6.184E+11	5.646E+02	5.619E+02	5.564E+02	5.482E+02	5.359E+02	4.788E+02
8.500E-02	5.028E+01	3.828E+11	1.028E+02	1.013E+02	9.824E+01	9.387E+01	8.806E+01	7.751E+01
1.250E-01	7.618E+00	2.557E+11	1.644E+01	1.552E+01	1.358E+01	1.084E+01	7.395E+00	5.671E+00
2.250E-01	6.005E+00	3.949E+11	1.364E+01	1.235E+01	9.734E+00	6.047E+00	4.50E+00	3.518E+00
3.750E-01	2.650E+00	2.094E+11	6.002E+00	5.456E+00	4.301E+00	2.672E+00	1.404E+00	6.849E-07
5.750E-01	1.392E+00	1.294E+12	3.154E+00	2.867E+00	2.260E+00	1.404E+00	3.366E-01	1.699E-10
8.500E-01	8.674E+01	1.708E+11	6.109E+01	9.110E-01	7.216E-01	4.547E-01	1.219E-01	1.644E-02
1.250E-00	1.425E-01	1.708E+11	3.228E-01	2.935E-01	2.313E-01	1.437E-01	3.445E-02	1.713E-11
1.750E+00	1.112E-02	2.281E+12	2.519E-02	2.290E-02	1.805E-02	1.121E-02	2.688E-03	1.377E-12
2.750E+00	1.227E-06	1.426E+08	2.780E-06	2.528E-06	1.992E-06	1.238E-06	2.967E-07	1.476E-16
3.500E+00	0.000E+00	1.922E+10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4.500E+00	0.000E+00	1.374E+05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5.000E+00	0.000E+00	1.574E+05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7.000E+00	0.000E+00	1.931E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1.100E+01	0.000E+00	3.135E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTAL	3.561E+04	1.287E+13	1.241E+05	1.372E+05	1.604E+05	1.827E+05	1.946E+05	1.938E+05

MEV/SEC	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
5.787E+02	7.733E+12	1.989E+03	2.134E+03	2.480E+03	2.811E+03	2.985E+03	2.965E+03	

18 GROUP SPECIFIC ENERGY RELEASE RATES, MEV/MATT-SEC
 BASIS=Triga fuel element: Al clad (Row C) + prior irradiation

ELEM	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
1.500E-02	1.384E-01	1.243E+07	4.921E-01	5.458E-01	6.405E-01	7.315E-01	7.801E-01	7.781E-01
2.500E-02	6.257E-03	4.355E+06	1.260E-02	1.257E-02	1.253E-02	1.245E-02	1.232E-02	1.133E-02
3.750E-02	3.927E-03	4.316E+06	7.912E-03	7.891E-03	7.848E-03	7.783E-03	7.673E-03	6.949E-03
5.750E-02	4.368E-03	9.663E+06	8.823E-03	8.779E-03	8.693E-03	8.568E-03	8.373E-03	7.481E-03
8.500E-02	1.161E-03	8.842E+06	2.375E-03	2.340E-03	2.269E-03	2.168E-03	2.034E-03	1.790E-03
1.250E-01	2.598E-04	8.685E+06	5.592E-04	5.270E-04	4.611E-04	3.681E-04	2.512E-04	1.926E-04
2.250E-01	3.672E-04	2.415E+07	8.340E-04	7.551E-04	5.951E-04	3.697E-04	8.867E-05	2.151E-08
3.750E-01	2.700E-04	2.134E+07	6.116E-04	5.360E-04	4.382E-04	2.722E-04	6.527E-05	6.979E-11
5.750E-01	2.179E-04	3.384E+08	4.228E-04	3.480E-04	2.351E-04	2.194E-04	5.239E-05	2.635E-14
8.500E-01	2.343E-03	5.905E+06	1.191E-02	9.948E-03	7.867E-03	4.180E-03	2.616E-03	3.802E-06
1.250E-00	5.840E-01	1.085E+09	1.199E-01	1.089E-01	8.584E-02	5.332E-02	1.270E-02	3.355E-10
2.250E-00	7.505E-10	8.714E+04	1.700E-09	1.545E-09	1.218E-09	7.547E-10	1.814E-10	9.022E-20
3.750E-00	0.000E+00	1.143E+06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
5.750E+00	0.000E+00	1.274E+04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
8.500E+00	0.000E+00	1.867E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
1.250E+01	0.000E+00	5.823E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2.250E+01	0.000E+00	9.381E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTAL	1.573E-01	2.101E+09	5.406E-01	5.800E-01	6.740E-01	7.639E-01	8.110E-01	8.058E-01
GAM POW	9.277E-11	1.240E+00	3.189E-10	3.421E-10	3.976E-10	4.506E-10	4.784E-10	4.753E-10

OUTPUT UNIT = 6						PAGE 71
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 1,PHOTONS/SEC MEAN ENERGY= 0.013MEV					
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 2,PHOTONS/SEC MEAN ENERGY= 0.025MEV					
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 3,PHOTONS/SEC MEAN ENERGY= 0.038MEV					
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 4,PHOTONS/SEC MEAN ENERGY= 0.058MEV					
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 5,PHOTONS/SEC MEAN ENERGY= 0.085MEV					
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 6,PHOTONS/SEC MEAN ENERGY= 0.125MEV					
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 7,PHOTONS/SEC MEAN ENERGY= 0.225MEV					
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 8,PHOTONS/SEC MEAN ENERGY= 0.375MEV					
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR	

PAGE 72

OUTPUT UNIT = 6

PRINCIPAL PHOTON SOURCES IN GROUP 9,PHOTONS/SEC MEAN ENERGY= 0.375MEV						
NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR 100.0YR 1000.0YR
PRINCIPAL PHOTON SOURCES IN GROUP 10,PHOTONS/SEC MEAN ENERGY= 0.850MEV						
NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR 100.0YR 1000.0YR
PRINCIPAL PHOTON SOURCES IN GROUP 11,PHOTONS/SEC MEAN ENERGY= 1.250MEV						
NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR 100.0YR 1000.0YR
PRINCIPAL PHOTON SOURCES IN GROUP 12,PHOTONS/SEC MEAN ENERGY= 1.750MEV						
NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR 100.0YR 1000.0YR
PRINCIPAL PHOTON SOURCES IN GROUP 13,PHOTONS/SEC MEAN ENERGY= 2.250MEV						
NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR 100.0YR 1000.0YR
PRINCIPAL PHOTON SOURCES IN GROUP 14,PHOTONS/SEC MEAN ENERGY= 2.750MEV						
NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR 100.0YR 1000.0YR
PRINCIPAL PHOTON SOURCES IN GROUP 15,PHOTONS/SEC MEAN ENERGY= 3.500MEV						
NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR 100.0YR 1000.0YR
PRINCIPAL PHOTON SOURCES IN GROUP 16,PHOTONS/SEC MEAN ENERGY= 5.000MEV						
NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR 100.0YR 1000.0YR

PAGE 73

OUTPUT UNIT = 6

PRINCIPAL PHOTON SOURCES IN GROUP 17,PHOTONS/SEC
MEAN ENERGY= 7.000MEV

NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR

PRINCIPAL PHOTON SOURCES IN GROUP 18,PHOTONS/SEC
MEAN ENERGY=11.000MEV

NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR

PAGE 74

PHOTON SPECTRUM FOR ACTINES + DAUGHTERS

OUTPUT UNIT = 6

Origen2 Triga fuel characterization
 POWER= 0.00 MW, BURNUP= 0. MWD, FLUX= 2.62E+13 N/CM**2-SEC

18 GROUP PHOTON RELEASE RATES, PHOTONS/SECOND
 BASIS=Triga fuel element: Al clad (Row C) + prior irradiation

ENEAN	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
1.500E-02	2.018E-07	1.240E-13	2.714E-07	2.719E-07	2.723E-07	2.716E-07	2.670E-07	2.523E-07
2.500E-02	6.714E-05	5.539E-11	7.141E-05	7.255E-05	7.433E-05	7.635E-05	7.668E-05	7.248E+05
3.750E-02	1.540E-05	8.170E-11	1.662E-05	1.670E-05	1.683E-05	1.683E-05	1.683E-05	1.785E+05
4.750E-02	4.712E-05	2.702E-11	1.148E-06	1.314E-06	1.605E-06	1.870E-06	1.904E-06	8.210E+05
8.500E-02	7.529E-05	7.000E-12	7.691E-05	7.693E-05	7.694E-05	7.694E-05	7.711E-05	8.526E+05
1.250E-01	5.942E-05	4.518E-12	5.986E-05	5.986E-05	5.986E-05	5.987E-05	5.988E-05	6.112E+05
2.250E-01	1.707E-06	3.200E-12	1.690E-06	1.690E-06	1.690E-06	1.690E-06	1.691E-06	1.793E+06
3.750E-01	6.752E-04	3.457E-11	8.596E-04	8.606E-04	8.629E-04	8.685E-04	8.904E-04	1.714E+05
5.750E-01	2.635E-04	5.460E-10	2.936E-04	2.941E-04	2.923E-04	2.892E-04	2.884E-04	1.076E+05
8.500E-01	1.187E-04	8.044E-10	1.822E-04	1.824E-04	1.816E-04	1.800E-04	1.787E-04	3.868E+04
1.250E-01	1.682E-04	2.008E-09	1.193E-04	1.194E-04	1.198E-04	1.208E-04	1.265E-04	6.263E+04
2.250E-01	1.852E-06	2.152E-06	2.121E-03	2.134E-03	2.144E-03	2.190E-03	2.581E-03	4.278E+04
2.750E-01	1.372E-06	6.867E-06	1.039E-01	1.352E-01	2.327E-01	5.104E-01	1.999E+02	1.263E+04
3.500E-01	3.344E-02	1.634E-03	2.729E-03	2.752E-03	2.534E-03	2.094E-03	1.177E-03	2.208E-02
5.000E+00	1.407E-01	6.416E-01	4.875E-01	4.975E-01	4.889E-01	4.692E-01	4.489E-01	1.893E-01
7.000E+00	1.572E-02	2.615E-01	2.120E-02	2.119E-02	2.114E-02	2.111E-02	2.098E-02	2.022E-02
1.100E+01	1.781E-03	3.339E-03	2.392E-03	2.391E-03	2.388E-03	2.382E-03	2.368E-03	2.282E-03
TOTAL	2.465E-07	2.859E-13	3.238E-07	3.260E-07	3.295E-07	3.317E-07	3.275E-07	3.065E-07
MEV/SEC	9.443E+05	2.276E-12	1.109E-06	1.119E-06	1.136E-06	1.150E-06	1.146E-06	1.344E+06

18 GROUP SPECIFIC ENERGY RELEASE RATES, MEV/WATT-SEC
 BASIS=Triga fuel element: Al clad (Row C) + prior irradiation

ENEAN	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
1.500E-02	8.224E-01	5.136E-07	1.106E-02	1.108E-02	1.110E-02	1.107E-02	1.088E-02	1.028E+02
2.500E-02	4.561E+00	3.763E-06	4.851E+00	4.928E+00	5.063E+00	5.187E+00	5.209E+00	4.846E+00
3.750E-02	1.569E+00	8.326E-06	1.694E+00	1.702E+00	1.715E+00	1.724E+00	1.724E+00	1.815E+00
5.750E-02	7.363E+00	1.125E-07	1.794E+01	2.033E+01	2.033E+01	2.033E+01	2.033E+01	2.033E+01
8.500E-02	1.739E+01	1.159E-08	1.739E+01	1.739E+01	1.739E+01	1.739E+01	1.739E+01	1.739E+01
1.250E-01	2.082E+00	1.954E-08	2.082E+00	2.082E+00	2.082E+00	2.082E+00	2.082E+00	2.082E+00
2.250E-01	6.881E+00	3.522E-07	7.606E+00	8.770E+00	8.793E+00	8.850E+00	9.073E+00	1.096E+02
3.750E-01	1.119E+00	8.531E-06	4.588E+00	4.594E+00	4.594E+00	4.588E+00	4.588E+00	4.588E+00
5.750E-01	3.898E+00	1.859E-07	2.08E+00	2.133E+00	2.133E+00	2.133E+00	2.133E+00	2.133E+00
8.500E-01	4.014E+00	6.821E+05	4.052E+00	4.052E+00	4.052E+00	4.052E+00	4.052E+00	4.052E+00
1.250E+00	8.824E-01	1.023E-03	1.009E-01	1.015E-01	1.015E-01	1.015E-01	1.015E-01	1.015E-01
2.250E+00	8.386E-04	4.195E-03	6.353E-03	6.264E-03	6.264E-03	6.264E-03	6.264E-03	6.264E-03
3.500E+00	2.699E-01	1.221E+00	2.040E+00	2.057E+00	2.057E+00	2.057E+00	2.057E+00	2.057E+00
5.000E+00	3.224E-04	6.102E-04	4.637E-04	4.637E-04	4.637E-04	4.637E-04	4.637E-04	4.637E-04
7.000E+00	1.912E-04	3.553E-04	2.583E-04	2.583E-04	2.583E-04	2.583E-04	2.583E-04	2.583E-04
1.100E+01	5.325E-06	9.982E-06	7.150E-06	7.146E-06	7.146E-06	7.146E-06	7.146E-06	7.146E-06
TOTAL	2.577E+02	6.185E+08	3.012E-02	3.041E-02	3.088E-02	3.125E-02	3.113E-02	3.652E+02
GAM POW	1.520E-07	3.648E-01	1.777E-07	1.794E-07	1.822E-07	1.844E-07	1.837E-07	2.155E-07

OUTPUT UNIT = 6 PAGE 75

NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 1,PHOTONS/SEC MEAN ENERGY= 0.015MEV			
	Initial	Discharge	6.0YR 10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 2,PHOTONS/SEC MEAN ENERGY= 0.025MEV			
	Initial	Discharge	6.0YR 10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 3,PHOTONS/SEC MEAN ENERGY= 0.038MEV			
	Initial	Discharge	6.0YR 10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 4,PHOTONS/SEC MEAN ENERGY= 0.058MEV			
	Initial	Discharge	6.0YR 10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 5,PHOTONS/SEC MEAN ENERGY= 0.085MEV			
	Initial	Discharge	6.0YR 10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 6,PHOTONS/SEC MEAN ENERGY= 0.125MEV			
	Initial	Discharge	6.0YR 10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 7,PHOTONS/SEC MEAN ENERGY= 0.225MEV			
	Initial	Discharge	6.0YR 10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR	
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 8,PHOTONS/SEC MEAN ENERGY= 0.375MEV			
	Initial	Discharge	6.0YR 10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR	

PAGE 76

OUTPUT UNIT = 6

NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 9,PHOTONS/SEC MEAN ENERGY= 0.575MEV			
	Initial	Discharge	6.0YR	10.0YR
			20.0YR	40.0YR
			100.0YR	1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 10,PHOTONS/SEC MEAN ENERGY= 0.850MEV			
	Initial	Discharge	6.0YR	10.0YR
			20.0YR	40.0YR
			100.0YR	1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 11,PHOTONS/SEC MEAN ENERGY= 1.250MEV			
	Initial	Discharge	6.0YR	10.0YR
			20.0YR	40.0YR
			100.0YR	1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 12,PHOTONS/SEC MEAN ENERGY= 1.750MEV			
	Initial	Discharge	6.0YR	10.0YR
			20.0YR	40.0YR
			100.0YR	1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 13,PHOTONS/SEC MEAN ENERGY= 2.250MEV			
	Initial	Discharge	6.0YR	10.0YR
			20.0YR	40.0YR
			100.0YR	1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 14,PHOTONS/SEC MEAN ENERGY= 2.750MEV			
	Initial	Discharge	6.0YR	10.0YR
			20.0YR	40.0YR
			100.0YR	1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 15,PHOTONS/SEC MEAN ENERGY= 3.500MEV			
	Initial	Discharge	6.0YR	10.0YR
			20.0YR	40.0YR
			100.0YR	1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 16,PHOTONS/SEC MEAN ENERGY= 5.000MEV			
	Initial	Discharge	6.0YR	10.0YR
			20.0YR	40.0YR
			100.0YR	1000.0YR

OUTPUT UNIT = 6 PAGE 77

PRINCIPAL PHOTON SOURCES IN GROUP 17,PHOTONS/SEC
MEAN ENERGY= 7.000MEV

NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR

PRINCIPAL PHOTON SOURCES IN GROUP 18,PHOTONS/SEC
MEAN ENERGY=11.000MEV

NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR

OUTPUT UNIT = 6 PAGE 78

PHOTON SPECTRUM FOR FISSION PRODUCTS

Origen2 Triga fuel characterization
 POWER= 0.00 MW, BURNUP= 0. MW, FLUX= 2.62E+13 N/CM**2-SEC
 18. GROUP PHOTON RELEASE RATES, PHOTONS/SECOND
 BASIS=Triga fuel element: Al clad (Row C) + prior irradiation

EMEAN	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
1.500E-02	3.821E+10	2.329E+10	4.530E+10	3.559E+10	2.206E+10	5.310E+09	1.245E+06	
2.500E-02	8.320E+09	5.850E+13	1.167E+10	9.490E+09	7.359E+09	4.557E+09	1.096E+09	3.145E+05
3.750E-02	4.441E+09	4.826E+13	1.167E+10	9.490E+09	7.359E+09	4.557E+09	1.096E+09	3.145E+05
5.750E-02	7.270E+09	5.038E+13	1.015E+10	8.713E+09	6.813E+09	4.825E+09	1.173E+09	9.110E+04
8.500E-02	4.605E+09	3.714E+13	6.220E+09	5.249E+09	4.070E+09	2.220E+09	1.013E+09	1.372E+05
1.250E-01	3.357E+09	3.726E+13	4.310E+09	3.414E+09	2.637E+09	1.623E+09	3.881E+08	2.213E+05
2.250E-01	3.721E+09	9.178E+13	5.149E+09	4.377E+09	3.427E+09	2.124E+09	5.092E+08	2.059E+04
3.750E-01	1.869E+09	5.580E+13	2.374E+09	1.939E+09	1.484E+09	9.158E+08	2.189E+08	4.190E+05
5.750E-01	4.388E+10	9.342E+13	6.618E+10	5.978E+10	4.733E+10	2.980E+10	7.445E+09	9.303E+05
8.500E-01	3.960E+08	9.824E+13	6.181E+08	3.971E+08	2.628E+08	1.543E+08	3.556E+07	4.661E+04
1.250E-00	1.504E+08	6.503E+13	2.348E+08	1.630E+08	1.098E+08	5.805E+07	1.195E+07	1.130E+04
2.250E-00	1.452E+07	2.264E+13	1.504E+07	8.844E+06	6.490E+06	3.866E+06	9.043E+05	4.824E-01
3.750E-00	2.368E+05	5.562E+12	1.437E+05	8.545E+03	5.387E+03	8.866E-06	9.162E-09	6.747E-09
5.750E-00	2.770E+04	3.370E+12	1.644E+04	1.005E+03	1.087E+00	1.164E-06	6.747E-09	6.747E-09
7.000E+00	9.571E-10	1.619E+12	1.968E-09	2.001E-09	2.008E-09	2.009E-09	2.009E-09	2.009E-09
1.100E+01	5.752E-13	1.466E+10	1.289E-10	1.298E-10	1.303E-10	1.303E-10	1.303E-10	1.303E-10
TOTAL	1.203E+11	9.151E+14	1.711E+11	1.491E+11	1.169E+11	7.285E+10	1.781E+10	3.456E+06

MEV/SEC	2.972E+10	3.827E+14	4.416E+10	3.931E+10	3.099E+10	1.945E+10	4.834E+09	8.095E+05
18 GROUP SPECIFIC ENERGY RELEASE RATES, MEV/MATT-SEC								
BASIS=Triga fuel element: Al clad (Row C) + prior irradiation								

EMEAN	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
1.500E-02	1.557E+05	9.494E+08	2.161E+05	1.857E+05	1.451E+05	8.991E+04	2.164E+04	5.076E+00
2.500E-02	6.658E+04	3.974E+08	7.592E+04	6.447E+04	4.999E+04	3.096E+04	7.445E+03	2.136E+00
3.750E-02	8.602E+04	4.918E+08	1.189E+05	1.014E+05	7.912E+04	4.916E+04	1.198E+04	9.284E-01
5.750E-02	1.137E+05	8.782E+08	1.586E+05	1.361E+05	1.065E+05	6.594E+04	1.584E+04	2.143E+00
8.500E-02	1.004E+05	8.578E+08	1.437E+05	1.212E+05	9.401E+04	5.803E+04	1.393E+04	5.111E+00
1.250E-01	1.140E+05	1.263E+09	1.464E+05	1.160E+05	8.957E+04	5.512E+04	1.318E+04	6.382E-01
2.250E-01	2.275E+05	5.612E+09	2.148E+05	2.676E+05	2.095E+05	1.299E+05	3.113E+04	1.259E+00
3.750E-01	1.905E+05	5.686E+09	2.419E+05	1.976E+05	1.513E+05	9.332E+04	2.231E+04	4.270E+01
5.750E-01	6.857E+06	1.460E+10	1.034E+07	9.341E+06	7.395E+06	4.656E+06	1.163E+06	1.454E+02
8.500E-01	2.146E+04	2.689E+10	1.428E+03	7.122E+04	6.070E+04	3.564E+04	8.214E+03	5.077E+01
1.250E-00	2.500E+02	2.077E+10	7.157E+04	2.537E+04	3.731E+04	1.872E+04	4.058E+03	5.640E+00
2.250E-00	9.903E+02	2.077E+10	7.157E+04	2.537E+04	3.731E+04	1.872E+04	4.058E+03	5.640E+00
3.750E-00	1.903E+02	7.952E+09	1.724E+04	3.818E+03	2.982E+03	2.539E-03	6.084E-02	2.474E-04
5.750E-00	7.903E+02	4.157E+09	1.074E+02	6.384E+00	6.267E-03	6.425E-09	8.847E-12	8.847E-12
7.000E+00	2.634E+01	3.205E+09	1.564E+01	9.990E-01	1.034E-03	1.107E-09	6.147E-12	6.147E-12
8.500E+00	1.303E-12	2.646E+09	2.698E-12	2.719E-12	2.729E-12	2.729E-12	2.729E-12	2.729E-12
1.000E+01	1.184E-13	2.789E+07	2.451E-13	2.470E-13	2.479E-13	2.479E-13	2.479E-13	2.479E-13
1.100E+01	1.176E-14	8.639E+07	2.436E-14	2.454E-14	2.463E-14	2.464E-14	2.464E-14	2.464E-14
TOTAL	8.076E+06	1.040E+11	1.200E+07	1.068E+07	8.421E+06	5.286E+06	1.313E+06	2.200E-02
GAM POW	4.764E-03	6.135E+01	7.078E-03	6.302E-03	4.968E-03	3.118E-03	7.748E-04	1.298E-07

PAGE 79

OUTPUT UNIT = 6

NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 1, PHOTONS/SEC MEAN ENERGY= 0.015MEV			
	Initial	Discharge	6.0YR	10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 2, PHOTONS/SEC MEAN ENERGY= 0.025MEV			
	Initial	Discharge	6.0YR	10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 3, PHOTONS/SEC MEAN ENERGY= 0.038MEV			
	Initial	Discharge	6.0YR	10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 4, PHOTONS/SEC MEAN ENERGY= 0.058MEV			
	Initial	Discharge	6.0YR	10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 5, PHOTONS/SEC MEAN ENERGY= 0.085MEV			
	Initial	Discharge	6.0YR	10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 6, PHOTONS/SEC MEAN ENERGY= 0.125MEV			
	Initial	Discharge	6.0YR	10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 7, PHOTONS/SEC MEAN ENERGY= 0.225MEV			
	Initial	Discharge	6.0YR	10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 8, PHOTONS/SEC MEAN ENERGY= 0.375MEV			
	Initial	Discharge	6.0YR	10.0YR 20.0YR 40.0YR 100.0YR 1000.0YR

OUTPUT UNIT = 6					PAGE 80
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 9,PHOTONS/SEC MEAN ENERGY= 0.575MEV				
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 10,PHOTONS/SEC MEAN ENERGY= 0.850MEV				
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 11,PHOTONS/SEC MEAN ENERGY= 1.250MEV				
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 12,PHOTONS/SEC MEAN ENERGY= 1.750MEV				
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 13,PHOTONS/SEC MEAN ENERGY= 2.250MEV				
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 14,PHOTONS/SEC MEAN ENERGY= 2.750MEV				
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 15,PHOTONS/SEC MEAN ENERGY= 3.500MEV				
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 16,PHOTONS/SEC MEAN ENERGY= 5.000MEV				
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR
NUCLIDE	PRINCIPAL PHOTON SOURCES IN GROUP 16,PHOTONS/SEC MEAN ENERGY= 5.000MEV				
	Initial	Discharge	6.0YR	10.0YR	20.0YR 40.0YR 100.0YR 1000.0YR

PAGE 81

OUTPUT UNIT = 6

PRINCIPAL PHOTON SOURCES IN GROUP 17,PHOTONS/SEC
MEAN ENERGY= 7.000MEV

NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR

PRINCIPAL PHOTON SOURCES IN GROUP 18,PHOTONS/SEC
MEAN ENERGY=11.000MEV

NUCLIDE	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR

This page intentionally left blank.

6

VERSION

11

HIERARCHICAL, AND IS ORGANIZED AS FOLLOWS:

LISTING OF ORIGIN2 DATA LIBRARIES (IF SPECIFIED)

•

PRODUCTS

120000

ACTS

FISSION PRODUCTS		CROSS SECTION/FISSION	PRODUCT YIELD LIBRARY
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

CROSS SECTION/FISSION PRODUCT YIELD LIBRARY
ACTIVATION PRODUCTS ACTINIDES AND FISSION PRODUCTS

ACTIVATION PRODUCTS,
CUSTOM LITERARY

PHOTON LIBRARY

ACTIVATION PRODUCTS,

OUTPUT 1

REACTIVITY AND BURNUP DATA

ACTIVATION PRODUCT TABLES

GRAM TABLES (NUCLIDE, ELEMENT, NUCLIDE SUMMARY, ELEMENT SUMMARY)

CURIE TABLES (NUCLIDE, ELEMENT, NUCLIDE SUMMARY, ELEMENT SUMMARY)

ETC. (DEPENDING ON THE OUTPUT OPTIONS SPECIFIED. MANY OF THESE TABLES MAY BE OMITTED

ACTINIDE TABLES

ACTIVATE TABLES
SAME SUBHEADINGS POSSIBLE AS UNDER ACTIVATION PRODUCT TABLES

SAME SUBHEADINGS POSSIBLE AS UNDER ACTIVATION PRODUCT TABLES
 FISSION PRODUCT TABLES

FISSION PRODUCT TABLES
SAME SUBHEADINGS POSSIBLE AS UNDER ACTIVATION PRODUCT TABLES

SAME SUBHEADINGS POSSIBLE AS UNDER ACTIVATION PRODUCT TABLES

NEUTRON PRODUCTION RATE TABLES: (ALPHA,N) AND SPONTANEOUS FISSION
QUOTIENT TABLES

PHOTON TABLES

ACTIVATION PRODUCTS (SUMMATION AND PRINCIPAL CONT

ACTINIDES (SUMMATION AND PRINCIPAL CONTRIBUTORS)

FISSION PRODUCTS (SUMMATION AND PRINCIPAL CONTRIBUTORS)

OUTPUT 2

SAME GENERAL CONTENT AND ORDER AS OUTPUT 1

Table 1

OUTPUT N

OUTPUT N
SAME GENERAL CONTENT AND ORDER AS OUTPUT 1

SAME GENERAL CONTENT AND ORDER AS OUTPUT 1

TABLE OF CONTENTS (UNIT 12) FOR THE ABOVE (UNIT 6) OUTPUT

VARIABLE CROSS SECTION INFORMATION OUTPUT (UNIT 16)

DEBUGGING AND OTHER INTERNAL INFORMATION OUTPUT (UNIT 15)

THE SCENARIO LISTED ABOVE CONSTITUTES A TYPICAL ORIGIN2 OUTPUT FOR MANY CASES. ONE POSSIBLE MODIFICATION IS THE USE OF AN

LISTING OF INPUT DATA ON UNIT = 5

INPUT UNIT	WRITE UNIT	CARD NUMBER	CARD IMAGE
5	5	1	-1
5	5	2	-1
5	5	3	-1
5	5	4	BAS
5	5	5	TIT
5	5	6	RDA
5	5	7	LIP
5	5	8	RDA
5	5	9	L18
5	5	10	RDA
5	5	11	RDA
5	5	12	RDA
5	5	13	INP
5	5	14	RDA
5	5	15	INP
5	5	16	RDA
5	5	17	INP
5	5	18	RDA
5	5	19	INP
5	5	20	RDA
5	5	21	INP
5	5	22	RDA
5	5	23	RDA
5	5	24	MOV
5	5	25	RDA
5	5	26	ADD
5	5	27	RDA
5	5	28	ADD
5	5	29	RDA
5	5	30	RDA
5	5	31	RDA
5	5	32	IRP
5	5	33	IRP
5	5	34	DEC
5	5	35	BUP
5	5	36	MOV
5	5	37	RDA
5	5	38	RDA
5	5	39	BUP
5	5	40	IRP
5	5	41	DEC
5	5	42	IRP
5	5	43	DEC
5	5	44	IRP
5	5	45	BUP
5	5	46	MOV
5	5	47	RDA
5	5	48	RDA
5	5	49	RDA

Triga fuel element: Al clad (Row D) + prior irradiation
 Origen2 Triga fuel characterization
 0 0 0
 Read non-standard data from Unit 3 for C14.
 0 1 2 3 204 205 206 9 3 -2 1 1
 101 102 103 10
 /* Fuel for one SS-clad element */
 -1 1 1 -1 1 1
 /* Fuel for one Al-clad element */
 -2 1 -1 -1 1 1
 /* 1 kg of 304 SS cladding */
 -3 1 -1 -1 1 1
 /* 1 kg of Al cladding */
 -4 1 -1 -1 1 1
 /* 1 cc air (N2 + O2) */
 -5 1 -1 -1 1 1
 Initialize vector with Fuel
 -2 1 0 1.0
 Add cladding
 -4 1 0 0.163 Add 0.163 kg of Al cladding
 Add 28 cc of air
 -5 1 0 28.0
 Prior irradiation equal to NRF irradiation.
 years MW
 0.315 0.00325 1 2 5 2
 7.0 2 3 5 0
 3 1 0 1.0
 Standard Full Power NRF irradiation
 years MW
 0.105 0.00325 1 2 5 1 /* Reset time */
 6.0 2 3 5 0
 6.105 0.00325 3 4 5 0
 12.895 4 5 5 0
 13.0 0.00325 5 6 5 0
 6 2 0 1.0 /* Move discharge to vector 2 */
 /* Start decay section */
 years

PAGE 4

LISTING OF INPUT DATA ON UNIT = 5

CARD NUMBER		CARD IMAGE												OUTPUT UNIT = 6PAGE 5
5	50	DEC	6.0	2 3 5 1	/* Reset time */									
5	50	51	DEC	10.0	3 4 5 0									
5	50	52	DEC	20.0	4 5 5 0									
5	50	53	DEC	40.0	5 6 5 0									
5	50	54	DEC	100.0	6 7 5 0									
5	50	55	DEC	1000.0	7 8 5 0									
5	50	56	RDA	5	1.0E-10	7	1.0E-10	9	1.0E-10	27	1.0E+1	-1		
5	50	57	CUT											
5	50	58	RDA	Output grams, curies, decay heat										
5	50	59	OPTL	8 8 8 8	7 7 7 7	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8		
5	50	60	OPTA	8 8 8 8	7 7 7 7	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8		
5	50	61	OPTF	8 8 8 8	7 7 7 7	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8		
5	50	62	HED	1 Initial										
5	50	63	HED	2 Discharge										
5	50	64	CUT	8	1	-1	0							
5	50	65	STP	4										
5	50	66	2	922350	38.0	922380	153.9	922340	0.38	922360	0.38	Fuel (SS)		
5	50	67	4	010000	35.7	400000	2030.5	0	0.0	Fuel (SS)				
5	50	68	0											
5	50	69	2	922350	37.0	922380	149.9	922340	0.37	922360	0.37	Fuel (AL)		
5	50	70	4	010000	23.4	400000	2125.9	0	0.0	Fuel (AL)				
5	50	71	0											
5	50	72	4	260000	648.5	240000	200.0	280000	120.0	250000	20.0	SS-304		
5	50	73	4	060000	0.8	150000	0.4	160000	0.3	140000	10.0	SS-304		
5	50	74	0											
5	50	75	4	130000	1000.0	0	0.0	Aluminum						
5	50	76	0											
5	50	77	4	070000	9.8E-4	080000	3.0E-4	0	0.0	Air (1cc)				
5	50	78	0											
5	50	79	END											

OUTPUT UNIT = 6PAGE 5

NEUTRON YIELD PER NEUTRON-INDUCED FISSION

NUCLIDE	YIELD	NUCLIDE	YIELD	NUCLIDE	YIELD	NUCLIDE	YIELD	NUCLIDE	YIELD	NUCLIDE	YIELD	NUCLIDE	YIELD
832090	0.0000	882230	0.0000	882260	0.0000	882280	0.0000	892270	0.0000	902270	0.0000		
902280	0.0000	902290	2.0490	902300	0.0000	902320	2.4180	902330	0.0000	902340	0.0000		
912310	0.0000	912320	0.0000	912330	2.6630	912341	0.0000	912340	0.0000	922300	0.0000		
922310	0.0000	922320	0.0000	922330	2.4990	922340	2.4310	922350	2.4210	922360	2.7340		
922370	0.0000	922380	2.8010	922390	0.0000	922400	0.0000	932360	0.0000	932370	3.0050		
932380	0.0000	932390	0.0000	942360	2.8700	942370	0.0000	942380	2.8330	942390	2.8750		
942400	3.1350	942410	2.9340	942420	3.2800	942430	0.0000	952410	3.2770	952421	3.1620		
952420	3.3600	952430	3.7320	952441	0.0000	952440	0.0000	962420	3.7460	962430	3.4340		
962440	3.7250	962450	3.8320	962460	3.8580	962470	3.5920	962480	3.7960	962490	0.0000		
972490	3.7600	982490	4.0620	982500	3.9700	982510	4.1400	982520	4.1260	982530	4.1500		
982540	0.0000	992530	0.0000	992541	0.0000	992540	0.0000	0	0.0000	0	0.0000		

PAGE 6

OUTPUT UNIT = 6

SPONTANEOUS FISSION NEUTRON YIELD, NEUT/FISSION

NUCLIDE	1.6950	NUCLIDE	1.6500	NUCLIDE	1.8720	NUCLIDE	2.0000	NUCLIDE	2.0480	NUCLIDE	1.7900
922350	1.7830	922370	1.8730	922380	1.9630	922390	2.0530	942360	2.2200	932361	1.8860
922360	2.2800	942380	2.2400	942400	2.1600	942410	2.2500	942420	2.1500	942370	1.8860
942380	2.3100	952400	2.2900	952410	2.3830	952420	2.4750	952421	2.5900	942430	2.4300
952400	2.3100	962410	2.6650	962410	2.5000	962420	2.5900	962430	2.6870	952430	2.5200
962410	2.3100	962420	3.0000	962430	3.3200	962440	3.5600	972490	3.7200	962440	2.7600
962450	2.8770	962460	3.0000	962480	3.3200	962500	3.5600	972540	4.0400	982490	3.4400
982500	3.5600	982520	3.7230	982540	3.9000	992530	5.9200			992550	4.1600

THE REMAINING NEUTRON YIELDS ARE CALCULATED FROM THE EQUATION: NEUT/FISS=(2.84+0.1225*(AT WT-244))

OUTPUT UNIT = 6

INDIVIDUAL ELEMENT FRACTIONAL RECOVERIES

[illegible]

PAGE 8

OUTPUT UNIT = 6

INDIVIDUAL ELEMENT FRACTIONAL RECOVERIES

[illegible]

OUTPUT UNIT = 6											
PAGE 9											
GROUP FRACTIONAL RECOVERIES											
GROUP	SET NUMBER	SET NUMBER	SET NUMBER	SET NUMBER	SET NUMBER	SET NUMBER	SET NUMBER	SET NUMBER	SET NUMBER	SET NUMBER	SET NUMBER
1	0.0000000	1.0000000	0.0005000	0.0000000	1.0000000	1.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
2	0.0000000	1.0000000	0.0005000	0.0000000	1.0000000	1.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
3	0.0000000	1.0000000	0.0005000	0.0000000	1.0000000	1.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
4	0.9950000	1.0000000	0.0005000	0.0000000	1.0000000	0.2000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
5	0.0000000	1.0000000	0.0005000	0.0000000	1.0000000	0.0500000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
6	0.9950000	1.0000000	0.0005000	0.0000000	1.0000000	0.0200000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
7	0.0000000	1.0000000	0.0005000	0.0000000	1.0000000	0.0010000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
8	0.0000000	1.0000000	0.0005000	0.0000000	1.0000000	0.0010000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
9	0.0000000	1.0000000	0.0005000	0.0000000	1.0000000	0.0010000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
10	0.0000000	1.0000000	0.0005000	0.0000000	1.0000000	0.0010000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
11	0.0000000	1.0000000	0.0005000	0.0000000	1.0000000	0.0010000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
12	0.0000000	0.0010000	0.0005000	0.0000000	1.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
13	0.0000000	0.0000000	0.0005000	0.0000000	1.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
14	0.0000000	0.0000000	0.0005000	0.0000000	1.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
15	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
16	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
17	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
18	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
19	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
20	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

PAGE 10

OUTPUT UNIT = 6

ELEMENT ASSIGNMENTS TO FRACTIONAL RECOVERY GROUPS

[illegible]

PAGE 11

OUTPUT UNIT = 6

CHEMICAL TOXICITIES, GRAMS PER M**3 WATER.

NUCLIDE	TOXICITY	NUCLIDE	TOXICITY	NUCLIDE	TOXICITY	NUCLIDE	TOXICITY	NUCLIDE	TOXICITY	NUCLIDE	TOXICITY	NUCLIDE	TOXICITY	NUCLIDE	TOXICITY
1	3.50E-03	2	2.00E-01	3	5.00E+00	4	1.00E+00	5	1.00E+00	6	4.00E+02	7	1.00E+01	8	9.45E+05
13	1.00E-02	14	5.00E+00	15	1.00E-02	16	5.00E+00	17	1.00E+01	18	1.00E+01	19	1.00E+03	20	3.00E+01
25	1.00E+03	26	3.00E+02	27	5.00E-01	28	1.00E-01	29	1.00E-01	30	2.00E-02	31	2.00E-01	32	1.00E-01
37	1.00E-01	38	1.00E+01	39	1.00E-02	40	1.00E+00	41	2.00E-02	42	5.00E+01	43	5.00E+02	44	1.00E+01
49	2.00E-02	50	5.00E-02	51	5.00E-02	52	5.00E-02	53	1.00E-01	54	1.00E-02	55	5.00E+00	56	2.00E+02
61	1.00E+00	62	2.00E-01	63	2.00E+01	64	2.00E-01	65	5.00E-01	66	1.00E+00	67	1.00E+00	68	1.00E+01
73	1.00E+00	74	1.00E+02	75	1.00E+01	76	1.00E+00	77	8.00E-01	78	3.00E-01	79	2.00E-02	80	2.00E-03
85	1.00E+01	86	5.00E+02	87	5.00E+00	88	1.00E-03	89	2.00E-02	90	5.00E-04	91	5.00E-03	92	5.00E-01
97	5.00E-03	98	1.00E-02	99	1.00E-02	94	8.00E-04	95	4.00E-02	96	5.00E-01				

OUTPUT UNIT = 6

```

1 0 BAS *BAS
2 0 TIT *TIT
3 0 RDA *RDA
4 0 LIP *LIP
5 0 RDA *RDA
6 0 L18 *L18
7 0 PHO *PHO
8 0 RDA *RDA
9 0 RDA *RDA
10 0 IMP *IMP
11 0 RDA *RDA
12 0 IMP *IMP
13 0 RDA *RDA
14 0 IMP *IMP
15 0 RDA *RDA
16 0 IMP *IMP
17 0 RDA *RDA
18 0 IMP *IMP
19 0 RDA *RDA
20 0 RDA *RDA
21 0 MOV *MOV
22 0 RDA *RDA
23 0 ADD *ADD
24 0 RDA *RDA
25 0 ADD *ADD
26 0 RDA *RDA
27 0 RDA *RDA
28 0 RDA *RDA
29 0 BUP *BUP
30 0 IRP *IRP
31 0 DEC *DEC
32 0 RDA *RDA
33 0 MOV *MOV
34 0 RDA *RDA
35 0 RDA *RDA
36 0 BUP *BUP
37 0 IRP *IRP
38 0 DEC *DEC
39 0 IRP *IRP
40 0 DEC *DEC
41 0 IRP *IRP
42 0 BUP *BUP
43 0 MOV *MOV
44 0 RDA *RDA
45 0 RDA *RDA
46 0 RDA *RDA
47 0 DEC *DEC
48 0 DEC *DEC
49 0 DEC *DEC

Triga fuel element: Al clad (ROW D) + Prior irradiation
Origen2 Triga fuel characterization
0 0 0
Read non-standard data from Unit 3 for C14.
0 1 2 3 204 205 206 9 3 -2 1 1
101 102 103 10

/* Fuel for one SS-clad element */
-1 -1 -1 -1 1 1
/* Fuel for one Al-clad element */
-2 -1 -1 -1 1 1
/* 1 kg of 30% SS cladding */
-3 1 -1 -1 1 1
/* 1 kg of Al cladding */
-4 1 -1 -1 1 1
/* 1 cc air (N2 + O2) */
-5 1 -1 -1 1 1

Initialize vector with Fuel
-2 1 0 1.0
Add cladding
-4 1 0 0.163 Add 0.163 kg of Al cladding
Add 28 cc of air
-5 1 0 28.0

Prior irradiation equal to NRF irradiation.
years MW
0.315 0.00325 1 2 5 2
7.0 2 5 0

Standard Full Power NRF Irradiation
years MW
3 1 0 1.0
Standard Full Power NRF Irradiation
years MW
0.105 0.00325 1 2 5 1 /* Reset time */
6.0 2 3 5 0
6.105 0.00325 3 4 5 0
12.895 4 5 5 0
13.0 0.00325 5 6 5 0

6 2 0 1.0 /* Move discharge to vector 2 */

/* Start decay section */
years
6.0 2 3 5 1 /* Reset time */
6.0 3 4 5 0
20.0 4 5 5 0

```

PAGE 13

OUTPUT UNIT = 6

50	0 DEC	*DEC	40.0	5 6 5 0		*
51	0 DEC	*DEC	100.0	6 7 5 0		*
52	0 DEC	*DEC	1000.0	7 8 5 0		*
53	0 RDA	*RDA				*
54	0 CUT	*CUT				*
55	5 1.0E-10	7 1.0E-10	9 1.0E-10	27 1.0E+1	-1	*
56	0 RDA	*RDA				*
57	0 OPTL	*OPTL				*
58	0 OPTA	*OPTA				*
59	0 OPTF	*OPTF				*
60	0 HED	*HED				*
61	0 HED	*HED				*
62	0 STP	*STP				*

ISOTOPE	0.0000E+00	0.0000E+00	2.0001E+00	2.0002E+00	2.0006E+00	2.0003E+00
SUM OF YIELDS FOR EACH FISSION ISOTOPE:						

SUM OF YIELDS FOR EACH FISSION ISOTOPE:

ISOTOPES FOR WHICH YIELDS ARE EXPLICITLY ACCOUNTED FOR: 922350 922380 942390 942410

ODD RXN; PARENT = 70150 DAUGHTER = 60140 CROSS SECTION= 1.5000E-04BARNs

ODD RXN; PARENT = 80160 DAUGHTER = 60140 CROSS SECTION= 2.0000E-08BARN

A6-97

PAGE 14

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
POWER= 3.25000E-03 MW, BURNUP= 3.73925E-01 MM, FLUX= 2.31E+13 N/CN**2-SEC

REACTIVITY AND BURNUP DATA
BASIS=Triga fuel element: Al clad (Row D) + prior irradiation

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
TIME, SEC	2.21E+08	4.10E+08	1.89E+08	3.16E+08	6.31E+08	1.26E+09	3.16E+09	3.16E+10
NEUT FLUX	0.00E+00	2.34E+13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NEUT FLUX	0.00E+00	2.34E+13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BURNUP, MM	0.00E+00	1.52E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BURNUP, MM	0.00E+00	1.52E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
K INFINITY	1.49781	1.27714	1.48999	1.48997	1.48993	1.48987	1.48975	1.48955
K INFINITY	1.49781	1.27714	1.48999	1.48997	1.48993	1.48987	1.48975	1.48955
NEUT PROD	1.07E+01	1.04E+01	1.04E+01	1.04E+01	1.04E+01	1.04E+01	1.04E+01	1.04E+01
NEUT DESTN	7.15E+00	7.13E+00	7.13E+00	7.13E+00	7.13E+00	7.13E+00	7.13E+00	7.13E+00
TOT BURNUP	3.74E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
AVG N FLUX	2.31E+13	2.33E+13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
AVG SP POW	3.25E-03	3.25E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

SIZE OF MMAX(1): MMAX= 1 #= 876 MMAX= 2 #= 432 MMAX= 3 #= 142 MMAX= 4 #= 50 MMAX= 5 #= 89 MMAX= 6 #= 54
MMAX= 7 #= 46 MMAX= 8 #= 0 MMAX= 9 #= 0 MMAX= 10 #= 0 MMAX= 11 #= 0 MMAX= 12 #= 0

THE NUMBER OF NON-ZERO TERMS IN A=6436
ILITE= 688 IACT= 129 IFP= 879 ITOT=1696
THE NUMBER OF NON-ZERO NATURAL ABUNDANCES= 437
THE NUMBER OF NON-ZERO PHOTON YIELDS= 7903
THE MAXIMUM NUMBER OF TERMS IN AP= 5370

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
 POWER= 3.25000E-03 MW, BURNUP= 3.73925E-01 MM, FLUX= 2.31E+13 N/CN*2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

		Triga fuel element: Al clad (Row D) * prior irradiation									
		Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR		
H	1	2.339E+01	2.339E+01	2.339E+01	2.339E+01	2.339E+01	2.339E+01	2.339E+01	2.339E+01	2.339E+01	2.339E+01
H	2	2.339E+03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03
HE	4	2.339E+02	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03
C	14	2.339E+07	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03	7.769E-03
C	11	1.735E+06	2.292E-04	2.292E-04	2.292E-04	2.292E-04	2.292E-04	2.292E-04	2.292E-04	2.292E-04	2.292E-04
N	14	1.735E+02	2.292E-04	2.292E-04	2.292E-04	2.292E-04	2.292E-04	2.292E-04	2.292E-04	2.292E-04	2.292E-04
N	15	2.733E-04	1.077E-04	1.077E-04	1.077E-04	1.077E-04	1.077E-04	1.077E-04	1.077E-04	1.077E-04	1.077E-04
O	16	8.377E-03	8.377E-03	8.377E-03	8.377E-03	8.377E-03	8.377E-03	8.377E-03	8.377E-03	8.377E-03	8.377E-03
O	17	3.391E-06	3.391E-06	3.391E-06	3.391E-06	3.391E-06	3.391E-06	3.391E-06	3.391E-06	3.391E-06	3.391E-06
O	18	1.927E-05	1.927E-05	1.927E-05	1.927E-05	1.927E-05	1.927E-05	1.927E-05	1.927E-05	1.927E-05	1.927E-05
MG	24	6.610E-06	1.324E-05	1.324E-05	1.324E-05	1.324E-05	1.324E-05	1.324E-05	1.324E-05	1.324E-05	1.324E-05
AL	27	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02
SI	28	8.841E-04	1.778E-03	1.778E-03	1.778E-03	1.778E-03	1.778E-03	1.778E-03	1.778E-03	1.778E-03	1.778E-03
SR	87	2.651E-07	5.328E-07	5.328E-07	5.328E-07	5.328E-07	5.328E-07	5.328E-07	5.328E-07	5.328E-07	5.328E-07
SR	88	2.423E-05	4.871E-05	4.871E-05	4.871E-05	4.871E-05	4.871E-05	4.871E-05	4.871E-05	4.871E-05	4.871E-05
SR	89	2.577E-21	4.844E-07	4.179E-20	8.160E-29	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y	89	1.842E-06	3.220E-06	3.705E-06	3.705E-06	3.705E-06	3.705E-06	3.705E-06	3.705E-06	3.705E-06	3.705E-06
Y	90	3.187E-15	2.318E-06	7.207E-15	6.553E-15	5.165E-15	3.208E-15	7.693E-16	3.826E-25	3.826E-25	3.826E-25
Y	91	7.194E-19	1.308E-06	6.958E-18	2.109E-25	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZK	90	1.079E+03	1.079E+03	1.079E+03	1.079E+03	1.079E+03	1.079E+03	1.079E+03	1.079E+03	1.079E+03	1.079E+03
ZK	91	2.373E+02	2.373E+02	2.373E+02	2.373E+02	2.373E+02	2.373E+02	2.373E+02	2.373E+02	2.373E+02	2.373E+02
ZK	92	3.663E+02	3.663E+02	3.663E+02	3.663E+02	3.663E+02	3.663E+02	3.663E+02	3.663E+02	3.663E+02	3.663E+02
ZK	93	4.618E-03	9.236E-03	9.236E-03	9.236E-03	9.236E-03	9.236E-03	9.236E-03	9.236E-03	9.236E-03	9.236E-03
ZK	94	3.189E-12	3.189E-04	2.320E-12	3.189E-04	2.320E-12	3.189E-04	2.320E-12	3.189E-04	2.320E-12	3.189E-04
ZK	95	6.257E-01	6.257E-01	6.257E-01	6.257E-01	6.257E-01	6.257E-01	6.257E-01	6.257E-01	6.257E-01	6.257E-01
ZK	97	0.000E+00	2.299E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB	93	8.833E-09	2.044E-08	3.626E-08	4.519E-08	7.685E-08	1.510E-07	3.978E-07	4.181E-06	4.181E-06	4.181E-06
NB	95	0.000E+00	8.247E-05	8.830E-14	3.783E-21	1.833E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB	97	0.000E+00	1.634E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MO	95	1.716E-03	2.891E-03	3.448E-03	3.448E-03	3.448E-03	3.448E-03	3.448E-03	3.448E-03	3.448E-03	3.448E-03
MO	96	1.371E-07	2.417E-06	2.417E-06	2.417E-06	2.417E-06	2.417E-06	2.417E-06	2.417E-06	2.417E-06	2.417E-06
MO	97	2.565E-03	5.157E-03	5.157E-03	5.157E-03	5.157E-03	5.157E-03	5.157E-03	5.157E-03	5.157E-03	5.157E-03
MO	98	2.043E-07	8.297E-07	8.297E-07	8.297E-07	8.297E-07	8.297E-07	8.297E-07	8.297E-07	8.297E-07	8.297E-07
SUMTOT		2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03
TOTAL		2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03

PAGE 16
ACTIVATION PRODUCTS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
POWER= 3.25000E+03 MW, BURNUP= 3.75925E+01 MMU, FLUX= 2.31E+13 N/CM**2- SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS									
Triga fuel element: Al clad (ROW D) + prior irradiation									
	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR	
H	2.340E+01	2.340E+01	2.340E+01	2.340E+01	2.340E+01	2.340E+01	2.340E+01	2.340E+01	
HE	2.362E-06	4.750E-06	4.750E-06	4.750E-06	4.750E-06	4.750E-06	4.750E-06	4.750E-06	
B	1.295E-07	2.604E-07	2.604E-07	2.604E-07	2.604E-07	2.604E-07	2.604E-07	2.604E-07	
C	1.140E-06	2.270E-06	2.289E-06	2.287E-06	2.287E-06	2.287E-06	2.287E-06	2.287E-06	
N	8.744E-03	8.409E-03	8.409E-03	8.409E-03	8.409E-03	8.409E-03	8.409E-03	8.409E-03	
O	6.610E-06	1.324E-05	1.329E-05	1.329E-05	1.329E-05	1.329E-05	1.329E-05	1.329E-05	
MO	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02	1.630E+02	
AL	8.841E-04	1.778E-03	1.778E-03	1.778E-03	1.778E-03	1.778E-03	1.778E-03	1.778E-03	
SI	2.449E-05	4.925E-05	4.925E-05	4.925E-05	4.925E-05	4.925E-05	4.925E-05	4.925E-05	
SR	1.842E-06	3.705E-06	3.705E-06	3.705E-06	3.705E-06	3.705E-06	3.705E-06	3.705E-06	
ZR	2.126E+03	2.126E+03	2.126E+03	2.126E+03	2.126E+03	2.126E+03	2.126E+03	2.126E+03	
Y	1.431E-08	8.437E-08	8.074E-08	8.074E-08	8.074E-08	8.074E-08	8.074E-08	8.074E-08	
NB	4.282E-03	8.027E-03	8.609E-03	8.609E-03	8.609E-03	8.609E-03	8.609E-03	8.609E-03	
MO	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	
SUMTOT	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	
TOTAL	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	

CUMULATIVE TABLE TOTALS

AP+FP	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	
ACT+FP	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
AP+ACT+FP	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	

ACTIVATION PRODUCTS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization

POWER= 3.25000E-05 MW, BURMUP= 3.73923E-01 MW, FLUX= 2.31E+13 N/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Initial	Discharge	Triga fuel elements: AL clad (Row D) * Prior irradiation			
			6.0YR	10.0YR	20.0YR	40.0YR 100.0YR 1000.0YR
H 3	7.953E-07	1.345E-06	9.607E-07	7.675E-07	4.378E-07	1.425E-07 4.910E-09 0.000E+00
C 14	5.064E-06	1.017E-05	1.017E-05	1.016E-05	1.015E-05	1.012E-05 1.005E-05 9.014E-06
C 15	0.000E+00	1.893E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
N 16	0.000E+00	1.111E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
MA 24	0.000E+00	4.574E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
MG 27	0.000E+00	2.188E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
AL 28	0.000E+00	5.246E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
SR 89	7.490E-17	1.408E-02	1.215E-15	2.372E-24	0.000E+00	0.000E+00 0.000E+00 0.000E+00
SR 90	1.734E-09	4.524E-09	3.922E-09	3.566E-09	2.810E-09	1.746E-09 4.184E-10 2.082E-19
SR 91	0.000E+00	6.623E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
SR 93	0.000E+00	2.287E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Y 90	1.735E-09	1.262E+00	3.923E-09	3.567E-09	2.811E-09	1.746E-09 4.187E-10 2.082E-19
Y 91	1.765E-14	3.210E-02	1.702E-13	5.175E-21	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Y 92	0.000E+00	7.449E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Y 93	0.000E+00	2.287E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Y 94	0.000E+00	4.739E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
Y 96	0.000E+00	3.045E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
ZR 93	1.160E-05	2.333E-05	2.333E-05	2.333E-05	2.333E-05	2.333E-05 2.332E-05 2.332E-05
ZR 95	6.851E-11	1.020E-01	4.987E-10	6.666E-17	0.000E+00	0.000E+00 0.000E+00 0.000E+00
MB 92M	0.000E+00	4.394E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
MB 94	3.65E-06	9.917E-06	1.315E-05	1.081E-05	1.74E-05	2.057E-05 2.208E-05 2.215E-05
MB 95	1.651E-16	3.324E-02	1.703E-09	1.394E-13	1.97E-13	1.92E-13 1.928E-13 1.870E-13
MB 95M	1.521E-11	3.324E-02	1.703E-09	1.440E-16	0.000E+00	0.000E+00 0.000E+00 0.000E+00
MB 95M	5.083E-13	7.162E-02	3.499E-12	4.945E-19	0.000E+00	0.000E+00 0.000E+00 0.000E+00
MB 96	0.000E+00	2.814E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
MB 97M	0.000E+00	4.394E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
MB 97M	0.000E+00	4.159E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
MO 99	0.000E+00	7.654E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00 0.000E+00 0.000E+00
TC 99	8.443E-15	6.287E-14	6.623E-14	6.623E-14	6.623E-14	6.623E-14 6.602E-14 6.602E-14
SUMTOT	2.071E-05	1.995E+02	4.760E-05	5.166E-05	5.416E-05	5.547E-05 5.448E-05
TOTAL	2.071E-05	1.995E+02	4.760E-05	5.166E-05	5.416E-05	5.547E-05 5.448E-05

PAGE 18
ACTIVATION PRODUCTS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
POWER= 3.25000E+03 MW, BURNUP= 3.73925E+01 MM, FLUX= 2.31E+13 N/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES									
		Triga fuel element: AL clad (Row D) + prior irradiation							
		Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
H		7.953E-07	1.345E-06	9.607E-07	7.675E-07	4.378E-07	1.425E-07	4.910E-09	0.000E+00
C		5.064E-06	1.036E-05	1.071E-05	1.016E-05	1.013E-05	1.012E-05	1.005E-05	9.014E-06
N		0.000E+00	1.111E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NA		0.000E+00	4.576E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MG		0.000E+00	2.188E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AL		0.000E+00	2.246E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR		1.734E-09	0.007E-02	3.922E-09	3.566E-09	2.810E-09	1.746E-09	4.186E-10	2.082E-19
X		1.735E-09	1.375E+00	3.923E-09	3.567E-09	2.811E-09	1.746E-09	4.187E-10	2.082E-19
Zr		1.160E-05	5.414E+01	2.333E-05	2.333E-05	2.333E-05	2.333E-05	2.332E-05	2.332E-05
NR		3.245E-06	8.882E+01	1.314E-05	1.481E-05	1.774E-05	2.057E-05	2.208E-05	2.215E-05
MD		0.000E+00	7.654E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC		8.443E-15	1.305E-10	6.623E-14	6.623E-14	6.623E-14	6.623E-14	6.621E-14	6.602E-14
SUMTOT		2.071E-05	1.995E+02	4.760E-05	4.907E-05	5.166E-05	5.416E-05	5.547E-05	5.448E-05
TOTAL		2.071E-05	1.995E+02	4.760E-05	4.907E-05	5.166E-05	5.416E-05	5.547E-05	5.448E-05

CUMULATIVE TABLE TOTALS

AP+FP	2.071E-05	1.995E+02	4.760E-05	4.907E-05	5.166E-05	5.416E-05	5.547E-05	5.448E-05
ACT+FP	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AP+ACT+FP	2.071E-05	1.995E+02	4.760E-05	4.907E-05	5.166E-05	5.416E-05	5.547E-05	5.448E-05

PAGE 19

ACTIVATION PRODUCTS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
POWER= 3.25000E-03 MW, BURNUP= 3.73925E-01 MMd, FLUX= 2.31E+13 N/CM**2-SEC

		9 SUMMARY TABLE: THERMAL POWER, WATTS									
		Triga fuel element: AL clad (ROW D) + prior irradiation									
		Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR		
H 3	2.678E-11	4.530E-11	3.234E-11	2.584E-11	1.474E-11	4.797E-12	1.453E-13	0.000E+00	0.000E+00		
B 12	0.000E+00	1.231E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
C 15	0.403E-09	2.223E-09	2.981E-09	2.980E-09	2.976E-09	2.969E-09	2.947E-09	2.643E-09	0.000E+00		
C 15	0.000E+00	2.223E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
N 12	0.000E+00	8.155E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
N 12	0.000E+00	8.155E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
O 19	0.000E+00	3.833E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
MA 24	0.000E+00	1.269E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
MG 27	0.000E+00	2.046E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
AL 28	0.000E+00	9.410E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
SR 89	2.589E-19	4.867E-05	4.199E-18	8.199E-27	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
SR 90	2.013E-12	5.251E-12	4.552E-12	4.138E-12	3.262E-12	2.026E-12	4.858E-13	2.416E-22	0.000E+00		
SR 91	0.000E+00	5.308E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
SR 93	0.000E+00	3.466E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
Y 90	9.614E-12	6.993E-03	2.174E-11	1.977E-11	1.558E-11	9.679E-12	2.321E-12	1.154E-21	0.000E+00		
Y 91	6.339E-17	1.153E-04	6.114E-16	1.859E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
Y 92	0.000E+00	7.498E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
Y 93	0.000E+00	1.711E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
Y 94	0.000E+00	7.896E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
Y 96	0.000E+00	6.982E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
ZR 93	1.348E-09	2.710E-09	2.710E-09	2.710E-09	2.710E-09	2.710E-09	2.710E-09	2.709E-09	0.000E+00		
ZR 95	3.470E-13	5.168E-02	2.526E-12	3.377E-19	2.206E-36	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
ZR 97	0.000E+00	2.290E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
NB 53M	5.749E-10	1.757E-09	2.529E-09	2.623E-09	3.143E-09	3.644E-09	3.913E-09	3.924E-09	0.000E+00		
NB 53M	7.792E-13	1.512E-15	1.971E-15	1.971E-15	1.970E-15	1.969E-15	1.965E-15	1.905E-15	0.000E+00		
NB 95A	7.042E-13	9.923E-02	3.310E-12	7.977E-22	3.440E-38	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
NB 95A	0.000E+00	4.483E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
NB 97	0.000E+00	2.925E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
NB 97M	0.000E+00	1.831E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
NO 99	0.000E+00	2.458E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00		
TC 99	4.224E-18	3.153E-17	3.321E-17	3.321E-17	3.321E-17	3.321E-17	3.320E-17	3.311E-17	0.000E+00		
SUMTOT	3.447E-09	1.754E+00	8.086E-09	8.363E-09	8.653E-09	9.339E-09	9.573E-09	9.277E-09	0.000E+00		
TOTAL	3.447E-09	1.754E+00	8.086E-09	8.363E-09	8.653E-09	9.339E-09	9.573E-09	9.277E-09	0.000E+00		

PAGE 20
ACTIVATION PRODUCTS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
POWER= 3.25000E-03 MW, BURNUP= 3.73925E-01 MWD, FLUX= 2.31E+13 N/CM**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS									
Triga fuel element: Al clad (Row D) + prior irradiation									
	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR	
H	2.678E-11	4.530E-11	3.234E-11	2.584E-11	1.474E-11	4.797E-12	1.653E-13	0.000E+00	
B	0.000E+00	1.251E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
C	1.485E-09	6.209E-09	2.981E-09	2.980E-09	2.978E-09	2.969E-09	2.947E-09	2.643E-09	
N	0.000E+00	4.813E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
O	0.000E+00	3.529E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
MA	0.000E+00	3.529E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
MG	0.000E+00	2.046E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
AL	0.000E+00	9.410E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
SR	2.013E-12	1.021E-04	4.552E-12	4.138E-12	3.262E-12	2.026E-12	4.858E-13	2.416E-22	
Y	9.614E-12	7.938E-03	2.174E-11	1.977E-11	1.558E-11	9.679E-12	2.321E-12	1.154E-21	
ZR	1.348E-09	2.807E-01	2.713E-09	2.710E-09	2.710E-09	2.710E-09	2.710E-09	2.709E-09	
NB	5.757E-10	4.911E-01	2.334E-09	2.623E-09	3.143E-09	3.644E-09	3.913E-09	3.924E-09	
MO	0.000E+00	2.459E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
TC	4.234E-18	1.148E-12	3.321E-17	3.321E-17	3.321E-17	3.321E-17	3.320E-17	3.311E-17	
SUMTOT	3.447E-09	1.754E+00	8.086E-09	8.363E-09	8.863E-09	9.339E-09	9.573E-09	9.277E-09	
TOTAL	3.447E-09	1.754E+00	8.086E-09	8.363E-09	8.863E-09	9.339E-09	9.573E-09	9.277E-09	
CUMULATIVE TABLE TOTALS									
AP+FP	3.447E-09	1.754E+00	8.086E-09	8.363E-09	8.863E-09	9.339E-09	9.573E-09	9.277E-09	
ACT+FP	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	
AP+ACT+FP	3.447E-09	1.754E+00	8.086E-09	8.363E-09	8.863E-09	9.339E-09	9.573E-09	9.277E-09	

PAGE 21
ACTINIDES+DAUGHTERS

OUTPUT UNIT = 6

*Origim2 Triga fuel characterization
POWER= 3.25000E+03 MW, BURNUP= 3.75925E-01 MWd, FLUX= 2.31E+13 N/CN**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS												
Triga fuel element: Al clad (Row D) + prior irradiation												
	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR				
HE 4	2.382E-07	7.941E-07	1.101E-06	1.305E-06	1.876E-06	2.835E-06	5.874E-06	5.012E-05				
P8206	9.819E-15	6.305E-13	1.755E-12	3.053E-12	9.213E-12	4.241E-11	5.216E-10	5.488E-07				
P8207	1.148E-12	2.511E-11	5.346E-11	8.053E-11	1.789E-10	5.259E-10	3.013E-09	3.315E-07				
P8210	1.973E-13	4.176E-12	8.784E-12	1.512E-11	2.906E-11	8.642E-11	5.011E-10	5.065E-08				
RA226	2.222E-10	1.804E-09	5.044E-09	1.050E-09	7.877E-09	7.615E-09	5.189E-09	2.305E-08				
AC227	7.683E-11	1.253E-09	2.035E-09	3.043E-09	4.085E-09	6.127E-09	1.225E-08	1.034E-07				
TH230	9.354E-09	2.817E-07	7.743E-07	4.305E-07	5.972E-07	9.128E-07	1.850E-06	1.606E-05				
PA232	2.484E-07	7.708E-07	9.818E-07	1.122E-06	1.470E-06	2.168E-06	4.259E-06	6.530E-05				
U233	4.750E-08	9.811E-08	1.020E-07	1.045E-07	1.109E-07	1.236E-07	1.618E-07	7.365E-07				
U234	3.683E-01	3.667E-01	3.667E-01	3.667E-01	3.666E-01	3.666E-01	3.666E-01	3.657E-01				
U235	3.653E-01	3.606E-01	3.606E-01	3.606E-01	3.606E-01	3.606E-01	3.606E-01	3.606E-01				
U236	4.563E-01	5.422E-01	5.422E-01	5.422E-01	5.422E-01	5.422E-01	5.422E-01	5.423E-01				
U237	7.070E-14	9.575E-05	4.425E-13	3.650E-13	2.255E-13	8.612E-14	4.794E-15	4.770E-26				
U238	1.499E+02	1.498E+02	1.498E+02	1.498E+02	1.498E+02	1.498E+02	1.498E+02	1.498E+02				
U239	0.000E+00	4.372E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00				
NP237	9.244E-04	1.903E-03	1.999E-03	1.999E-03	1.999E-03	2.000E-03	2.000E-03	2.018E-03				
NP238	1.433E-18	3.875E-17	1.769E-15	1.737E-15	1.660E-15	1.515E-15	1.152E-15	1.902E-17				
NP239	9.492E-18	9.183E-04	2.719E-16	2.718E-16	2.716E-16	2.710E-16	2.699E-16	2.477E-16				
PU238	3.009E-06	1.251E-05	1.234E-05	1.196E-05	1.105E-05	9.435E-06	5.875E-06	4.544E-09				
PU239	3.009E-02	5.823E-02	5.915E-02	5.914E-02	5.912E-02	5.909E-02	5.899E-02	5.795E-02				
PU240	2.219E-04	8.778E-04	8.772E-05	1.186E-05	7.232E-06	2.781E-06	1.548E-07	1.549E-04				
PU241	2.283E-06	1.025E-07	1.028E-07	1.028E-07	1.029E-07	1.030E-07	1.033E-07	1.042E-07				
PU242	8.730E-07	1.025E-07	1.028E-07	1.028E-07	1.029E-07	1.030E-07	1.033E-07	1.042E-07				
CM242	2.010E-14	3.902E-08	2.646E-11	1.294E-05	1.720E-05	2.107E-05	2.159E-05	5.137E-06				
SUMTOT	1.873E-02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02				
TOTAL	1.873E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02				

PAGE 22

ACTINIDES+DAUGHTERS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
 POWER= 3.25000E-03 MW, BURNUP= 3.73925E-01 MWD, FLUX= 2.31E+13 N/CM**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS									
Triga fuel element: Al clad (Row D) + prior irradiation									
Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR		
HE	2.382E-07	7.941E-07	1.101E-06	1.305E-06	1.816E-06	2.835E-06	5.874E-06	5.012E-05	
H6	2.917E-11	4.362E-10	8.888E-10	1.230E-09	2.094E-09	3.826E-09	9.873E-09	9.415E-07	
RA	1.625E-11	1.565E-09	3.046E-09	4.051E-09	7.189E-09	1.612E-08	6.392E-08	4.062E-06	
AC	7.279E-06	2.070E-05	2.493E-05	2.612E-05	4.224E-05	7.943E-05	2.080E-04	2.505E-08	
T4	2.484E-07	7.711E-07	9.819E-07	1.22E-06	1.471E-06	2.218E-06	1.544E-04	1.052E-03	
PA	1.872E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02	1.868E+02	
U	9.244E-04	2.822E-03	1.999E-03	1.999E-03	1.999E-03	2.000E-03	2.002E-03	2.018E-02	
NP	3.027E-02	5.914E-02	6.005E-02	6.004E-02	6.002E-02	5.998E-02	5.984E-02	5.827E-02	
PU	8.738E-07	5.814E-06	1.052E-05	1.295E-05	1.720E-05	2.108E-05	2.160E-05	5.137E-04	
AM	4.542E-14	3.904E-08	3.807E-11	3.294E-11	2.956E-11	2.447E-11	1.598E-11	2.463E-13	
CM	1.873E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	
SUMTOT									
TOTAL	1.873E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	
CUMULATIVE TABLE TOTALS									
AP+FP	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	2.312E+03	
ACT+FP	1.873E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	1.869E+02	
AP+ACT+FP	2.500E+03	2.499E+03	2.499E+03	2.499E+03	2.499E+03	2.499E+03	2.499E+03	2.499E+03	

OUTPUT UNIT = 6

 *origen2 Triga fuel characterization
 POWER= 3.25000E-03 MW, BURNUP= 3.73925E-01 MMW, FLUX= 2.31E+13 N/CN*2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Triga fuel element: Al clad (Row D) + prior irradiation			
	Initial	Discharge	6.0YR	10.0YR
TL207	1.216E-09	8.976E-09	1.668E-08	3.051E-08
TL208	6.379E-09	4.086E-08	6.869E-08	6.352E-08
TL209	9.230E-14	1.12E-13	5.59E-13	4.41E-12
TL210	3.297E-13	9.230E-14	1.12E-13	5.59E-13
TL211	1.507E-11	3.189E-10	6.709E-10	1.002E-09
TL212	1.220E-09	9.001E-09	6.735E-08	1.893E-08
TL213	2.332E-08	1.137E-07	1.894E-07	1.912E-07
TL214	2.197E-10	1.786E-09	3.011E-09	4.005E-09
TL215	1.507E-11	1.182E-10	6.711E-10	1.002E-09
TL216	1.220E-09	9.001E-09	1.473E-08	1.893E-08
TL217	2.332E-08	1.137E-07	1.894E-07	1.912E-07
TL218	3.297E-13	4.276E-12	5.196E-12	5.572E-12
TL219	1.507E-11	3.189E-10	6.709E-10	1.002E-09
TL220	1.220E-09	9.001E-09	1.473E-08	1.893E-08
TL221	2.332E-08	1.137E-07	1.894E-07	1.912E-07
TL222	3.297E-13	4.276E-12	5.196E-12	5.572E-12
TL223	1.507E-11	3.189E-10	6.709E-10	1.002E-09
TL224	1.220E-09	9.001E-09	1.473E-08	1.893E-08
TL225	2.332E-08	1.137E-07	1.894E-07	1.912E-07
TL226	3.297E-13	4.276E-12	5.196E-12	5.572E-12
TL227	1.507E-11	3.189E-10	6.709E-10	1.002E-09
TL228	1.220E-09	9.001E-09	1.473E-08	1.893E-08
TL229	2.332E-08	1.137E-07	1.894E-07	1.912E-07
TL230	3.297E-13	4.276E-12	5.196E-12	5.572E-12
TL231	1.507E-11	3.189E-10	6.709E-10	1.002E-09
TL232	1.220E-09	9.001E-09	1.473E-08	1.893E-08
TL233	2.332E-08	1.137E-07	1.894E-07	1.912E-07
TL234	3.297E-13	4.276E-12	5.196E-12	5.572E-12
TL235	1.507E-11	3.189E-10	6.709E-10	1.002E-09
TL236	1.220E-09	9.001E-09	1.473E-08	1.893E-08
TL237	2.332E-08	1.137E-07	1.894E-07	1.912E-07
TL238	3.297E-13	4.276E-12	5.196E-12	5.572E-12
TL239	1.507E-11	3.189E-10	6.709E-10	1.002E-09
TL240	1.220E-09	9.001E-09	1.473E-08	1.893E-08
TL241	2.332E-08	1.137E-07	1.894E-07	1.912E-07
TL242	3.297E-13	4.276E-12	5.196E-12	5.572E-12
TL243	1.507E-11	3.189E-10	6.709E-10	1.002E-09
TL244	1.220E-09	9.001E-09	1.473E-08	1.893E-08
TL245	2.332E-08	1.137E-07	1.894E-07	1.912E-07
TL246	3.297E-13	4.276E-12	5.196E-12	5.572E-12
TL247	1.507E-11	3.189E-10	6.709E-10	1.002E-09
TL248	1.220E-09	9.001E-09	1.473E-08	1.893E-08
TL249	2.332E-08	1.137E-07	1.894E-07	1.912E-07
TL250	3.297E-13	4.276E-12	5.196E-12	5.572E-12
TL251	1.507E-11	3.189E-10	6.709E-10	1.002E-09
TL252	1.220E-09	9.001E-09	1.473E-08	1.893E-08
TL253	2.332E-08	1.137E-07	1.894E-07	1.912E-07
TL254	3.297E-13	4.276E-12	5.196E-12	5.572E-12
TL255	1.507E-11	3.189E-10	6.709E-10	1.002E-09

PAGE 24

ACTINIDES+DAUGHTERS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
POWER= 3.25000E-03 MW, BURNUP= 3.73925E-01 MWD, FLUX= 2.31E+13 N/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES												
Triga fuel element: Al clad (Row D) + prior irradiation												
Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR					
U236	2.953E-05	3.509E-05	3.509E-05	3.509E-05	3.509E-05	3.509E-05	3.510E-05					
U237	1.742E-09	2.635E-05	3.509E-05	3.509E-05	3.509E-05	3.509E-05	3.509E-05					
U238	3.164E-05	2.635E-05	3.509E-05	3.509E-05	3.509E-05	3.509E-05	3.509E-05					
U239	0.000E+00	2.131E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00					
U240	1.718E-21	3.785E-05	5.402E-20	5.402E-20	5.402E-20	5.402E-20	5.402E-20					
U241	4.000E-12	5.308E-10	1.166E-11	8.888E-13	1.493E-15	4.196E-21	0.000E+00					
NP235	0.000E+00	2.412E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00					
NP236	3.323E-13	1.442E-12	1.442E-12	1.442E-12	1.442E-12	1.442E-12	1.436E-12					
NP237	6.519E-07	1.342E-06	1.410E-06	1.410E-06	1.410E-06	1.410E-06	1.423E-06					
NP238	3.715E-13	1.005E-01	4.587E-10	4.504E-10	4.303E-10	3.928E-10	2.988E-10					
NP239	2.203E-12	2.131E-02	6.310E-11	6.308E-11	6.302E-11	6.290E-11	6.255E-11					
NP240M	1.718E-21	4.215E-03	5.402E-20	5.402E-20	5.402E-20	5.402E-20	5.402E-20					
NP240	0.000E+00	1.361E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00					
Pu236	3.642E-09	3.044E-08	7.320E-09	2.768E-09	2.435E-10	2.011E-12	1.290E-13					
Pu238	5.153E-05	2.143E-04	2.113E-04	2.048E-04	1.892E-04	1.616E-04	1.006E-04					
Pu239	1.869E-03	3.621E-03	3.678E-03	3.677E-03	3.675E-03	3.668E-03	3.574E-03					
Pu240	5.048E-05	2.001E-04	2.000E-04	1.999E-04	1.997E-04	1.992E-04	1.980E-04					
Pu241	2.353E-04	1.966E-03	1.473E-03	1.215E-03	7.507E-04	2.867E-04	1.596E-05					
Pu242	2.829E-11	2.158E-10	1.688E-10	1.327E-10	3.930E-10	5.935E-10	3.947E-10					
Pu243	0.000E+00	1.151E-05	1.858E-06	1.858E-06	1.858E-06	1.858E-06	1.858E-06					
Am241	3.000E-04	1.997E-05	3.608E-05	4.442E-05	5.850E-05	7.859E-05	0.000E+00					
Am242M	7.393E-11	9.427E-08	9.173E-08	9.007E-08	8.496E-08	7.854E-08	5.945E-08					
Am242	7.393E-11	9.427E-08	9.173E-08	8.962E-08	8.503E-08	7.816E-08	5.945E-08					
Am243	2.203E-12	6.274E-11	6.310E-11	6.308E-11	6.302E-11	6.290E-11	6.255E-11					
Am244	6.646E-11	1.291E-04	8.752E-08	5.015E-10	3.935E-10	2.418E-10	5.619E-11					
Am244	4.589E-13	6.596E-10	5.528E-10	5.015E-10	3.935E-10	2.418E-10	5.619E-11					
Am244	1.330E-12	9.261E-11	7.372E-11	6.326E-11	4.314E-11	2.006E-11	2.019E-12					
SUMT01	4.852E-03	4.342E+02	8.238E-03	7.981E-03	7.515E-03	7.035E-03	6.699E-03					
TOTAL	4.852E-03	4.342E+02	8.238E-03	7.981E-03	7.515E-03	7.035E-03	6.699E-03					

PAGE 25

OUTPUT UNIT = 6

ACTINIDES+DAUGHTERS

*Origen2 Triga fuel characterization
 POMER= 3.25000E-03 MW, BURNUP= 3.75925E-01 MWD, FLUX= 2.31E+13 N/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Triga fuel element: Al clad (ROW D) + prior irradiation				
	Initial	Discharge	6.0YR	10.0YR	20.0YR
TL	9.595E-09	4.984E-08	8.283E-08	9.375E-08	1.096E-07
Pb	2.478E-08	1.268E-07	2.081E-07	2.151E-07	2.159E-07
Bi	1.011E-08	5.199E-08	1.031E-07	1.031E-07	1.031E-07
At	3.997E-13	1.999E-12	5.321E-12	5.321E-12	5.321E-12
Ac	3.297E-08	4.274E-12	5.198E-12	5.577E-12	8.483E-12
Rn	2.476E-08	1.245E-07	2.074E-07	2.141E-07	2.188E-07
Fr	1.716E-11	1.291E-10	2.082E-10	2.644E-10	8.019E-10
Ac	2.476E-08	1.245E-07	2.074E-07	2.141E-07	2.188E-07
Th	1.220E-09	1.900E-08	1.471E-08	1.891E-08	3.057E-08
Pa	1.296E-04	9.263E-04	1.291E-04	1.292E-04	1.294E-04
U	5.113E-05	1.383E-04	5.191E-05	5.192E-05	5.194E-05
Np	6.519E-07	2.209E-02	2.456E-03	2.456E-03	2.456E-03
Pu	2.206E-03	6.007E-03	5.562E-03	5.297E-03	4.816E-03
Am	3.000E-06	1.087E-03	3.626E-05	4.460E-05	5.921E-05
Cm	6.827E-11	1.291E-04	8.814E-08	7.125E-08	6.490E-08
SUMTOT	4.852E-03	4.342E+02	8.238E-03	7.981E-03	7.515E-03
TOTAL	4.852E-03	4.342E+02	8.238E-03	7.981E-03	7.515E-03

CUMULATIVE TABLE TOTALS

AP+FP	2.071E-05	1.095E+02	4.760E-05	4.907E-05	5.166E-05
ACT+FP	4.852E-03	4.342E+02	8.238E-03	7.981E-03	7.515E-03
AP+ACT+FP	4.873E-03	6.330E+02	8.286E-03	8.050E-03	7.567E-03

PAGE 26
ACTINIDES+DAUGHTERS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
POWER= 3.25000E-03 MW, BURNUP= 3.73925E-01 MWD, FLUX= 2.31E+13 N/CM^2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS

	Triga fuel element: Al clad (Row D) + prior irradiation			
	Initial	Discharge	6.0YR	20.0YR
Tl207	3.571E-12	2.636E-11	4.312E-11	8.960E-11
Tl208	3.571E-12	2.636E-11	4.312E-11	8.960E-11
Tl209	1.172E-10	1.604E-09	1.610E-09	1.229E-09
Pb209	1.831E-10	2.495E-09	2.500E-09	1.901E-09
Pb210	3.491E-15	7.380E-12	1.555E-11	3.200E-11
Pb211	3.654E-12	2.497E-11	4.413E-11	6.672E-11
Pb212	4.440E-11	2.165E-10	3.640E-10	3.351E-10
Pb213	7.007E-13	5.696E-12	9.601E-12	2.777E-11
Bi210	3.475E-14	3.371E-12	5.711E-12	5.119E-12
Bi211	4.865E-11	3.590E-10	5.874E-10	7.551E-10
Bi212	3.966E-11	1.934E-09	3.225E-09	2.993E-09
Bi213	1.366E-11	7.979E-14	2.184E-14	2.754E-14
Po210	4.832E-12	2.890E-11	3.859E-11	1.133E-11
Po211	1.537E-13	1.134E-12	1.854E-12	2.895E-12
Po212	7.918E-10	3.861E-09	6.439E-09	5.975E-09
Po213	1.632E-14	2.117E-13	2.573E-13	2.759E-13
Po214	1.020E-11	8.292E-11	1.398E-10	1.859E-10
Po215	5.444E-11	4.018E-10	6.574E-10	8.451E-10
Po216	9.547E-10	4.659E-09	7.764E-09	7.826E-09
Po217	7.965E-12	6.474E-11	1.091E-10	1.452E-10
Rn217	1.407E-14	1.822E-13	2.217E-13	2.578E-13
Rn219	3.061E-11	3.735E-10	6.110E-10	7.859E-10
Rn220	7.294E-10	4.790E-09	6.670E-09	7.458E-09
Rn221	1.272E-14	1.500E-13	2.105E-13	2.590E-13
Rn222	1.272E-14	1.500E-13	2.105E-13	2.590E-13
Rn223	4.343E-11	3.423E-10	5.271E-10	7.775E-10
Ra223	4.343E-11	3.423E-10	5.271E-10	7.775E-10
Ra224	8.004E-10	3.903E-09	6.509E-09	6.561E-09
Ra225	6.345E-12	5.153E-11	8.695E-11	1.157E-10
Ac225	1.152E-14	1.494E-13	1.815E-13	1.946E-13
Ac227	5.906E-13	3.244E-12	7.122E-12	9.152E-12
Th227	7.626E-10	3.696E-09	6.200E-09	6.244E-09
Th228	1.009E-14	1.422E-13	1.590E-13	1.705E-13
Th229	4.432E-08	4.904E-07	4.375E-08	4.375E-08
Th230	2.458E-16	7.482E-16	1.000E-15	1.167E-15
Th231	0.000E+00	3.575E-09	0.000E+00	0.000E+00
Th232	2.044E-08	2.043E-08	2.043E-08	2.043E-08
Th233	3.537E-11	1.097E-10	1.398E-10	1.597E-10
Pb233	1.408E-09	4.765E-09	3.199E-09	3.200E-09
Pb234	2.491E-07	2.491E-07	2.490E-07	2.490E-07
Pb235	8.045E-11	2.702E-10	4.409E-10	6.409E-10
U232	8.045E-11	2.702E-10	4.409E-10	6.409E-10
U233	1.332E-11	2.762E-11	5.870E-11	6.401E-11
U234	6.632E-06	2.042E-06	2.042E-06	2.042E-06
U235	8.000E-07	9.506E-07	9.506E-07	9.506E-07
U236	1.092E-11	1.479E-11	6.837E-11	5.639E-11
U237	1.092E-11	1.479E-11	6.837E-11	5.639E-11

PAGE 27
ACTINIDES+DAUGHTERS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
POWER= 3.25000E+03 MW, BURNUP= 3.75925E-01 MMd, FLUX= 2.31E+13 M/CM**2-SEC

	9 SUMMARY TABLE: THERMAL POWER, WATTS									
	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR	1000.0YR	1000.0YR
U238	1.278E-06	1.278E-06	1.278E-06	1.278E-06	1.278E-06	1.278E-06	1.278E-06	1.278E-06	1.278E-06	1.278E-06
U239	0.000E+00	3.737E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP239	1.410E-24	3.492E-08	4.461E-05	4.461E-05	4.431E-23	4.431E-23	4.431E-23	4.431E-23	4.431E-23	4.431E-23
NP237M	1.992E-08	4.103E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP237A	1.779E-15	4.817E-04	2.197E-12	2.157E-12	2.061E-12	1.881E-12	1.731E-12	1.512E-12	1.369E-12	1.239E-12
NP239	9.325E-15	5.151E-01	1.525E-13	1.525E-13	1.525E-13	1.525E-13	1.525E-13	1.525E-13	1.525E-13	1.525E-13
NP239	9.957E-24	2.442E-05	3.130E-22	3.130E-22	3.130E-22	3.130E-22	3.130E-22	3.130E-22	3.130E-22	3.130E-22
NP240M	0.000E+00	1.761E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP236	1.267E-10	1.059E-09	2.548E-10	9.633E-11	8.474E-12	7.000E-14	4.515E-15	4.491E-15	4.491E-15	4.491E-15
NP238	1.708E-06	7.102E-06	7.004E-06	6.786E-06	6.271E-06	5.355E-06	3.334E-06	2.752E-09	2.752E-09	2.752E-09
NP239	5.758E-05	1.116E-04	1.134E-04	1.133E-04	1.132E-04	1.132E-04	1.130E-04	1.102E-04	1.102E-04	1.102E-04
NP240	1.572E-06	6.230E-06	6.227E-06	6.224E-06	6.217E-06	6.204E-06	6.163E-06	5.604E-06	5.604E-06	5.604E-06
NP241	7.295E-09	6.095E-08	4.566E-08	3.766E-08	3.327E-08	8.887E-09	4.947E-10	4.929E-21	4.929E-21	4.929E-21
NP242	8.353E-13	1.564E-11	1.160E-11	1.160E-11	1.161E-11	1.162E-11	1.164E-11	1.164E-11	1.164E-11	1.164E-11
NP243	0.000E+00	5.923E-09	2.144E-29	2.144E-29	2.144E-29	2.144E-29	2.144E-29	2.144E-29	2.144E-29	2.144E-29
NP241	9.966E-08	6.618E-07	1.199E-06	1.475E-06	1.961E-06	2.403E-06	2.463E-06	5.859E-07	5.859E-07	5.859E-07
NP242M	2.935E-14	3.724E-11	3.623E-11	3.558E-11	3.599E-11	3.103E-11	2.360E-11	3.896E-13	3.896E-13	3.896E-13
NP243	8.392E-14	1.211E-06	1.036E-10	1.017E-10	9.720E-11	8.873E-11	6.749E-11	1.114E-12	1.114E-12	1.114E-12
NP242	7.081E-14	2.017E-12	2.028E-12	2.028E-12	2.026E-12	2.022E-12	2.011E-12	1.848E-12	1.848E-12	1.848E-12
NP243	2.450E-14	2.347E-11	2.028E-11	1.840E-11	1.443E-11	8.870E-12	2.062E-12	2.062E-12	2.062E-12	2.062E-12
NP244	4.652E-14	3.239E-12	2.579E-12	2.213E-12	1.509E-12	7.018E-13	7.061E-14	7.737E-29	7.737E-29	7.737E-29
SUMTOT	1.318E-04	1.104E+00	1.985E-04	1.986E-04	1.985E-04	1.979E-04	1.958E-04	1.866E-04	1.866E-04	1.866E-04
TOTAL	1.318E-04	1.104E+00	1.985E-04	1.986E-04	1.985E-04	1.979E-04	1.958E-04	1.866E-04	1.866E-04	1.866E-04

PAGE 28
ACTINIDES+DAUGHTERS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
POWER= 3.25000E-03 MW, BURNUP= 3.73925E-01 MWD, FLUX= 2.31E+13 N/CN**2-SEC

9 SUMMARY TABLE: THERMAL POWER, WATTS									
Triga fuel element: Al clad (Row D) + prior irradiation									
Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR		
TL	2.008E-10	9.879E-10	1.647E-09	1.672E-09	1.578E-09	1.397E-09	1.130E-09	4.885E-09	
PB	4.876E-11	2.479E-10	4.150E-10	4.337E-10	4.300E-10	5.015E-10	8.167E-10	1.574E-08	
BI	1.851E-09	6.077E-09	3.835E-08	4.950E-08	1.521E-08	4.766E-08	8.839E-09	1.565E-07	
AI	1.407E-14	1.820E-13	3.217E-13	3.378E-13	2.756E-13	3.705E-13	7.017E-13	1.590E-11	
RU	9.433E-10	4.750E-09	9.911E-09	8.176E-09	8.187E-09	8.433E-09	1.164E-08	2.024E-07	
FR	5.643E-14	4.893E-13	7.277E-13	8.924E-13	1.368E-12	2.395E-12	6.029E-12	7.417E-11	
RA	8.502E-10	4.275E-09	7.120E-09	7.351E-09	7.335E-09	7.497E-09	9.983E-09	1.754E-07	
AC	6.021E-13	9.050E-11	7.304E-12	9.347E-12	1.503E-11	2.814E-11	7.346E-11	8.208E-10	
TH	6.967E-08	5.301E-07	8.609E-08	8.862E-08	9.438E-08	1.060E-07	1.423E-07	7.163E-07	
PA	2.519E-07	8.162E-07	2.546E-07	2.548E-07	2.553E-07	2.563E-07	2.592E-07	3.035E-07	
U	7.047E-05	5.885E-01	7.029E-05	7.029E-05	7.029E-05	7.028E-05	7.027E-05	7.011E-05	
NP	1.992E-08	5.158E-01	4.308E-08	4.309E-08	4.309E-08	4.310E-08	4.315E-08	4.349E-08	
PU	6.087E-05	1.250E-04	1.266E-04	1.264E-04	1.258E-04	1.248E-04	1.225E-04	1.158E-04	
AM	9.966E-08	1.873E-06	1.199E-06	1.476E-06	1.961E-06	2.404E-06	2.463E-06	5.859E-07	
CM	2.513E-12	4.756E-06	3.247E-09	2.759E-09	2.625E-09	2.391E-09	1.814E-09	2.991E-11	
SUMTOT	1.318E-04	1.104E+00	1.985E-04	1.986E-04	1.985E-04	1.979E-04	1.958E-04	1.886E-04	
TOTAL	1.318E-04	1.104E+00	1.985E-04	1.986E-04	1.985E-04	1.979E-04	1.958E-04	1.886E-04	
CUMULATIVE TABLE TOTALS									
AP+FP	3.647E-09	1.754E+00	8.086E-09	8.363E-09	8.863E-09	9.339E-09	9.573E-09	9.277E-09	
ACT+FP	1.188E-04	1.104E+00	1.985E-04	1.986E-04	1.985E-04	1.979E-04	1.958E-04	1.886E-04	
AP+ACT+FP	1.318E-04	1.104E+00	1.985E-04	1.986E-04	1.985E-04	1.979E-04	1.958E-04	1.886E-04	

OUTPUT UNIT = 6

*Origin2 Triga fuel characterization
 POWER= 3.25000E-03 MW, BURNUP= 3.73925E-01 MMQ, FLUX= 2.31E+13 n/CM**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Initial	Discharge	6.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
H 3	3.769E-07	5.802E-07	4.143E-07	3.310E-07	1.888E-07	6.144E-08	2.118E-09
L 1	4.932E-09	9.770E-09	9.770E-09	9.770E-09	9.770E-09	9.770E-09	9.770E-09
L 6	1.62E-10	2.324E-10	2.324E-10	2.324E-10	2.324E-10	2.324E-10	2.324E-10
BE 9	2.24E-10	4.481E-10	4.481E-10	4.481E-10	4.481E-10	4.481E-10	4.481E-10
BE 10	1.494E-09	2.988E-09	2.988E-09	2.988E-09	2.988E-09	2.988E-09	2.988E-09
C 14	3.018E-10	6.032E-10	6.032E-10	6.032E-10	6.032E-10	6.032E-10	6.032E-10
Zn 72	0.000E+00	2.423E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GA 72	0.000E+00	7.351E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 72	9.938E-08	1.960E-07	1.991E-07	1.991E-07	1.991E-07	1.991E-07	1.991E-07
GA 73	0.000E+00	8.359E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 73	3.277E-07	6.548E-07	6.556E-07	6.556E-07	6.556E-07	6.556E-07	6.556E-07
GE 74	8.240E-07	1.649E-06	1.649E-06	1.649E-06	1.649E-06	1.649E-06	1.649E-06
GE 75	0.000E+00	1.439E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 75	1.999E-06	3.995E-06	3.997E-06	3.997E-06	3.997E-06	3.997E-06	3.997E-06
AS 76	5.849E-06	1.173E-05	1.173E-05	1.173E-05	1.173E-05	1.173E-05	1.173E-05
SE 76	7.183E-10	2.426E-09	2.457E-09	2.457E-09	2.457E-09	2.457E-09	2.457E-09
SE 77	0.000E+00	2.686E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 77M	0.000E+00	8.546E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 77	0.000E+00	2.663E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 77	1.316E-05	2.601E-05	2.630E-05	2.630E-05	2.630E-05	2.630E-05	2.630E-05
GE 78	0.000E+00	2.201E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 78	0.000E+00	2.123E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 78	2.693E-05	5.363E-05	5.387E-05	5.387E-05	5.387E-05	5.387E-05	5.387E-05
GE 79	0.000E+00	5.588E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 79	6.988E-05	1.397E-04	1.397E-04	1.397E-04	1.397E-04	1.396E-04	1.382E-04
SE 79M	0.000E+00	2.362E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BE 79	5.106E-09	1.974E-08	2.009E-08	2.009E-08	2.009E-08	2.009E-08	2.009E-08
AS 80	0.000E+00	5.098E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
GE 80	0.000E+00	3.978E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 80	1.670E-04	3.339E-04	3.339E-04	3.339E-04	3.339E-04	3.339E-04	3.339E-04
KR 80	8.183E-10	1.663E-09	1.664E-09	1.664E-09	1.664E-09	1.664E-09	1.664E-09
GE 81	0.000E+00	2.849E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 81	0.000E+00	1.275E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 81	0.000E+00	4.616E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 81M	0.000E+00	4.543E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 81	2.872E-04	5.740E-04	5.740E-04	5.740E-04	5.740E-04	5.740E-04	5.740E-04
GE 82	0.000E+00	1.227E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 82	0.000E+00	8.977E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 82M	0.000E+00	2.079E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 82	4.530E-04	9.055E-04	9.055E-04	9.055E-04	9.055E-04	9.055E-04	9.055E-04
BR 82	1.129E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 82	2.894E-07	7.875E-07	7.989E-07	7.989E-07	7.989E-07	7.989E-07	7.989E-07
AS 83	0.000E+00	1.135E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 83	0.000E+00	5.397E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 83M	0.000E+00	9.297E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 83	7.395E-04	1.473E-03	1.475E-03	1.475E-03	1.475E-03	1.475E-03	1.475E-03
KR 83M	0.000E+00	7.043E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AS 84	0.000E+00	3.728E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 84	0.000E+00	3.962E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 84	0.000E+00	3.888E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

*Origen2 Triga fuel characterization
 POWER= 3.25000E-03 MW, BURNUP= 3.73925E-01 MMd, FLUX= 2.31E+13 n/cm*2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Triga fuel element: Al clad (Row D) + prior irradiation					
	Initial	Discharge	6.0YR	10.0YR	20.0YR	100.0YR
BR 84W	0.000E+00	1.377E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 84	1.438E-03	2.877E-03	2.877E-03	2.877E-03	2.877E-03	2.877E-03
AR 85	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 85	0.000E+00	5.603E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SE 85M	0.000E+00	1.775E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 85	0.000E+00	4.403E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 85	2.447E-04	3.670E-04	2.496E-04	1.009E-04	2.770E-05	7.722E-07
KR 85M	0.000E+00	4.174E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 85	1.548E-03	3.213E-03	3.334E-03	3.391E-03	3.483E-03	3.556E-03
BR 86	0.000E+00	4.508E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 86M	0.000E+00	1.078E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 86	0.000E+00	8.899E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 86	2.865E-03	5.725E-03	5.725E-03	5.725E-03	5.725E-03	5.725E-03
BR 86	0.000E+00	5.542E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 86	1.582E-07	3.712E-07	4.266E-07	4.266E-07	4.266E-07	4.266E-07
SE 87	0.000E+00	1.143E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 87	0.000E+00	2.518E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 87	0.000E+00	2.452E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 87	3.709E-03	7.410E-03	7.412E-03	7.412E-03	7.412E-03	7.412E-03
SE 87	5.103E-09	1.030E-08	1.031E-08	1.031E-08	1.031E-08	1.031E-08
SR 87	0.000E+00	1.141E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 88	0.000E+00	8.575E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 88	0.000E+00	7.820E-06	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 88	5.300E+00	8.244E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 88	0.000E+00	1.809E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 89	0.000E+00	1.809E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR 89	0.000E+00	1.840E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 89	0.000E+00	9.287E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 89	9.845E-18	1.822E-03	1.573E-16	3.071E-25	0.000E+00	0.000E+00
Y 89	7.048E-03	1.224E-02	1.409E-02	1.409E-02	1.409E-02	1.409E-02
BR 90	0.000E+00	4.381E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 90	0.000E+00	3.196E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 90M	0.000E+00	1.564E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 90M	0.000E+00	5.483E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 90	7.239E-03	1.263E-02	1.095E-02	9.957E-03	8.875E-03	1.169E-03
Y 90	1.815E-06	3.193E-06	2.746E-06	2.497E-06	1.968E-06	1.223E-06
ZR 90	1.292E-03	4.420E-03	6.101E-03	7.096E-03	9.206E-03	1.218E-02
KR 91	0.000E+00	6.430E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 91	0.000E+00	7.120E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 91	0.000E+00	4.355E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 91M	1.319E-15	2.318E-03	1.253E-14	3.810E-22	6.134E-41	0.000E+00
ZR 91	8.807E-03	1.524E-02	1.760E-02	1.760E-02	1.760E-02	1.760E-02
KR 92	0.000E+00	6.052E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 92	0.000E+00	4.699E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 92	0.000E+00	1.280E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 92	0.000E+00	1.839E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 92	9.142E-03	1.839E-02	1.827E-02	1.827E-02	1.827E-02	1.827E-02
KR 93	0.000E+00	1.445E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR 93	0.000E+00	4.544E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR 93	0.000E+00	6.382E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y 93	0.000E+00	5.234E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
POWER= 3.25000E+03 MW, BURNUP= 3.73925E-01 MWD, FLUX= 2.31E+13 N/CM**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Initial	Triga fuel element: Al clad (ROW D) + prior irradiation			
		Discharge	6.0YR	20.0YR	100.0YR
ZR 93	9.954E-03	1.984E-02	1.990E-02	1.990E-02	1.990E-02
NB 93	5.128E-09	7.774E-08	1.722E-06	1.652E-07	3.241E-07
NB 94	7.540E-09	9.380E-08	1.124E-06	1.346E-07	1.560E-07
NB 95	1.000E-09	1.000E-09	1.000E-09	1.000E-09	1.000E-09
SR 94	0.000E+00	1.000E-07	0.000E+00	0.000E+00	0.000E+00
Y 94	0.000E+00	1.609E-06	0.000E+00	0.000E+00	0.000E+00
ZR 94	9.707E-03	1.941E-02	1.941E-02	1.941E-02	1.941E-02
SR 94	1.371E-09	2.795E-09	2.794E-09	2.793E-09	2.791E-09
SR 95	0.000E+00	3.221E-08	0.000E+00	0.000E+00	0.000E+00
Y 95	0.000E+00	9.165E-07	0.000E+00	0.000E+00	0.000E+00
ZR 95	1.874E-14	2.751E-11	1.345E-13	1.798E-20	1.175E-37
NB 95	2.866E-14	4.782E-04	1.640E-13	2.195E-20	1.062E-39
NB 95M	7.841E-18	1.095E-06	5.628E-17	7.523E-24	0.000E+00
SR 95	1.010E-02	1.695E-02	2.018E-02	2.018E-02	2.018E-02
MO 96	0.000E+00	3.473E-09	0.000E+00	0.000E+00	0.000E+00
Y 96	0.000E+00	1.908E-07	0.000E+00	0.000E+00	0.000E+00
ZR 96	1.002E-02	2.003E-02	2.003E-02	2.003E-02	2.003E-02
NB 96	0.000E+00	1.279E-08	0.000E+00	0.000E+00	0.000E+00
MO 96	1.748E-06	1.607E-05	1.608E-05	1.608E-05	1.608E-05
SR 97	0.000E+00	9.039E-11	0.000E+00	0.000E+00	0.000E+00
Y 97	0.000E+00	1.307E-09	0.000E+00	0.000E+00	0.000E+00
ZR 97	0.000E+00	8.310E-05	0.000E+00	0.000E+00	0.000E+00
NB 97	0.000E+00	5.722E-06	0.000E+00	0.000E+00	0.000E+00
NB 97M	9.120E-03	1.894E-07	1.890E-07	1.886E-07	1.882E-07
SR 98	0.000E+00	1.427E-10	0.000E+00	0.000E+00	0.000E+00
Y 98	0.000E+00	2.561E-10	0.000E+00	0.000E+00	0.000E+00
ZR 98	0.000E+00	4.218E-08	0.000E+00	0.000E+00	0.000E+00
NB 98	0.000E+00	3.839E-09	0.000E+00	0.000E+00	0.000E+00
NB 98M	0.000E+00	1.986E-08	0.000E+00	0.000E+00	0.000E+00
MO 98	9.511E-03	1.902E-02	1.902E-02	1.902E-02	1.902E-02
TC 98	6.613E-10	2.713E-09	2.713E-09	2.713E-09	2.713E-09
Y 99	0.000E+00	3.260E-09	0.000E+00	0.000E+00	0.000E+00
ZR 99	0.000E+00	1.989E-08	0.000E+00	0.000E+00	0.000E+00
NB 99	0.000E+00	5.525E-09	0.000E+00	0.000E+00	0.000E+00
NB 99M	0.000E+00	3.391E-04	0.000E+00	0.000E+00	0.000E+00
TC 99	9.842E-03	1.930E-02	1.966E-02	1.966E-02	1.966E-02
MO 99	0.000E+00	2.708E-05	0.000E+00	0.000E+00	0.000E+00
TC 99M	2.190E-07	8.472E-07	1.231E-06	1.487E-06	2.127E-06
RU 99	0.000E+00	1.621E-10	0.000E+00	0.000E+00	0.000E+00
Y100	0.000E+00	9.100E-09	0.000E+00	0.000E+00	0.000E+00
ZR100	0.000E+00	1.808E-09	0.000E+00	0.000E+00	0.000E+00
NB100M	0.000E+00	1.816E-09	0.000E+00	0.000E+00	0.000E+00
MO100	1.045E-02	2.090E-02	2.090E-02	2.090E-02	2.090E-02
TC100	1.000E-05	6.114E-05	1.000E+00	1.000E+00	1.000E+00
ZR101	0.000E+00	4.134E-05	0.000E+00	0.000E+00	0.000E+00
NB101	0.000E+00	2.792E-09	0.000E+00	0.000E+00	0.000E+00
MO101	0.000E+00	8.471E-09	0.000E+00	0.000E+00	0.000E+00
TC101	0.000E+00	1.084E-06	0.000E+00	0.000E+00	0.000E+00
TC101	0.000E+00	1.055E-06	0.000E+00	0.000E+00	0.000E+00
RU101	8.537E-03	1.707E-02	1.707E-02	1.707E-02	1.707E-02

*Origen2 Triga fuel characterization

POWER = 1.00000E+00 MW, BURNUP = 1.00000E+00 MWD, FLUX = 1.00E+00 N/CM**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Initial	Triga fuel element: SS clad (none) + BU adjust. to meas. + Co				
		Discharge	6.0YR	10.0YR	40.0YR	100.0YR
H 1	3.005E+01	3.005E+01	3.005E+01	3.005E+01	3.005E+01	3.005E+01
H 2	9.098E-03	9.098E-03	9.098E-03	9.098E-03	9.098E-03	9.098E-03
HE 4	3.536E-07	3.536E-07	3.536E-07	3.536E-07	3.536E-07	3.536E-07
B 11	3.644E-07	3.644E-07	3.644E-07	3.644E-07	3.644E-07	3.644E-07
C 12	3.644E-07	3.644E-07	3.644E-07	3.644E-07	3.644E-07	3.644E-07
C 13	3.181E-03	3.181E-03	3.181E-03	3.181E-03	3.181E-03	3.181E-03
C 14	3.181E-03	3.181E-03	3.181E-03	3.181E-03	3.181E-03	3.181E-03
C 15	3.181E-03	3.181E-03	3.181E-03	3.181E-03	3.181E-03	3.181E-03
N 14	4.559E-01	4.559E-01	4.559E-01	4.559E-01	4.559E-01	4.559E-01
N 15	4.559E-01	4.559E-01	4.559E-01	4.559E-01	4.559E-01	4.559E-01
N 16	3.377E-03	3.377E-03	3.377E-03	3.377E-03	3.377E-03	3.377E-03
O 17	3.390E-06	3.390E-06	3.390E-06	3.390E-06	3.390E-06	3.390E-06
O 18	1.927E-05	1.927E-05	1.927E-05	1.927E-05	1.927E-05	1.927E-05
S1 28	3.041E+00	3.041E+00	3.041E+00	3.041E+00	3.041E+00	3.041E+00
S1 29	1.595E-01	1.595E-01	1.595E-01	1.595E-01	1.595E-01	1.595E-01
S1 30	1.095E-01	1.095E-01	1.095E-01	1.095E-01	1.095E-01	1.095E-01
P 31	1.324E-01	1.324E-01	1.324E-01	1.324E-01	1.324E-01	1.324E-01
S 32	9.408E-02	9.408E-02	9.408E-02	9.408E-02	9.408E-02	9.408E-02
S 33	7.660E-04	7.660E-04	7.660E-04	7.660E-04	7.660E-04	7.660E-04
S 34	4.432E-03	4.432E-03	4.432E-03	4.432E-03	4.432E-03	4.432E-03
S 35	1.894E-05	1.894E-05	1.894E-05	1.894E-05	1.894E-05	1.894E-05
T1 50	2.151E-07	2.151E-07	2.151E-07	2.151E-07	2.151E-07	2.151E-07
V 51	1.612E-04	1.612E-04	1.612E-04	1.612E-04	1.612E-04	1.612E-04
CR 50	2.766E+00	2.766E+00	2.766E+00	2.766E+00	2.766E+00	2.766E+00
CR 52	3.541E+01	3.541E+01	3.541E+01	3.541E+01	3.541E+01	3.541E+01
CR 53	6.401E-06	6.401E-06	6.401E-06	6.401E-06	6.401E-06	6.401E-06
CR 54	6.401E-06	6.401E-06	6.401E-06	6.401E-06	6.401E-06	6.401E-06
WR 55	4.620E+00	4.620E+00	4.620E+00	4.620E+00	4.620E+00	4.620E+00
FE 56	1.204E+01	1.204E+01	1.204E+01	1.204E+01	1.204E+01	1.204E+01
FE 57	1.585E-05	1.585E-05	1.585E-05	1.585E-05	1.585E-05	1.585E-05
FE 58	4.707E+00	4.707E+00	4.707E+00	4.707E+00	4.707E+00	4.707E+00
FE 59	6.458E-01	6.458E-01	6.458E-01	6.458E-01	6.458E-01	6.458E-01
CO 60	2.532E-05	2.532E-05	2.532E-05	2.532E-05	2.532E-05	2.532E-05
N1 58	2.677E-01	2.677E-01	2.677E-01	2.677E-01	2.677E-01	2.677E-01
N1 59	5.127E-04	5.127E-04	5.127E-04	5.127E-04	5.127E-04	5.127E-04
N1 60	1.059E-01	1.059E-01	1.059E-01	1.059E-01	1.059E-01	1.059E-01
N1 61	4.661E-01	4.661E-01	4.661E-01	4.661E-01	4.661E-01	4.661E-01
N1 62	1.505E+00	1.505E+00	1.505E+00	1.505E+00	1.505E+00	1.505E+00
N1 63	7.390E-05	7.390E-05	7.390E-05	7.390E-05	7.390E-05	7.390E-05
N1 64	3.937E-01	3.937E-01	3.937E-01	3.937E-01	3.937E-01	3.937E-01
CU 65	2.285E-06	2.285E-06	2.285E-06	2.285E-06	2.285E-06	2.285E-06
SR 88	2.497E-07	2.497E-07	2.497E-07	2.497E-07	2.497E-07	2.497E-07
ZK 90	8.678E-02	8.678E-02	8.678E-02	8.678E-02	8.678E-02	8.678E-02
ZK 91	2.945E-02	2.945E-02	2.945E-02	2.945E-02	2.945E-02	2.945E-02
ZK 92	2.945E-02	2.945E-02	2.945E-02	2.945E-02	2.945E-02	2.945E-02
ZK 93	6.261E-04	6.261E-04	6.261E-04	6.261E-04	6.261E-04	6.261E-04
ZK 94	3.062E-02	3.062E-02	3.062E-02	3.062E-02	3.062E-02	3.062E-02
ZK 96	5.033E+01	5.033E+01	5.033E+01	5.033E+01	5.033E+01	5.033E+01

PAGE 16
ACTIVATION PRODUCTS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
POWER= 1.00000E+00 MW, BURNUP= 1.00000E+00 MWD, FLUX= 1.00E+00 N/CM**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Initial	Discharge	Triga fuel element: SS clad (none)	+ BU adjust. to meas.	+ Co
		6.0YR	10.0YR	20.0YR	40.0YR 100.0YR 1000.0YR
NB 93	3.967E-10	1.927E-09	3.919E-09	6.348E-09	1.143E-08 2.819E-08 2.834E-07
MO 95	2.328E-04	2.328E-04	2.328E-04	2.328E-04	2.328E-04 2.328E-04 2.328E-04
MO 97	3.480E-04	3.480E-04	3.480E-04	3.480E-04	3.480E-04 3.480E-04 3.480E-04
SUMTOT	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03 2.072E+03 2.072E+03
TOTAL	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03 2.072E+03 2.072E+03

ACTIVATION PRODUCTS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization

POWER= 1.00000E+00 MW, BURNUP= 1.00000E+00 MM, FLUX= 1.00E+00 M/CN**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR
H	3.006E+01	3.006E+01	3.006E+01	3.006E+01	3.006E+01	3.006E+01	3.006E+01	3.006E+01
HE	5.930E-07	5.930E-07	5.930E-07	5.930E-07	5.930E-07	5.930E-07	5.930E-07	5.930E-07
B	3.644E-07	3.644E-07	3.644E-07	3.644E-07	3.644E-07	3.644E-07	3.644E-07	3.644E-07
C	2.649E-01	2.649E-01	2.649E-01	2.649E-01	2.649E-01	2.649E-01	2.649E-01	2.649E-01
N	8.400E-03	8.400E-03	8.400E-03	8.400E-03	8.400E-03	8.400E-03	8.400E-03	8.400E-03
O	8.400E-03	8.400E-03	8.400E-03	8.400E-03	8.400E-03	8.400E-03	8.400E-03	8.400E-03
SI	3.310E+00	3.310E+00	3.310E+00	3.310E+00	3.310E+00	3.310E+00	3.310E+00	3.310E+00
P	1.324E-01	1.324E-01	1.324E-01	1.324E-01	1.324E-01	1.324E-01	1.324E-01	1.324E-01
S	9.930E-02	9.930E-02	9.930E-02	9.930E-02	9.930E-02	9.930E-02	9.930E-02	9.930E-02
TI	2.894E-07	2.894E-07	2.894E-07	2.894E-07	2.894E-07	2.894E-07	2.894E-07	2.894E-07
V	1.621E-04	1.621E-04	1.621E-04	1.621E-04	1.621E-04	1.621E-04	1.621E-04	1.621E-04
CR	6.620E+01	6.620E+01	6.620E+01	6.620E+01	6.620E+01	6.620E+01	6.620E+01	6.620E+01
NH	6.620E+00	6.620E+00	6.620E+00	6.620E+00	6.620E+00	6.620E+00	6.620E+00	6.620E+00
FE	2.147E+02	2.147E+02	2.147E+02	2.147E+02	2.147E+02	2.147E+02	2.147E+02	2.147E+02
CO	3.310E-01	3.310E-01	3.310E-01	3.310E-01	3.310E-01	3.310E-01	3.310E-01	3.310E-01
NI	3.972E+01	3.972E+01	3.972E+01	3.972E+01	3.972E+01	3.972E+01	3.972E+01	3.972E+01
CU	6.272E-06	6.272E-06	6.272E-06	6.272E-06	6.272E-06	6.272E-06	6.272E-06	6.272E-06
SR	3.322E-06	3.322E-06	3.322E-06	3.322E-06	3.322E-06	3.322E-06	3.322E-06	3.322E-06
Y	2.499E-07	2.499E-07	2.499E-07	2.499E-07	2.499E-07	2.499E-07	2.499E-07	2.499E-07
ZR	1.710E+03	1.710E+03	1.710E+03	1.710E+03	1.710E+03	1.710E+03	1.710E+03	1.710E+03
ZR	1.979E-09	1.979E-09	1.979E-09	1.979E-09	1.979E-09	1.979E-09	1.979E-09	1.979E-09
NB	5.808E-04	5.808E-04	5.808E-04	5.808E-04	5.808E-04	5.808E-04	5.808E-04	5.808E-04
MO	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03
SUMTOT	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03
TOTAL	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03

CUMULATIVE TABLE TOTALS

AP+FP	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03
ACT+FP	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AP+ACT+FP	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03	2.072E+03

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization
 POWER= 3.25000E-03 MW, BURNUP= 3.73925E-01 MWD, FLUX= 2.31E+13 N/CM**2-SEC

5 SUMMARY TABLE: CONCENTRATIONS, GRAMS

	Triga fuel element: AL clad (Row d) + prior irradiation									
	Initial	Discharge	6.0YR	10.0YR	20.0YR	40.0YR	100.0YR	1000.0YR		
ZR102	0.000E+00	1.264E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB102	0.000E+00	2.830E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC102	0.000E+00	6.952E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC102M	0.000E+00	3.352E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC102M	0.000E+00	8.447E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH102	7.217E-03	1.447E-02	0.000E+00	1.444E-02	1.444E-02	1.444E-02	1.444E-02	1.444E-02	1.444E-02	1.444E-02
RH102	1.193E-11	1.845E-10	4.398E-11	4.917E-11	1.549E-12	1.300E-14	7.684E-21	0.000E+00	0.000E+00	0.000E+00
ZR103	0.000E+00	2.380E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB103	0.000E+00	8.485E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC103	0.000E+00	4.708E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC103	0.000E+00	3.946E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH103	4.510E-22	3.19E-03	2.120E-20	1.350E-31	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH103M	4.033E-25	1.178E-06	1.896E-23	1.207E-34	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR104	0.000E+00	8.098E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB104	0.000E+00	2.090E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC104	0.000E+00	4.498E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC104	0.000E+00	5.279E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH104	3.317E-03	6.648E-03	6.648E-03	6.648E-03	6.648E-03	6.648E-03	6.648E-03	6.648E-03	6.648E-03	6.648E-03
RH104M	0.000E+00	5.425E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD104	0.000E+00	2.418E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NB105	1.084E-05	7.912E-05	7.913E-05	7.913E-05	7.913E-05	7.913E-05	7.913E-05	7.913E-05	7.913E-05	7.913E-05
PD105	0.000E+00	1.019E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC105	0.000E+00	1.323E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC105	0.000E+00	1.300E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH105	0.000E+00	1.300E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH105M	0.000E+00	3.451E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD105	0.000E+00	1.423E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD105	1.849E-03	3.672E-03	3.711E-03	3.711E-03	3.711E-03	3.711E-03	3.711E-03	3.711E-03	3.711E-03	3.711E-03
TC106	0.000E+00	8.891E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC106	0.000E+00	4.222E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH106	7.022E-06	2.573E-04	4.154E-06	2.655E-07	2.751E-10	2.929E-16	3.534E-34	0.000E+00	0.000E+00	0.000E+00
RH106M	6.601E-12	2.777E-10	3.905E-12	2.496E-13	2.586E-16	2.753E-22	3.332E-40	0.000E+00	0.000E+00	0.000E+00
PD106	0.000E+00	4.616E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD106	7.800E-04	1.332E-03	1.585E-03	1.589E-03	1.589E-03	1.589E-03	1.589E-03	1.589E-03	1.589E-03	1.589E-03
TC107	0.000E+00	2.357E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC107	0.000E+00	1.538E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH107	0.000E+00	1.405E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH107	0.000E+00	7.261E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD107	3.686E-04	7.479E-04	7.480E-04	7.480E-04	7.480E-04	7.480E-04	7.480E-04	7.480E-04	7.480E-04	7.480E-04
PD107	2.691E-10	1.047E-09	1.526E-09	1.845E-09	2.643E-09	4.240E-09	9.029E-09	8.086E-08	0.000E+00	0.000E+00
TC108	0.000E+00	1.237E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH108	0.000E+00	7.553E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH108	0.000E+00	4.707E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD108	1.820E-04	3.718E-04	3.718E-04	3.718E-04	3.718E-04	3.718E-04	3.718E-04	3.718E-04	3.718E-04	3.718E-04
TC109	0.000E+00	4.412E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH109	0.000E+00	5.311E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RH109M	0.000E+00	3.770E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD109	0.000E+00	3.770E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD109	0.000E+00	7.220E-07	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TC109M	0.000E+00	2.086E-09	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PD109M	9.440E-05	1.926E-04	1.934E-04	1.934E-04	1.934E-04	1.934E-04	1.934E-04	1.934E-04	1.934E-04	1.934E-04
AE109										

FISSION PRODUCTS

OUTPUT UNIT = 6

*Origen2 Triga fuel characterization

POWER= 2.70000E-03 MW, BURNUP= 3.10645E-01 MMW, FLUX= 1.92E+13 N/CM**2-SEC

7 SUMMARY TABLE: RADIOACTIVITY, CURIES

	Initial	Discharge	Triga fuel element: AI clad (Row E)	20.0YR	40.0YR	100.0YR
TE135	0.000E+00	7.437E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE135	0.000E+00	1.416E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE135	0.000E+00	1.207E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE135	0.000E+00	2.566E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS135	0.000E+00	2.504E+05	2.304E-05	2.304E-05	2.304E-05	2.304E-05
CS135	0.000E+00	1.731E-05	2.504E-05	2.304E-05	2.304E-05	2.304E-05
BA135M	0.000E+00	1.18E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA135M	0.000E+00	1.18E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN136	0.000E+00	1.699E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SN136	0.000E+00	7.089E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE136	0.000E+00	6.254E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE136	0.000E+00	6.924E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE136	0.000E+00	4.380E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS136	0.000E+00	2.410E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA136M	0.000E+00	9.972E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR137	0.000E+00	5.686E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE137	0.000E+00	9.739E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE137	0.000E+00	7.364E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE137	0.000E+00	1.350E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS137	8.583E-01	1.504E+00	1.359E+00	1.194E+00	9.476E-01	5.969E-01
BA137M	8.120E-01	1.429E+00	1.239E+00	1.129E+00	8.964E-01	5.647E-01
SR138	0.000E+00	4.231E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE138	0.000E+00	2.075E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE138	0.000E+00	3.760E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE138	0.000E+00	1.406E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS138	0.000E+00	1.516E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS138M	0.000E+00	5.586E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE139	0.000E+00	3.21E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE139	0.000E+00	3.21E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE139	0.000E+00	1.679E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE139	0.000E+00	1.144E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS139	0.000E+00	1.439E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA139	0.000E+00	4.654E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE140	0.000E+00	3.160E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE140	0.000E+00	4.960E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS140	0.000E+00	7.998E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA140	0.000E+00	1.301E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA140	0.000E+00	1.225E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR140	0.000E+00	2.227E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE141	0.000E+00	2.644E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE141	0.000E+00	1.163E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE141	0.000E+00	7.202E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS141	0.000E+00	2.668E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS141	0.000E+00	9.954E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA141	0.000E+00	1.324E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE141	0.000E+00	7.378E+01	3.808E-19	0.000E+00	0.000E+00	0.000E+00
TE142	0.000E+00	4.685E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE142	0.000E+00	5.721E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS142	0.000E+00	8.110E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS142	0.000E+00	1.410E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA142	0.000E+00	1.501E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA142	0.000E+00	1.323E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00

This page intentionally left blank.