

NAI Report Release

Calculation Number: NAI-1149-026

Revision Number: 0

Title: Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Description:

This calculation reanalyzes the radiological consequences of the Cask Drop Accident presented in Section 14.11 of the Palisades FSAR using the AST methodology described in USNRC Reg. Guide 1.183.

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NAI Calculation Approval

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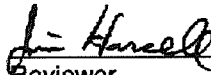
6/22/05
Date

Scope of Review:

Review included:

- A review of calculation methods was completed for consistency with plant-specific and generic regulatory requirements and guidance.
- Computer codes (RADTRAD-NAI) were checked for appropriate qualification.
- Calculation and code inputs and assumptions were verified against IAM document(s) and/or checked for reasonableness and conservatism.
- Computations were checked for correctness.
- References were verified as appropriate.
- Outputs from spreadsheets and utility programs were checked.
- Reported Results were verified against computer outputs.
- Results and conclusions were reviewed for reasonableness.
- Cases run were checked against procurement documents.

Design Verification – See Attachment 1



Reviewer
Jim Harrell

6/22/05
Date

Check items in the following lists to verify that project documentation and engineering calculations are complete. Mark any items that are not applicable with N/A notation.

Project Documentation Checklist:

- N/A
- Project QA Plan.
 - Project Organization.
 - Project Work Scope and Design Plan.
 - Project Calculation and Document Index.
 - Project QA Requirements.
 - Project Engineer Training and Qualification Forms.
 - Project QA Training Certification Forms.
 - Project Correspondence.

Engineering Calculations Checklist:

- Identification by subject, originator, reviewer, date and Project so that the calculation is retrievable.
- Table of contents.
- Statement of the objective of the analysis.
- Analysis inputs and their sources.
- Assumptions and how they were developed or determined.
- Hand calculations.
- Identification of computer calculations, including computer type, computer program name and version, code input and output.
- Conclusions.
- Review summary.
- Responses to review comments.
- References.
- Each page of the calculation shall be numbered and the first page shall indicate the total number of pages. The calculation pages may be numbered by sections with the first page of the section indicating the total number of pages in the section.
- The Calculation Approval Sheet shall be signed and dated by the originator.

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1.0 Introduction

The purpose of this calculation is to reanalyze the radiological consequences of the Cask Drop Accident (CDA) presented in Section 14.11 of the Palisades FSAR (Reference 2). This reanalysis will use the AST methodology described in Regulatory Guide 1.183 (Reference 1). Although Appendix B of the Reg. Guide outlines the requirements for performing a radiological analysis of a fuel handling accident, it is assumed that the same guidance would apply to the CDA.

There are two possible release paths for the activity that escapes the fuel pool in the fuel handling building (FHB); an unfiltered release that travels to the containment and exits via the containment equipment hatch, and a filtered release via the FHB ventilation system which exhausts via the plant stack. Three cases were analyzed:

- Case 1 with 90% of the release via the FHB filtration system, 30 days of decay, and the control room initially aligned in emergency recirculation mode.
- Case 2 with 82.5% of the release via the FHB filtration system, 30 days of decay, and the control room initially aligned in emergency recirculation mode.
- Case 3 with 0% of the release via the FHB filtration system, 90 days of decay, and no isolation of the control room.

2.0 Summary of Results

The following table presents the results of the CDA cases. The direct shine dose contribution is the sum of the cloud and filter shine doses documented in Table 1 of Reference 12.

Table 2-1 Radiological Doses for Cask Drop Accident – Case 1

Dose Contribution	Dose (rem TEDE)		
	EAB 2-hr	LPZ 30 days	CR 30 days
Fuel Damage Dose	2.0371E+00	2.5288E-01	1.1014E+00
Shine Dose			0.268
Total	2.04	0.25	1.37
Acceptance Criteria	6.3	6.3	5
Control Room Unfiltered Inleakage = 100 cfm			

Table 2-2 Radiological Doses for Cask Drop Accident – Case 2

Dose Contribution	Dose (rem TEDE)		
	EAB 2-hr	LPZ 30 days	CR 30 days
Fuel Damage Dose	2.7806E+00	3.4517E-01	1.7192E+00
Shine Dose			0.268
Total	2.78	0.35	1.99
Acceptance Criteria	6.3	6.3	5
Control Room Unfiltered Inleakage = 100 cfm			

Table 2-3 Radiological Doses for Cask Drop Accident – Case 3

Dose Contribution	Dose (rem TEDE)		
	EAB 2-hr	LPZ 30 days	CR 30 days
Fuel Damage Dose	7.8114E-02	9.7032E-03	1.3983E+00
Shine Dose			0.268
Total	0.08	0.01	1.67
Acceptance Criteria	6.3	6.3	5
Control Room Unfiltered Inleakage = 100 cfm			

The analysis demonstrates that a CDA within the Fuel Handling Building (FHB) will not produce doses in excess of the prescribed limits.

3.0 Design Input

3.1 Source Term Input

Reference 5 defines the event as damage to all of the fuel pins in 73 fuel assemblies. As described in Section 6.3 of Reference 8, the design basis source term for the CDA is defined in Table 6-9 (for 30 days of decay) and Table 6-10 (for 90 days of decay) of that calculation and incorporated into the "nif" files included as Attachments 26 and 27 to that calculation. Note that per the discussion given in Section 7.1.14, the activities for I-131 and Kr-85 will be adjusted to account for different gap release fractions for these isotopes as specified by Table 3 of Reg. Guide 1.183. In addition, the CDA source terms are adjusted to represent the activities for 73 fuel assemblies versus the activities for one assembly given in Reference 8.

3.2 Other Input

Reference 5 lists other input, provided by Palisades, used in the development of the Palisades CDA RADTRAD-NAI models.

4.0 Assumptions

- Mixing of the release from the fuel pool with the fuel handling building atmosphere and containment atmosphere is ignored.
- At all times, a minimum of 23.4 feet of water is maintained above the damaged fuel.
- Per Reg. Guide 1.183, the release is assumed to occur over a 2 hour period.

5.0 Acceptance Criteria

It is assumed that the fuel handling accident dose limits also apply to the CDA. Per Section 4.4 and Table 6 of Reg. Guide 1.183, the acceptable dose limits for the Exclusion Area Boundary (EAB), Low Population Zone (LPZ), and Control Room (CR) for a FHA are:

CDA Dose Limits

Area	Dose Criteria	
EAB	6.3 rem (TEDE)	(worst 2 hours)
LPZ	6.3 rem (TEDE)	(for 30 days)
Control Room*	5 rem (TEDE)	(for 30 days)

*Control room dose limit is specified in 10CFR50.67

6.0 Computer Codes

The following computer code was used for performing the analyses presented in this calculation:

Computer Code	Version	Reference	Purpose
RADTRAD-NAI	1.1a(QA)	3	Radiological Dose Calculations

RADTRAD-NAI (Reference 3) is qualified and maintained under the Numerical Applications Inc. QA program (Reference 4). This QA program meets the requirements of 10CFR50 Appendix B with code error reporting per 10CFR21. RADTRAD-NAI is accessed via a controlled access web-based interface that provides a front-end for developing and submitting input models. The input developed via the interface is submitted to the RADTRAD-NAI solver that runs on an AMD-ATHLON based personal computer running LINUX.

7.0 Calculations

Appendix B to Reg. Guide 1.183 sets the requirements for the transport, reduction, and release of radionuclides for the fuel handling accident. It is assumed that the same requirements apply to the CDA.

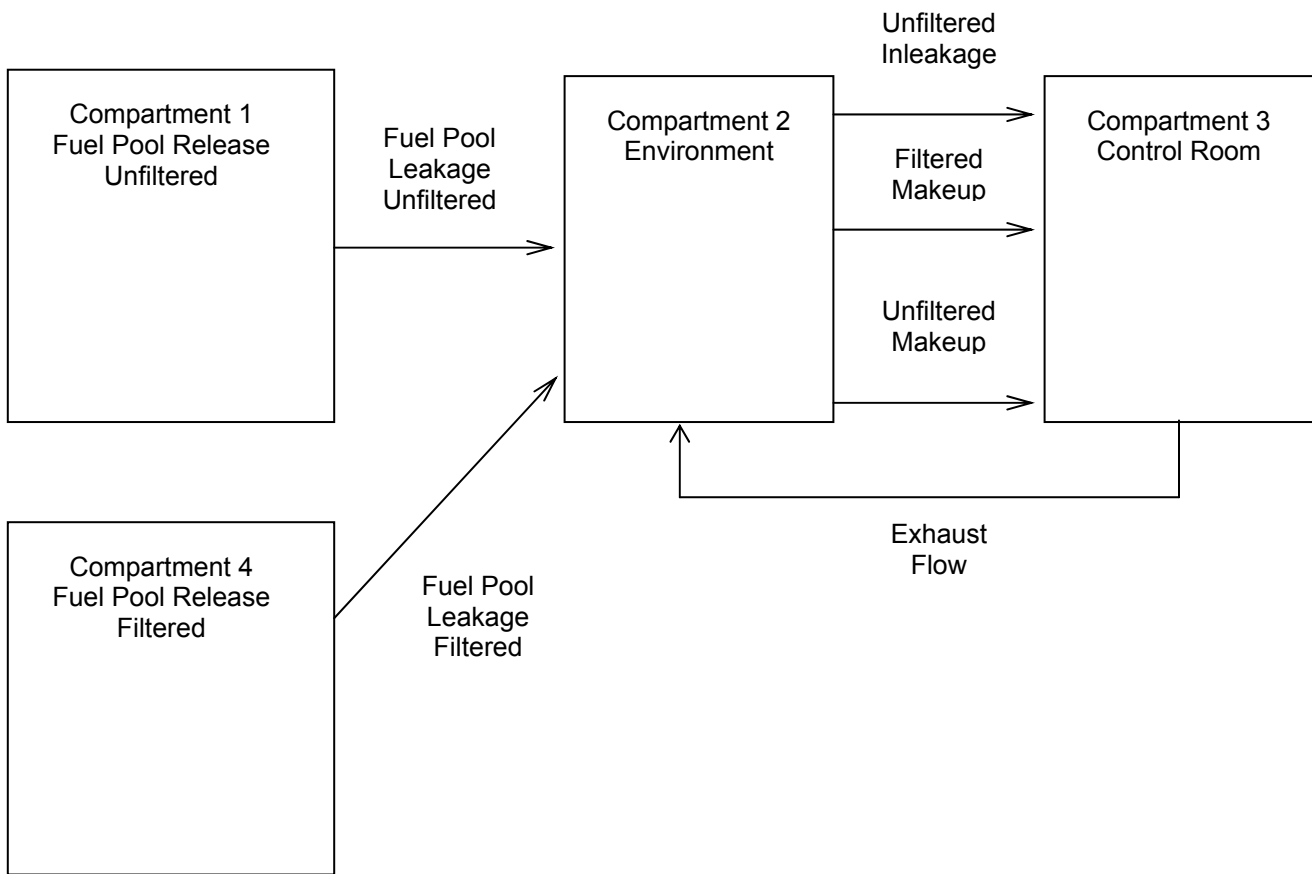
7.1 Cask Drop Accident Case 1 RADTRAD-NAI Model

The RADTRAD-NAI model developed for the CDA calculation consists of four compartments and six pathways (see Figure 1):

Compartment Description	Compartment Number	RADTRAD-NAI Compartment Type
Fuel Pool - Unfiltered	1	(3) Normal
Environment	2	(2) Environment
Control Room	3	(1) Control Room
Fuel Pool - Filtered	4	(3) Normal

Pathway Description	Compartment Connections	Pathway Number	RADTRAD-NAI Pathway Type
Fuel Pool Release-Unfiltered	1 to 2	1	Filtered
Control Room Unfiltered Makeup	2 to 3	2	Filtered
Control Room Filtered Makeup	2 to 3	3	Filtered
Control Room Unfiltered Inleakage	2 to 3	4	Filtered
Control Room Exhaust	3 to 2	5	Filtered
Fuel Pool Release-Filtered	4 to 2	6	Filtered

Figure 1 CDA RADTRAD-NAI Model



The subsections that follow describe the RADTRAD-NAI input for the CDA.

7.1.1 Fuel Pool Release-Unfiltered (Compartment 1)

The following input was specified for the fuel pool source volume connected to the unfiltered release path:

Volume	10,000 ft ³	Dummy value assumed, a convective flow path is used to release the fuel pool activity to the environment
Source Fraction	0.10	10% of release is via the unfiltered pathway
Recirculation Filters	no	
Natural Deposition	no	
Overlying Pool	yes	Model 23.4 feet of water above damaged fuel assemblies

7.1.2 Environment (Compartment 2)

The only required input for the environment compartment is volume. This value is a “dummy” value; however, an input is required for this field. An arbitrary value of 2.0E20 ft³ was specified.

7.1.3 Control Room (Compartment 3)

The control room volume was set to 35,923 ft³. The control room HVAC system is assumed to be operating in emergency mode at the beginning of the event.

Time (hours)	Flow Rate (cfm)	Filter Efficiency		
		Aerosol	Elemental	Organic
0.0	1413.6	99	99	99
720.0	1413.6	99	99	99

7.1.4 Fuel Pool Release-Filtered (Compartment 4)

The following input was specified for the fuel pool source volume connected to the filtered release path:

Volume	10,000 ft ³	Dummy value assumed, a convective flow path is used to release the fuel pool activity to the environment
Source Fraction	0.90	90% of release is via the filtered pathway
Recirculation Filters	no	
Natural Deposition	no	
Overlying Pool	yes	Model 23.4 feet of water above damaged fuel assemblies

7.1.5 Fuel Pool Unfiltered Release to Environment (Pathway 1)

This pathway connects the Fuel Pool-Unfiltered (Compartment 1) with the Environment Compartment (Compartment 2) and represents the unfiltered release that exits via the containment equipment hatch. Reg. Guide 1.183 specifies that the release from the spent fuel pool be leaked to the environment over a two hour period. The two hour release period is handled via the release fraction timing file; therefore, a high flow rate is used to extract the

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release from the fuel pool compartment. A 100% filter efficiency is specified for the aerosol release fraction (no aerosol release per page B-2 of Reg. Guide 1.183).

Equipment Hatch Release

Time (hours)	Flow Rate (cfm)	Aerosol	Filter Efficiency Elemental	Organic
0.0	1e6	100	0	0
720.0	1e6	100	0	0

7.1.6 Control Room Unfiltered Makeup (Pathway 2)

The control room HVAC system is assumed to be operating in emergency mode at the beginning of the event; therefore, there is no unfiltered makeup flow.

Unfiltered Makeup Flow

Time (hours)	Flow Rate (cfm)	Aerosol	Filter Efficiency Elemental	Organic
0.0	0.0	0	0	0
720.0	0.0	0	0	0

7.1.7 Control Room Filtered Makeup (Pathway 3)

The control room HVAC system is assumed to be operating in emergency mode at the beginning of the event.

Filtered Makeup Flow

Time (hours)	Flow Rate (cfm)	Aerosol	Filter Efficiency Elemental	Organic
0.0	1413.6	99	99	99
720.0	1413.6	99	99	99

7.1.8 Control Room Unfiltered Inleakage (Pathway 4)

The unfiltered inleakage was set to 100 cfm.

Unfiltered Inleakage

Time (hours)	Flow Rate (cfm)	Aerosol	Filter Efficiency Elemental	Organic
0.0	100.0	0	0	0
720.0	100.0	0	0	0

7.1.9 Control Room Exhaust (Pathway 5)

The control room exhaust is equal to the sum of the control room intake and inleakage flows.

Exhaust Flow

Time (hours)	Flow Rate (cfm)	Aerosol	Filter Efficiency Elemental	Organic
0.0	1513.6	0	0	0
720.0	1513.6	0	0	0

7.1.10 Fuel Pool Filtered Release to Environment (Pathway 6)

This pathway connects the Fuel Pool-Filtered Compartment (Compartment 4) with the Environment Compartment (Compartment 2) and represents the filtered release that exits via the FHB filtration system exhausting via the plant stack. Reg. Guide 1.183 specifies that the release from the spent fuel pool be leaked to the environment over a two hour period. The two hour release period is handled via the release fraction timing file; therefore, a high flow rate is used to extract the release from the fuel pool compartment. A 100% filter efficiency is specified for the aerosol release fraction, and a 94% elemental and organic efficiency was specified (References 5 and 14).

Plant Stack Release

Time (hours)	Flow Rate (cfm)	Filter Efficiency		
		Aerosol	Elemental	Organic
0.0	1e6	100	94	94
720.0	1e6	100	94	94

7.1.11 Plant Power and Release Information

The design basis power in the CDA nuclide inventory file is 2703 MW_{th}. The nuclide inventory file contains the total number of curies for one damaged fuel assembly (adjusted to 73 assemblies per Section 0; therefore, the “plant power” entry in the RADTRAD-NAI input file was also set to 2703 MW_{th}. Item 1.3 of Appendix B to Reg. Guide 1.183 specifies that the makeup of the iodine species is 99.85% elemental and 0.15% organic:

Start of first release time (hours)	0.0
Calculate decay	yes
Calculate daughters	yes
Iodine Fraction – aerosol	0.0
Iodine Fraction – elemental	0.9985
Iodine Fraction – organic	0.0015

7.1.12 Overlying Pool

Item 2 of Appendix B to Reg. Guide 1.183 states:

“If the depth of water above the damaged fuel is 23 feet or greater, the decontamination factors for the elemental and organic species are 500 and 1, respectively, giving an overall effective decontamination factor of 200 (i.e., 99.5% of the total iodine released from the damaged rods is retained by the water). This difference in decontamination factors for elemental (99.85%) and organic iodine (0.15%) species results in the iodine above the water being composed of 57% elemental and 43% organic species. If the depth of water is not 23 feet, the decontamination factor will have to be determined on a case-by-case method (Ref. B-1).”

The guidance quoted above sets out an inconsistent set of conditions for the elemental iodine decontamination factor. Recent clarification from the NRC indicates that the appropriate criteria is on overall decontamination factor of 200. Based on the release fractions of 99.85% elemental and 0.15% organic, an elemental iodine decontamination factor of approximately 285 is required to produce an overall decontamination factor of 200.

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In addition, Section 3.0 of Appendix B to Reg. Guide 1.183 states:

“The retention of noble gases in the water in the fuel pool or reactor cavity is negligible (i.e., decontamination factor of 1). Particulate radionuclides are assumed to be retained by the water in the fuel pool or reactor cavity (i.e., infinite decontamination factor).”

Per the inputs listed in Reference 5, 23.4 feet of water will be maintained above the damaged fuel; therefore, the decontamination factor for elemental iodine was set to 285. The decontamination factor for organic iodine was set to 1.0.

7.1.13 Dose Location Information

Three dose locations were specified; the Exclusion Boundary (EAB), the Low Population Zone (LPZ), and the Control Room (CR). The X/Qs for the EAB and LPZ are from Table 5 of Reference 10. The breathing rates are from Section 4.1.3 of Reg. Guide 1.183:

Exclusion Boundary Data:

EAB X/Q

X/Q Table 1

Time (hours)	X/Q (sec/m ³)
0.0	5.39E-4
720.0	5.39E-4

EAB & LPZ Breathing Rate

Time (hours)	Breathing Rate (m ³ /sec)
0.0	3.5E-4
8.0	1.8E-4
24.0	2.3E-4
720.0	2.3E-4

Low Population Zone Data:

LPZ X/Q

X/Q Table 2

Time (hours)	X/Q (sec/m ³)
0.0	6.66E-5
2.0	3.03E-5
8.0	2.04E-5
24.0	8.67E-6
96.0	2.54E-6
720.0	2.54E-6

Control Room Data:

The breathing rates and occupancy factor for the control room are from Section 4.2.6 of Reg. Guide 1.183. The X/Qs are from Table 4 of Reference 10. The X/Qs for unfiltered release correspond to the containment equipment hatch. The X/Qs for the filtered release correspond to the plant stack.

**Control Room X/Q for Equipment Hatch to Normal Intake
Table 3**

Time (hours)	X/Q (sec/m ³)
0.0	1.25E-2
2.0	9.83E-3
8.0	3.62E-3
24.0	2.86E-3
96.0	2.28E-3
720.0	2.28E-3

**Control Room X/Q for Equipment Hatch to Emergency Intake
Table 4**

Time (hours)	X/Q (sec/m ³)
0.0	7.32E-4
2.0	6.13E-4
8.0	2.45E-4
24.0	1.75E-4
96.0	1.29E-4
720.0	1.29E-4

**Control Room X/Q for Plant Stack to Normal Intake
Table 5**

Time (hours)	X/Q (sec/m ³)
0.0	6.10E-3
2.0	4.32E-3
8.0	1.73E-3
24.0	1.27E-3
96.0	9.79E-4
720.0	9.79E-4

**Control Room X/Q for Plant Stack to Emergency Intake
Table 6**

Time (hours)	X/Q (sec/m ³)
0.0	8.32E-4
2.0	7.69E-4
8.0	2.83E-4
24.0	2.15E-4
96.0	1.57E-4
720.0	1.57E-4

Control Room Breathing Rate

Time (hours)	Breathing Rate (m ³ /sec)
0.0	3.5E-4
720.0	3.5E-4

Control Room Occupancy Factor

Time (hours)	Factor
0.0	1.0
24.0	0.6
96.0	0.4
720.0	0.4

Dose Location Pathway Combinations

Control Room Intake Path	Release Path	X/Q Table
2	1	3
3	1	4
4	1	3
2	6	5
3	6	6
4	6	5

7.1.14 Source Term

Item 1.2 of Appendix B to Reg. Guide 1.183 specifies the radionuclide groups that should be considered. Reference 9 provides a listing of the individual nuclides and dose conversion factors used for the analyses presented in this calculation. The data provided in Reference 9 are consistent with Reg. Guide 1.183. The dose conversion factors provided in Reference 9 were obtained from Table 2.1 of Federal Guidance Report 11 and Table III.1 of Federal Guidance Report 12.

Table 3 of Reg. Guide 1.183 specifies the following composition for the non-LOCA fraction of fission product inventory in the fuel rod gap:

Group	Fraction
I-131	0.08
Kr-85	0.10
Other Noble Gases	0.05
Other Halogens	0.05
Alkali Metals	0.12

The release fractions for iodine and noble gases, were set to 5% in the release fraction timing file. The release fraction for I-131 is 0.08 versus 0.05 for the remaining iodine isotopes. To account for this difference, the source term for I-131 in the RADTRAD-NAI nuclide inventory (“nif”) files was increased by a factor of 1.6 (0.08 / 0.05). Similarly, the Kr-85 source was increased by a factor of 2.0 to adjust the Kr-85 release to the specified 10% while retaining other noble gas releases at 5% as prescribed in the release fraction timing file *pal_cda_ast.rft* (Table 7-1). The Reference 8 activities were further adjusted to represent 73 fuel assemblies. The final adjusted CDA “nif” files, *pal_cask30_db_ast_adjusted.nif* and *pal_cask90_db_ast_adjusted.nif*, are provided in Attachment 5 and Attachment 6.

Release Fraction Timing File presents the release fraction timing file used for the CDA. The 30 day and 90 day decay periods are accounted for in the CDA source term files (“nif” files).

Table 7-1 Cask Drop Release Fraction Timing File

Release Fraction and Timing Name:
PWR, NUREG 1.183, Palisades Cask Drop Release AST
Duration (h): Design Basis Accident

0.1000E-02	0.1000E-02	0.2000E+01	0.0000E+00
Noble Gases:			
0.0000E+00	0.0000E+00	0.0500E+00	0.0000E+00
Iodine:			
0.0000E+00	0.0000E+00	0.0500E+00	0.0000E+00
Cesium:			
0.0000E+00	0.0000E+00	0.1200E+00	0.0000E+00
Tellurium:			
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Strontium:			
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Barium:			
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Ruthenium:			
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

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Cerium:

0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00

Lanthanum:

0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00

Non-Radioactive Aerosols (kg):

0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00

End of Release File

7.2 Cask Drop Accident Case 2 RADTRAD-NAI Model

This model is similar to that documented in Section 7.1. The only difference is that the filtered release was set to 82.5% and the unfiltered release was set to 17.5%.

7.3 Cask Drop Accident Case 3 RADTRAD-NAI Model

This model is similar to that documented in Section 7.1. The differences are:

- The filtered release was set to 0% and the unfiltered release was set to 100%.
- The 90 day decay cask drop source was used.
- The control room was set to operate in normal mode for the entire event (660 cfm unfiltered makeup, 0 cfm filtered makeup, 0 cfm unfiltered inleakage, and no control room recirculation flow).

8.0 References

1. USNRC, Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Plants", July 2000.
2. Palisades Nuclear Plant FSAR, Revision 24.
3. Numerical Applications Inc., NAI-9912-04, Revision 4, "RADTRAD-NAI Version 1.1a(QA) Documentation", October 2004.
4. Numerical Applications Inc., "Dose Methodology Quality Assurance Procedures", Revision 1, June 4, 2001.
5. NAI-E03-211 Project Memo 2004-07, "Remaining Event Inputs", July 8 2004.
6. G. Burley, "Evaluation of Fission Product Release and Transport for a Fuel Handling Accident", October 5 1971.
7. Palisades Plant Technical Specifications through Amendment 213.
8. NAI Calculation Number NAI-1149-001 Rev. 1, "Source Terms for Palisades Dose Calculations".
9. NAI Calculation Number NAI-1101-001 Rev. 1, "Generation of .nif and .inp Files for RADTRAD-NAI".
10. NAI Calculation Number NAI-1149-002 Rev. 0, "Determination of Atmospheric Dispersion Factors for Palisades".
11. Reference deleted.
12. NAI Calculation Number NAI-1149-003 Rev. 1, "Determination of Direct Shine Doses for a LOCA for Palisades".
13. NAI-E03-211 Project Memo 2004-09, "Additional Inputs", October 20 2004.
14. Email Jeffery Voskuil (NMC) to Jim Harrell and Steve Thomasson (NAI), dated October 8 2004, "Subject: Response to Input Questions from NAI".

9.0 CDA RADTRAD-NAI Analysis Files

RADTRAD-NAI CDA Files

File Name	Attachment	Description
pal_cask_db_ast_case1.out	Attachment 2	CDA Case 1 RADTRAD-NAI model output
pal_cask_db_ast_case2.out	Attachment 3	CDA Case 2 RADTRAD-NAI model output
pal_cask_db_ast_case3.out	Attachment 4	CDA Case 3 RADTRAD-NAI model output
pal_cask30_db_ast_adjusted.nif	Attachment 5	CDA Nuclide Inventory File – 30 day decay
pal_cask90_db_ast_adjusted.nif	Attachment 6	CDA Nuclide Inventory File – 90 day decay
pal_cda_ast.rft	Table 7-1	CDA Release Fraction Timing File
NAI-1101-001rev0.dcf	Attachment 7	Dose Conversion Factor File

Attachment 1 Verification Comments for Calculation NAI-1149-026 Rev. 0**Comment 1**

Page 9, Section 3.1 – tables 6-9 and 6-10 of Reference 8 provide the appropriate source terms for AST for 30 days and 90 days decay.

Response: Table numbers corrected to 6-9 and 6-10.

Comment 2

Page 15, Section 7.1.10 – Please include Reference 5 in addition to Reference 14 for the filter efficiencies.

Response: Reference 5 added.

Comment 3

Page 19, Paragraph above Tables 7-1 – There appears to be an error in the link of the Release Fraction Timing File when I printed the page.

Response: Link deleted.

Comment 4

Table 7-1 – The release fraction timing file includes two 0.1E-2 hour delays before the release begins. This 0.002 hour (7.2 seconds) delay should not have a significant impact on the total dose.

Response: Agreed. Minimal time periods are required in the release fraction timing file so that the main release will occur during the third release phase. This is required because the overlying pool model only operates during the third release phase.

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Attachment 2 RADTRAD-NAI CDA Output – Case 1 – 90% Filtered – 30 Day Decay

```
#####
RADTRAD-NAI Version 1.1a(QA) run on Jun 20, 2005 at 09:59:03
#####
```

```
#####
File information
#####
```

```
Plant file name           = pal/Cask/pal_cask_db_ast_case1.psf
Inventory file name       = pal/Cask/palisades_cask30_db_ast_adjusted.nif
Scenario file name       = pal/Cask/pal_cask_db_ast_case1.psf
Release file name        = pal/Cask/pal_cda_ast.rft
Dose conversion file name = pal/Cask/nai-1101-001rev0.dcf
```

```
#####      #####      # # #      # # #      # # #      # # #      # # #
# # #      # # #      # # #      # # #      # # #      # # #      # # #
# # #      # # #      # # #      # # #      # # #      # # #      # # #
#####      #####      # # #      # # #      # # #      # # #      # # #
# # #      # # #      # # #      # # #      # # #      # # #      # # #
# # #      # # #      # # #      # # #      # # #      # # #      # # #
# # #      # # #      # # #      # # #      # # #      # # #      # # #
```

```
*RADTRAD-NAI 1.1a(QA)
*20 Jun 2005 09:58:58
** Palisades Cask Drop Design Basis
** Case 1
** 30 day decay
** 10% release filtration bypass
**
*Nuclide inventory file
pal/Cask/palisades_cask30_db_ast_adjusted.nif
*Plant power
2703
*Compartments
4
*Compartment 1:
Fuel Pool-Unfiltered
3
10000
0
0
0
0
1
*Compartment 2:
Environment
2
2e+20
0
0
0
0
*Compartment 3:
Control Room
1
35923
0
1
0
0
*Compartment 4:
Fuel Pool-Filtered
3
10000
```


Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
0
0
0
1
*Pathways
6
*Pathway 1:
Fuel Pool Release-Unfiltered
1
2
2
*Pathway 2:
Control Room Unfiltered Makeup
2
3
2
*Pathway 3:
Control Room Filtered Makeup
2
3
2
*Pathway 4:
Control Room Unfiltered Inleakage
2
3
2
*Pathway 5:
Control Room Exhaust
3
2
2
*Pathway 6:
Fuel Pool Release-Filtered
4
2
2
*Sources
4
1 0.1
2 0
3 0
4 0.9
*dose conversion factors filename
pal/Cask/nai-1101-001rev0.dcf
*release fraction and timing filename
pal/Cask/pal_cda_ast.rft
0
1
1
*Iodine
0 0.9985 0.0015
*Overlying pool
*aerosol model
0
*elemental model
1
2
0 285
720 285
*organic model
1
2
0 1
720 1
*pH tracking
0
*Compartment detail
*Compartment 1:
1
*spray model
0
0
0
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
*filter model
0
*deposition model
0
0
*Compartment 2:
  1
*spray model
0
0
0
*filter model
0
*deposition model
0
0
*Compartment 3:
  1
*spray model
0
0
0
*filter model
  1
  2
0 1413.6 99 99 99
720 1413.6 99 99 99
*deposition model
0
0
*Compartment 4:
  1
*spray model
0
0
0
*filter model
0
*deposition model
0
0
*Pathways:
*Pathway 1
*filter efficiency model
  1
  2
0 1000000 100 0 0
720 1000000 100 0 0
*Pathway 2
*filter efficiency model
  1
  2
0 0 0 0 0
720 0 0 0 0
*Pathway 3
*filter efficiency model
  1
  2
0 1413.6 99 99 99
720 1413.6 99 99 99
*Pathway 4
*filter efficiency model
  1
  2
0 100 0 0 0
720 100 0 0 0
*Pathway 5
*filter efficiency model
  1
  2
0 1513.6 0 0 0
720 1513.6 0 0 0
*Pathway 6
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
*filter efficiency model
  1
  2
0 1000000 100 94 94
720 1000000 100 94 94
*x/q tables
  6
EAB
  2
0 0.000539
720 0.000539
LPZ
  6
0 6.66e-05
2 3.03e-05
8 2.04e-05
24 8.67e-06
96 2.54e-06
720 2.54e-06
Equip Hatch-Normal
  6
0 0.0125
2 0.00983
8 0.00362
24 0.00286
96 0.00228
720 0.00228
Equip Hatch-Emergency
  6
0 0.000732
2 0.000613
8 0.000245
24 0.000175
96 0.000129
720 0.000129
Stack-Normal
  6
0 0.0061
2 0.00432
8 0.00173
24 0.00127
96 0.000979
720 0.000979
Stack-Emergency
  6
0 0.000832
2 0.000769
8 0.000283
24 0.000215
96 0.000157
720 0.000157
*dose locations
  3
*location name, compartment number and x/q table
EAB
  2
  1
*br model
  1
  4
0 0.00035
8 0.00018
24 0.00023
720 0.00023
*of model
  0
*location x/q input to be included
  0
*location name, compartment number and x/q table
LPZ
  2
  2
*br model
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```

1
4
0 0.00035
8 0.00018
24 0.00023
720 0.00023
*of model
0
*location x/q input to be included
0
*location name, compartment number and x/q table
Control Room
3
0
*br model
1
2
0 0.00035
720 0.00035
*of model
1
4
0 1
24 0.6
96 0.4
720 0.4
*location x/q input to be included
1
*number of intake combinations
6
*intake combinations
2 1 3
3 1 4
4 1 3
2 6 5
3 6 6
4 6 5
*time step count
3
0 1e-06
0.001 0.02
720 0.02
*show plant, scenario, event, step, model
1
1
1
0
1

#####
RADTRAD-NAI Version 1.1a(QA) run on Jun 20, 2005 at 09:59:03
#####

#####
Plant Description
#####

Number of Nuclides = 107

Inventory Power = 2.7030E+03 MWth
Plant Power Level = 2.7030E+03 MWth

Number of compartments = 4

Compartment information

Compartment number 1 (Source term fraction = 1.0000E-01)
Name: Fuel Pool-Unfiltered
Compartment volume = 1.0000E+04 (Cubic feet)
Removal devices within compartment:
Suppression pool
Pathways into and out of compartment 1
Pathway to compartment number 2: Fuel Pool Release-Unfiltered

```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Compartment number 2
 Name: Environment
 Pathways into and out of compartment 2
 Pathway to compartment number 3: Control Room Unfiltered Makeup
 Pathway to compartment number 3: Control Room Filtered Makeup
 Pathway to compartment number 3: Control Room Unfiltered Inleakage
 Pathway from compartment number 1: Fuel Pool Release-Unfiltered
 Pathway from compartment number 3: Control Room Exhaust
 Pathway from compartment number 4: Fuel Pool Release-Filtered

Compartment number 3
 Name: Control Room
 Compartment volume = 3.5923E+04 (Cubic feet)
 Removal devices within compartment:
 Filter(s)
 Pathways into and out of compartment 3
 Pathway to compartment number 2: Control Room Exhaust
 Pathway from compartment number 2: Control Room Unfiltered Makeup
 Pathway from compartment number 2: Control Room Filtered Makeup
 Pathway from compartment number 2: Control Room Unfiltered Inleakage

Compartment number 4 (Source term fraction = 9.0000E-01)
 Name: Fuel Pool-Filtered
 Compartment volume = 1.0000E+04 (Cubic feet)
 Removal devices within compartment:
 Suppression pool
 Pathways into and out of compartment 4
 Pathway to compartment number 2: Fuel Pool Release-Filtered

Total number of pathways = 6

```
#####
RADTRAD-NAI Version 1.1a(QA) run on Jun 20, 2005 at 09:59:03
#####
#####
Scenario Description
#####
```

Radioactive Decay is enabled
 Calculation of Daughters is enabled

Iodine fractions
 Aerosol = 0.0000E+00
 Elemental = 9.9850E-01
 Organic = 1.5000E-03

Overlying pool characteristics

Elemental Removal Data:
 Time (hr) DF
 0.0000E+00 2.8500E+02
 7.2000E+02 2.8500E+02

Organic Removal Data:
 Time (hr) DF
 0.0000E+00 1.0000E+00
 7.2000E+02 1.0000E+00

COMPARTMENT DATA

Compartment number 1: Fuel Pool-Unfiltered
 Compartment number 2: Environment
 Compartment number 3: Control Room

Compartment Filter Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

0.0000E+00	1.4136E+03	9.9000E+01	9.9000E+01	9.9000E+01
7.2000E+02	1.4136E+03	9.9000E+01	9.9000E+01	9.9000E+01

Compartment number 4: Fuel Pool-Filtered

PATHWAY DATA

Pathway number 1: Fuel Pool Release-Unfiltered

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.0000E+06	1.0000E+02	0.0000E+00	0.0000E+00
7.2000E+02	1.0000E+06	1.0000E+02	0.0000E+00	0.0000E+00

Pathway number 2: Control Room Unfiltered Makeup

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
7.2000E+02	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Pathway number 3: Control Room Filtered Makeup

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.4136E+03	9.9000E+01	9.9000E+01	9.9000E+01
7.2000E+02	1.4136E+03	9.9000E+01	9.9000E+01	9.9000E+01

Pathway number 4: Control Room Unfiltered Inleakage

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.0000E+02	0.0000E+00	0.0000E+00	0.0000E+00
7.2000E+02	1.0000E+02	0.0000E+00	0.0000E+00	0.0000E+00

Pathway number 5: Control Room Exhaust

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.5136E+03	0.0000E+00	0.0000E+00	0.0000E+00
7.2000E+02	1.5136E+03	0.0000E+00	0.0000E+00	0.0000E+00

Pathway number 6: Fuel Pool Release-Filtered

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.0000E+06	1.0000E+02	9.4000E+01	9.4000E+01
7.2000E+02	1.0000E+06	1.0000E+02	9.4000E+01	9.4000E+01

X/Q DATA

X/Q table 1: EAB

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	5.3900E-04
7.2000E+02	5.3900E-04

X/Q table 2: LPZ

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	6.6600E-05
2.0000E+00	3.0300E-05
8.0000E+00	2.0400E-05

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2.4000E+01	8.6700E-06
9.6000E+01	2.5400E-06
7.2000E+02	2.5400E-06

X/Q table 3: Equip Hatch-Normal

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	1.2500E-02
2.0000E+00	9.8300E-03
8.0000E+00	3.6200E-03
2.4000E+01	2.8600E-03
9.6000E+01	2.2800E-03
7.2000E+02	2.2800E-03

X/Q table 4: Equip Hatch-Emergency

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	7.3200E-04
2.0000E+00	6.1300E-04
8.0000E+00	2.4500E-04
2.4000E+01	1.7500E-04
9.6000E+01	1.2900E-04
7.2000E+02	1.2900E-04

X/Q table 5: Stack-Normal

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	6.1000E-03
2.0000E+00	4.3200E-03
8.0000E+00	1.7300E-03
2.4000E+01	1.2700E-03
9.6000E+01	9.7900E-04
7.2000E+02	9.7900E-04

X/Q table 6: Stack-Emergency

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	8.3200E-04
2.0000E+00	7.6900E-04
8.0000E+00	2.8300E-04
2.4000E+01	2.1500E-04
9.6000E+01	1.5700E-04
7.2000E+02	1.5700E-04

LOCATION DATA

Location EAB is in compartment 2

Using X/Q Table 1

Location Breathing Rate Data

Time (hr)	Breathing Rate (m ³ * sec ⁻¹)
0.0000E+00	3.5000E-04
8.0000E+00	1.8000E-04
2.4000E+01	2.3000E-04
7.2000E+02	2.3000E-04

Location LPZ is in compartment 2

Using X/Q Table 2

Location Breathing Rate Data

Time (hr)	Breathing Rate (m ³ * sec ⁻¹)
0.0000E+00	3.5000E-04
8.0000E+00	1.8000E-04
2.4000E+01	2.3000E-04
7.2000E+02	2.3000E-04

Location Control Room is in compartment 3

Inleakage X/Q Table Assignments

Inleakage Path	Source Path	X/Q Table
2	1	3
3	1	4
4	1	3
2	6	5
3	6	6

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

4 6 5

Location Breathing Rate Data

Time (hr)	Breathing Rate (m ³ * sec ⁻¹)
0.0000E+00	3.5000E-04
7.2000E+02	3.5000E-04

Location Occupancy Factor Data

Time (hr)	Occupancy Factor
0.0000E+00	1.0000E+00
2.4000E+01	6.0000E-01
9.6000E+01	4.0000E-01
7.2000E+02	4.0000E-01

USER SPECIFIED TIME STEP DATA - SUPPLEMENTAL TIME STEPS

Time	Time step
0.0000E+00	1.0000E-06
1.0000E-03	2.0000E-02
7.2000E+02	2.0000E-02

 RADTRAD-NAI Version 1.1a(QA) run on Jun 20, 2005 at 09:59:03
 #####

```

#####
# # # # # # # # # #
# # # # # # # # # #
# # # # # # # # # #
# # # # # # # # # #
# # # # # # # # # #
#####

```


 Dose, Detailed Model and Detailed Inventory Output
 #####

Detailed model information at time (H) = 0.0010

EAB Doses:

Time (h) =	0.0010	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)		0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

LPZ Doses:

Time (h) =	0.0010	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)		0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Control Room Doses:

Time (h) =	0.0010	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)		0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) =	0.0010	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)		0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)		0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)		0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00	0.0000E+00

Time (h) =	0.0010	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)		0.0000E+00	0.0000E+00

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Environment Transport Group Inventory:

	Present	Release	Integral
	Release	Rate/s	Release
Time (h) = 0.0010			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Transport Group Inventory:

	Atmosphere	Sump	Overlying Pool
Time (h) = 0.0010			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 0.0010		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway Filter
Time (h) = 0.0010	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway Filter
Time (h) = 0.0010	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway Filter
Time (h) = 0.0010	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway Filter
Time (h) = 0.0010	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool-Filtered Transport Group Inventory:

	Atmosphere	Sump	Overlying Pool
Time (h) = 0.0010			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 0.0010		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

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Calculation Number: NAI-1149-026 Rev. 0

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Detailed model information at time (H) = 0.0020

EAB Doses:

Time (h) = 0.0020	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

LPZ Doses:

Time (h) = 0.0020	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Control Room Doses:

Time (h) = 0.0020	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Fuel Pool-Unfiltered Transport Group Inventory:

			Overlying
Time (h) = 0.0020	Atmosphere	Sump	Pool
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

		Deposition	Recirculating
Time (h) = 0.0020	Surfaces	Filter	
Noble gases (atoms)	0.0000E+00	0.0000E+00	
Elemental I (atoms)	0.0000E+00	0.0000E+00	
Organic I (atoms)	0.0000E+00	0.0000E+00	
Aerosols (kg)	0.0000E+00	0.0000E+00	

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Environment Transport Group Inventory:

	Present	Release	Integral
Time (h) = 0.0020	Release	Rate/s	Release
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Pathway

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Time (h) = 0.0020 Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Transport Group Inventory:

	Atmosphere	Sump	Overlying Pool
Time (h) = 0.0020			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 0.0020		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00

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Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool-Filtered Transport Group Inventory:

			Overlying
Time (h) = 0.0020	Atmosphere	Sump	Pool
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Recirculating	
Time (h) = 0.0020	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Detailed model information at time (H) = 2.0000

EAB Doses:

Time (h) = 2.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	4.2324E-01	5.3004E+01	3.3684E+00	2.0371E+00
Accumulated dose (rem)	4.2324E-01	5.3004E+01	3.3684E+00	2.0371E+00

LPZ Doses:

Time (h) = 2.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	5.2296E-02	6.5493E+00	4.1620E-01	2.5171E-01
Accumulated dose (rem)	5.2296E-02	6.5493E+00	4.1620E-01	2.5171E-01

Control Room Doses:

Time (h) = 2.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	2.2215E-02	3.1399E+01	6.0675E+00	9.7825E-01
Accumulated dose (rem)	2.2215E-02	3.1399E+01	6.0675E+00	9.7825E-01

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Kr-85	6.3707E-01	1.6238E-06	1.1504E+19	2.3572E+10
Rb-86	6.4081E-04	7.8756E-12	5.5148E+13	2.3710E+07
I-131	1.4046E-02	1.1330E-10	5.2084E+14	5.1971E+08
I-132	1.5397E-04	1.4917E-14	6.8053E+10	5.6969E+06

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Xe-133	1.0286E+00	5.4953E-09	2.4882E+16	3.8059E+10
Cs-134	1.9818E-01	1.5318E-07	6.8840E+17	7.3328E+09
Cs-136	1.1957E-02	1.6315E-10	7.2242E+14	4.4241E+08
Cs-137	1.0980E-01	1.2623E-06	5.5488E+18	4.0626E+09
Xe-131m	1.1551E-01	1.3790E-09	6.3395E+15	4.2739E+09
Xe-133m	1.6654E-04	3.7117E-13	1.6806E+12	6.1622E+06
Ba-137m	3.3855E-02	6.2950E-14	2.7671E+11	1.2526E+09

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) = 2.0000	Atmosphere		Sump	Overlying Pool
	Noble gases (atoms)	1.1536E+19	0.0000E+00	0.0000E+00
Elemental I (atoms)	3.6474E+14	0.0000E+00	1.2418E+21	
Organic I (atoms)	1.5616E+14	0.0000E+00	0.0000E+00	
Aerosols (kg)	1.4157E-06	0.0000E+00	0.0000E+00	

Time (h) = 2.0000	Deposition Surfaces		Recirculating Filter
	Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	
Organic I (atoms)	0.0000E+00	0.0000E+00	
Aerosols (kg)	0.0000E+00	0.0000E+00	

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Rb-86	7.6475E+00	9.3987E-08	6.5814E+17	2.8296E+11
Cs-134	2.3651E+03	1.8280E-03	8.2153E+21	8.7510E+13
Cs-136	1.4270E+02	1.9470E-06	8.6214E+18	5.2798E+12
Cs-137	1.3103E+03	1.5065E-02	6.6220E+22	4.8483E+13
Ba-137m	1.4199E+03	2.6402E-09	1.1606E+16	5.2537E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 2.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6895E-02

Environment Integral Nuclide Release:

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Kr-85	7.6353E+04	1.9461E-01	1.3788E+24	2.8251E+15
I-131	2.5909E+02	2.0899E-06	9.6073E+18	9.5864E+12
I-132	2.8235E+00	2.7354E-10	1.2480E+15	1.0447E+11
I-133	1.4916E-07	1.3167E-16	5.9619E+08	5.5188E+03
Xe-133	1.2328E+05	6.5860E-04	2.9821E+21	4.5613E+15
Xe-131m	1.1682E+04	1.3946E-04	6.4111E+20	4.3222E+14
Xe-133m	1.9960E+01	4.4484E-08	2.0142E+17	7.3853E+11
Br-82	1.4195E-07	1.3111E-16	9.6289E+08	5.2520E+03

Environment Transport Group Inventory:

Time (h) = 2.0000	Present Release	Release Rate/s	Integral Release
	Noble gases (atoms)	1.3842E+22	1.9224E+20
Elemental I (atoms)	6.7355E+16	9.3548E+14	6.7280E+18
Organic I (atoms)	2.8837E+16	4.0052E+14	2.8805E+18
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Rb-86	7.6475E+00	9.3987E-08	6.5814E+17	2.8296E+11
Cs-134	2.3651E+03	1.8280E-03	8.2153E+21	8.7510E+13
Cs-136	1.4270E+02	1.9470E-06	8.6214E+18	5.2798E+12
Cs-137	1.3103E+03	1.5065E-02	6.6220E+22	4.8483E+13
Ba-137m	1.4199E+03	2.6402E-09	1.1606E+16	5.2537E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

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	Pathway
Time (h) =	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6895E-02

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) =	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) =	Ci	kg	Atoms	Bq
I-131	1.3078E-01	1.0549E-09	4.8495E+15	4.8390E+09
I-132	1.4252E-03	1.3807E-13	6.2992E+11	5.2732E+07
I-133	7.5291E-11	6.6464E-20	3.0094E+05	2.7858E+00
Br-82	7.1651E-11	6.6182E-20	4.8604E+05	2.6511E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) =	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.3961E+15
Organic I (atoms)	1.4540E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) =	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) =	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) =	Ci	kg	Atoms	Bq
Rb-86	6.8827E+01	8.4588E-07	5.9233E+18	2.5466E+12
I-131	1.4181E+03	1.1439E-05	5.2585E+19	5.2471E+13
I-132	1.5454E+01	1.4972E-09	6.8304E+15	5.7179E+11
I-133	8.1640E-07	7.2069E-16	3.2632E+09	3.0207E+04
Cs-134	2.1286E+04	1.6452E-02	7.3938E+22	7.8759E+14
Cs-136	1.2843E+03	1.7523E-05	7.7592E+19	4.7518E+13
Cs-137	1.1793E+04	1.3558E-01	5.9598E+23	4.3635E+14
Ba-137m	1.2779E+04	2.3762E-08	1.0445E+17	4.7283E+14
Br-82	7.7693E-07	7.1763E-16	5.2703E+09	2.8746E+04

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) =	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.6825E+19
Organic I (atoms)	1.5766E+19
Aerosols (kg)	1.5205E-01

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Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) =	2.0000	Ci	kg	Atoms	Bq
Kr-85		1.3017E+01	3.3179E-05	2.3507E+20	4.8164E+11
I-131		1.3047E-02	1.0524E-10	4.8379E+14	4.8273E+08
I-132		1.4283E-04	1.3837E-14	6.3128E+10	5.2847E+06
Xe-133		2.1018E+01	1.1228E-07	5.0842E+17	7.7765E+11
Xe-131m		1.9934E+00	2.3799E-08	1.0940E+17	7.3756E+10
Xe-133m		3.4030E-03	7.5841E-12	3.4340E+13	1.2591E+08

Control Room Transport Group Inventory:

Time (h) =	2.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)		2.3569E+20	0.0000E+00	0.0000E+00
Elemental I (atoms)		3.3880E+14	0.0000E+00	0.0000E+00
Organic I (atoms)		1.4505E+14	0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00	0.0000E+00

Recirculating Filter Inventory

Time (h) =	2.0000	Ci	kg	Atoms	Bq
I-131		5.4658E-02	4.4088E-10	2.0267E+15	2.0223E+09
I-132		5.9534E-04	5.7676E-14	2.6313E+11	2.2027E+07
I-133		3.1466E-11	2.7777E-20	1.2577E+05	1.1642E+00
Br-82		2.9945E-11	2.7659E-20	2.0313E+05	1.1080E+00

Deposition Recirculating

Time (h) =	2.0000	Surfaces	Filter
Noble gases (atoms)		0.0000E+00	0.0000E+00
Elemental I (atoms)		0.0000E+00	1.4193E+15
Organic I (atoms)		0.0000E+00	6.0767E+14
Aerosols (kg)		0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) =	2.0000	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) =	2.0000	Ci	kg	Atoms	Bq
I-131		1.3078E-01	1.0549E-09	4.8495E+15	4.8390E+09
I-132		1.4252E-03	1.3807E-13	6.2992E+11	5.2732E+07
I-133		7.5291E-11	6.6464E-20	3.0094E+05	2.7858E+00
Br-82		7.1651E-11	6.6182E-20	4.8604E+05	2.6511E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) =	2.0000	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		3.3961E+15
Organic I (atoms)		1.4540E+15
Aerosols (kg)		0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) =	2.0000	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Control Room Exhaust Transport Group Inventory:

Pathway

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Time (h) = 2.0000 Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Total Filter Nuclide Inventory:

Time (h) = 2.0000 Ci kg Atoms Bq
 I-131 1.8544E-01 1.4958E-09 6.8762E+15 6.8613E+09
 I-132 2.0205E-03 1.9575E-13 8.9305E+11 7.4760E+07
 I-133 1.0676E-10 9.4241E-20 4.2671E+05 3.9500E+00
 Br-82 1.0160E-10 9.3841E-20 6.8917E+05 3.7590E+00

Fuel Pool-Filtered Compartment Atmosphere Nuclide Inventory:

Time (h) = 2.0000 Ci kg Atoms Bq
 Kr-85 5.7337E+00 1.4614E-05 1.0354E+20 2.1215E+11
 Rb-86 5.7673E-03 7.0880E-11 4.9634E+14 2.1339E+08
 I-131 1.2642E-01 1.0197E-09 4.6875E+15 4.6774E+09
 I-132 1.3857E-03 1.3425E-13 6.1247E+11 5.1272E+07
 I-133 7.2776E-11 6.4244E-20 2.9089E+05 2.6927E+00
 Xe-133 9.2575E+00 4.9457E-08 2.2394E+17 3.4253E+11
 Cs-134 1.7837E+00 1.3786E-06 6.1956E+18 6.5996E+10
 Cs-136 1.0761E-01 1.4683E-09 6.5018E+15 3.9817E+09
 Cs-137 9.8819E-01 1.1361E-05 4.9939E+19 3.6563E+10
 Xe-131m 1.0396E+00 1.2411E-08 5.7056E+16 3.8465E+10
 Xe-133m 1.4989E-03 3.3405E-12 1.5126E+13 5.5459E+07
 Ba-137m 3.0469E-01 5.6655E-13 2.4904E+12 1.1274E+10
 Br-82 6.9258E-11 6.3971E-20 4.6981E+05 2.5625E+00

Fuel Pool-Filtered Transport Group Inventory:

Time (h) = 2.0000 Atmosphere Sump Overlying Pool
 Noble gases (atoms) 1.0382E+20 0.0000E+00 0.0000E+00
 Elemental I (atoms) 3.2827E+15 0.0000E+00 1.1176E+22
 Organic I (atoms) 1.4055E+15 0.0000E+00 0.0000E+00
 Aerosols (kg) 1.2741E-05 0.0000E+00 0.0000E+00

Time (h) = 2.0000 Deposition Surfaces Recirculating Filter
 Noble gases (atoms) 0.0000E+00 0.0000E+00
 Elemental I (atoms) 0.0000E+00 0.0000E+00
 Organic I (atoms) 0.0000E+00 0.0000E+00
 Aerosols (kg) 0.0000E+00 0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 2.0000 Ci kg Atoms Bq
 Rb-86 6.8827E+01 8.4588E-07 5.9233E+18 2.5466E+12
 I-131 1.4181E+03 1.1439E-05 5.2585E+19 5.2471E+13
 I-132 1.5454E+01 1.4972E-09 6.8304E+15 5.7179E+11
 I-133 8.1640E-07 7.2069E-16 3.2632E+09 3.0207E+04
 Cs-134 2.1286E+04 1.6452E-02 7.3938E+22 7.8759E+14
 Cs-136 1.2843E+03 1.7523E-05 7.7592E+19 4.7518E+13
 Cs-137 1.1793E+04 1.3558E-01 5.9598E+23 4.3635E+14
 Ba-137m 1.2779E+04 2.3762E-08 1.0445E+17 4.7283E+14
 Br-82 7.7693E-07 7.1763E-16 5.2703E+09 2.8746E+04

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) = 2.0000 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 3.6825E+19
 Organic I (atoms) 1.5766E+19
 Aerosols (kg) 1.5205E-01

Detailed model information at time (H) = 2.0020

EAB Doses:

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Time (h) =	2.0020	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		4.2153E-04	5.2879E-02	3.3673E-03	2.0315E-03
Accumulated dose (rem)		4.2366E-01	5.3057E+01	3.3717E+00	2.0391E+00

LPZ Doses:

Time (h) =	2.0020	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		2.3696E-05	2.9726E-03	1.8929E-04	1.1420E-04
Accumulated dose (rem)		5.2320E-02	6.5523E+00	4.1639E-01	2.5182E-01

Control Room Doses:

Time (h) =	2.0020	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		2.7352E-05	3.4884E-02	7.4961E-03	1.0895E-03
Accumulated dose (rem)		2.2242E-02	3.1434E+01	6.0750E+00	9.7934E-01

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) =	2.0020	Ci	kg	Atoms	Bq
Kr-85		6.3707E-01	1.6238E-06	1.1504E+19	2.3572E+10
Rb-86		6.4081E-04	7.8755E-12	5.5148E+13	2.3710E+07
I-131		1.4046E-02	1.1330E-10	5.2083E+14	5.1970E+08
I-132		1.5390E-04	1.4910E-14	6.8021E+10	5.6943E+06
Xe-133		1.0286E+00	5.4952E-09	2.4882E+16	3.8058E+10
Cs-134		1.9818E-01	1.5318E-07	6.8840E+17	7.3328E+09
Cs-136		1.1957E-02	1.6315E-10	7.2242E+14	4.4241E+08
Cs-137		1.0980E-01	1.2623E-06	5.5488E+18	4.0626E+09
Xe-131m		9.9275E-02	1.1852E-09	5.4485E+15	3.6732E+09
Xe-133m		1.6654E-04	3.7116E-13	1.6806E+12	6.1620E+06
Ba-137m		3.3857E-03	6.2954E-15	2.7673E+10	1.2527E+08

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) =	2.0020	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)		1.1535E+19	0.0000E+00	0.0000E+00
Elemental I (atoms)		3.6474E+14	0.0000E+00	1.2430E+21
Organic I (atoms)		1.5616E+14	0.0000E+00	0.0000E+00
Aerosols (kg)		1.4157E-06	0.0000E+00	0.0000E+00

Time (h) =	2.0020	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)		0.0000E+00	0.0000E+00
Elemental I (atoms)		0.0000E+00	0.0000E+00
Organic I (atoms)		0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) =	2.0020	Ci	kg	Atoms	Bq
Rb-86		7.6551E+00	9.4081E-08	6.5880E+17	2.8324E+11
Cs-134		2.3675E+03	1.8299E-03	8.2236E+21	8.7598E+13
Cs-136		1.4284E+02	1.9489E-06	8.6300E+18	5.2851E+12
Cs-137		1.3117E+03	1.5080E-02	6.6286E+22	4.8532E+13
Ba-137m		1.4150E+03	2.6311E-09	1.1566E+16	5.2356E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) =	2.0020	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		1.6912E-02

Environment Integral Nuclide Release:

Time (h) =	2.0020	Ci	kg	Atoms	Bq
Kr-85		7.6429E+04	1.9481E-01	1.3802E+24	2.8279E+15
I-131		2.5935E+02	2.0920E-06	9.6168E+18	9.5960E+12
I-132		2.8247E+00	2.7365E-10	1.2485E+15	1.0451E+11
I-133		1.4930E-07	1.3179E-16	5.9675E+08	5.5240E+03
Xe-133		1.2340E+05	6.5926E-04	2.9851E+21	4.5658E+15

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Xe-131m	1.1693E+04	1.3960E-04	6.4176E+20	4.3265E+14
Xe-133m	1.9980E+01	4.4528E-08	2.0162E+17	7.3925E+11
Br-82	1.4208E-07	1.3124E-16	9.6382E+08	5.2571E+03

Environment Transport Group Inventory:

	Present	Release	Integral
Time (h) = 2.0020	Release	Rate/s	Release
Noble gases (atoms)	1.3843E+21	1.9227E+19	1.3838E+24
Elemental I (atoms)	6.7366E+15	9.3564E+13	6.7347E+18
Organic I (atoms)	2.8842E+15	4.0059E+13	2.8834E+18
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 2.0020	Ci	kg	Atoms	Bq
Rb-86	7.6551E+00	9.4081E-08	6.5880E+17	2.8324E+11
Cs-134	2.3675E+03	1.8299E-03	8.2236E+21	8.7598E+13
Cs-136	1.4284E+02	1.9489E-06	8.6300E+18	5.2851E+12
Cs-137	1.3117E+03	1.5080E-02	6.6286E+22	4.8532E+13
Ba-137m	1.4150E+03	2.6311E-09	1.1566E+16	5.2356E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 2.0020	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6912E-02

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 2.0020	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) = 2.0020	Ci	kg	Atoms	Bq
I-131	1.3090E-01	1.0558E-09	4.8537E+15	4.8432E+09
I-132	1.4256E-03	1.3811E-13	6.3009E+11	5.2747E+07
I-133	7.5352E-11	6.6517E-20	3.0119E+05	2.7880E+00
Br-82	7.1711E-11	6.6237E-20	4.8645E+05	2.6533E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 2.0020	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.3991E+15
Organic I (atoms)	1.4553E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 2.0020	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) = 2.0020	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00

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Aerosols (kg) 0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) =	Ci	kg	Atoms	Bq
2.0020				
Rb-86	6.8896E+01	8.4673E-07	5.9292E+18	2.5492E+12
I-131	1.4195E+03	1.1450E-05	5.2637E+19	5.2523E+13
I-132	1.5460E+01	1.4978E-09	6.8332E+15	5.7203E+11
I-133	8.1717E-07	7.2136E-16	3.2663E+09	3.0235E+04
Cs-134	2.1308E+04	1.6469E-02	7.4012E+22	7.8838E+14
Cs-136	1.2856E+03	1.7540E-05	7.7670E+19	4.7566E+13
Cs-137	1.1805E+04	1.3572E-01	5.9658E+23	4.3678E+14
Ba-137m	1.2735E+04	2.3680E-08	1.0409E+17	4.7120E+14
Br-82	7.7768E-07	7.1832E-16	5.2754E+09	2.8774E+04

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) =	Pathway
2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.6862E+19
Organic I (atoms)	1.5782E+19
Aerosols (kg)	1.5220E-01

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) =	Ci	kg	Atoms	Bq
2.0020				
Kr-85	1.3008E+01	3.3154E-05	2.3489E+20	4.8128E+11
I-131	1.3018E-02	1.0500E-10	4.8271E+14	4.8166E+08
I-132	1.4243E-04	1.3798E-14	6.2951E+10	5.2699E+06
Xe-133	2.1002E+01	1.1220E-07	5.0803E+17	7.7706E+11
Xe-131m	1.9920E+00	2.3782E-08	1.0933E+17	7.3705E+10
Xe-133m	3.4004E-03	7.5782E-12	3.4313E+13	1.2581E+08

Control Room Transport Group Inventory:

Time (h) =	Atmosphere	Sump	Overlying Pool
2.0020			
Noble gases (atoms)	2.3551E+20	0.0000E+00	0.0000E+00
Elemental I (atoms)	3.3804E+14	0.0000E+00	0.0000E+00
Organic I (atoms)	1.4473E+14	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Recirculating Filter Inventory

Time (h) =	Ci	kg	Atoms	Bq
2.0020				
I-131	5.4718E-02	4.4137E-10	2.0290E+15	2.0246E+09
I-132	5.9565E-04	5.7706E-14	2.6327E+11	2.2039E+07
I-133	3.1499E-11	2.7806E-20	1.2590E+05	1.1655E+00
Br-82	2.9977E-11	2.7689E-20	2.0335E+05	1.1091E+00

Deposition Recirculating

Time (h) =	Surfaces	Filter
2.0020		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	1.4209E+15
Organic I (atoms)	0.0000E+00	6.0835E+14
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) =	Pathway
2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) =	Ci	kg	Atoms	Bq
2.0020				
I-131	1.3090E-01	1.0558E-09	4.8537E+15	4.8432E+09
I-132	1.4256E-03	1.3811E-13	6.3009E+11	5.2747E+07
I-133	7.5352E-11	6.6517E-20	3.0119E+05	2.7880E+00

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Br-82 7.1711E-11 6.6237E-20 4.8645E+05 2.6533E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.3991E+15
Organic I (atoms)	1.4553E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Total Filter Nuclide Inventory:

Time (h) = 2.0020	Ci	kg	Atoms	Bq
I-131	1.8561E-01	1.4972E-09	6.8827E+15	6.8677E+09
I-132	2.0212E-03	1.9582E-13	8.9336E+11	7.4786E+07
I-133	1.0685E-10	9.4324E-20	4.2709E+05	3.9535E+00
Br-82	1.0169E-10	9.3926E-20	6.8980E+05	3.7624E+00

Fuel Pool-Filtered Compartment Atmosphere Nuclide Inventory:

Time (h) = 2.0020	Ci	kg	Atoms	Bq
Kr-85	5.7337E+00	1.4614E-05	1.0354E+20	2.1215E+11
Rb-86	5.7673E-03	7.0880E-11	4.9633E+14	2.1339E+08
I-131	1.2641E-01	1.0197E-09	4.6875E+15	4.6773E+09
I-132	1.3851E-03	1.3419E-13	6.1219E+11	5.1249E+07
I-133	7.2771E-11	6.4240E-20	2.9087E+05	2.6925E+00
Xe-133	9.2574E+00	4.9457E-08	2.2394E+17	3.4252E+11
Cs-134	1.7837E+00	1.3786E-06	6.1956E+18	6.5996E+10
Cs-136	1.0761E-01	1.4683E-09	6.5017E+15	3.9817E+09
Cs-137	9.8819E-01	1.1361E-05	4.9939E+19	3.6563E+10
Xe-131m	8.9348E-01	1.0667E-08	4.9037E+16	3.3059E+10
Xe-133m	1.4989E-03	3.3404E-12	1.5125E+13	5.5458E+07
Ba-137m	3.0471E-02	5.6658E-14	2.4905E+11	1.1274E+09
Br-82	6.9255E-11	6.3969E-20	4.6979E+05	2.5624E+00

Fuel Pool-Filtered Transport Group Inventory:

Time (h) = 2.0020	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	1.0381E+20	0.0000E+00	0.0000E+00
Elemental I (atoms)	3.2827E+15	0.0000E+00	1.1187E+22
Organic I (atoms)	1.4055E+15	0.0000E+00	0.0000E+00
Aerosols (kg)	1.2741E-05	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 2.0020		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 2.0020	Ci	kg	Atoms	Bq
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Rb-86	6.8896E+01	8.4673E-07	5.9292E+18	2.5492E+12
I-131	1.4195E+03	1.1450E-05	5.2637E+19	5.2523E+13
I-132	1.5460E+01	1.4978E-09	6.8332E+15	5.7203E+11
I-133	8.1717E-07	7.2136E-16	3.2663E+09	3.0235E+04
Cs-134	2.1308E+04	1.6469E-02	7.4012E+22	7.8838E+14
Cs-136	1.2856E+03	1.7540E-05	7.7670E+19	4.7566E+13
Cs-137	1.1805E+04	1.3572E-01	5.9658E+23	4.3678E+14
Ba-137m	1.2735E+04	2.3680E-08	1.0409E+17	4.7120E+14
Br-82	7.7768E-07	7.1832E-16	5.2754E+09	2.8774E+04

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.6862E+19
Organic I (atoms)	1.5782E+19
Aerosols (kg)	1.5220E-01

Detailed model information at time (H) = 8.0000

EAB Doses:

Time (h) = 8.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	3.9390E-03	4.8166E-01	3.1654E-02	1.8604E-02
Accumulated dose (rem)	4.2760E-01	5.3539E+01	3.4034E+00	2.0577E+00

LPZ Doses:

Time (h) = 8.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	2.2143E-04	2.7077E-02	1.7794E-03	1.0458E-03
Accumulated dose (rem)	5.2541E-02	6.5794E+00	4.1817E-01	2.5287E-01

Control Room Doses:

Time (h) = 8.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	5.5922E-03	3.8254E+00	1.5389E+00	1.2206E-01
Accumulated dose (rem)	2.7835E-02	3.5260E+01	7.6139E+00	1.1014E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Xe-133	1.7053E-09	9.1103E-18	4.1251E+07	6.3095E+01
Xe-131m	1.7834E-02	2.1292E-10	9.7879E+14	6.5986E+08
Xe-133m	1.2209E-10	2.7209E-19	1.2320E+06	4.5172E+00

Fuel Pool-Unfiltered Transport Group Inventory:

			Overlying
Time (h) = 8.0000	Atmosphere	Sump	Pool
Noble gases (atoms)	9.7879E+14	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	1.2274E+21
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

		Deposition Recirculating
Time (h) = 8.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Rb-86	7.6911E+00	9.4523E-08	6.6189E+17	2.8457E+11
Cs-134	2.4003E+03	1.8552E-03	8.3373E+21	8.8810E+13
Cs-136	1.4295E+02	1.9504E-06	8.6364E+18	5.2890E+12
Cs-137	1.3301E+03	1.5292E-02	6.7217E+22	4.9213E+13
Ba-137m	1.4744E+03	2.7416E-09	1.2051E+16	5.4554E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

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	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.7149E-02

Environment Integral Nuclide Release:

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Kr-85	7.7133E+04	1.9660E-01	1.3929E+24	2.8539E+15
Xe-133	1.2050E+05	6.4375E-04	2.9148E+21	4.4584E+15
Xe-131m	1.1685E+04	1.3950E-04	6.4129E+20	4.3234E+14
Xe-133m	1.8630E+01	4.1519E-08	1.8799E+17	6.8930E+11

Environment Transport Group Inventory:

	Present	Release	Integral
Time (h) = 8.0000	Release	Rate/s	Release
Noble gases (atoms)	9.7915E+15	1.3599E+14	1.3965E+24
Elemental I (atoms)	3.9855E+00	5.5354E-02	6.6505E+18
Organic I (atoms)	1.7064E+00	2.3700E-02	2.8473E+18
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Rb-86	7.6911E+00	9.4523E-08	6.6189E+17	2.8457E+11
Cs-134	2.4003E+03	1.8552E-03	8.3373E+21	8.8810E+13
Cs-136	1.4295E+02	1.9504E-06	8.6364E+18	5.2890E+12
Cs-137	1.3301E+03	1.5292E-02	6.7217E+22	4.9213E+13
Ba-137m	1.4744E+03	2.7416E-09	1.2051E+16	5.4554E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.7149E-02

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) = 8.0000	Ci	kg	Atoms	Bq
I-131	1.2967E-01	1.0460E-09	4.8084E+15	4.7980E+09
I-132	2.3674E-04	2.2936E-14	1.0464E+11	8.7595E+06
I-133	6.2456E-11	5.5133E-20	2.4964E+05	2.3109E+00
Br-82	6.4524E-11	5.9598E-20	4.3770E+05	2.3874E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.3670E+15
Organic I (atoms)	1.4415E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00

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Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Rb-86	6.9220E+01	8.5070E-07	5.9570E+18	2.5611E+12
I-131	1.4088E+03	1.1364E-05	5.2240E+19	5.2126E+13
I-132	2.5721E+00	2.4918E-10	1.1368E+15	9.5167E+10
I-133	6.7853E-07	5.9898E-16	2.7121E+09	2.5106E+04
Cs-134	2.1602E+04	1.6696E-02	7.5036E+22	7.9929E+14
Cs-136	1.2865E+03	1.7553E-05	7.7727E+19	4.7601E+13
Cs-137	1.1971E+04	1.3762E-01	6.0496E+23	4.4292E+14
Ba-137m	1.3270E+04	2.4674E-08	1.0846E+17	4.9099E+14
Br-82	7.0100E-07	6.4749E-16	4.7552E+09	2.5937E+04

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.6580E+19
Organic I (atoms)	1.5661E+19
Aerosols (kg)	1.5434E-01

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Kr-85	3.5143E-06	8.9575E-12	6.3462E+13	1.3003E+05
Xe-133	5.4903E-06	2.9331E-14	1.3281E+11	2.0314E+05
Xe-131m	2.5349E-03	3.0263E-11	1.3912E+14	9.3790E+07
Xe-133m	8.6628E-10	1.9306E-18	8.7417E+06	3.2053E+01

Control Room Transport Group Inventory:

			Overlying
Time (h) = 8.0000	Atmosphere	Sump	Pool
Noble gases (atoms)	2.0272E+14	0.0000E+00	0.0000E+00
Elemental I (atoms)	7.5052E+01	0.0000E+00	0.0000E+00
Organic I (atoms)	3.2133E+01	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Recirculating Filter Inventory

Time (h) = 8.0000	Ci	kg	Atoms	Bq
I-131	6.0095E-02	4.8474E-10	2.2284E+15	2.2235E+09
I-132	1.0971E-04	1.0629E-14	4.8492E+10	4.0594E+06
I-133	2.8944E-11	2.5550E-20	1.1569E+05	1.0709E+00
Br-82	2.9902E-11	2.7620E-20	2.0284E+05	1.1064E+00

Deposition Recirculating

Time (h) = 8.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	1.5604E+15
Organic I (atoms)	0.0000E+00	6.6806E+14
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00

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Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) =	8.0000				
		Ci	kg	Atoms	Bq
I-131		1.2967E-01	1.0460E-09	4.8084E+15	4.7980E+09
I-132		2.3674E-04	2.2936E-14	1.0464E+11	8.7595E+06
I-133		6.2456E-11	5.5133E-20	2.4964E+05	2.3109E+00
Br-82		6.4524E-11	5.9598E-20	4.3770E+05	2.3874E+00

Control Room Filtered Makeup Transport Group Inventory:

		Pathway
Time (h) =	8.0000	Filter
Noble gases (atoms)	0.0000E+00	
Elemental I (atoms)	3.3670E+15	
Organic I (atoms)	1.4415E+15	
Aerosols (kg)	0.0000E+00	

Control Room Unfiltered Inleakage Transport Group Inventory:

		Pathway
Time (h) =	8.0000	Filter
Noble gases (atoms)	0.0000E+00	
Elemental I (atoms)	0.0000E+00	
Organic I (atoms)	0.0000E+00	
Aerosols (kg)	0.0000E+00	

Control Room Exhaust Transport Group Inventory:

		Pathway
Time (h) =	8.0000	Filter
Noble gases (atoms)	0.0000E+00	
Elemental I (atoms)	0.0000E+00	
Organic I (atoms)	0.0000E+00	
Aerosols (kg)	0.0000E+00	

Control Room Total Filter Nuclide Inventory:

Time (h) =	8.0000				
		Ci	kg	Atoms	Bq
I-131		1.8977E-01	1.5307E-09	7.0368E+15	7.0215E+09
I-132		3.4646E-04	3.3565E-14	1.5313E+11	1.2819E+07
I-133		9.1399E-11	8.0684E-20	3.6533E+05	3.3818E+00
Br-82		9.4426E-11	8.7218E-20	6.4054E+05	3.4938E+00

Fuel Pool-Filtered Compartment Atmosphere Nuclide Inventory:

Time (h) =	8.0000				
		Ci	kg	Atoms	Bq
Xe-133		1.5347E-08	8.1992E-17	3.7125E+08	5.6786E+02
Xe-131m		1.6051E-01	1.9162E-09	8.8091E+15	5.9388E+09
Xe-133m		1.0988E-09	2.4488E-18	1.1088E+07	4.0655E+01

Fuel Pool-Filtered Transport Group Inventory:

Time (h) =	8.0000			Overlying
		Atmosphere	Sump	Pool
Noble gases (atoms)	8.8091E+15	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	1.1046E+22	
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00	
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00	

		Deposition Recirculating	
Time (h) =	8.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	
Organic I (atoms)	0.0000E+00	0.0000E+00	
Aerosols (kg)	0.0000E+00	0.0000E+00	

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) =	8.0000				
		Ci	kg	Atoms	Bq
Rb-86		6.9220E+01	8.5070E-07	5.9570E+18	2.5611E+12

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I-131	1.4088E+03	1.1364E-05	5.2240E+19	5.2126E+13
I-132	2.5721E+00	2.4918E-10	1.1368E+15	9.5167E+10
I-133	6.7853E-07	5.9898E-16	2.7121E+09	2.5106E+04
Cs-134	2.1602E+04	1.6696E-02	7.5036E+22	7.9929E+14
Cs-136	1.2865E+03	1.7553E-05	7.7727E+19	4.7601E+13
Cs-137	1.1971E+04	1.3762E-01	6.0496E+23	4.4292E+14
Ba-137m	1.3270E+04	2.4674E-08	1.0846E+17	4.9099E+14
Br-82	7.0100E-07	6.4749E-16	4.7552E+09	2.5937E+04

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.6580E+19
Organic I (atoms)	1.5661E+19
Aerosols (kg)	1.5434E-01

Detailed model information at time (H) = 24.0000

EAB Doses:

Time (h) = 24.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	1.0757E-04	1.5732E-16	1.3328E-03	1.0757E-04
Accumulated dose (rem)	4.2770E-01	5.3539E+01	3.4047E+00	2.0578E+00

LPZ Doses:

Time (h) = 24.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	4.0712E-06	5.9542E-18	5.0445E-05	4.0712E-06
Accumulated dose (rem)	5.2545E-02	6.5794E+00	4.1822E-01	2.5287E-01

Control Room Doses:

Time (h) = 24.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	2.3386E-06	7.9511E-13	9.8077E-04	2.3386E-06
Accumulated dose (rem)	2.7837E-02	3.5260E+01	7.6149E+00	1.1014E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Xe-133	1.0005E-09	5.3453E-18	2.4203E+07	3.7020E+01
Xe-131m	1.6838E-02	2.0102E-10	9.2412E+14	6.2301E+08
Xe-133m	7.1632E-11	1.5964E-19	7.2285E+05	2.6504E+00

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) = 24.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	9.2412E+14	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	1.1588E+21
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 24.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Rb-86	7.5029E+00	9.2211E-08	6.4570E+17	2.7761E+11
Cs-134	2.3988E+03	1.8540E-03	8.3322E+21	8.8755E+13
Cs-136	1.3799E+02	1.8828E-06	8.3371E+18	5.1057E+12
Cs-137	1.3300E+03	1.5291E-02	6.7215E+22	4.9211E+13
Ba-137m	1.4744E+03	2.7415E-09	1.2051E+16	5.4552E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Pathway

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Time (h) = 24.0000 Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 1.7147E-02

Environment Integral Nuclide Release:

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Xe-133	1.1034E+05	5.8946E-04	2.6690E+21	4.0825E+15
Xe-131m	1.1376E+04	1.3582E-04	6.2437E+20	4.2093E+14
Xe-133m	1.5083E+01	3.3614E-08	1.5220E+17	5.5807E+11

Environment Transport Group Inventory:

Time (h) = 24.0000	Present Release	Release Rate/s	Integral Release
Noble gases (atoms)	9.2414E+15	1.2835E+14	1.3960E+24
Elemental I (atoms)	5.8407E-34	8.1121E-36	6.2789E+18
Organic I (atoms)	2.5006E-34	3.4731E-36	2.6883E+18
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Rb-86	7.5029E+00	9.2211E-08	6.4570E+17	2.7761E+11
Cs-134	2.3988E+03	1.8540E-03	8.3322E+21	8.8755E+13
Cs-136	1.3799E+02	1.8828E-06	8.3371E+18	5.1057E+12
Cs-137	1.3300E+03	1.5291E-02	6.7215E+22	4.9211E+13
Ba-137m	1.4744E+03	2.7415E-09	1.2051E+16	5.4552E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 24.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.7147E-02

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 24.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) = 24.0000	Ci	kg	Atoms	Bq
I-131	1.2243E-01	9.8756E-10	4.5398E+15	4.5300E+09
I-132	1.9062E-06	1.8467E-16	8.4249E+08	7.0528E+04
I-133	3.6645E-11	3.2348E-20	1.4647E+05	1.3558E+00
Br-82	4.7127E-11	4.3530E-20	3.1969E+05	1.7437E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 24.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.1788E+15
Organic I (atoms)	1.3610E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 24.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00

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Aerosols (kg) 0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Rb-86	6.7526E+01	8.2989E-07	5.8113E+18	2.4985E+12
I-131	1.3301E+03	1.0729E-05	4.9322E+19	4.9215E+13
I-132	2.0709E-02	2.0063E-12	9.1531E+12	7.6624E+08
I-133	3.9811E-07	3.5144E-16	1.5913E+09	1.4730E+04
Cs-134	2.1589E+04	1.6686E-02	7.4990E+22	7.9880E+14
Cs-136	1.2419E+03	1.6945E-05	7.5033E+19	4.5951E+13
Cs-137	1.1970E+04	1.3762E-01	6.0493E+23	4.4290E+14
Ba-137m	1.3269E+04	2.4673E-08	1.0846E+17	4.9097E+14
Br-82	5.1200E-07	4.7292E-16	3.4732E+09	1.8944E+04

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.4536E+19
Organic I (atoms)	1.4786E+19
Aerosols (kg)	1.5432E-01

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Xe-133	5.4403E-11	2.9064E-19	1.3160E+06	2.0129E+00
Xe-131m	9.0550E-04	1.0810E-11	4.9696E+13	3.3503E+07

Control Room Transport Group Inventory:

			Overlying
Time (h) = 24.0000	Atmosphere	Sump	Pool
Noble gases (atoms)	4.9696E+13	0.0000E+00	0.0000E+00
Elemental I (atoms)	1.0999E-32	0.0000E+00	0.0000E+00
Organic I (atoms)	4.7090E-33	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Recirculating Filter Inventory

Time (h) = 24.0000	Ci	kg	Atoms	Bq
I-131	5.6739E-02	4.5766E-10	2.1039E+15	2.0993E+09
I-132	8.8337E-07	8.5580E-17	3.9044E+08	3.2685E+04
Br-82	2.1840E-11	2.0173E-20	1.4815E+05	8.0809E-01

Deposition Recirculating

Time (h) = 24.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	1.4732E+15
Organic I (atoms)	0.0000E+00	6.3073E+14
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

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Time (h) = 24.0000	Ci	kg	Atoms	Bq
I-131	1.2243E-01	9.8756E-10	4.5398E+15	4.5300E+09
I-132	1.9062E-06	1.8467E-16	8.4249E+08	7.0528E+04
I-133	3.6645E-11	3.2348E-20	1.4647E+05	1.3558E+00
Br-82	4.7127E-11	4.3530E-20	3.1969E+05	1.7437E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 24.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.1788E+15
Organic I (atoms)	1.3610E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 24.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) = 24.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Total Filter Nuclide Inventory:

Time (h) = 24.0000	Ci	kg	Atoms	Bq
I-131	1.7917E-01	1.4452E-09	6.6437E+15	6.6293E+09
I-132	2.7895E-06	2.7025E-16	1.2329E+09	1.0321E+05
I-133	5.3627E-11	4.7340E-20	2.1435E+05	1.9842E+00
Br-82	6.8968E-11	6.3703E-20	4.6784E+05	2.5518E+00

Fuel Pool-Filtered Compartment Atmosphere Nuclide Inventory:

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Xe-133	9.0048E-09	4.8107E-17	2.1783E+08	3.3318E+02
Xe-131m	1.5154E-01	1.8092E-09	8.3171E+15	5.6071E+09
Xe-133m	6.4469E-10	1.4368E-18	6.5056E+06	2.3854E+01

Fuel Pool-Filtered Transport Group Inventory:

Time (h) = 24.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	8.3171E+15	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	1.0429E+22
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 24.0000	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Rb-86	6.7526E+01	8.2989E-07	5.8113E+18	2.4985E+12
I-131	1.3301E+03	1.0729E-05	4.9322E+19	4.9215E+13
I-132	2.0709E-02	2.0063E-12	9.1531E+12	7.6624E+08
I-133	3.9811E-07	3.5144E-16	1.5913E+09	1.4730E+04
Cs-134	2.1589E+04	1.6686E-02	7.4990E+22	7.9880E+14
Cs-136	1.2419E+03	1.6945E-05	7.5033E+19	4.5951E+13

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Cs-137	1.1970E+04	1.3762E-01	6.0493E+23	4.4290E+14
Ba-137m	1.3269E+04	2.4673E-08	1.0846E+17	4.9097E+14
Br-82	5.1200E-07	4.7292E-16	3.4732E+09	1.8944E+04

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.4536E+19
Organic I (atoms)	1.4786E+19
Aerosols (kg)	1.5432E-01

Detailed model information at time (H) = 96.0000

EAB Doses:

Time (h) = 96.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	4.1438E-04	2.9459E-50	5.1345E-03	4.1438E-04
Accumulated dose (rem)	4.2812E-01	5.3539E+01	3.4098E+00	2.0583E+00

LPZ Doses:

Time (h) = 96.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	6.6654E-06	4.7386E-52	8.2590E-05	6.6654E-06
Accumulated dose (rem)	5.2552E-02	6.5794E+00	4.1830E-01	2.5288E-01

Control Room Doses:

Time (h) = 96.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	3.9108E-06	6.9914E-47	1.6405E-03	3.9108E-06
Accumulated dose (rem)	2.7841E-02	3.5260E+01	7.6165E+00	1.1014E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Xe-133	9.0825E-11	4.8522E-19	2.1971E+06	3.3605E+00
Xe-131m	1.3001E-02	1.5521E-10	7.1352E+14	4.8103E+08

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) = 96.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	7.1352E+14	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	8.9470E+20
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Deposition Recirculating

Time (h) = 96.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Rb-86	6.7117E+00	8.2487E-08	5.7761E+17	2.4833E+11
Cs-134	2.3922E+03	1.8489E-03	8.3092E+21	8.8510E+13
Cs-136	1.1774E+02	1.6064E-06	7.1134E+18	4.3563E+12
Cs-137	1.3298E+03	1.5288E-02	6.7202E+22	4.9202E+13
Ba-137m	1.4741E+03	2.7410E-09	1.2049E+16	5.4542E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 96.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.7139E-02

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Environment Integral Nuclide Release:

Time (h) =	Ci	kg	Atoms	Bq
96.0000				
Xe-133	7.4226E+04	3.9655E-04	1.7955E+21	2.7464E+15
Xe-131m	1.0043E+04	1.1990E-04	5.5120E+20	3.7160E+14
Xe-133m	5.8310E+00	1.2995E-08	5.8841E+16	2.1575E+11

Environment Transport Group Inventory:

Time (h) =	Present Release	Release Rate/s	Integral Release
96.0000			
Noble gases (atoms)	7.1353E+15	9.9102E+13	1.3943E+24
Elemental I (atoms)	0.0000E+00	0.0000E+00	4.8479E+18
Organic I (atoms)	0.0000E+00	0.0000E+00	2.0756E+18
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) =	Ci	kg	Atoms	Bq
96.0000				
Rb-86	6.7117E+00	8.2487E-08	5.7761E+17	2.4833E+11
Cs-134	2.3922E+03	1.8489E-03	8.3092E+21	8.8510E+13
Cs-136	1.1774E+02	1.6064E-06	7.1134E+18	4.3563E+12
Cs-137	1.3298E+03	1.5288E-02	6.7202E+22	4.9202E+13
Ba-137m	1.4741E+03	2.7410E-09	1.2049E+16	5.4542E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) =	Pathway Filter
96.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.7139E-02

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) =	Pathway Filter
96.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) =	Ci	kg	Atoms	Bq
96.0000				
I-131	9.4530E-02	7.6249E-10	3.5052E+15	3.4976E+09

Control Room Filtered Makeup Transport Group Inventory:

Time (h) =	Pathway Filter
96.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	2.4544E+15
Organic I (atoms)	1.0508E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) =	Pathway Filter
96.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) =	Pathway Filter
96.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00

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Aerosols (kg) 0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) =	Ci	kg	Atoms	Bq
Rb-86	6.0405E+01	7.4238E-07	5.1985E+18	2.2350E+12
I-131	1.0270E+03	8.2839E-06	3.8082E+19	3.7999E+13
I-133	3.6139E-08	3.1902E-17	1.4445E+08	1.3372E+03
Cs-134	2.1530E+04	1.6640E-02	7.4783E+22	7.9659E+14
Cs-136	1.0596E+03	1.4458E-05	6.4020E+19	3.9206E+13
Cs-137	1.1968E+04	1.3759E-01	6.0482E+23	4.4282E+14
Ba-137m	1.3267E+04	2.4669E-08	1.0844E+17	4.9087E+14
Br-82	1.2453E-07	1.1502E-16	8.4475E+08	4.6076E+03

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) =	Pathway
96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	2.6665E+19
Organic I (atoms)	1.1416E+19
Aerosols (kg)	1.5425E-01

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) =	Ci	kg	Atoms	Bq
96.0000				
Xe-131m	5.2620E-04	6.2822E-12	2.8880E+13	1.9469E+07

Control Room Transport Group Inventory:

Time (h) =	Atmosphere	Sump	Overlying Pool
96.0000			
Noble gases (atoms)	2.8880E+13	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Recirculating Filter Inventory

Time (h) =	Ci	kg	Atoms	Bq
96.0000				
I-131	4.3808E-02	3.5336E-10	1.6244E+15	1.6209E+09

Deposition Recirculating

Time (h) =	Surfaces	Filter
96.0000		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	1.1374E+15
Organic I (atoms)	0.0000E+00	4.8699E+14
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) =	Pathway
96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) =	Ci	kg	Atoms	Bq
96.0000				
I-131	9.4530E-02	7.6249E-10	3.5052E+15	3.4976E+09

Control Room Filtered Makeup Transport Group Inventory:

Time (h) =	Pathway
96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	2.4544E+15
Organic I (atoms)	1.0508E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

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	Pathway
Time (h) = 96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Total Filter Nuclide Inventory:

Time (h) = 96.0000	Ci	kg	Atoms	Bq
I-131	1.3834E-01	1.1159E-09	5.1297E+15	5.1185E+09
Br-82	1.6774E-11	1.5494E-20	1.1379E+05	6.2065E-01

Fuel Pool-Filtered Compartment Atmosphere Nuclide Inventory:

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Xe-133	8.1743E-10	4.3670E-18	1.9773E+07	3.0245E+01
Xe-131m	1.1701E-01	1.3969E-09	6.4216E+15	4.3292E+09
Xe-133m	5.8523E-11	1.3043E-19	5.9056E+05	2.1653E+00

Fuel Pool-Filtered Transport Group Inventory:

Time (h) = 96.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	6.4216E+15	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	8.0523E+21
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 96.0000	Surfaces	Recirculating Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Rb-86	6.0405E+01	7.4238E-07	5.1985E+18	2.2350E+12
I-131	1.0270E+03	8.2839E-06	3.8082E+19	3.7999E+13
I-133	3.6139E-08	3.1902E-17	1.4445E+08	1.3372E+03
Cs-134	2.1530E+04	1.6640E-02	7.4783E+22	7.9659E+14
Cs-136	1.0596E+03	1.4458E-05	6.4020E+19	3.9206E+13
Cs-137	1.1968E+04	1.3759E-01	6.0482E+23	4.4282E+14
Ba-137m	1.3267E+04	2.4669E-08	1.0844E+17	4.9087E+14
Br-82	1.2453E-07	1.1502E-16	8.4475E+08	4.6076E+03

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	2.6665E+19
Organic I (atoms)	1.1416E+19
Aerosols (kg)	1.5425E-01

Detailed model information at time (H) = 720.0000

EAB Doses:

Time (h) = 720.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	1.2547E-03	1.6450-202	1.5546E-02	1.2547E-03

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Accumulated dose (rem) 4.2937E-01 5.3539E+01 3.4254E+00 2.0595E+00

LPZ Doses:

Time (h) = 720.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	5.9125E-06	7.7521-205	7.3261E-05	5.9125E-06
Accumulated dose (rem)	5.2558E-02	6.5794E+00	4.1838E-01	2.5288E-01

Control Room Doses:

Time (h) = 720.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	5.8817E-06	2.6027-199	2.4672E-03	5.8817E-06
Accumulated dose (rem)	2.7847E-02	3.5260E+01	7.6190E+00	1.1014E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Xe-131m	1.3819E-03	1.6498E-11	7.5844E+13	5.1131E+07

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) = 720.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	7.5844E+13	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	9.5103E+19
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 720.0000	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Rb-86	2.5550E+00	3.1401E-08	2.1988E+17	9.4535E+10
Cs-134	2.3356E+03	1.8052E-03	8.1128E+21	8.6418E+13
Cs-136	2.9747E+01	4.0588E-07	1.7973E+18	1.1007E+12
Cs-137	1.3276E+03	1.5263E-02	6.7091E+22	4.9121E+13
Ba-137m	1.4717E+03	2.7365E-09	1.2029E+16	5.4452E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.7069E-02

Environment Integral Nuclide Release:

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Xe-131m	2.8459E+03	3.3977E-05	1.5619E+20	1.0530E+14

Environment Transport Group Inventory:

Time (h) = 720.0000	Present Release	Release Rate/s	Integral Release
Noble gases (atoms)	7.5846E+14	1.0534E+13	1.3858E+24
Elemental I (atoms)	0.0000E+00	0.0000E+00	5.1532E+17
Organic I (atoms)	0.0000E+00	0.0000E+00	2.2063E+17
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Rb-86	2.5550E+00	3.1401E-08	2.1988E+17	9.4535E+10
Cs-134	2.3356E+03	1.8052E-03	8.1128E+21	8.6418E+13
Cs-136	2.9747E+01	4.0588E-07	1.7973E+18	1.1007E+12

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Cs-137	1.3276E+03	1.5263E-02	6.7091E+22	4.9121E+13
Ba-137m	1.4717E+03	2.7365E-09	1.2029E+16	5.4452E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.7069E-02

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) = 720.0000	Ci	kg	Atoms	Bq
I-131	1.0048E-02	8.1051E-11	3.7259E+14	3.7178E+08

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	2.6089E+14
Organic I (atoms)	1.1170E+14
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Rb-86	2.2995E+01	2.8261E-07	1.9790E+18	8.5082E+11
I-131	1.0917E+02	8.8055E-07	4.0479E+18	4.0392E+12
Cs-134	2.1020E+04	1.6247E-02	7.3015E+22	7.7776E+14
Cs-136	2.6773E+02	3.6529E-06	1.6175E+19	9.9059E+12
Cs-137	1.1948E+04	1.3737E-01	6.0382E+23	4.4209E+14
Ba-137m	1.3245E+04	2.4628E-08	1.0826E+17	4.9007E+14

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	2.8344E+18
Organic I (atoms)	1.2135E+18
Aerosols (kg)	1.5362E-01

Control Room Compartment Atmosphere Nuclide Inventory:

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Time (h) = 720.0000	Ci	kg	Atoms	Bq
Xe-131m	4.1738E-05	4.9830E-13	2.2907E+12	1.5443E+06

Control Room Transport Group Inventory:

Time (h) = 720.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	2.2907E+12	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Recirculating Filter Inventory

Time (h) = 720.0000	Ci	kg	Atoms	Bq
I-131	4.6567E-03	3.7561E-11	1.7267E+14	1.7230E+08

Time (h) = 720.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	1.2091E+14
Organic I (atoms)	0.0000E+00	5.1765E+13
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) = 720.0000	Ci	kg	Atoms	Bq
I-131	1.0048E-02	8.1051E-11	3.7259E+14	3.7178E+08

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	2.6089E+14
Organic I (atoms)	1.1170E+14
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Total Filter Nuclide Inventory:

Time (h) = 720.0000	Ci	kg	Atoms	Bq
I-131	1.4705E-02	1.1861E-10	5.4527E+14	5.4408E+08

Fuel Pool-Filtered Compartment Atmosphere Nuclide Inventory:

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Time (h) = 720.0000	Ci	kg	Atoms	Bq
Xe-131m	1.2437E-02	1.4849E-10	6.8260E+14	4.6018E+08

Fuel Pool-Filtered Transport Group Inventory:

Time (h) = 720.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	6.8260E+14	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	8.5593E+20
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 720.0000	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Rb-86	2.2995E+01	2.8261E-07	1.9790E+18	8.5082E+11
I-131	1.0917E+02	8.8055E-07	4.0479E+18	4.0392E+12
Cs-134	2.1020E+04	1.6247E-02	7.3015E+22	7.7776E+14
Cs-136	2.6773E+02	3.6529E-06	1.6175E+19	9.9059E+12
Cs-137	1.1948E+04	1.3737E-01	6.0382E+23	4.4209E+14
Ba-137m	1.3245E+04	2.4628E-08	1.0826E+17	4.9007E+14

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	2.8344E+18
Organic I (atoms)	1.2135E+18
Aerosols (kg)	1.5362E-01

Transport Group Totals in Model:

Noble Gases (atoms)	1.3858E+24
Elemental I (atoms)	9.5438E+20
Organic I (atoms)	1.4343E+18
Aerosols (kg)	1.7069E-01

37003

I-131 Summary
#####

Time (hr)	Fuel Pool-Unfiltered I-131 (Curies)	Environment I-131 (Curies)	Control Room I-131 (Curies)
0.000	0.0000E+00	0.0000E+00	0.0000E+00
0.001	0.0000E+00	0.0000E+00	0.0000E+00
0.002	0.0000E+00	0.0000E+00	0.0000E+00
0.280	1.4133E-02	3.6251E+01	9.7312E-03
0.540	1.4120E-02	7.0112E+01	1.2158E-02
0.800	1.4107E-02	1.0391E+02	1.2834E-02
1.060	1.4094E-02	1.3765E+02	1.3016E-02
1.320	1.4080E-02	1.7132E+02	1.3058E-02
1.580	1.4067E-02	2.0493E+02	1.3061E-02
1.840	1.4054E-02	2.3848E+02	1.3053E-02
2.000	1.4046E-02	2.5909E+02	1.3047E-02
2.002	1.4046E-02	2.5935E+02	1.3018E-02
2.280	0.0000E+00	2.6145E+02	3.6028E-03
2.540	0.0000E+00	2.6121E+02	1.0159E-03
2.800	0.0000E+00	2.6096E+02	2.8644E-04
3.060	0.0000E+00	2.6072E+02	8.0766E-05
3.320	0.0000E+00	2.6048E+02	2.2773E-05
3.580	0.0000E+00	2.6023E+02	6.4213E-06

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

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3.840	0.0000E+00	2.5999E+02	1.8106E-06
4.100	0.0000E+00	2.5975E+02	5.1053E-07
4.360	0.0000E+00	2.5951E+02	1.4395E-07
4.620	0.0000E+00	2.5926E+02	4.0589E-08
4.880	0.0000E+00	2.5902E+02	1.1445E-08
5.140	0.0000E+00	2.5878E+02	3.2271E-09
5.400	0.0000E+00	2.5854E+02	9.0992E-10
5.660	0.0000E+00	2.5830E+02	2.5657E-10
5.920	0.0000E+00	2.5806E+02	7.2344E-11
6.180	0.0000E+00	2.5781E+02	2.0398E-11
6.440	0.0000E+00	2.5757E+02	5.7517E-12
6.700	0.0000E+00	2.5733E+02	1.6218E-12
6.960	0.0000E+00	2.5709E+02	4.5729E-13
7.220	0.0000E+00	2.5685E+02	1.2894E-13
7.480	0.0000E+00	2.5661E+02	3.6357E-14
7.740	0.0000E+00	2.5637E+02	1.0251E-14
8.000	0.0000E+00	2.5613E+02	2.8905E-15
8.260	0.0000E+00	2.5590E+02	8.1503E-16
8.520	0.0000E+00	2.5566E+02	2.2981E-16
8.780	0.0000E+00	2.5542E+02	6.4799E-17
9.040	0.0000E+00	2.5518E+02	1.8271E-17
9.300	0.0000E+00	2.5494E+02	5.1519E-18
9.560	0.0000E+00	2.5470E+02	1.4527E-18
9.820	0.0000E+00	2.5447E+02	4.0960E-19
10.080	0.0000E+00	2.5423E+02	1.1549E-19
24.000	0.0000E+00	2.4183E+02	4.2361E-49
96.000	0.0000E+00	1.8672E+02	2.3655E-201
720.000	0.0000E+00	1.9847E+01	0.0000E+00

Fuel Pool-Filtered

Time (hr)	I-131 (Curies)
0.000	0.0000E+00
0.001	0.0000E+00
0.002	0.0000E+00
0.280	1.2720E-01
0.540	1.2708E-01
0.800	1.2696E-01
1.060	1.2684E-01
1.320	1.2672E-01
1.580	1.2661E-01
1.840	1.2649E-01
2.000	1.2642E-01
2.002	1.2641E-01
2.280	0.0000E+00
2.540	0.0000E+00
2.800	0.0000E+00
3.060	0.0000E+00
3.320	0.0000E+00
3.580	0.0000E+00
3.840	0.0000E+00
4.100	0.0000E+00
4.360	0.0000E+00
4.620	0.0000E+00
4.880	0.0000E+00
5.140	0.0000E+00
5.400	0.0000E+00
5.660	0.0000E+00
5.920	0.0000E+00
6.180	0.0000E+00
6.440	0.0000E+00
6.700	0.0000E+00
6.960	0.0000E+00
7.220	0.0000E+00
7.480	0.0000E+00
7.740	0.0000E+00
8.000	0.0000E+00
8.260	0.0000E+00
8.520	0.0000E+00
8.780	0.0000E+00
9.040	0.0000E+00
9.300	0.0000E+00
9.560	0.0000E+00
9.820	0.0000E+00

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10.080 0.0000E+00
24.000 0.0000E+00
96.000 0.0000E+00
720.000 0.0000E+00

Cumulative Dose Summary

Table with 7 columns: Time (hr), Thyroid (rem), TEDE (rem), Thyroid (rem), TEDE (rem), Thyroid (rem), TEDE (rem). Rows show cumulative dose data for EAB, LPZ, and Control Room locations over time.

Worst Two-Hour Dose (Provided for Dose Location 1)

Table with 5 columns: Time (hr), Whole Body (rem), Thyroid (rem), Skin (rem), TEDE (rem). Row shows data for 0.0 hours.

30 Day Control Room Skin Dose

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

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Control Room

Time	Skin
(hr)	(rem)
720.0	7.6190E+00

Attachment 3 RADTRAD-NAI CDA Output – Case 2 – 82.5% Filtered – 30 Day Decay

```
#####
RADTRAD-NAI Version 1.1a(QA) run on Jun 20, 2005 at 10:04:25
#####

#####
File information
#####

Plant file name           = pal/Cask/pal_cask_db_ast_case2.psf
Inventory file name       = pal/Cask/palisades_cask30_db_ast_adjusted.nif
Scenario file name       = pal/Cask/pal_cask_db_ast_case2.psf
Release file name        = pal/Cask/pal_cda_ast.rft
Dose conversion file name = pal/Cask/nai-1101-001rev0.dcf
```

```
#####  #####  #####  # # # ##### # # #####
# # # # # # # # # # # # # # # # # # # # # #
# # # # # # # # # # # # # # # # # # # # # #
#####  #####  #####  # # # # # ##### # # # #
# # # # # # # # # # # # # # # # # # # # # #
# # # # # # # # # # # # # # # # # # # # # #
# # # # # # # # # # # # # # # # # # # # # #
```

```
*RADTRAD-NAI 1.1a(QA)
*20 Jun 2005 10:04:21
** Palisades Cask Drop Design Basis
** Case 2
** 30 day decay
** 17.5% release filtration bypass
**
*Nuclide inventory file
pal/Cask/palisades_cask30_db_ast_adjusted.nif
*Plant power
2703
*Compartments
4
*Compartment 1:
Fuel Pool-Unfiltered
3
10000
0
0
0
1
*Compartment 2:
Environment
2
2e+20
0
0
0
0
*Compartment 3:
Control Room
1
35923
0
1
0
0
*Compartment 4:
Fuel Pool-Filtered
3
10000
0
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
0
0
1
*Pathways
6
*Pathway 1:
Fuel Pool Release-Unfiltered
1
2
2
*Pathway 2:
Control Room Unfiltered Makeup
2
3
2
*Pathway 3:
Control Room Filtered Makeup
2
3
2
*Pathway 4:
Control Room Unfiltered Inleakage
2
3
2
*Pathway 5:
Control Room Exhaust
3
2
2
*Pathway 6:
Fuel Pool Release-Filtered
4
2
2
*Sources
4
1 0.175
2 0
3 0
4 0.825
*dose conversion factors filename
pal/Cask/nai-1101-001rev0.dcf
*release fraction and timing filename
pal/Cask/pal_cda_ast.rft
0
1
1
*Iodine
0 0.9985 0.0015
*Overlying pool
*aerosol model
0
*elemental model
1
2
0 285
720 285
*organic model
1
2
0 1
720 1
*pH tracking
0
*Compartment detail
*Compartment 1:
1
*spray model
0
0
0
*filter model
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
0
*deposition model
0
0
*Compartment 2:
  1
*spray model
0
0
0
*filter model
0
*deposition model
0
0
*Compartment 3:
  1
*spray model
0
0
0
*filter model
  1
  2
0 1413.6 99 99 99
720 1413.6 99 99 99
*deposition model
0
0
*Compartment 4:
  1
*spray model
0
0
0
*filter model
0
*deposition model
0
0
*Pathways:
*Pathway 1
*filter efficiency model
  1
  2
0 1000000 100 0 0
720 1000000 100 0 0
*Pathway 2
*filter efficiency model
  1
  2
0 0 0 0 0
720 0 0 0 0
*Pathway 3
*filter efficiency model
  1
  2
0 1413.6 99 99 99
720 1413.6 99 99 99
*Pathway 4
*filter efficiency model
  1
  2
0 100 0 0 0
720 100 0 0 0
*Pathway 5
*filter efficiency model
  1
  2
0 1513.6 0 0 0
720 1513.6 0 0 0
*Pathway 6
*filter efficiency model
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
1
2
0 1000000 100 94 94
720 1000000 100 94 94
*x/q tables
6
EAB
2
0 0.000539
720 0.000539
LPZ
6
0 6.66e-05
2 3.03e-05
8 2.04e-05
24 8.67e-06
96 2.54e-06
720 2.54e-06
Equip Hatch-Normal
6
0 0.0125
2 0.00983
8 0.00362
24 0.00286
96 0.00228
720 0.00228
Equip Hatch-Emergency
6
0 0.000732
2 0.000613
8 0.000245
24 0.000175
96 0.000129
720 0.000129
Stack-Normal
6
0 0.0061
2 0.00432
8 0.00173
24 0.00127
96 0.000979
720 0.000979
Stack-Emergency
6
0 0.000832
2 0.000769
8 0.000283
24 0.000215
96 0.000157
720 0.000157
*dose locations
3
*location name, compartment number and x/q table
EAB
2
1
*br model
1
4
0 0.00035
8 0.00018
24 0.00023
720 0.00023
*of model
0
*location x/q input to be included
0
*location name, compartment number and x/q table
LPZ
2
2
*br model
1
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```

4
0 0.00035
8 0.00018
24 0.00023
720 0.00023
*of model
0
*location x/q input to be included
0
*location name, compartment number and x/q table
Control Room
3
0
*br model
1
2
0 0.00035
720 0.00035
*of model
1
4
0 1
24 0.6
96 0.4
720 0.4
*location x/q input to be included
1
*number of intake combinations
6
*intake combinations
2 1 3
3 1 4
4 1 3
2 6 5
3 6 6
4 6 5
*time step count
3
0 1e-06
0.001 0.02
720 0.02
*show plant, scenario, event, step, model
1
1
1
0
1

#####
RADTRAD-NAI Version 1.1a(QA) run on Jun 20, 2005 at 10:04:25
#####

#####
Plant Description
#####

Number of Nuclides = 107

Inventory Power = 2.7030E+03 MWth
Plant Power Level = 2.7030E+03 MWth

Number of compartments = 4

Compartment information

Compartment number 1 (Source term fraction = 1.7500E-01)
Name: Fuel Pool-Unfiltered
Compartment volume = 1.0000E+04 (Cubic feet)
Removal devices within compartment:
  Suppression pool
Pathways into and out of compartment 1
  Pathway to compartment number 2: Fuel Pool Release-Unfiltered

```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Compartment number 2
 Name: Environment
 Pathways into and out of compartment 2
 Pathway to compartment number 3: Control Room Unfiltered Makeup
 Pathway to compartment number 3: Control Room Filtered Makeup
 Pathway to compartment number 3: Control Room Unfiltered Inleakage
 Pathway from compartment number 1: Fuel Pool Release-Unfiltered
 Pathway from compartment number 3: Control Room Exhaust
 Pathway from compartment number 4: Fuel Pool Release-Filtered

Compartment number 3
 Name: Control Room
 Compartment volume = 3.5923E+04 (Cubic feet)
 Removal devices within compartment:
 Filter(s)
 Pathways into and out of compartment 3
 Pathway to compartment number 2: Control Room Exhaust
 Pathway from compartment number 2: Control Room Unfiltered Makeup
 Pathway from compartment number 2: Control Room Filtered Makeup
 Pathway from compartment number 2: Control Room Unfiltered Inleakage

Compartment number 4 (Source term fraction = 8.2500E-01)
 Name: Fuel Pool-Filtered
 Compartment volume = 1.0000E+04 (Cubic feet)
 Removal devices within compartment:
 Suppression pool
 Pathways into and out of compartment 4
 Pathway to compartment number 2: Fuel Pool Release-Filtered

Total number of pathways = 6

```
#####
RADTRAD-NAI Version 1.1a(QA) run on Jun 20, 2005 at 10:04:25
#####
#####
Scenario Description
#####
```

Radioactive Decay is enabled
 Calculation of Daughters is enabled

Iodine fractions
 Aerosol = 0.0000E+00
 Elemental = 9.9850E-01
 Organic = 1.5000E-03

Overlying pool characteristics

Elemental Removal Data:		
Time (hr)	DF	
0.0000E+00	2.8500E+02	
7.2000E+02	2.8500E+02	

Organic Removal Data:		
Time (hr)	DF	
0.0000E+00	1.0000E+00	
7.2000E+02	1.0000E+00	

COMPARTMENT DATA

Compartment number 1: Fuel Pool-Unfiltered
 Compartment number 2: Environment
 Compartment number 3: Control Room

Compartment Filter Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.4136E+03	9.9000E+01	9.9000E+01	9.9000E+01

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

7.2000E+02 1.4136E+03 9.9000E+01 9.9000E+01 9.9000E+01

Compartment number 4: Fuel Pool-Filtered

PATHWAY DATA

Pathway number 1: Fuel Pool Release-Unfiltered

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.0000E+06	1.0000E+02	0.0000E+00	0.0000E+00
7.2000E+02	1.0000E+06	1.0000E+02	0.0000E+00	0.0000E+00

Pathway number 2: Control Room Unfiltered Makeup

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
7.2000E+02	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Pathway number 3: Control Room Filtered Makeup

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.4136E+03	9.9000E+01	9.9000E+01	9.9000E+01
7.2000E+02	1.4136E+03	9.9000E+01	9.9000E+01	9.9000E+01

Pathway number 4: Control Room Unfiltered Inleakage

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.0000E+02	0.0000E+00	0.0000E+00	0.0000E+00
7.2000E+02	1.0000E+02	0.0000E+00	0.0000E+00	0.0000E+00

Pathway number 5: Control Room Exhaust

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.5136E+03	0.0000E+00	0.0000E+00	0.0000E+00
7.2000E+02	1.5136E+03	0.0000E+00	0.0000E+00	0.0000E+00

Pathway number 6: Fuel Pool Release-Filtered

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.0000E+06	1.0000E+02	9.4000E+01	9.4000E+01
7.2000E+02	1.0000E+06	1.0000E+02	9.4000E+01	9.4000E+01

X/Q DATA

X/Q table 1: EAB

Time (hr)	X/Q (s * m^-3)
0.0000E+00	5.3900E-04
7.2000E+02	5.3900E-04

X/Q table 2: LPZ

Time (hr)	X/Q (s * m^-3)
0.0000E+00	6.6600E-05
2.0000E+00	3.0300E-05
8.0000E+00	2.0400E-05
2.4000E+01	8.6700E-06

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

9.6000E+01	2.5400E-06
7.2000E+02	2.5400E-06

X/Q table 3: Equip Hatch-Normal

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	1.2500E-02
2.0000E+00	9.8300E-03
8.0000E+00	3.6200E-03
2.4000E+01	2.8600E-03
9.6000E+01	2.2800E-03
7.2000E+02	2.2800E-03

X/Q table 4: Equip Hatch-Emergency

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	7.3200E-04
2.0000E+00	6.1300E-04
8.0000E+00	2.4500E-04
2.4000E+01	1.7500E-04
9.6000E+01	1.2900E-04
7.2000E+02	1.2900E-04

X/Q table 5: Stack-Normal

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	6.1000E-03
2.0000E+00	4.3200E-03
8.0000E+00	1.7300E-03
2.4000E+01	1.2700E-03
9.6000E+01	9.7900E-04
7.2000E+02	9.7900E-04

X/Q table 6: Stack-Emergency

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	8.3200E-04
2.0000E+00	7.6900E-04
8.0000E+00	2.8300E-04
2.4000E+01	2.1500E-04
9.6000E+01	1.5700E-04
7.2000E+02	1.5700E-04

LOCATION DATA

Location EAB is in compartment 2

Using X/Q Table 1

Location Breathing Rate Data

Time (hr)	Breathing Rate (m ³ * sec ⁻¹)
0.0000E+00	3.5000E-04
8.0000E+00	1.8000E-04
2.4000E+01	2.3000E-04
7.2000E+02	2.3000E-04

Location LPZ is in compartment 2

Using X/Q Table 2

Location Breathing Rate Data

Time (hr)	Breathing Rate (m ³ * sec ⁻¹)
0.0000E+00	3.5000E-04
8.0000E+00	1.8000E-04
2.4000E+01	2.3000E-04
7.2000E+02	2.3000E-04

Location Control Room is in compartment 3

Inleakage X/Q Table Assignments

Inleakage Path	Source Path	X/Q Table
2	1	3
3	1	4
4	1	3
2	6	5
3	6	6
4	6	5

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Location Breathing Rate Data

Time (hr)	Breathing Rate (m ³ * sec ⁻¹)
0.0000E+00	3.5000E-04
7.2000E+02	3.5000E-04

Location Occupancy Factor Data

Time (hr)	Occupancy Factor
0.0000E+00	1.0000E+00
2.4000E+01	6.0000E-01
9.6000E+01	4.0000E-01
7.2000E+02	4.0000E-01

USER SPECIFIED TIME STEP DATA - SUPPLEMENTAL TIME STEPS

Time	Time step
0.0000E+00	1.0000E-06
1.0000E-03	2.0000E-02
7.2000E+02	2.0000E-02

 RADTRAD-NAI Version 1.1a(QA) run on Jun 20, 2005 at 10:04:25
 #####

```

#####
# # # # # # # # # #
# # # # # # # # # #
# # # # # # # # # #
# # # # # # # # # #
# # # # # # # # # #
#####

```


 Dose, Detailed Model and Detailed Inventory Output
 #####

Detailed model information at time (H) = 0.0010

EAB Doses:

Time (h) =	Whole Body	Thyroid	Skin	TEDE
0.0010	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Delta dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

LPZ Doses:

Time (h) =	Whole Body	Thyroid	Skin	TEDE
0.0010	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Delta dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Control Room Doses:

Time (h) =	Whole Body	Thyroid	Skin	TEDE
0.0010	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Delta dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) =	Atmosphere	Sump	Overlying Pool
0.0010	0.0000E+00	0.0000E+00	0.0000E+00
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) =	Deposition Surfaces	Recirculating Filter
0.0010	0.0000E+00	0.0000E+00
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00

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Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Environment Transport Group Inventory:

	Present	Release	Integral
Time (h) = 0.0010	Release	Rate/s	Release
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00

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Aerosols (kg) 0.0000E+00

Control Room Transport Group Inventory:

	Atmosphere	Sump	Overlying Pool
Time (h) = 0.0010			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 0.0010		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway Filter
Time (h) = 0.0010	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway Filter
Time (h) = 0.0010	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway Filter
Time (h) = 0.0010	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway Filter
Time (h) = 0.0010	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool-Filtered Transport Group Inventory:

	Atmosphere	Sump	Overlying Pool
Time (h) = 0.0010			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 0.0010		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

Pathway

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Time (h) = 0.0010 Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Detailed model information at time (H) = 0.0020

EAB Doses:

Time (h) = 0.0020 Whole Body Thyroid Skin TEDE
 Delta dose (rem) 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
 Accumulated dose (rem) 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00

LPZ Doses:

Time (h) = 0.0020 Whole Body Thyroid Skin TEDE
 Delta dose (rem) 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
 Accumulated dose (rem) 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00

Control Room Doses:

Time (h) = 0.0020 Whole Body Thyroid Skin TEDE
 Delta dose (rem) 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00
 Accumulated dose (rem) 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) = 0.0020 Atmosphere Sump Overlying Pool
 Noble gases (atoms) 0.0000E+00 0.0000E+00 0.0000E+00
 Elemental I (atoms) 0.0000E+00 0.0000E+00 0.0000E+00
 Organic I (atoms) 0.0000E+00 0.0000E+00 0.0000E+00
 Aerosols (kg) 0.0000E+00 0.0000E+00 0.0000E+00

Time (h) = 0.0020 Deposition Surfaces Recirculating Filter
 Noble gases (atoms) 0.0000E+00 0.0000E+00
 Elemental I (atoms) 0.0000E+00 0.0000E+00
 Organic I (atoms) 0.0000E+00 0.0000E+00
 Aerosols (kg) 0.0000E+00 0.0000E+00

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Environment Transport Group Inventory:

Time (h) = 0.0020 Present Release Integral Release Rate/s
 Noble gases (atoms) 0.0000E+00 0.0000E+00 0.0000E+00
 Elemental I (atoms) 0.0000E+00 0.0000E+00 0.0000E+00
 Organic I (atoms) 0.0000E+00 0.0000E+00 0.0000E+00
 Aerosols (kg) 0.0000E+00 0.0000E+00 0.0000E+00

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter

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Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Transport Group Inventory:

Time (h) =	Atmosphere	Sump	Overlying Pool
0.0020			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) =	Deposition Recirculating	
0.0020	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00

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Aerosols (kg) 0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool-Filtered Transport Group Inventory:

			Overlying
Time (h) = 0.0020	Atmosphere	Sump	Pool
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Recirculating	
Time (h) = 0.0020	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Detailed model information at time (H) = 2.0000

EAB Doses:

Time (h) = 2.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	4.2795E-01	7.7268E+01	3.3760E+00	2.7806E+00
Accumulated dose (rem)	4.2795E-01	7.7268E+01	3.3760E+00	2.7806E+00

LPZ Doses:

Time (h) = 2.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	5.2879E-02	9.5474E+00	4.1714E-01	3.4358E-01
Accumulated dose (rem)	5.2879E-02	9.5474E+00	4.1714E-01	3.4358E-01

Control Room Doses:

Time (h) = 2.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	2.2767E-02	4.9444E+01	6.1966E+00	1.5282E+00
Accumulated dose (rem)	2.2767E-02	4.9444E+01	6.1966E+00	1.5282E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Kr-85	1.1149E+00	2.8417E-06	2.0133E+19	4.1251E+10
Rb-86	1.1214E-03	1.3782E-11	9.6510E+13	4.1493E+07
I-131	2.4581E-02	1.9827E-10	9.1147E+14	9.0949E+08
I-132	2.6945E-04	2.6104E-14	1.1909E+11	9.9696E+06
Xe-133	1.8001E+00	9.6167E-09	4.3544E+16	6.6603E+10

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Cs-134	3.4682E-01	2.6806E-07	1.2047E+18	1.2832E+10
Cs-136	2.0925E-02	2.8551E-10	1.2642E+15	7.7423E+08
Cs-137	1.9215E-01	2.2091E-06	9.7105E+18	7.1095E+09
Xe-131m	2.0214E-01	2.4133E-09	1.1094E+16	7.4793E+09
Xe-133m	2.9145E-04	6.4954E-13	2.9411E+12	1.0784E+07
Ba-137m	5.9245E-02	1.1016E-13	4.8424E+11	2.1921E+09

Fuel Pool-Unfiltered Transport Group Inventory:

	Atmosphere	Sump	Overlying Pool
Time (h) = 2.0000			
Noble gases (atoms)	2.0187E+19	0.0000E+00	0.0000E+00
Elemental I (atoms)	6.3830E+14	0.0000E+00	2.1732E+21
Organic I (atoms)	2.7328E+14	0.0000E+00	0.0000E+00
Aerosols (kg)	2.4774E-06	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 2.0000		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Rb-86	1.3383E+01	1.6448E-07	1.1517E+18	4.9517E+11
Cs-134	4.1390E+03	3.1990E-03	1.4377E+22	1.5314E+14
Cs-136	2.4972E+02	3.4072E-06	1.5087E+19	9.2396E+12
Cs-137	2.2931E+03	2.6363E-02	1.1588E+23	8.4845E+13
Ba-137m	2.4849E+03	4.6204E-09	2.0310E+16	9.1940E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway Filter
Time (h) = 2.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	2.9566E-02

Environment Integral Nuclide Release:

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Kr-85	7.6353E+04	1.9461E-01	1.3788E+24	2.8251E+15
I-131	3.7770E+02	3.0466E-06	1.4005E+19	1.3975E+13
I-132	4.1161E+00	3.9876E-10	1.8192E+15	1.5229E+11
I-133	2.1744E-07	1.9195E-16	8.6912E+08	8.0452E+03
Xe-133	1.2328E+05	6.5860E-04	2.9821E+21	4.5613E+15
Xe-131m	1.1681E+04	1.3946E-04	6.4111E+20	4.3221E+14
Xe-133m	1.9960E+01	4.4484E-08	2.0142E+17	7.3853E+11
Br-82	2.0693E-07	1.9113E-16	1.4037E+09	7.6562E+03

Environment Transport Group Inventory:

	Present Release	Release Rate/s	Integral Release
Time (h) = 2.0000			
Noble gases (atoms)	1.3842E+22	1.9224E+20	1.3824E+24
Elemental I (atoms)	9.8188E+16	1.3637E+15	9.8079E+18
Organic I (atoms)	4.2039E+16	5.8387E+14	4.1992E+18
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Rb-86	1.3383E+01	1.6448E-07	1.1517E+18	4.9517E+11
Cs-134	4.1390E+03	3.1990E-03	1.4377E+22	1.5314E+14
Cs-136	2.4972E+02	3.4072E-06	1.5087E+19	9.2396E+12
Cs-137	2.2931E+03	2.6363E-02	1.1588E+23	8.4845E+13
Ba-137m	2.4849E+03	4.6204E-09	2.0310E+16	9.1940E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

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	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	2.9566E-02

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) = 2.0000	Ci	kg	Atoms	Bq
I-131	1.8742E-01	1.5118E-09	6.9496E+15	6.9345E+09
I-132	2.0424E-03	1.9787E-13	9.0271E+11	7.5569E+07
I-133	1.0790E-10	9.5246E-20	4.3127E+05	3.9921E+00
Br-82	1.0268E-10	9.4842E-20	6.9653E+05	3.7991E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	4.8668E+15
Organic I (atoms)	2.0837E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Rb-86	6.3092E+01	7.7539E-07	5.4297E+18	2.3344E+12
I-131	1.2999E+03	1.0486E-05	4.8203E+19	4.8098E+13
I-132	1.4166E+01	1.3724E-09	6.2612E+15	5.2415E+11
I-133	7.4837E-07	6.6063E-16	2.9913E+09	2.7690E+04
Cs-134	1.9512E+04	1.5081E-02	6.7777E+22	7.2196E+14
Cs-136	1.1772E+03	1.6063E-05	7.1126E+19	4.3558E+13
Cs-137	1.0810E+04	1.2428E-01	5.4631E+23	3.9998E+14
Ba-137m	1.1714E+04	2.1782E-08	9.5747E+16	4.3343E+14
Br-82	7.1219E-07	6.5783E-16	4.8311E+09	2.6351E+04

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.3756E+19
Organic I (atoms)	1.4453E+19
Aerosols (kg)	1.3938E-01

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Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) =	2.0000	Ci	kg	Atoms	Bq
Kr-85		1.3282E+01	3.3855E-05	2.3986E+20	4.9145E+11
I-131		2.0545E-02	1.6572E-10	7.6182E+14	7.6016E+08
I-132		2.2491E-04	2.1789E-14	9.9409E+10	8.3218E+06
Xe-133		2.1446E+01	1.1457E-07	5.1877E+17	7.9349E+11
Xe-131m		2.0340E+00	2.4284E-08	1.1163E+17	7.5259E+10
Xe-133m		3.4723E-03	7.7385E-12	3.5040E+13	1.2848E+08

Control Room Transport Group Inventory:

Time (h) =	2.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)		2.4049E+20	0.0000E+00	0.0000E+00
Elemental I (atoms)		5.3350E+14	0.0000E+00	0.0000E+00
Organic I (atoms)		2.2842E+14	0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00	0.0000E+00

Recirculating Filter Inventory

Time (h) =	2.0000	Ci	kg	Atoms	Bq
I-131		8.6070E-02	6.9425E-10	3.1915E+15	3.1846E+09
I-132		9.3748E-04	9.0822E-14	4.1435E+11	3.4687E+07
I-133		4.9550E-11	4.3740E-20	1.9805E+05	1.8333E+00
Br-82		4.7154E-11	4.3555E-20	3.1987E+05	1.7447E+00

Deposition Recirculating

Time (h) =	2.0000	Surfaces	Filter
Noble gases (atoms)		0.0000E+00	0.0000E+00
Elemental I (atoms)		0.0000E+00	2.2350E+15
Organic I (atoms)		0.0000E+00	9.5691E+14
Aerosols (kg)		0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) =	2.0000	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) =	2.0000	Ci	kg	Atoms	Bq
I-131		1.8742E-01	1.5118E-09	6.9496E+15	6.9345E+09
I-132		2.0424E-03	1.9787E-13	9.0271E+11	7.5569E+07
I-133		1.0790E-10	9.5246E-20	4.3127E+05	3.9921E+00
Br-82		1.0268E-10	9.4842E-20	6.9653E+05	3.7991E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) =	2.0000	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		4.8668E+15
Organic I (atoms)		2.0837E+15
Aerosols (kg)		0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) =	2.0000	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) =	2.0000	Pathway Filter

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Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Total Filter Nuclide Inventory:

Time (h) =	2.0000	Ci	kg	Atoms	Bq
I-131		2.7349E-01	2.2060E-09	1.0141E+16	1.0119E+10
I-132		2.9799E-03	2.8869E-13	1.3171E+12	1.1026E+08
I-133		1.5745E-10	1.3899E-19	6.2932E+05	5.8255E+00
Br-82		1.4983E-10	1.3840E-19	1.0164E+06	5.5438E+00

Fuel Pool-Filtered Compartment Atmosphere Nuclide Inventory:

Time (h) =	2.0000	Ci	kg	Atoms	Bq
Kr-85		5.2559E+00	1.3396E-05	9.4911E+19	1.9447E+11
Rb-86		5.2867E-03	6.4973E-11	4.5497E+14	1.9561E+08
I-131		1.1588E-01	9.3471E-10	4.2969E+15	4.2876E+09
I-132		1.2703E-03	1.2306E-13	5.6143E+11	4.7000E+07
I-133		6.6712E-11	5.8890E-20	2.6665E+05	2.4683E+00
Xe-133		8.4860E+00	4.5336E-08	2.0528E+17	3.1398E+11
Cs-134		1.6350E+00	1.2637E-06	5.6793E+18	6.0496E+10
Cs-136		9.8647E-02	1.3460E-09	5.9600E+15	3.6499E+09
Cs-137		9.0585E-01	1.0414E-05	4.5778E+19	3.3516E+10
Xe-131m		9.5296E-01	1.1377E-08	5.2301E+16	3.5259E+10
Xe-133m		1.3740E-03	3.0621E-12	1.3865E+13	5.0838E+07
Ba-137m		2.7930E-01	5.1934E-13	2.2829E+12	1.0334E+10
Br-82		6.3486E-11	5.8640E-20	4.3066E+05	2.3490E+00

Fuel Pool-Filtered Transport Group Inventory:

Time (h) =	2.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)		9.5169E+19	0.0000E+00	0.0000E+00
Elemental I (atoms)		3.0091E+15	0.0000E+00	1.0245E+22
Organic I (atoms)		1.2883E+15	0.0000E+00	0.0000E+00
Aerosols (kg)		1.1679E-05	0.0000E+00	0.0000E+00

Time (h) =	2.0000	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)		0.0000E+00	0.0000E+00
Elemental I (atoms)		0.0000E+00	0.0000E+00
Organic I (atoms)		0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) =	2.0000	Ci	kg	Atoms	Bq
Rb-86		6.3092E+01	7.7539E-07	5.4297E+18	2.3344E+12
I-131		1.2999E+03	1.0486E-05	4.8203E+19	4.8098E+13
I-132		1.4166E+01	1.3724E-09	6.2612E+15	5.2415E+11
I-133		7.4837E-07	6.6063E-16	2.9913E+09	2.7690E+04
Cs-134		1.9512E+04	1.5081E-02	6.7777E+22	7.2196E+14
Cs-136		1.1772E+03	1.6063E-05	7.1126E+19	4.3558E+13
Cs-137		1.0810E+04	1.2428E-01	5.4631E+23	3.9998E+14
Ba-137m		1.1714E+04	2.1782E-08	9.5747E+16	4.3343E+14
Br-82		7.1219E-07	6.5783E-16	4.8311E+09	2.6351E+04

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) =	2.0000	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		3.3756E+19
Organic I (atoms)		1.4453E+19
Aerosols (kg)		1.3938E-01

Detailed model information at time (H) = 2.0020

EAB Doses:

Time (h) =	2.0020	Whole Body	Thyroid	Skin	TEDE
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Delta dose (rem)	4.2613E-04	7.7087E-02	3.3747E-03	2.7732E-03
Accumulated dose (rem)	4.2838E-01	7.7345E+01	3.3794E+00	2.7834E+00

LPZ Doses:

Time (h) =	2.0020	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		2.3955E-05	4.3334E-03	1.8971E-04	1.5590E-04
Accumulated dose (rem)		5.2903E-02	9.5517E+00	4.1733E-01	3.4373E-01

Control Room Doses:

Time (h) =	2.0020	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		2.8017E-05	5.4933E-02	7.6547E-03	1.7006E-03
Accumulated dose (rem)		2.2795E-02	4.9499E+01	6.2042E+00	1.5299E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) =	2.0020	Ci	kg	Atoms	Bq
Kr-85		1.1149E+00	2.8417E-06	2.0133E+19	4.1251E+10
Rb-86		1.1214E-03	1.3782E-11	9.6509E+13	4.1493E+07
I-131		2.4581E-02	1.9827E-10	9.1146E+14	9.0948E+08
I-132		2.6933E-04	2.6092E-14	1.1904E+11	9.9650E+06
Xe-133		1.8001E+00	9.6166E-09	4.3543E+16	6.6602E+10
Cs-134		3.4682E-01	2.6806E-07	1.2047E+18	1.2832E+10
Cs-136		2.0925E-02	2.8551E-10	1.2642E+15	7.7422E+08
Cs-137		1.9215E-01	2.2091E-06	9.7105E+18	7.1095E+09
Xe-131m		1.7373E-01	2.0741E-09	9.5349E+15	6.4281E+09
Xe-133m		2.9145E-04	6.4953E-13	2.9410E+12	1.0783E+07
Ba-137m		5.9249E-03	1.1017E-14	4.8427E+10	2.1922E+08

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) =	2.0020	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)		2.0186E+19	0.0000E+00	0.0000E+00
Elemental I (atoms)		6.3830E+14	0.0000E+00	2.1753E+21
Organic I (atoms)		2.7328E+14	0.0000E+00	0.0000E+00
Aerosols (kg)		2.4774E-06	0.0000E+00	0.0000E+00

Time (h) =	2.0020	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)		0.0000E+00	0.0000E+00
Elemental I (atoms)		0.0000E+00	0.0000E+00
Organic I (atoms)		0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) =	2.0020	Ci	kg	Atoms	Bq
Rb-86		1.3396E+01	1.6464E-07	1.1529E+18	4.9567E+11
Cs-134		4.1432E+03	3.2022E-03	1.4391E+22	1.5330E+14
Cs-136		2.4997E+02	3.4106E-06	1.5102E+19	9.2489E+12
Cs-137		2.2954E+03	2.6390E-02	1.1600E+23	8.4930E+13
Ba-137m		2.4763E+03	4.6045E-09	2.0240E+16	9.1623E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) =	2.0020	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		2.9595E-02

Environment Integral Nuclide Release:

Time (h) =	2.0020	Ci	kg	Atoms	Bq
Kr-85		7.6429E+04	1.9481E-01	1.3802E+24	2.8279E+15
I-131		3.7807E+02	3.0496E-06	1.4019E+19	1.3989E+13
I-132		4.1177E+00	3.9892E-10	1.8200E+15	1.5236E+11
I-133		2.1764E-07	1.9213E-16	8.6993E+08	8.0527E+03
Xe-133		1.2340E+05	6.5925E-04	2.9851E+21	4.5658E+15
Xe-131m		1.1693E+04	1.3960E-04	6.4176E+20	4.3265E+14

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Xe-133m	1.9980E+01	4.4527E-08	2.0162E+17	7.3925E+11
Br-82	2.0712E-07	1.9131E-16	1.4050E+09	7.6636E+03

Environment Transport Group Inventory:

	Present	Release	Integral
Time (h) = 2.0020	Release	Rate/s	Release
Noble gases (atoms)	1.3844E+21	1.9227E+19	1.3838E+24
Elemental I (atoms)	9.8206E+15	1.3640E+14	9.8177E+18
Organic I (atoms)	4.2046E+15	5.8397E+13	4.2034E+18
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 2.0020	Ci	kg	Atoms	Bq
Rb-86	1.3396E+01	1.6464E-07	1.1529E+18	4.9567E+11
Cs-134	4.1432E+03	3.2022E-03	1.4391E+22	1.5330E+14
Cs-136	2.4997E+02	3.4106E-06	1.5102E+19	9.2489E+12
Cs-137	2.2954E+03	2.6390E-02	1.1600E+23	8.4930E+13
Ba-137m	2.4763E+03	4.6045E-09	2.0240E+16	9.1623E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	2.9595E-02

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) = 2.0020	Ci	kg	Atoms	Bq
I-131	1.8758E-01	1.5130E-09	6.9556E+15	6.9405E+09
I-132	2.0429E-03	1.9792E-13	9.0294E+11	7.5589E+07
I-133	1.0798E-10	9.5322E-20	4.3161E+05	3.9953E+00
Br-82	1.0276E-10	9.4920E-20	6.9710E+05	3.8023E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	4.8710E+15
Organic I (atoms)	2.0855E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

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Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) =	Ci	kg	Atoms	Bq
2.0020				
Rb-86	6.3155E+01	7.7617E-07	5.4351E+18	2.3367E+12
I-131	1.3012E+03	1.0496E-05	4.8251E+19	4.8146E+13
I-132	1.4172E+01	1.3730E-09	6.2637E+15	5.2436E+11
I-133	7.4907E-07	6.6125E-16	2.9941E+09	2.7716E+04
Cs-134	1.9532E+04	1.5096E-02	6.7845E+22	7.2268E+14
Cs-136	1.1784E+03	1.6079E-05	7.1197E+19	4.3602E+13
Cs-137	1.0821E+04	1.2441E-01	5.4686E+23	4.0039E+14
Ba-137m	1.1674E+04	2.1707E-08	9.5417E+16	4.3194E+14
Br-82	7.1287E-07	6.5846E-16	4.8358E+09	2.6376E+04

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) =	Pathway
2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.3790E+19
Organic I (atoms)	1.4467E+19
Aerosols (kg)	1.3952E-01

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) =	Ci	kg	Atoms	Bq
2.0020				
Kr-85	1.3272E+01	3.3829E-05	2.3967E+20	4.9107E+11
I-131	2.0501E-02	1.6536E-10	7.6017E+14	7.5852E+08
I-132	2.2430E-04	2.1730E-14	9.9136E+10	8.2990E+06
Xe-133	2.1429E+01	1.1448E-07	5.1837E+17	7.9287E+11
Xe-131m	2.0326E+00	2.4266E-08	1.1155E+17	7.5205E+10
Xe-133m	3.4696E-03	7.7324E-12	3.5012E+13	1.2837E+08

Control Room Transport Group Inventory:

Time (h) =	Atmosphere	Sump	Overlying Pool
2.0020			
Noble gases (atoms)	2.4030E+20	0.0000E+00	0.0000E+00
Elemental I (atoms)	5.3235E+14	0.0000E+00	0.0000E+00
Organic I (atoms)	2.2792E+14	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Recirculating Filter Inventory

Time (h) =	Ci	kg	Atoms	Bq
2.0020				
I-131	8.6165E-02	6.9502E-10	3.1950E+15	3.1881E+09
I-132	9.3796E-04	9.0869E-14	4.1456E+11	3.4705E+07
I-133	4.9602E-11	4.3786E-20	1.9826E+05	1.8353E+00
Br-82	4.7205E-11	4.3602E-20	3.2021E+05	1.7466E+00

Deposition Recirculating

Time (h) =	Surfaces	Filter
2.0020		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	2.2375E+15
Organic I (atoms)	0.0000E+00	9.5796E+14
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) =	Pathway
2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) =	Ci	kg	Atoms	Bq
2.0020				
I-131	1.8758E-01	1.5130E-09	6.9556E+15	6.9405E+09
I-132	2.0429E-03	1.9792E-13	9.0294E+11	7.5589E+07
I-133	1.0798E-10	9.5322E-20	4.3161E+05	3.9953E+00
Br-82	1.0276E-10	9.4920E-20	6.9710E+05	3.8023E+00

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Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	4.8710E+15
Organic I (atoms)	2.0855E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Total Filter Nuclide Inventory:

Time (h) = 2.0020	Ci	kg	Atoms	Bq
I-131	2.7374E-01	2.2081E-09	1.0151E+16	1.0129E+10
I-132	2.9809E-03	2.8879E-13	1.3175E+12	1.1029E+08
I-133	1.5758E-10	1.3911E-19	6.2987E+05	5.8306E+00
Br-82	1.4997E-10	1.3852E-19	1.0173E+06	5.5488E+00

Fuel Pool-Filtered Compartment Atmosphere Nuclide Inventory:

Time (h) = 2.0020	Ci	kg	Atoms	Bq
Kr-85	5.2559E+00	1.3396E-05	9.4911E+19	1.9447E+11
Rb-86	5.2867E-03	6.4973E-11	4.5497E+14	1.9561E+08
I-131	1.1588E-01	9.3471E-10	4.2969E+15	4.2876E+09
I-132	1.2697E-03	1.2300E-13	5.6118E+11	4.6978E+07
I-133	6.6707E-11	5.8886E-20	2.6663E+05	2.4682E+00
Xe-133	8.4860E+00	4.5335E-08	2.0527E+17	3.1398E+11
Cs-134	1.6350E+00	1.2637E-06	5.6793E+18	6.0496E+10
Cs-136	9.8646E-02	1.3460E-09	5.9599E+15	3.6499E+09
Cs-137	9.0585E-01	1.0414E-05	4.5778E+19	3.3516E+10
Xe-131m	8.1902E-01	9.7780E-09	4.4950E+16	3.0304E+10
Xe-133m	1.3740E-03	3.0620E-12	1.3865E+13	5.0836E+07
Ba-137m	2.7932E-02	5.1937E-14	2.2830E+11	1.0335E+09
Br-82	6.3484E-11	5.8638E-20	4.3064E+05	2.3489E+00

Fuel Pool-Filtered Transport Group Inventory:

			Overlying
Time (h) = 2.0020	Atmosphere	Sump	Pool
Noble gases (atoms)	9.5162E+19	0.0000E+00	0.0000E+00
Elemental I (atoms)	3.0091E+15	0.0000E+00	1.0255E+22
Organic I (atoms)	1.2883E+15	0.0000E+00	0.0000E+00
Aerosols (kg)	1.1679E-05	0.0000E+00	0.0000E+00

	Deposition Recirculating	
Time (h) = 2.0020	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 2.0020	Ci	kg	Atoms	Bq
Rb-86	6.3155E+01	7.7617E-07	5.4351E+18	2.3367E+12

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I-131	1.3012E+03	1.0496E-05	4.8251E+19	4.8146E+13
I-132	1.4172E+01	1.3730E-09	6.2637E+15	5.2436E+11
I-133	7.4907E-07	6.6125E-16	2.9941E+09	2.7716E+04
Cs-134	1.9532E+04	1.5096E-02	6.7845E+22	7.2268E+14
Cs-136	1.1784E+03	1.6079E-05	7.1197E+19	4.3602E+13
Cs-137	1.0821E+04	1.2441E-01	5.4686E+23	4.0039E+14
Ba-137m	1.1674E+04	2.1707E-08	9.5417E+16	4.3194E+14
Br-82	7.1287E-07	6.5846E-16	4.8358E+09	2.6376E+04

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.3790E+19
Organic I (atoms)	1.4467E+19
Aerosols (kg)	1.3952E-01

Detailed model information at time (H) = 8.0000

EAB Doses:

Time (h) = 8.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	3.9824E-03	7.0233E-01	3.1734E-02	2.5366E-02
Accumulated dose (rem)	4.3236E-01	7.8047E+01	3.4111E+00	2.8087E+00

LPZ Doses:

Time (h) = 8.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	2.2387E-04	3.9481E-02	1.7839E-03	1.4260E-03
Accumulated dose (rem)	5.3127E-02	9.5912E+00	4.1912E-01	3.4516E-01

Control Room Doses:

Time (h) = 8.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	5.7170E-03	6.0275E+00	1.5706E+00	1.8924E-01
Accumulated dose (rem)	2.8512E-02	5.5527E+01	7.7748E+00	1.7192E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Xe-133	2.9842E-09	1.5943E-17	7.2188E+07	1.1042E+02
Xe-131m	3.1210E-02	3.7260E-10	1.7129E+15	1.1548E+09
Xe-133m	2.1365E-10	4.7615E-19	2.1560E+06	7.9052E+00

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) = 8.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	1.7129E+15	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	2.1479E+21
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 8.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Rb-86	1.3459E+01	1.6541E-07	1.1583E+18	4.9800E+11
Cs-134	4.2005E+03	3.2465E-03	1.4590E+22	1.5542E+14
Cs-136	2.5015E+02	3.4132E-06	1.5114E+19	9.2557E+12
Cs-137	2.3277E+03	2.6760E-02	1.1763E+23	8.6123E+13
Ba-137m	2.5803E+03	4.7978E-09	2.1090E+16	9.5470E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Pathway

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Time (h) =	8.0000	Filter
Noble gases (atoms)	0.0000E+00	
Elemental I (atoms)	0.0000E+00	
Organic I (atoms)	0.0000E+00	
Aerosols (kg)	3.0010E-02	

Environment Integral Nuclide Release:

Time (h) =	8.0000	Ci	kg	Atoms	Bq
Kr-85	7.7133E+04	1.9660E-01	1.3929E+24	2.8539E+15	
Xe-133	1.2050E+05	6.4375E-04	2.9148E+21	4.4584E+15	
Xe-131m	1.1685E+04	1.3950E-04	6.4129E+20	4.3234E+14	
Xe-133m	1.8630E+01	4.1519E-08	1.8799E+17	6.8930E+11	

Environment Transport Group Inventory:

Time (h) =	8.0000	Present	Release	Integral
		Release	Rate/s	Release
Noble gases (atoms)	9.7915E+15	1.3599E+14	1.3965E+24	
Elemental I (atoms)	6.2799E+00	8.7221E-02	9.6949E+18	
Organic I (atoms)	2.6887E+00	3.7343E-02	4.1508E+18	
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00	

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) =	8.0000	Ci	kg	Atoms	Bq
Rb-86	1.3459E+01	1.6541E-07	1.1583E+18	4.9800E+11	
Cs-134	4.2005E+03	3.2465E-03	1.4590E+22	1.5542E+14	
Cs-136	2.5015E+02	3.4132E-06	1.5114E+19	9.2557E+12	
Cs-137	2.3277E+03	2.6760E-02	1.1763E+23	8.6123E+13	
Ba-137m	2.5803E+03	4.7978E-09	2.1090E+16	9.5470E+13	

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) =	8.0000	Pathway
		Filter
Noble gases (atoms)	0.0000E+00	
Elemental I (atoms)	0.0000E+00	
Organic I (atoms)	0.0000E+00	
Aerosols (kg)	3.0010E-02	

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) =	8.0000	Pathway
		Filter
Noble gases (atoms)	0.0000E+00	
Elemental I (atoms)	0.0000E+00	
Organic I (atoms)	0.0000E+00	
Aerosols (kg)	0.0000E+00	

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) =	8.0000	Ci	kg	Atoms	Bq
I-131	1.8580E-01	1.4987E-09	6.8895E+15	6.8745E+09	
I-132	3.3921E-04	3.2862E-14	1.4992E+11	1.2551E+07	
I-133	8.9486E-11	7.8995E-20	3.5768E+05	3.3110E+00	
Br-82	9.2450E-11	8.5393E-20	6.2713E+05	3.4206E+00	

Control Room Filtered Makeup Transport Group Inventory:

Time (h) =	8.0000	Pathway
		Filter
Noble gases (atoms)	0.0000E+00	
Elemental I (atoms)	4.8242E+15	
Organic I (atoms)	2.0654E+15	
Aerosols (kg)	0.0000E+00	

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) =	8.0000	Pathway
		Filter
Noble gases (atoms)	0.0000E+00	
Elemental I (atoms)	0.0000E+00	

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Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Rb-86	6.3451E+01	7.7981E-07	5.4606E+18	2.3477E+12
I-131	1.2914E+03	1.0417E-05	4.7886E+19	4.7782E+13
I-132	2.3577E+00	2.2842E-10	1.0421E+15	8.7236E+10
I-133	6.2199E-07	5.4907E-16	2.4861E+09	2.3014E+04
Cs-134	1.9802E+04	1.5305E-02	6.8783E+22	7.3268E+14
Cs-136	1.1793E+03	1.6091E-05	7.1250E+19	4.3634E+13
Cs-137	1.0973E+04	1.2616E-01	5.5454E+23	4.0601E+14
Ba-137m	1.2164E+04	2.2618E-08	9.9423E+16	4.5007E+14
Br-82	6.4258E-07	5.9353E-16	4.3590E+09	2.3776E+04

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.3531E+19
Organic I (atoms)	1.4356E+19
Aerosols (kg)	1.4148E-01

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Kr-85	3.5852E-06	9.1382E-12	6.4743E+13	1.3265E+05
Xe-133	5.6011E-06	2.9923E-14	1.3549E+11	2.0724E+05
Xe-131m	2.5752E-03	3.0745E-11	1.4133E+14	9.5283E+07
Xe-133m	8.8369E-10	1.9694E-18	8.9174E+06	3.2697E+01

Control Room Transport Group Inventory:

			Overlying
Time (h) = 8.0000	Atmosphere	Sump	Pool
Noble gases (atoms)	2.0621E+14	0.0000E+00	0.0000E+00
Elemental I (atoms)	1.1826E+02	0.0000E+00	0.0000E+00
Organic I (atoms)	5.0631E+01	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Recirculating Filter Inventory

Time (h) = 8.0000	Ci	kg	Atoms	Bq
I-131	9.4638E-02	7.6337E-10	3.5092E+15	3.5016E+09
I-132	1.7278E-04	1.6739E-14	7.6366E+10	6.3928E+06
I-133	4.5581E-11	4.0237E-20	1.8219E+05	1.6865E+00
Br-82	4.7090E-11	4.3496E-20	3.1944E+05	1.7423E+00

Deposition Recirculating

	Surfaces	Filter
Time (h) = 8.0000		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	2.4573E+15
Organic I (atoms)	0.0000E+00	1.0521E+15
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00

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Aerosols (kg) 0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) =	8.0000	Ci	kg	Atoms	Bq
I-131		1.8580E-01	1.4987E-09	6.8895E+15	6.8745E+09
I-132		3.3921E-04	3.2862E-14	1.4992E+11	1.2551E+07
I-133		8.9486E-11	7.8995E-20	3.5768E+05	3.3110E+00
Br-82		9.2450E-11	8.5393E-20	6.2713E+05	3.4206E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) =	8.0000	Pathway
		Filter
Noble gases (atoms)	0.0000E+00	
Elemental I (atoms)	4.8242E+15	
Organic I (atoms)	2.0654E+15	
Aerosols (kg)	0.0000E+00	

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) =	8.0000	Pathway
		Filter
Noble gases (atoms)	0.0000E+00	
Elemental I (atoms)	0.0000E+00	
Organic I (atoms)	0.0000E+00	
Aerosols (kg)	0.0000E+00	

Control Room Exhaust Transport Group Inventory:

Time (h) =	8.0000	Pathway
		Filter
Noble gases (atoms)	0.0000E+00	
Elemental I (atoms)	0.0000E+00	
Organic I (atoms)	0.0000E+00	
Aerosols (kg)	0.0000E+00	

Control Room Total Filter Nuclide Inventory:

Time (h) =	8.0000	Ci	kg	Atoms	Bq
I-131		2.8044E-01	2.2620E-09	1.0399E+16	1.0376E+10
I-132		5.1199E-04	4.9601E-14	2.2629E+11	1.8943E+07
I-133		1.3507E-10	1.1923E-19	5.3987E+05	4.9975E+00
Br-82		1.3954E-10	1.2889E-19	9.4657E+05	5.1630E+00

Fuel Pool-Filtered Compartment Atmosphere Nuclide Inventory:

Time (h) =	8.0000	Ci	kg	Atoms	Bq
Xe-133		1.4069E-08	7.5160E-17	3.4032E+08	5.2053E+02
Xe-131m		1.4713E-01	1.7566E-09	8.0750E+15	5.4439E+09
Xe-133m		1.0072E-09	2.2447E-18	1.0164E+07	3.7267E+01

Fuel Pool-Filtered Transport Group Inventory:

Time (h) =	8.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)		8.0750E+15	0.0000E+00	0.0000E+00
Elemental I (atoms)		0.0000E+00	0.0000E+00	1.0126E+22
Organic I (atoms)		0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00	0.0000E+00

Time (h) =	8.0000	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)		0.0000E+00	0.0000E+00
Elemental I (atoms)		0.0000E+00	0.0000E+00
Organic I (atoms)		0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) =	8.0000	Ci	kg	Atoms	Bq
Rb-86		6.3451E+01	7.7981E-07	5.4606E+18	2.3477E+12
I-131		1.2914E+03	1.0417E-05	4.7886E+19	4.7782E+13

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I-132	2.3577E+00	2.2842E-10	1.0421E+15	8.7236E+10
I-133	6.2199E-07	5.4907E-16	2.4861E+09	2.3014E+04
Cs-134	1.9802E+04	1.5305E-02	6.8783E+22	7.3268E+14
Cs-136	1.1793E+03	1.6091E-05	7.1250E+19	4.3634E+13
Cs-137	1.0973E+04	1.2616E-01	5.5454E+23	4.0601E+14
Ba-137m	1.2164E+04	2.2618E-08	9.9423E+16	4.5007E+14
Br-82	6.4258E-07	5.9353E-16	4.3590E+09	2.3776E+04

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.3531E+19
Organic I (atoms)	1.4356E+19
Aerosols (kg)	1.4148E-01

Detailed model information at time (H) = 24.0000

EAB Doses:

Time (h) = 24.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	1.0757E-04	2.4789E-16	1.3328E-03	1.0757E-04
Accumulated dose (rem)	4.3247E-01	7.8047E+01	3.4124E+00	2.8088E+00

LPZ Doses:

Time (h) = 24.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	4.0712E-06	9.3820E-18	5.0445E-05	4.0712E-06
Accumulated dose (rem)	5.3131E-02	9.5912E+00	4.1917E-01	3.4516E-01

Control Room Doses:

Time (h) = 24.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	2.3800E-06	1.2528E-12	9.9814E-04	2.3800E-06
Accumulated dose (rem)	2.8515E-02	5.5527E+01	7.7758E+00	1.7192E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Xe-133	1.7509E-09	9.3542E-18	4.2355E+07	6.4785E+01
Xe-131m	2.9467E-02	3.5179E-10	1.6172E+15	1.0903E+09
Xe-133m	1.2536E-10	2.7937E-19	1.2650E+06	4.6382E+00

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) = 24.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	1.6172E+15	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	2.0279E+21
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 24.0000		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Rb-86	1.3130E+01	1.6137E-07	1.1300E+18	4.8581E+11
Cs-134	4.1979E+03	3.2445E-03	1.4581E+22	1.5532E+14
Cs-136	2.4148E+02	3.2949E-06	1.4590E+19	8.9349E+12
Cs-137	2.3276E+03	2.6759E-02	1.1763E+23	8.6120E+13
Ba-137m	2.5802E+03	4.7976E-09	2.1089E+16	9.5466E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 24.0000	Filter

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Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	3.0007E-02

Environment Integral Nuclide Release:

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Xe-133	1.1034E+05	5.8946E-04	2.6690E+21	4.0825E+15
Xe-131m	1.1376E+04	1.3582E-04	6.2437E+20	4.2093E+14
Xe-133m	1.5083E+01	3.3614E-08	1.5220E+17	5.5807E+11

Environment Transport Group Inventory:

Time (h) = 24.0000	Present Release	Release Rate/s	Integral Release
Noble gases (atoms)	9.2414E+15	1.2835E+14	1.3960E+24
Elemental I (atoms)	9.2031E-34	1.2782E-35	9.1532E+18
Organic I (atoms)	3.9402E-34	5.4725E-36	3.9189E+18
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Rb-86	1.3130E+01	1.6137E-07	1.1300E+18	4.8581E+11
Cs-134	4.1979E+03	3.2445E-03	1.4581E+22	1.5532E+14
Cs-136	2.4148E+02	3.2949E-06	1.4590E+19	8.9349E+12
Cs-137	2.3276E+03	2.6759E-02	1.1763E+23	8.6120E+13
Ba-137m	2.5802E+03	4.7976E-09	2.1089E+16	9.5466E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 24.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	3.0007E-02

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 24.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) = 24.0000	Ci	kg	Atoms	Bq
I-131	1.7542E-01	1.4150E-09	6.5047E+15	6.4906E+09
I-132	2.7311E-06	2.6459E-16	1.2071E+09	1.0105E+05
I-133	5.2504E-11	4.6349E-20	2.0986E+05	1.9427E+00
Br-82	6.7524E-11	6.2370E-20	4.5805E+05	2.4984E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 24.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	4.5547E+15
Organic I (atoms)	1.9500E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 24.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

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Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Rb-86	6.1899E+01	7.6074E-07	5.3270E+18	2.2903E+12
I-131	1.2193E+03	9.8349E-06	4.5212E+19	4.5114E+13
I-132	1.8983E-02	1.8391E-12	8.3903E+12	7.0238E+08
I-133	3.6494E-07	3.2215E-16	1.4587E+09	1.3503E+04
Cs-134	1.9790E+04	1.5296E-02	6.8741E+22	7.3223E+14
Cs-136	1.1384E+03	1.5533E-05	6.8781E+19	4.2122E+13
Cs-137	1.0973E+04	1.2615E-01	5.5452E+23	4.0599E+14
Ba-137m	1.2164E+04	2.2617E-08	9.9419E+16	4.5005E+14
Br-82	4.6934E-07	4.3351E-16	3.1837E+09	1.7365E+04

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.1658E+19
Organic I (atoms)	1.3554E+19
Aerosols (kg)	1.4146E-01

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Xe-133	5.5374E-11	2.9583E-19	1.3395E+06	2.0488E+00
Xe-131m	9.2167E-04	1.1004E-11	5.0584E+13	3.4102E+07

Control Room Transport Group Inventory:

Time (h) = 24.0000	Overlying		
	Atmosphere	Sump	Pool
Noble gases (atoms)	5.0584E+13	0.0000E+00	0.0000E+00
Elemental I (atoms)	1.7331E-32	0.0000E+00	0.0000E+00
Organic I (atoms)	7.4199E-33	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Recirculating Filter Inventory

Time (h) = 24.0000	Ci	kg	Atoms	Bq
I-131	8.9352E-02	7.2073E-10	3.3132E+15	3.3060E+09
I-132	1.3911E-06	1.3477E-16	6.1486E+08	5.1472E+04
I-133	2.6744E-11	2.3608E-20	1.0690E+05	9.8952E-01
Br-82	3.4394E-11	3.1769E-20	2.3331E+05	1.2726E+00

Deposition Recirculating

Time (h) = 24.0000	Surfaces	
	Filter	
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	2.3200E+15
Organic I (atoms)	0.0000E+00	9.9327E+14
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

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Time (h) = 24.0000	Ci	kg	Atoms	Bq
I-131	1.7542E-01	1.4150E-09	6.5047E+15	6.4906E+09
I-132	2.7311E-06	2.6459E-16	1.2071E+09	1.0105E+05
I-133	5.2504E-11	4.6349E-20	2.0986E+05	1.9427E+00
Br-82	6.7524E-11	6.2370E-20	4.5805E+05	2.4984E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 24.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	4.5547E+15
Organic I (atoms)	1.9500E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 24.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) = 24.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Total Filter Nuclide Inventory:

Time (h) = 24.0000	Ci	kg	Atoms	Bq
I-131	2.6477E-01	2.1357E-09	9.8179E+15	9.7966E+09
I-132	4.1223E-06	3.9936E-16	1.8220E+09	1.5252E+05
I-133	7.9248E-11	6.9957E-20	3.1676E+05	2.9322E+00
Br-82	1.0192E-10	9.4139E-20	6.9136E+05	3.7710E+00

Fuel Pool-Filtered Compartment Atmosphere Nuclide Inventory:

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Xe-133	8.2544E-09	4.4098E-17	1.9967E+08	3.0541E+02
Xe-131m	1.3891E-01	1.6585E-09	7.6240E+15	5.1398E+09
Xe-133m	5.9097E-10	1.3170E-18	5.9635E+06	2.1866E+01

Fuel Pool-Filtered Transport Group Inventory:

Time (h) = 24.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	7.6240E+15	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	9.5599E+21
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 24.0000	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Rb-86	6.1899E+01	7.6074E-07	5.3270E+18	2.2903E+12
I-131	1.2193E+03	9.8349E-06	4.5212E+19	4.5114E+13
I-132	1.8983E-02	1.8391E-12	8.3903E+12	7.0238E+08
I-133	3.6494E-07	3.2215E-16	1.4587E+09	1.3503E+04
Cs-134	1.9790E+04	1.5296E-02	6.8741E+22	7.3223E+14
Cs-136	1.1384E+03	1.5533E-05	6.8781E+19	4.2122E+13

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Cs-137	1.0973E+04	1.2615E-01	5.5452E+23	4.0599E+14
Ba-137m	1.2164E+04	2.2617E-08	9.9419E+16	4.5005E+14
Br-82	4.6934E-07	4.3351E-16	3.1837E+09	1.7365E+04

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.1658E+19
Organic I (atoms)	1.3554E+19
Aerosols (kg)	1.4146E-01

Detailed model information at time (H) = 96.0000

EAB Doses:

Time (h) = 96.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	4.1438E-04	4.6419E-50	5.1345E-03	4.1438E-04
Accumulated dose (rem)	4.3288E-01	7.8047E+01	3.4176E+00	2.8093E+00

LPZ Doses:

Time (h) = 96.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	6.6654E-06	7.4666E-52	8.2590E-05	6.6654E-06
Accumulated dose (rem)	5.3137E-02	9.5912E+00	4.1925E-01	3.4517E-01

Control Room Doses:

Time (h) = 96.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	3.9823E-06	1.1016E-46	1.6704E-03	3.9823E-06
Accumulated dose (rem)	2.8519E-02	5.5527E+01	7.7775E+00	1.7192E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Xe-133	1.5894E-10	8.4914E-19	3.8448E+06	5.8809E+00
Xe-131m	2.2751E-02	2.7162E-10	1.2487E+15	8.4179E+08
Xe-133m	1.1379E-11	2.5361E-20	1.1483E+05	4.2104E-01

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) = 96.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	1.2487E+15	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	1.5657E+21
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 96.0000	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Rb-86	1.1746E+01	1.4435E-07	1.0108E+18	4.3458E+11
Cs-134	4.1863E+03	3.2356E-03	1.4541E+22	1.5489E+14
Cs-136	2.0604E+02	2.8113E-06	1.2448E+19	7.6235E+12
Cs-137	2.3271E+03	2.6754E-02	1.1760E+23	8.6103E+13
Ba-137m	2.5797E+03	4.7967E-09	2.1085E+16	9.5448E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 96.0000	Pathway
Noble gases (atoms)	Filter
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	2.9993E-02

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Environment Integral Nuclide Release:

Time (h) =	Ci	kg	Atoms	Bq
96.0000				
Xe-133	7.4226E+04	3.9655E-04	1.7955E+21	2.7464E+15
Xe-131m	1.0043E+04	1.1990E-04	5.5120E+20	3.7160E+14
Xe-133m	5.8310E+00	1.2995E-08	5.8841E+16	2.1575E+11

Environment Transport Group Inventory:

Time (h) =	Present Release	Release Rate/s	Integral Release
96.0000			
Noble gases (atoms)	7.1353E+15	9.9102E+13	1.3943E+24
Elemental I (atoms)	0.0000E+00	0.0000E+00	7.0672E+18
Organic I (atoms)	0.0000E+00	0.0000E+00	3.0258E+18
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) =	Ci	kg	Atoms	Bq
96.0000				
Rb-86	1.1746E+01	1.4435E-07	1.0108E+18	4.3458E+11
Cs-134	4.1863E+03	3.2356E-03	1.4541E+22	1.5489E+14
Cs-136	2.0604E+02	2.8113E-06	1.2448E+19	7.6235E+12
Cs-137	2.3271E+03	2.6754E-02	1.1760E+23	8.6103E+13
Ba-137m	2.5797E+03	4.7967E-09	2.1085E+16	9.5448E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) =	Pathway
96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	2.9993E-02

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) =	Pathway
96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) =	Ci	kg	Atoms	Bq
96.0000				
I-131	1.3544E-01	1.0925E-09	5.0223E+15	5.0114E+09
Br-82	1.6423E-11	1.5170E-20	1.1141E+05	6.0766E-01

Control Room Filtered Makeup Transport Group Inventory:

Time (h) =	Pathway
96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.5167E+15
Organic I (atoms)	1.5056E+15
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) =	Pathway
96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) =	Pathway
96.0000	Filter
Noble gases (atoms)	0.0000E+00

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Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Rb-86	5.5372E+01	6.8051E-07	4.7653E+18	2.0488E+12
I-131	9.4141E+02	7.5936E-06	3.4908E+19	3.4832E+13
I-133	3.3128E-08	2.9244E-17	1.3241E+08	1.2257E+03
Cs-134	1.9735E+04	1.5253E-02	6.8551E+22	7.3021E+14
Cs-136	9.7133E+02	1.3253E-05	5.8685E+19	3.5939E+13
Cs-137	1.0971E+04	1.2613E-01	5.5442E+23	4.0592E+14
Ba-137m	1.2161E+04	2.2613E-08	9.9400E+16	4.4997E+14
Br-82	1.1415E-07	1.0544E-16	7.7435E+08	4.2236E+03

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) = 96.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	2.4443E+19
Organic I (atoms)	1.0465E+19
Aerosols (kg)	1.4139E-01

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Xe-131m	5.3583E-04	6.3972E-12	2.9408E+13	1.9826E+07

Control Room Transport Group Inventory:

Time (h) = 96.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	2.9408E+13	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Recirculating Filter Inventory

Time (h) = 96.0000	Ci	kg	Atoms	Bq
I-131	6.8989E-02	5.5648E-10	2.5582E+15	2.5526E+09

Deposition Recirculating

Time (h) = 96.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	1.7913E+15
Organic I (atoms)	0.0000E+00	7.6691E+14
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 96.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) = 96.0000	Ci	kg	Atoms	Bq
I-131	1.3544E-01	1.0925E-09	5.0223E+15	5.0114E+09
Br-82	1.6423E-11	1.5170E-20	1.1141E+05	6.0766E-01

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 96.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.5167E+15
Organic I (atoms)	1.5056E+15

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Aerosols (kg) 0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Total Filter Nuclide Inventory:

Time (h) = 96.0000	Ci	kg	Atoms	Bq
I-131	2.0443E-01	1.6490E-09	7.5805E+15	7.5640E+09
Br-82	2.4789E-11	2.2897E-20	1.6815E+05	9.1718E-01

Fuel Pool-Filtered Compartment Atmosphere Nuclide Inventory:

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Xe-133	7.4931E-10	4.0031E-18	1.8126E+07	2.7724E+01
Xe-131m	1.0726E-01	1.2805E-09	5.8865E+15	3.9685E+09
Xe-133m	5.3646E-11	1.1956E-19	5.4134E+05	1.9849E+00

Fuel Pool-Filtered Transport Group Inventory:

Time (h) = 96.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	5.8865E+15	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	7.3813E+21
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Recirculating	
Time (h) = 96.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Rb-86	5.5372E+01	6.8051E-07	4.7653E+18	2.0488E+12
I-131	9.4141E+02	7.5936E-06	3.4908E+19	3.4832E+13
I-133	3.3128E-08	2.9244E-17	1.3241E+08	1.2257E+03
Cs-134	1.9735E+04	1.5253E-02	6.8551E+22	7.3021E+14
Cs-136	9.7133E+02	1.3253E-05	5.8685E+19	3.5939E+13
Cs-137	1.0971E+04	1.2613E-01	5.5442E+23	4.0592E+14
Ba-137m	1.2161E+04	2.2613E-08	9.9400E+16	4.4997E+14
Br-82	1.1415E-07	1.0544E-16	7.7435E+08	4.2236E+03

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	2.4443E+19
Organic I (atoms)	1.0465E+19
Aerosols (kg)	1.4139E-01

Detailed model information at time (H) = 720.0000

EAB Doses:

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Time (h) = 720.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	1.2547E-03	2.5920-202	1.5546E-02	1.2547E-03
Accumulated dose (rem)	4.3414E-01	7.8047E+01	3.4331E+00	2.8105E+00

LPZ Doses:

Time (h) = 720.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	5.9125E-06	1.2215-204	7.3261E-05	5.9125E-06
Accumulated dose (rem)	5.3143E-02	9.5912E+00	4.1932E-01	3.4517E-01

Control Room Doses:

Time (h) = 720.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	6.0105E-06	4.1010-199	2.5212E-03	6.0105E-06
Accumulated dose (rem)	2.8525E-02	5.5527E+01	7.7800E+00	1.7192E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Xe-131m	2.4184E-03	2.8872E-11	1.3273E+14	8.9480E+07

Fuel Pool-Unfiltered Transport Group Inventory:

			Overlying
Time (h) = 720.0000	Atmosphere	Sump	Pool
Noble gases (atoms)	1.3273E+14	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	1.6643E+20
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

		Deposition	Recirculating
Time (h) = 720.0000	Surfaces	Filter	
Noble gases (atoms)	0.0000E+00	0.0000E+00	
Elemental I (atoms)	0.0000E+00	0.0000E+00	
Organic I (atoms)	0.0000E+00	0.0000E+00	
Aerosols (kg)	0.0000E+00	0.0000E+00	

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Rb-86	4.4713E+00	5.4952E-08	3.8480E+17	1.6544E+11
Cs-134	4.0873E+03	3.1591E-03	1.4197E+22	1.5123E+14
Cs-136	5.2058E+01	7.1029E-07	3.1452E+18	1.9261E+12
Cs-137	2.3233E+03	2.6710E-02	1.1741E+23	8.5962E+13
Ba-137m	2.5754E+03	4.7888E-09	2.1050E+16	9.5291E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	2.9870E-02

Environment Integral Nuclide Release:

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Xe-131m	2.8459E+03	3.3977E-05	1.5619E+20	1.0530E+14

Environment Transport Group Inventory:

	Present	Release	Integral
Time (h) = 720.0000	Release	Rate/s	Release
Noble gases (atoms)	7.5846E+14	1.0534E+13	1.3858E+24
Elemental I (atoms)	0.0000E+00	0.0000E+00	7.5122E+17
Organic I (atoms)	0.0000E+00	0.0000E+00	3.2163E+17
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 720.0000	Ci	kg	Atoms	Bq
---------------------	----	----	-------	----

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

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Rb-86	4.4713E+00	5.4952E-08	3.8480E+17	1.6544E+11
Cs-134	4.0873E+03	3.1591E-03	1.4197E+22	1.5123E+14
Cs-136	5.2058E+01	7.1029E-07	3.1452E+18	1.9261E+12
Cs-137	2.3233E+03	2.6710E-02	1.1741E+23	8.5962E+13
Ba-137m	2.5754E+03	4.7888E-09	2.1050E+16	9.5291E+13

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	2.9870E-02

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) = 720.0000	Ci	kg	Atoms	Bq
I-131	1.4397E-02	1.1613E-10	5.3385E+14	5.3269E+08

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.7381E+14
Organic I (atoms)	1.6004E+14
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Rb-86	2.1079E+01	2.5906E-07	1.8140E+18	7.7992E+11
I-131	1.0007E+02	8.0717E-07	3.7106E+18	3.7026E+12
Cs-134	1.9269E+04	1.4893E-02	6.6930E+22	7.1294E+14
Cs-136	2.4542E+02	3.3485E-06	1.4827E+19	9.0804E+12
Cs-137	1.0953E+04	1.2592E-01	5.5350E+23	4.0525E+14
Ba-137m	1.2141E+04	2.2576E-08	9.9237E+16	4.4923E+14

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	2.5982E+18
Organic I (atoms)	1.1124E+18

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Aerosols (kg) 1.4082E-01

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Xe-131m	4.2654E-05	5.0924E-13	2.3410E+12	1.5782E+06

Control Room Transport Group Inventory:

Time (h) = 720.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	2.3410E+12	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Recirculating Filter Inventory

Time (h) = 720.0000	Ci	kg	Atoms	Bq
I-131	7.3333E-03	5.9152E-11	2.7192E+14	2.7133E+08

Time (h) = 720.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	1.9040E+14
Organic I (atoms)	0.0000E+00	8.1520E+13
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Filter Pathway Nuclide Inventory for Control Room Filtered Makeup

Time (h) = 720.0000	Ci	kg	Atoms	Bq
I-131	1.4397E-02	1.1613E-10	5.3385E+14	5.3269E+08

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	3.7381E+14
Organic I (atoms)	1.6004E+14
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Total Filter Nuclide Inventory:

Time (h) = 720.0000	Ci	kg	Atoms	Bq
I-131	2.1730E-02	1.7528E-10	8.0578E+14	8.0403E+08

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Fuel Pool-Filtered Compartment Atmosphere Nuclide Inventory:

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Xe-131m	1.1401E-02	1.3611E-10	6.2572E+14	4.2183E+08

Fuel Pool-Filtered Transport Group Inventory:

Time (h) = 720.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	6.2572E+14	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	7.8460E+20
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 720.0000	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Filtered

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Rb-86	2.1079E+01	2.5906E-07	1.8140E+18	7.7992E+11
I-131	1.0007E+02	8.0717E-07	3.7106E+18	3.7026E+12
Cs-134	1.9269E+04	1.4893E-02	6.6930E+22	7.1294E+14
Cs-136	2.4542E+02	3.3485E-06	1.4827E+19	9.0804E+12
Cs-137	1.0953E+04	1.2592E-01	5.5350E+23	4.0525E+14
Ba-137m	1.2141E+04	2.2576E-08	9.9237E+16	4.4923E+14

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	2.5982E+18
Organic I (atoms)	1.1124E+18
Aerosols (kg)	1.4082E-01

Transport Group Totals in Model:

Noble Gases (atoms)	1.3858E+24
Elemental I (atoms)	9.5438E+20
Organic I (atoms)	1.4343E+18
Aerosols (kg)	1.7069E-01

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I-131 Summary

Time (hr)	Fuel Pool-Unfiltered I-131 (Curies)	Environment I-131 (Curies)	Control Room I-131 (Curies)
0.000	0.0000E+00	0.0000E+00	0.0000E+00
0.001	0.0000E+00	0.0000E+00	0.0000E+00
0.002	0.0000E+00	0.0000E+00	0.0000E+00
0.280	2.4733E-02	5.2845E+01	1.5324E-02
0.540	2.4710E-02	1.0221E+02	1.9146E-02
0.800	2.4687E-02	1.5148E+02	2.0210E-02
1.060	2.4664E-02	2.0066E+02	2.0496E-02
1.320	2.4641E-02	2.4975E+02	2.0563E-02
1.580	2.4618E-02	2.9874E+02	2.0568E-02
1.840	2.4595E-02	3.4765E+02	2.0555E-02
2.000	2.4581E-02	3.7770E+02	2.0545E-02
2.002	2.4581E-02	3.7807E+02	2.0501E-02
2.280	0.0000E+00	3.8114E+02	5.6768E-03
2.540	0.0000E+00	3.8078E+02	1.6007E-03
2.800	0.0000E+00	3.8043E+02	4.5134E-04

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3.060	0.0000E+00	3.8007E+02	1.2726E-04
3.320	0.0000E+00	3.7972E+02	3.5884E-05
3.580	0.0000E+00	3.7936E+02	1.0118E-05
3.840	0.0000E+00	3.7901E+02	2.8529E-06
4.100	0.0000E+00	3.7865E+02	8.0443E-07
4.360	0.0000E+00	3.7830E+02	2.2682E-07
4.620	0.0000E+00	3.7795E+02	6.3956E-08
4.880	0.0000E+00	3.7760E+02	1.8034E-08
5.140	0.0000E+00	3.7724E+02	5.0848E-09
5.400	0.0000E+00	3.7689E+02	1.4338E-09
5.660	0.0000E+00	3.7654E+02	4.0427E-10
5.920	0.0000E+00	3.7619E+02	1.1399E-10
6.180	0.0000E+00	3.7584E+02	3.2142E-11
6.440	0.0000E+00	3.7549E+02	9.0628E-12
6.700	0.0000E+00	3.7513E+02	2.5554E-12
6.960	0.0000E+00	3.7478E+02	7.2054E-13
7.220	0.0000E+00	3.7443E+02	2.0317E-13
7.480	0.0000E+00	3.7409E+02	5.7287E-14
7.740	0.0000E+00	3.7374E+02	1.6153E-14
8.000	0.0000E+00	3.7339E+02	4.5546E-15
8.260	0.0000E+00	3.7304E+02	1.2842E-15
8.520	0.0000E+00	3.7269E+02	3.6211E-16
8.780	0.0000E+00	3.7234E+02	1.0210E-16
9.040	0.0000E+00	3.7199E+02	2.8790E-17
9.300	0.0000E+00	3.7165E+02	8.1177E-18
9.560	0.0000E+00	3.7130E+02	2.2889E-18
9.820	0.0000E+00	3.7095E+02	6.4540E-19
10.080	0.0000E+00	3.7061E+02	1.8198E-19
24.000	0.0000E+00	3.5253E+02	6.6748E-49
96.000	0.0000E+00	2.7219E+02	3.7272-201
720.000	0.0000E+00	2.8933E+01	0.0000E+00

Fuel Pool-Filtered

Time (hr)	I-131 (Curies)
0.000	0.0000E+00
0.001	0.0000E+00
0.002	0.0000E+00
0.280	1.1660E-01
0.540	1.1649E-01
0.800	1.1638E-01
1.060	1.1627E-01
1.320	1.1616E-01
1.580	1.1606E-01
1.840	1.1595E-01
2.000	1.1588E-01
2.002	1.1588E-01
2.280	0.0000E+00
2.540	0.0000E+00
2.800	0.0000E+00
3.060	0.0000E+00
3.320	0.0000E+00
3.580	0.0000E+00
3.840	0.0000E+00
4.100	0.0000E+00
4.360	0.0000E+00
4.620	0.0000E+00
4.880	0.0000E+00
5.140	0.0000E+00
5.400	0.0000E+00
5.660	0.0000E+00
5.920	0.0000E+00
6.180	0.0000E+00
6.440	0.0000E+00
6.700	0.0000E+00
6.960	0.0000E+00
7.220	0.0000E+00
7.480	0.0000E+00
7.740	0.0000E+00
8.000	0.0000E+00
8.260	0.0000E+00
8.520	0.0000E+00
8.780	0.0000E+00
9.040	0.0000E+00

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9.300 0.0000E+00
9.560 0.0000E+00
9.820 0.0000E+00
10.080 0.0000E+00
24.000 0.0000E+00
96.000 0.0000E+00
720.000 0.0000E+00

Cumulative Dose Summary

Table with 7 columns: Time (hr), Thyroid (rem), TEDE (rem) for EAB, LPZ, and Control Room. Rows show cumulative dose values from 0.000 to 720.000 hours.

Worst Two-Hour Dose
(Provided for Dose Location 1)

Table with 5 columns: Time (hr), Whole Body (rem), Thyroid (rem), Skin (rem), TEDE (rem). Row for 0.0 hours showing values: 4.2795E-01, 7.7268E+01, 3.3760E+00, 2.7806E+00.

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30 Day Control Room Skin Dose

#####

Control Room

Time (hr)	Skin (rem)
720.0	7.7800E+00

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```
0
0
0
1
*Pathways
6
*Pathway 1:
Fuel Pool Release-Unfiltered
1
2
2
*Pathway 2:
Control Room Unfiltered Makeup
2
3
2
*Pathway 3:
Control Room Filtered Makeup
2
3
2
*Pathway 4:
Control Room Unfiltered Inleakage
2
3
2
*Pathway 5:
Control Room Exhaust
3
2
2
*Pathway 6:
Fuel Pool Release-Filtered
4
2
2
*Sources
4
1 1
2 0
3 0
4 0
*dose conversion factors filename
pal/Cask/nai-1101-001rev0.dcf
*release fraction and timing filename
pal/Cask/pal_cda_ast.rft
0
1
1
*Iodine
0 0.9985 0.0015
*Overlying pool
*aerosol model
0
*elemental model
1
2
0 285
720 285
*organic model
1
2
0 1
720 1
*pH tracking
0
*Compartment detail
*Compartment 1:
1
*spray model
0
0
0
```

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```
*filter model
0
*deposition model
0
0
*Compartment 2:
  1
*spray model
0
0
0
*filter model
0
*deposition model
0
0
*Compartment 3:
  1
*spray model
0
0
0
*filter model
  1
  2
0 0 99 99 99
720 0 99 99 99
*deposition model
0
0
*Compartment 4:
  1
*spray model
0
0
0
*filter model
0
*deposition model
0
0
*Pathways:
*Pathway 1
*filter efficiency model
  1
  2
0 1000000 100 0 0
720 1000000 100 0 0
*Pathway 2
*filter efficiency model
  1
  2
0 660 0 0 0
720 660 0 0 0
*Pathway 3
*filter efficiency model
  1
  2
0 0 100 94 94
720 0 100 94 94
*Pathway 4
*filter efficiency model
  1
  2
0 0 0 0 0
720 0 0 0 0
*Pathway 5
*filter efficiency model
  1
  2
0 660 0 0 0
720 660 0 0 0
*Pathway 6
```

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```
*filter efficiency model
  1
  2
0 1000000 100 94 94
720 1000000 100 94 94
*x/q tables
  6
EAB
  2
0 0.000539
720 0.000539
LPZ
  6
0 6.66e-05
2 3.03e-05
8 2.04e-05
24 8.67e-06
96 2.54e-06
720 2.54e-06
Equip Hatch-Normal
  6
0 0.0125
2 0.00983
8 0.00362
24 0.00286
96 0.00228
720 0.00228
Equip Hatch-Emergency
  6
0 0.000732
2 0.000613
8 0.000245
24 0.000175
96 0.000129
720 0.000129
Stack-Normal
  6
0 0.0061
2 0.00432
8 0.00173
24 0.00127
96 0.000979
720 0.000979
Stack-Emergency
  6
0 0.000832
2 0.000769
8 0.000283
24 0.000215
96 0.000157
720 0.000157
*dose locations
  3
*location name, compartment number and x/q table
EAB
  2
  1
*br model
  1
  4
0 0.00035
8 0.00018
24 0.00023
720 0.00023
*of model
  0
*location x/q input to be included
  0
*location name, compartment number and x/q table
LPZ
  2
  2
*br model
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

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```

1
4
0 0.00035
8 0.00018
24 0.00023
720 0.00023
*of model
0
*location x/q input to be included
0
*location name, compartment number and x/q table
Control Room
3
0
*br model
1
2
0 0.00035
720 0.00035
*of model
1
4
0 1
24 0.6
96 0.4
720 0.4
*location x/q input to be included
1
*number of intake combinations
6
*intake combinations
2 1 3
3 1 4
4 1 3
2 6 5
3 6 6
4 6 5
*time step count
3
0 1e-06
0.001 0.02
720 0.02
*show plant, scenario, event, step, model
1
1
1
0
1

#####
RADTRAD-NAI Version 1.1a(QA) run on Jun 20, 2005 at 10:10:54
#####

#####
Plant Description
#####

Number of Nuclides = 107

Inventory Power = 2.7030E+03 MWth
Plant Power Level = 2.7030E+03 MWth

Number of compartments = 4

Compartment information

Compartment number 1 (Source term fraction = 1.0000E+00)
Name: Fuel Pool-Unfiltered
Compartment volume = 1.0000E+04 (Cubic feet)
Removal devices within compartment:
Suppression pool
Pathways into and out of compartment 1
Pathway to compartment number 2: Fuel Pool Release-Unfiltered

```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Compartment number 2
 Name: Environment
 Pathways into and out of compartment 2
 Pathway to compartment number 3: Control Room Unfiltered Makeup
 Pathway to compartment number 3: Control Room Filtered Makeup
 Pathway to compartment number 3: Control Room Unfiltered Inleakage
 Pathway from compartment number 1: Fuel Pool Release-Unfiltered
 Pathway from compartment number 3: Control Room Exhaust
 Pathway from compartment number 4: Fuel Pool Release-Filtered

Compartment number 3
 Name: Control Room
 Compartment volume = 3.5923E+04 (Cubic feet)
 Removal devices within compartment:
 Filter(s)
 Pathways into and out of compartment 3
 Pathway to compartment number 2: Control Room Exhaust
 Pathway from compartment number 2: Control Room Unfiltered Makeup
 Pathway from compartment number 2: Control Room Filtered Makeup
 Pathway from compartment number 2: Control Room Unfiltered Inleakage

Compartment number 4
 Name: Fuel Pool-Filtered
 Compartment volume = 1.0000E+04 (Cubic feet)
 Removal devices within compartment:
 Suppression pool
 Pathways into and out of compartment 4
 Pathway to compartment number 2: Fuel Pool Release-Filtered

Total number of pathways = 6

 RADTRAD-NAI Version 1.1a(QA) run on Jun 20, 2005 at 10:10:54
 #####
 #####
 Scenario Description
 #####

Radioactive Decay is enabled
Calculation of Daughters is enabled

Iodine fractions
 Aerosol = 0.0000E+00
 Elemental = 9.9850E-01
 Organic = 1.5000E-03

Overlying pool characteristics

Elemental Removal Data:
 Time (hr) DF
 0.0000E+00 2.8500E+02
 7.2000E+02 2.8500E+02

Organic Removal Data:
 Time (hr) DF
 0.0000E+00 1.0000E+00
 7.2000E+02 1.0000E+00

COMPARTMENT DATA

Compartment number 1: Fuel Pool-Unfiltered
 Compartment number 2: Environment
 Compartment number 3: Control Room

Compartment Filter Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

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0.0000E+00	0.0000E+00	9.9000E+01	9.9000E+01	9.9000E+01
7.2000E+02	0.0000E+00	9.9000E+01	9.9000E+01	9.9000E+01

Compartment number 4: Fuel Pool-Filtered

PATHWAY DATA

Pathway number 1: Fuel Pool Release-Unfiltered

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.0000E+06	1.0000E+02	0.0000E+00	0.0000E+00
7.2000E+02	1.0000E+06	1.0000E+02	0.0000E+00	0.0000E+00

Pathway number 2: Control Room Unfiltered Makeup

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	6.6000E+02	0.0000E+00	0.0000E+00	0.0000E+00
7.2000E+02	6.6000E+02	0.0000E+00	0.0000E+00	0.0000E+00

Pathway number 3: Control Room Filtered Makeup

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	0.0000E+00	1.0000E+02	9.4000E+01	9.4000E+01
7.2000E+02	0.0000E+00	1.0000E+02	9.4000E+01	9.4000E+01

Pathway number 4: Control Room Unfiltered Inleakage

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
7.2000E+02	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Pathway number 5: Control Room Exhaust

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	6.6000E+02	0.0000E+00	0.0000E+00	0.0000E+00
7.2000E+02	6.6000E+02	0.0000E+00	0.0000E+00	0.0000E+00

Pathway number 6: Fuel Pool Release-Filtered

Pathway Filter: Removal Data

Time (hr)	Flow Rate (cfm)	Filter Efficiencies (%)		
		Aerosol	Elemental	Organic
0.0000E+00	1.0000E+06	1.0000E+02	9.4000E+01	9.4000E+01
7.2000E+02	1.0000E+06	1.0000E+02	9.4000E+01	9.4000E+01

X/Q DATA

X/Q table 1: EAB

Time (hr)	X/Q (s * m^-3)
0.0000E+00	5.3900E-04
7.2000E+02	5.3900E-04

X/Q table 2: LPZ

Time (hr)	X/Q (s * m^-3)
0.0000E+00	6.6600E-05
2.0000E+00	3.0300E-05
8.0000E+00	2.0400E-05

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2.4000E+01	8.6700E-06
9.6000E+01	2.5400E-06
7.2000E+02	2.5400E-06

X/Q table 3: Equip Hatch-Normal

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	1.2500E-02
2.0000E+00	9.8300E-03
8.0000E+00	3.6200E-03
2.4000E+01	2.8600E-03
9.6000E+01	2.2800E-03
7.2000E+02	2.2800E-03

X/Q table 4: Equip Hatch-Emergency

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	7.3200E-04
2.0000E+00	6.1300E-04
8.0000E+00	2.4500E-04
2.4000E+01	1.7500E-04
9.6000E+01	1.2900E-04
7.2000E+02	1.2900E-04

X/Q table 5: Stack-Normal

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	6.1000E-03
2.0000E+00	4.3200E-03
8.0000E+00	1.7300E-03
2.4000E+01	1.2700E-03
9.6000E+01	9.7900E-04
7.2000E+02	9.7900E-04

X/Q table 6: Stack-Emergency

Time (hr)	X/Q (s * m ⁻³)
0.0000E+00	8.3200E-04
2.0000E+00	7.6900E-04
8.0000E+00	2.8300E-04
2.4000E+01	2.1500E-04
9.6000E+01	1.5700E-04
7.2000E+02	1.5700E-04

LOCATION DATA

Location EAB is in compartment 2

Using X/Q Table 1

Location Breathing Rate Data

Time (hr)	Breathing Rate (m ³ * sec ⁻¹)
0.0000E+00	3.5000E-04
8.0000E+00	1.8000E-04
2.4000E+01	2.3000E-04
7.2000E+02	2.3000E-04

Location LPZ is in compartment 2

Using X/Q Table 2

Location Breathing Rate Data

Time (hr)	Breathing Rate (m ³ * sec ⁻¹)
0.0000E+00	3.5000E-04
8.0000E+00	1.8000E-04
2.4000E+01	2.3000E-04
7.2000E+02	2.3000E-04

Location Control Room is in compartment 3

Inleakage X/Q Table Assignments

Inleakage Path	Source Path	X/Q Table
2	1	3
3	1	4
4	1	3
2	6	5
3	6	6

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4 6 5

Location Breathing Rate Data

Time (hr)	Breathing Rate (m ³ * sec ⁻¹)
0.0000E+00	3.5000E-04
7.2000E+02	3.5000E-04

Location Occupancy Factor Data

Time (hr)	Occupancy Factor
0.0000E+00	1.0000E+00
2.4000E+01	6.0000E-01
9.6000E+01	4.0000E-01
7.2000E+02	4.0000E-01

USER SPECIFIED TIME STEP DATA - SUPPLEMENTAL TIME STEPS

Time	Time step
0.0000E+00	1.0000E-06
1.0000E-03	2.0000E-02
7.2000E+02	2.0000E-02

 RADTRAD-NAI Version 1.1a(QA) run on Jun 20, 2005 at 10:10:54
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 Dose, Detailed Model and Detailed Inventory Output
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Detailed model information at time (H) = 0.0010

EAB Doses:

Time (h) =	0.0010	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)		0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

LPZ Doses:

Time (h) =	0.0010	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)		0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Control Room Doses:

Time (h) =	0.0010	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)		0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) =	0.0010	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)		0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)		0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)		0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00	0.0000E+00

Time (h) =	0.0010	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)		0.0000E+00	0.0000E+00

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Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Environment Transport Group Inventory:

	Present	Release	Integral
	Release	Rate/s	Release
Time (h) = 0.0010			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 0.0010	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00

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Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Transport Group Inventory:

	Atmosphere	Sump	Overlying Pool
Time (h) = 0.0010			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 0.0010		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway Filter
Time (h) = 0.0010	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway Filter
Time (h) = 0.0010	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway Filter
Time (h) = 0.0010	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway Filter
Time (h) = 0.0010	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool-Filtered Transport Group Inventory:

	Atmosphere	Sump	Overlying Pool
Time (h) = 0.0010			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 0.0010		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

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	Pathway
Time (h) =	0.0010
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Detailed model information at time (H) = 0.0020

EAB Doses:

Time (h) =	Whole Body	Thyroid	Skin	TEDE
0.0020				
Delta dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

LPZ Doses:

Time (h) =	Whole Body	Thyroid	Skin	TEDE
0.0020				
Delta dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Control Room Doses:

Time (h) =	Whole Body	Thyroid	Skin	TEDE
0.0020				
Delta dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Accumulated dose (rem)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) =	Atmosphere	Sump	Overlying Pool
0.0020			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) =	Deposition Surfaces	Recirculating Filter
0.0020		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) =	Pathway
0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Environment Transport Group Inventory:

Time (h) =	Present Release	Release Rate/s	Integral Release
0.0020			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) =	Pathway
0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Pathway

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Time (h) = 0.0020 Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Transport Group Inventory:

	Atmosphere	Sump	Overlying Pool
Time (h) = 0.0020			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 0.0020		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 0.0020 Pathway Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00

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Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool-Filtered Transport Group Inventory:

	Atmosphere	Sump	Overlying Pool
Time (h) = 0.0020			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 0.0020		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 0.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Detailed model information at time (H) = 2.0000

EAB Doses:

Time (h) = 2.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	1.8748E-02	1.9499E+00	1.9904E+00	7.8114E-02
Accumulated dose (rem)	1.8748E-02	1.9499E+00	1.9904E+00	7.8114E-02

LPZ Doses:

Time (h) = 2.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	2.3165E-03	2.4094E-01	2.4594E-01	9.6520E-03
Accumulated dose (rem)	2.3165E-03	2.4094E-01	2.4594E-01	9.6520E-03

Control Room Doses:

Time (h) = 2.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	7.6678E-03	2.6977E+01	2.7560E+01	8.2899E-01
Accumulated dose (rem)	7.6678E-03	2.6977E+01	2.7560E+01	8.2899E-01

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Kr-85	6.2999E+00	1.6057E-05	1.1377E+20	2.3310E+11
Rb-86	6.8966E-04	8.4759E-12	5.9352E+13	2.5517E+07
I-131	7.9649E-04	6.4246E-12	2.9534E+13	2.9470E+07
I-132	4.4057E-09	4.2682E-19	1.9473E+06	1.6301E+02

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Xe-133	3.7056E-03	1.9797E-11	8.9639E+13	1.3711E+08
Cs-134	1.8759E+00	1.4498E-06	6.5158E+18	6.9407E+10
Cs-136	5.0029E-03	6.8261E-11	3.0226E+14	1.8511E+08
Cs-137	1.0940E+00	1.2577E-05	5.5286E+19	4.0478E+10
Xe-131m	4.0589E-02	4.8458E-10	2.2276E+15	1.5018E+09
Ba-137m	3.3731E-01	6.2721E-13	2.7570E+12	1.2481E+10

Fuel Pool-Unfiltered Transport Group Inventory:

	Atmosphere	Sump	Overlying Pool
Time (h) = 2.0000			
Noble gases (atoms)	1.1377E+20	0.0000E+00	0.0000E+00
Elemental I (atoms)	2.0680E+13	0.0000E+00	7.0407E+19
Organic I (atoms)	8.8540E+12	0.0000E+00	0.0000E+00
Aerosols (kg)	1.4027E-05	0.0000E+00	0.0000E+00

	Deposition Surfaces	Recirculating Filter
Time (h) = 2.0000		
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Rb-86	8.2304E+00	1.0115E-07	7.0831E+17	3.0453E+11
Cs-134	2.2386E+04	1.7302E-02	7.7760E+22	8.2830E+14
Cs-136	5.9705E+01	8.1462E-07	3.6072E+18	2.2091E+12
Cs-137	1.3056E+04	1.5010E-01	6.5979E+23	4.8306E+14
Ba-137m	1.4147E+04	2.6306E-08	1.1563E+17	5.2346E+14

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway Filter
Time (h) = 2.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6740E-01

Environment Integral Nuclide Release:

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Kr-85	7.5398E+04	1.9218E-01	1.3616E+24	2.7897E+15
I-131	9.5325E+00	7.6890E-08	3.5347E+17	3.5270E+11
I-132	5.2421E-05	5.0785E-15	2.3169E+10	1.9396E+06
Xe-133	4.4350E+01	2.3693E-07	1.0728E+18	1.6409E+12
Xe-131m	4.7353E+02	5.6534E-06	2.5989E+19	1.7521E+13
Xe-133m	1.1263E-07	2.5101E-16	1.1366E+09	4.1673E+03

Environment Transport Group Inventory:

	Present Release	Release Rate/s	Integral Release
Time (h) = 2.0000			
Noble gases (atoms)	1.3646E+22	1.8953E+20	1.3616E+24
Elemental I (atoms)	2.4805E+15	3.4452E+13	2.4750E+17
Organic I (atoms)	1.0620E+15	1.4750E+13	1.0597E+17
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Rb-86	8.2304E+00	1.0115E-07	7.0831E+17	3.0453E+11
Cs-134	2.2386E+04	1.7302E-02	7.7760E+22	8.2830E+14
Cs-136	5.9705E+01	8.1462E-07	3.6072E+18	2.2091E+12
Cs-137	1.3056E+04	1.5010E-01	6.5979E+23	4.8306E+14
Ba-137m	1.4147E+04	2.6306E-08	1.1563E+17	5.2346E+14

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway Filter
Time (h) = 2.0000	

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Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6740E-01

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) = 2.0000	Ci	kg	Atoms	Bq
Kr-85	1.1875E+02	3.0268E-04	2.1444E+21	4.3938E+12
I-131	1.5013E-02	1.2110E-10	5.5670E+14	5.5549E+08
I-132	8.2716E-08	8.0134E-18	3.6559E+07	3.0605E+03
Xe-133	6.9849E-02	3.7316E-10	1.6897E+15	2.5844E+09
Xe-131m	7.4585E-01	8.9045E-09	4.0935E+16	2.7597E+10
Xe-133m	1.7739E-10	3.9533E-19	1.7900E+06	6.5634E+00

Control Room Transport Group Inventory:

			Overlying
Time (h) = 2.0000	Atmosphere	Sump	Pool
Noble gases (atoms)	2.1445E+21	0.0000E+00	0.0000E+00
Elemental I (atoms)	3.8981E+14	0.0000E+00	0.0000E+00
Organic I (atoms)	1.6689E+14	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition	Recirculating
Time (h) = 2.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00

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Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool-Filtered Transport Group Inventory:

			Overlying
Time (h) = 2.0000	Atmosphere	Sump	Pool
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition Recirculating	
Time (h) = 2.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 2.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Detailed model information at time (H) = 2.0020

EAB Doses:

Time (h) = 2.0020	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	1.8803E-05	1.9488E-03	1.9965E-03	7.8136E-05
Accumulated dose (rem)	1.8767E-02	1.9519E+00	1.9924E+00	7.8192E-02

LPZ Doses:

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Time (h) =	2.0020	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		1.0570E-06	1.0955E-04	1.1223E-04	4.3924E-06
Accumulated dose (rem)		2.3176E-03	2.4105E-01	2.4605E-01	9.6564E-03

Control Room Doses:

Time (h) =	2.0020	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)		1.1451E-05	4.0178E-02	4.1161E-02	1.2347E-03
Accumulated dose (rem)		7.6793E-03	2.7017E+01	2.7601E+01	8.3023E-01

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) =	2.0020	Ci	kg	Atoms	Bq
Kr-85		6.2999E+00	1.6057E-05	1.1377E+20	2.3310E+11
Rb-86		6.8966E-04	8.4759E-12	5.9352E+13	2.5517E+07
I-131		7.9648E-04	6.4245E-12	2.9534E+13	2.9470E+07
I-132		4.4037E-09	4.2663E-19	1.9464E+06	1.6294E+02
Xe-133		3.7056E-03	1.9797E-11	8.9638E+13	1.3711E+08
Cs-134		1.8759E+00	1.4498E-06	6.5158E+18	6.9407E+10
Cs-136		5.0029E-03	6.8260E-11	3.0226E+14	1.8511E+08
Cs-137		1.0940E+00	1.2577E-05	5.5286E+19	4.0478E+10
Xe-131m		3.9668E-02	4.7359E-10	2.1771E+15	1.4677E+09
Ba-137m		3.3733E-02	6.2724E-14	2.7572E+11	1.2481E+09

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) =	2.0020	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)		1.1377E+20	0.0000E+00	0.0000E+00
Elemental I (atoms)		2.0680E+13	0.0000E+00	7.0477E+19
Organic I (atoms)		8.8540E+12	0.0000E+00	0.0000E+00
Aerosols (kg)		1.4027E-05	0.0000E+00	0.0000E+00

Time (h) =	2.0020	Surfaces	Filter
Noble gases (atoms)		0.0000E+00	0.0000E+00
Elemental I (atoms)		0.0000E+00	0.0000E+00
Organic I (atoms)		0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) =	2.0020	Ci	kg	Atoms	Bq
Rb-86		8.2387E+00	1.0125E-07	7.0902E+17	3.0483E+11
Cs-134		2.2409E+04	1.7320E-02	7.7838E+22	8.2913E+14
Cs-136		5.9764E+01	8.1544E-07	3.6108E+18	2.2113E+12
Cs-137		1.3069E+04	1.5025E-01	6.6045E+23	4.8355E+14
Ba-137m		1.4099E+04	2.6215E-08	1.1524E+17	5.2165E+14

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) =	2.0020	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		1.6757E-01

Environment Integral Nuclide Release:

Time (h) =	2.0020	Ci	kg	Atoms	Bq
Kr-85		7.5474E+04	1.9237E-01	1.3629E+24	2.7925E+15
I-131		9.5420E+00	7.6967E-08	3.5382E+17	3.5305E+11
I-132		5.2442E-05	5.0805E-15	2.3178E+10	1.9403E+06
Xe-133		4.4394E+01	2.3717E-07	1.0739E+18	1.6426E+12
Xe-131m		4.7401E+02	5.6590E-06	2.6015E+19	1.7538E+13
Xe-133m		1.1274E-07	2.5125E-16	1.1377E+09	4.1714E+03

Environment Transport Group Inventory:

Time (h) =	2.0020	Present Release	Release Rate/s	Integral Release
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Noble gases (atoms)	1.3658E+21	1.8969E+19	1.3630E+24
Elemental I (atoms)	2.4826E+14	3.4480E+12	2.4775E+17
Organic I (atoms)	1.0629E+14	1.4763E+12	1.0607E+17
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) =	2.0020	Ci	kg	Atoms	Bq
Rb-86		8.2387E+00	1.0125E-07	7.0902E+17	3.0483E+11
Cs-134		2.2409E+04	1.7320E-02	7.7838E+22	8.2913E+14
Cs-136		5.9764E+01	8.1544E-07	3.6108E+18	2.2113E+12
Cs-137		1.3069E+04	1.5025E-01	6.6045E+23	4.8355E+14
Ba-137m		1.4099E+04	2.6215E-08	1.1524E+17	5.2165E+14

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) =	2.0020	Pathway
		Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		1.6757E-01

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) =	2.0020	Pathway
		Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) =	2.0020	Pathway
		Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) =	2.0020	Pathway
		Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) =	2.0020	Pathway
		Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) =	2.0020	Pathway
		Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) =	2.0020	Ci	kg	Atoms	Bq
Kr-85		1.1872E+02	3.0260E-04	2.1439E+21	4.3926E+12
I-131		1.5009E-02	1.2107E-10	5.5656E+14	5.5535E+08

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I-132	8.2645E-08	8.0066E-18	3.6528E+07	3.0579E+03
Xe-133	6.9831E-02	3.7306E-10	1.6892E+15	2.5837E+09
Xe-131m	7.4566E-01	8.9023E-09	4.0924E+16	2.7590E+10
Xe-133m	1.7734E-10	3.9522E-19	1.7895E+06	6.5615E+00

Control Room Transport Group Inventory:

Time (h) = 2.0020	Atmosphere		Overlying Pool	
	Sump			
Noble gases (atoms)	2.1439E+21	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	3.8971E+14	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	1.6685E+14	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 2.0020	Deposition Recirculating Surfaces		Filter
	Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	
Organic I (atoms)	0.0000E+00	0.0000E+00	
Aerosols (kg)	0.0000E+00	0.0000E+00	

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 2.0020	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 2.0020	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 2.0020	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) = 2.0020	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool-Filtered Transport Group Inventory:

Time (h) = 2.0020	Atmosphere		Overlying Pool	
	Sump			
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 2.0020	Deposition Recirculating Surfaces		Filter
	Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	
Organic I (atoms)	0.0000E+00	0.0000E+00	
Aerosols (kg)	0.0000E+00	0.0000E+00	

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Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 2.0020	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Detailed model information at time (H) = 8.0000

EAB Doses:

Time (h) = 8.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	2.0043E-04	2.0740E-02	2.1260E-02	8.3185E-04
Accumulated dose (rem)	1.8967E-02	1.9726E+00	2.0137E+00	7.9024E-02

LPZ Doses:

Time (h) = 8.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	1.1267E-05	1.1659E-03	1.1951E-03	4.6763E-05
Accumulated dose (rem)	2.3289E-03	2.4221E-01	2.4725E-01	9.7031E-03

Control Room Doses:

Time (h) = 8.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	5.2774E-03	1.8461E+01	1.8973E+01	5.6732E-01
Accumulated dose (rem)	1.2957E-02	4.5478E+01	4.6574E+01	1.3975E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Xe-131m	1.0113E-03	1.2073E-11	5.5502E+13	3.7418E+07

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) = 8.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	5.5502E+13	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	6.9596E+19
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 8.0000	Surfaces	Recirculating Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Rb-86	8.2773E+00	1.0173E-07	7.1235E+17	3.0626E+11
Cs-134	2.2719E+04	1.7559E-02	7.8914E+22	8.4060E+14
Cs-136	5.9809E+01	8.1604E-07	3.6135E+18	2.2129E+12
Cs-137	1.3252E+04	1.5236E-01	6.6973E+23	4.9034E+14
Ba-137m	1.4691E+04	2.7316E-08	1.2007E+17	5.4355E+14

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 8.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6992E-01

Environment Integral Nuclide Release:

Time (h) = 8.0000	Ci	kg	Atoms	Bq
Kr-85	7.6276E+04	1.9441E-01	1.3774E+24	2.8222E+15
I-131	9.4382E+00	7.6130E-08	3.4997E+17	3.4921E+11

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Xe-133	4.3410E+01	2.3191E-07	1.0501E+18	1.6062E+12
Xe-131m	4.7244E+02	5.6404E-06	2.5929E+19	1.7480E+13

Environment Transport Group Inventory:

Time (h) =	Present Release	Release Rate/s	Integral Release
8.0000			
Noble gases (atoms)	6.5445E+16	9.0896E+14	1.3774E+24
Elemental I (atoms)	1.1633E+10	1.6157E+08	2.4506E+17
Organic I (atoms)	4.9807E+09	6.9176E+07	1.0492E+17
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) =	Ci	kg	Atoms	Bq
8.0000				
Rb-86	8.2773E+00	1.0173E-07	7.1235E+17	3.0626E+11
Cs-134	2.2719E+04	1.7559E-02	7.8914E+22	8.4060E+14
Cs-136	5.9809E+01	8.1604E-07	3.6135E+18	2.2129E+12
Cs-137	1.3252E+04	1.5236E-01	6.6973E+23	4.9034E+14
Ba-137m	1.4691E+04	2.7316E-08	1.2007E+17	5.4355E+14

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) =	Pathway Filter
8.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6992E-01

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) =	Pathway Filter
8.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) =	Pathway Filter
8.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) =	Pathway Filter
8.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) =	Pathway Filter
8.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) =	Pathway Filter
8.0000	
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00

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Aerosols (kg) 0.0000E+00

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) =	8.0000	Ci	kg	Atoms	Bq
Kr-85		1.6243E-01	4.1402E-07	2.9333E+18	6.0100E+09
I-131		2.0099E-05	1.6212E-13	7.4529E+11	7.4367E+05
Xe-133		9.2443E-05	4.9387E-13	2.2362E+12	3.4204E+06
Xe-131m		1.1444E-03	1.3663E-11	6.2808E+13	4.2343E+07

Control Room Transport Group Inventory:

Time (h) =	8.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)		2.9333E+18	0.0000E+00	0.0000E+00
Elemental I (atoms)		5.2186E+11	0.0000E+00	0.0000E+00
Organic I (atoms)		2.2343E+11	0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00	0.0000E+00

Time (h) =	8.0000	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)		0.0000E+00	0.0000E+00
Elemental I (atoms)		0.0000E+00	0.0000E+00
Organic I (atoms)		0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) =	8.0000	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) =	8.0000	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) =	8.0000	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) =	8.0000	Pathway Filter
Noble gases (atoms)		0.0000E+00
Elemental I (atoms)		0.0000E+00
Organic I (atoms)		0.0000E+00
Aerosols (kg)		0.0000E+00

Fuel Pool-Filtered Transport Group Inventory:

Time (h) =	8.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)		0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)		0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)		0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)		0.0000E+00	0.0000E+00	0.0000E+00

Time (h) =	8.0000	Deposition Surfaces	Recirculating Filter

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Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 8.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Detailed model information at time (H) = 24.0000

EAB Doses:

Time (h) = 24.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	6.5036E-07	2.1000E-06	1.1846E-05	7.1430E-07
Accumulated dose (rem)	1.8968E-02	1.9726E+00	2.0137E+00	7.9025E-02

LPZ Doses:

Time (h) = 24.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	2.4615E-08	7.9482E-08	4.4836E-07	2.7035E-08
Accumulated dose (rem)	2.3289E-03	2.4221E-01	2.4725E-01	9.7032E-03

Control Room Doses:

Time (h) = 24.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	7.2297E-06	2.4323E-02	2.5595E-02	7.4774E-04
Accumulated dose (rem)	1.2964E-02	4.5502E+01	4.6599E+01	1.3983E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Xe-131m	9.5480E-04	1.1399E-11	5.2402E+13	3.5328E+07

Fuel Pool-Unfiltered Transport Group Inventory:

			Overlying
Time (h) = 24.0000	Atmosphere	Sump	Pool
Noble gases (atoms)	5.2402E+13	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	6.5709E+19
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Deposition Recirculating

Time (h) = 24.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Rb-86	8.0749E+00	9.9240E-08	6.9492E+17	2.9877E+11
Cs-134	2.2705E+04	1.7549E-02	7.8866E+22	8.4008E+14
Cs-136	5.7736E+01	7.8776E-07	3.4882E+18	2.1362E+12
Cs-137	1.3252E+04	1.5235E-01	6.6970E+23	4.9032E+14
Ba-137m	1.4690E+04	2.7315E-08	1.2007E+17	5.4353E+14

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6990E-01

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Environment Integral Nuclide Release:

Time (h) =	Ci	kg	Atoms	Bq
24.0000				
Kr-85	7.6267E+04	1.9439E-01	1.3772E+24	2.8219E+15
Xe-131m	4.5523E+02	5.4348E-06	2.4984E+19	1.6843E+13

Environment Transport Group Inventory:

Time (h) =	Present	Release	Integral
24.0000	Release	Rate/s	Release
Noble gases (atoms)	5.2405E+13	7.2785E+11	1.3773E+24
Elemental I (atoms)	2.4031E+02	3.3376E+00	2.3137E+17
Organic I (atoms)	1.0289E+02	1.4290E+00	9.9059E+16
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) =	Ci	kg	Atoms	Bq
24.0000				
Rb-86	8.0749E+00	9.9240E-08	6.9492E+17	2.9877E+11
Cs-134	2.2705E+04	1.7549E-02	7.8866E+22	8.4008E+14
Cs-136	5.7736E+01	7.8776E-07	3.4882E+18	2.1362E+12
Cs-137	1.3252E+04	1.5235E-01	6.6970E+23	4.9032E+14
Ba-137m	1.4690E+04	2.7315E-08	1.2007E+17	5.4353E+14

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) =	Pathway
24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6990E-01

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) =	Pathway
24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) =	Pathway
24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) =	Pathway
24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) =	Pathway
24.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) =	Pathway
24.0000	Filter

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Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) = 24.0000	Ci	kg	Atoms	Bq
Kr-85	3.5535E-09	9.0573E-15	6.4170E+10	1.3148E+02
Xe-131m	4.8356E-05	5.7731E-13	2.6539E+12	1.7892E+06

Control Room Transport Group Inventory:

Time (h) = 24.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	2.7181E+12	0.0000E+00	0.0000E+00
Elemental I (atoms)	1.0780E+04	0.0000E+00	0.0000E+00
Organic I (atoms)	4.6154E+03	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 24.0000	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 24.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 24.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 24.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) = 24.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool-Filtered Transport Group Inventory:

Time (h) = 24.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Deposition Recirculating

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Time (h) = 24.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) = 24.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Detailed model information at time (H) = 96.0000

EAB Doses:

Time (h) = 96.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	2.3497E-06	5.5431E-14	2.9115E-05	2.3497E-06
Accumulated dose (rem)	1.8970E-02	1.9726E+00	2.0137E+00	7.9027E-02

LPZ Doses:

Time (h) = 96.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	3.7796E-08	8.9163E-16	4.6833E-07	3.7796E-08
Accumulated dose (rem)	2.3289E-03	2.4221E-01	2.4725E-01	9.7032E-03

Control Room Doses:

Time (h) = 96.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	2.1965E-07	3.0146E-10	9.2136E-05	2.1966E-07
Accumulated dose (rem)	1.2964E-02	4.5502E+01	4.6599E+01	1.3983E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Xe-131m	7.3720E-04	8.8013E-12	4.0460E+13	2.7277E+07

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) = 96.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	4.0460E+13	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	5.0734E+19
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 96.0000	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Rb-86	7.2233E+00	8.8774E-08	6.2164E+17	2.6726E+11
Cs-134	2.2642E+04	1.7500E-02	7.8649E+22	8.3777E+14
Cs-136	4.9261E+01	6.7213E-07	2.9762E+18	1.8227E+12
Cs-137	1.3249E+04	1.5232E-01	6.6957E+23	4.9023E+14
Ba-137m	1.4687E+04	2.7310E-08	1.2005E+17	5.4343E+14

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 96.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6982E-01

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Environment Integral Nuclide Release:

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Xe-131m	3.8502E+02	4.5967E-06	2.1131E+19	1.4246E+13

Environment Transport Group Inventory:

	Present	Release	Integral
Time (h) = 96.0000	Release	Rate/s	Release
Noble gases (atoms)	4.0461E+13	5.6196E+11	1.3765E+24
Elemental I (atoms)	6.2892E-33	8.7351E-35	1.7864E+17
Organic I (atoms)	2.6927E-33	3.7398E-35	7.6483E+16
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Rb-86	7.2233E+00	8.8774E-08	6.2164E+17	2.6726E+11
Cs-134	2.2642E+04	1.7500E-02	7.8649E+22	8.3777E+14
Cs-136	4.9261E+01	6.7213E-07	2.9762E+18	1.8227E+12
Cs-137	1.3249E+04	1.5232E-01	6.6957E+23	4.9023E+14
Ba-137m	1.4687E+04	2.7310E-08	1.2005E+17	5.4343E+14

Fuel Pool Release-Unfiltered Transport Group Inventory:

	Pathway
Time (h) = 96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6982E-01

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 96.0000	Filter

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Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) = 96.0000	Ci	kg	Atoms	Bq
Xe-131m	2.9498E-05	3.5216E-13	1.6189E+12	1.0914E+06

Control Room Transport Group Inventory:

Time (h) = 96.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	1.6189E+12	0.0000E+00	0.0000E+00
Elemental I (atoms)	2.8213E-31	0.0000E+00	0.0000E+00
Organic I (atoms)	1.2079E-31	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 96.0000	Deposition Surfaces	Recirculating Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 96.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 96.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 96.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) = 96.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool-Filtered Transport Group Inventory:

Time (h) = 96.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 96.0000	Deposition Surfaces	Recirculating Filter
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Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

	Pathway
Time (h) = 96.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Detailed model information at time (H) = 720.0000

EAB Doses:

Time (h) = 720.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	7.1146E-06	1.4507E-48	8.8155E-05	7.1146E-06
Accumulated dose (rem)	1.8977E-02	1.9726E+00	2.0138E+00	7.9034E-02

LPZ Doses:

Time (h) = 720.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	3.3527E-08	6.8363E-51	4.1542E-07	3.3527E-08
Accumulated dose (rem)	2.3290E-03	2.4221E-01	2.4725E-01	9.7032E-03

Control Room Doses:

Time (h) = 720.0000	Whole Body	Thyroid	Skin	TEDE
Delta dose (rem)	3.5245E-07	5.2598E-45	1.4784E-04	3.5245E-07
Accumulated dose (rem)	1.2965E-02	4.5502E+01	4.6600E+01	1.3983E+00

Fuel Pool-Unfiltered Compartment Atmosphere Nuclide Inventory:

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Xe-131m	7.8362E-05	9.3555E-13	4.3008E+12	2.8994E+06

Fuel Pool-Unfiltered Transport Group Inventory:

Time (h) = 720.0000	Atmosphere	Sump	Overlying Pool
Noble gases (atoms)	4.3008E+12	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	5.3928E+18
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Time (h) = 720.0000	Deposition Recirculating	
	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Rb-86	2.7498E+00	3.3795E-08	2.3665E+17	1.0174E+11
Cs-134	2.2107E+04	1.7086E-02	7.6789E+22	8.1796E+14
Cs-136	1.2446E+01	1.6982E-07	7.5197E+17	4.6051E+11
Cs-137	1.3228E+04	1.5207E-01	6.6847E+23	4.8942E+14
Ba-137m	1.4663E+04	2.7265E-08	1.1985E+17	5.4254E+14

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 720.0000	Pathway
	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6916E-01

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Environment Integral Nuclide Release:

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Xe-131m	8.8292E+01	1.0541E-06	4.8457E+18	3.2668E+12

Environment Transport Group Inventory:

Time (h) = 720.0000	Present Release	Release Rate/s	Integral Release
Noble gases (atoms)	4.3009E+12	5.9734E+10	1.3702E+24
Elemental I (atoms)	0.0000E+00	0.0000E+00	1.8989E+16
Organic I (atoms)	0.0000E+00	0.0000E+00	8.1299E+15
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

Filter Pathway Nuclide Inventory for Fuel Pool Release-Unfiltered

Time (h) = 720.0000	Ci	kg	Atoms	Bq
Rb-86	2.7498E+00	3.3795E-08	2.3665E+17	1.0174E+11
Cs-134	2.2107E+04	1.7086E-02	7.6789E+22	8.1796E+14
Cs-136	1.2446E+01	1.6982E-07	7.5197E+17	4.6051E+11
Cs-137	1.3228E+04	1.5207E-01	6.6847E+23	4.8942E+14
Ba-137m	1.4663E+04	2.7265E-08	1.1985E+17	5.4254E+14

Fuel Pool Release-Unfiltered Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	1.6916E-01

Control Room Unfiltered Makeup Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

Time (h) = 720.0000	Pathway Filter
Noble gases (atoms)	0.0000E+00

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Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

Control Room Compartment Atmosphere Nuclide Inventory:

Time (h) = 720.0000 Ci kg Atoms Bq
 Xe-131m 2.4996E-06 2.9842E-14 1.3719E+11 9.2486E+04

Control Room Transport Group Inventory:

			Overlying
Time (h) = 720.0000	Atmosphere	Sump	Pool
Noble gases (atoms)	1.3719E+11	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition	Recirculating
Time (h) = 720.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00

Control Room Unfiltered Makeup Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Filtered Makeup Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Unfiltered Inleakage Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Control Room Exhaust Transport Group Inventory:

	Pathway
Time (h) = 720.0000	Filter
Noble gases (atoms)	0.0000E+00
Elemental I (atoms)	0.0000E+00
Organic I (atoms)	0.0000E+00
Aerosols (kg)	0.0000E+00

Fuel Pool-Filtered Transport Group Inventory:

			Overlying
Time (h) = 720.0000	Atmosphere	Sump	Pool
Noble gases (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Elemental I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Organic I (atoms)	0.0000E+00	0.0000E+00	0.0000E+00
Aerosols (kg)	0.0000E+00	0.0000E+00	0.0000E+00

	Deposition	Recirculating
Time (h) = 720.0000	Surfaces	Filter
Noble gases (atoms)	0.0000E+00	0.0000E+00

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Elemental I (atoms) 0.0000E+00 0.0000E+00
 Organic I (atoms) 0.0000E+00 0.0000E+00
 Aerosols (kg) 0.0000E+00 0.0000E+00

Fuel Pool Release-Filtered Transport Group Inventory:

Pathway
 Time (h) = 720.0000 Filter
 Noble gases (atoms) 0.0000E+00
 Elemental I (atoms) 0.0000E+00
 Organic I (atoms) 0.0000E+00
 Aerosols (kg) 0.0000E+00

 Transport Group Totals in Model:

Noble Gases (atoms) 1.3702E+24
 Elemental I (atoms) 5.4118E+18
 Organic I (atoms) 8.1299E+15
 Aerosols (kg) 1.6916E-01

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 I-131 Summary
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Time (hr)	Fuel Pool-Unfiltered I-131 (Curies)	Environment I-131 (Curies)	Control Room I-131 (Curies)
0.000	0.0000E+00	0.0000E+00	0.0000E+00
0.001	0.0000E+00	0.0000E+00	0.0000E+00
0.002	0.0000E+00	0.0000E+00	0.0000E+00
0.280	8.0142E-04	1.3315E+00	4.4806E-03
0.540	8.0067E-04	2.5762E+00	7.5893E-03
0.800	7.9993E-04	3.8193E+00	9.9172E-03
1.060	7.9918E-04	5.0607E+00	1.1659E-02
1.320	7.9843E-04	6.3003E+00	1.2962E-02
1.580	7.9769E-04	7.5378E+00	1.3936E-02
1.840	7.9694E-04	8.7732E+00	1.4662E-02
2.000	7.9649E-04	9.5325E+00	1.5013E-02
2.002	7.9648E-04	9.5420E+00	1.5009E-02
2.280	0.0000E+00	9.6229E+00	1.1234E-02
2.540	0.0000E+00	9.6167E+00	8.4267E-03
2.800	0.0000E+00	9.6099E+00	6.3209E-03
3.060	0.0000E+00	9.6025E+00	4.7413E-03
3.320	0.0000E+00	9.5947E+00	3.5565E-03
3.580	0.0000E+00	9.5866E+00	2.6677E-03
3.840	0.0000E+00	9.5783E+00	2.0011E-03
4.100	0.0000E+00	9.5699E+00	1.5010E-03
4.360	0.0000E+00	9.5613E+00	1.1259E-03
4.620	0.0000E+00	9.5527E+00	8.4454E-04
4.880	0.0000E+00	9.5440E+00	6.3349E-04
5.140	0.0000E+00	9.5352E+00	4.7518E-04
5.400	0.0000E+00	9.5264E+00	3.5643E-04
5.660	0.0000E+00	9.5176E+00	2.6736E-04
5.920	0.0000E+00	9.5088E+00	2.0055E-04
6.180	0.0000E+00	9.5000E+00	1.5043E-04
6.440	0.0000E+00	9.4912E+00	1.1284E-04
6.700	0.0000E+00	9.4823E+00	8.4640E-05
6.960	0.0000E+00	9.4735E+00	6.3489E-05
7.220	0.0000E+00	9.4647E+00	4.7623E-05
7.480	0.0000E+00	9.4558E+00	3.5722E-05
7.740	0.0000E+00	9.4470E+00	2.6795E-05
8.000	0.0000E+00	9.4382E+00	2.0099E-05
8.260	0.0000E+00	9.4294E+00	1.5076E-05
8.520	0.0000E+00	9.4206E+00	1.1309E-05
8.780	0.0000E+00	9.4118E+00	8.4828E-06
9.040	0.0000E+00	9.4030E+00	6.3629E-06
9.300	0.0000E+00	9.3942E+00	4.7728E-06
9.560	0.0000E+00	9.3855E+00	3.5801E-06
9.820	0.0000E+00	9.3767E+00	2.6854E-06
10.080	0.0000E+00	9.3680E+00	2.0144E-06

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24.000	0.0000E+00	8.9111E+00	4.1519E-13
96.000	0.0000E+00	6.8803E+00	1.0866E-47
720.000	0.0000E+00	7.3135E-01	0.0000E+00

Time (hr)	Fuel Pool-Filtered I-131 (Curies)
0.000	0.0000E+00
0.001	0.0000E+00
0.002	0.0000E+00
0.280	0.0000E+00
0.540	0.0000E+00
0.800	0.0000E+00
1.060	0.0000E+00
1.320	0.0000E+00
1.580	0.0000E+00
1.840	0.0000E+00
2.000	0.0000E+00
2.002	0.0000E+00
2.280	0.0000E+00
2.540	0.0000E+00
2.800	0.0000E+00
3.060	0.0000E+00
3.320	0.0000E+00
3.580	0.0000E+00
3.840	0.0000E+00
4.100	0.0000E+00
4.360	0.0000E+00
4.620	0.0000E+00
4.880	0.0000E+00
5.140	0.0000E+00
5.400	0.0000E+00
5.660	0.0000E+00
5.920	0.0000E+00
6.180	0.0000E+00
6.440	0.0000E+00
6.700	0.0000E+00
6.960	0.0000E+00
7.220	0.0000E+00
7.480	0.0000E+00
7.740	0.0000E+00
8.000	0.0000E+00
8.260	0.0000E+00
8.520	0.0000E+00
8.780	0.0000E+00
9.040	0.0000E+00
9.300	0.0000E+00
9.560	0.0000E+00
9.820	0.0000E+00
10.080	0.0000E+00
24.000	0.0000E+00
96.000	0.0000E+00
720.000	0.0000E+00

 Cumulative Dose Summary
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Time (hr)	EAB		LPZ		Control Room	
	Thyroid (rem)	TEDE (rem)	Thyroid (rem)	TEDE (rem)	Thyroid (rem)	TEDE (rem)
0.000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.001	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.002	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.280	2.7153E-01	1.0870E-02	3.3550E-02	1.3431E-03	8.7557E-01	2.6905E-02
0.540	5.2560E-01	2.1043E-02	6.4944E-02	2.6001E-03	3.0013E+00	9.2227E-02
0.800	7.7959E-01	3.1215E-02	9.6328E-02	3.8570E-03	6.0665E+00	1.8642E-01
1.060	1.0335E+00	4.1384E-02	1.2770E-01	5.1136E-03	9.8349E+00	3.0222E-01
1.320	1.2872E+00	5.1550E-02	1.5905E-01	6.3697E-03	1.4130E+01	4.3419E-01
1.580	1.5407E+00	6.1712E-02	1.9038E-01	7.6252E-03	1.8817E+01	5.7824E-01
1.840	1.7941E+00	7.1867E-02	2.2168E-01	8.8801E-03	2.3799E+01	7.3132E-01
2.000	1.9499E+00	7.8114E-02	2.4094E-01	9.6520E-03	2.6977E+01	8.2899E-01
2.002	1.9519E+00	7.8192E-02	2.4105E-01	9.6564E-03	2.7017E+01	8.3023E-01
2.280	1.9703E+00	7.8933E-02	2.4209E-01	9.6980E-03	3.1908E+01	9.8051E-01

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2.540	1.9709E+00	7.8956E-02	2.4212E-01	9.6993E-03	3.5305E+01	1.0849E+00
2.800	1.9713E+00	7.8973E-02	2.4214E-01	9.7002E-03	3.7853E+01	1.1632E+00
3.060	1.9717E+00	7.8986E-02	2.4216E-01	9.7010E-03	3.9765E+01	1.2220E+00
3.320	1.9719E+00	7.8995E-02	2.4217E-01	9.7015E-03	4.1199E+01	1.2660E+00
3.580	1.9721E+00	7.9003E-02	2.4218E-01	9.7019E-03	4.2274E+01	1.2991E+00
3.840	1.9722E+00	7.9008E-02	2.4219E-01	9.7022E-03	4.3081E+01	1.3239E+00
4.100	1.9723E+00	7.9012E-02	2.4220E-01	9.7024E-03	4.3686E+01	1.3425E+00
4.360	1.9724E+00	7.9015E-02	2.4220E-01	9.7026E-03	4.4140E+01	1.3564E+00
4.620	1.9725E+00	7.9017E-02	2.4220E-01	9.7027E-03	4.4480E+01	1.3669E+00
4.880	1.9725E+00	7.9019E-02	2.4221E-01	9.7028E-03	4.4736E+01	1.3747E+00
5.140	1.9725E+00	7.9020E-02	2.4221E-01	9.7029E-03	4.4927E+01	1.3806E+00
5.400	1.9726E+00	7.9021E-02	2.4221E-01	9.7030E-03	4.5071E+01	1.3850E+00
5.660	1.9726E+00	7.9022E-02	2.4221E-01	9.7030E-03	4.5179E+01	1.3884E+00
5.920	1.9726E+00	7.9023E-02	2.4221E-01	9.7030E-03	4.5260E+01	1.3908E+00
6.180	1.9726E+00	7.9023E-02	2.4221E-01	9.7031E-03	4.5320E+01	1.3927E+00
6.440	1.9726E+00	7.9023E-02	2.4221E-01	9.7031E-03	4.5366E+01	1.3941E+00
6.700	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5400E+01	1.3951E+00
6.960	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5426E+01	1.3959E+00
7.220	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5445E+01	1.3965E+00
7.480	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5459E+01	1.3970E+00
7.740	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5470E+01	1.3973E+00
8.000	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5478E+01	1.3975E+00
8.260	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5484E+01	1.3977E+00
8.520	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5489E+01	1.3979E+00
8.780	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5492E+01	1.3980E+00
9.040	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5495E+01	1.3981E+00
9.300	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5497E+01	1.3981E+00
9.560	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5498E+01	1.3982E+00
9.820	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5499E+01	1.3982E+00
10.080	1.9726E+00	7.9024E-02	2.4221E-01	9.7031E-03	4.5500E+01	1.3982E+00
24.000	1.9726E+00	7.9025E-02	2.4221E-01	9.7032E-03	4.5502E+01	1.3983E+00
96.000	1.9726E+00	7.9027E-02	2.4221E-01	9.7032E-03	4.5502E+01	1.3983E+00
720.000	1.9726E+00	7.9034E-02	2.4221E-01	9.7032E-03	4.5502E+01	1.3983E+00

Worst Two-Hour Dose
(Provided for Dose Location 1)
#####

EAB

Time (hr)	Whole Body (rem)	Thyroid (rem)	Skin (rem)	TEDE (rem)
0.0	1.8748E-02	1.9499E+00	1.9904E+00	7.8114E-02

30 Day Control Room Skin Dose
#####

Control Room

Time (hr)	Skin (rem)
720.0	4.6600E+01

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Attachment 5 CDA 30 Day Decay Nuclide Inventory File

```
Nuclide Inventory Name:
Palisades AST Design Basis Cask Drop 30 days decay
Power Level:
  0.2703E+04
Nuclides:
107
Nuclide 001:
Co-58
  7
  0.6117120000E+07
  0.5800E+02
  0.0000E+00
none    0.0000E+00
none    0.0000E+00
none    0.0000E+00
Nuclide 002:
Co-60
  7
  0.1663401096E+09
  0.6000E+02
  0.0000E+00
none    0.0000E+00
none    0.0000E+00
none    0.0000E+00
Nuclide 003:
Kr-85
  1
  0.3382974720E+09
  0.8500E+02
  0.1529E+07
none    0.0000E+00
none    0.0000E+00
none    0.0000E+00
Nuclide 004:
Kr-85m
  1
  0.1612800000E+05
  0.8500E+02
  0.0000E+00
Kr-85   0.2110E+00
none    0.0000E+00
none    0.0000E+00
Nuclide 005:
Kr-87
  1
  0.4578000000E+04
  0.8700E+02
  0.0000E+00
Rb-87   0.1000E+01
none    0.0000E+00
none    0.0000E+00
Nuclide 006:
Kr-88
  1
  0.1022400000E+05
  0.8800E+02
  0.0000E+00
Rb-88   0.1000E+01
none    0.0000E+00
none    0.0000E+00
Nuclide 007:
Rb-86
  3
  0.1612224000E+07
  0.8600E+02
  0.6428E+03
none    0.0000E+00
none    0.0000E+00
none    0.0000E+00
Nuclide 008:
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
Sr-89
5
0.4363200000E+07
0.8900E+02
0.4780E+06
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 009:
Sr-90
5
0.9189573120E+09
0.9000E+02
0.8439E+05
Y-90      0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 010:
Sr-91
5
0.3420000000E+05
0.9100E+02
0.1361E-16
Y-91m     0.5780E+00
Y-91      0.4220E+00
none      0.0000E+00
Nuclide 011:
Sr-92
5
0.9756000000E+04
0.9200E+02
0.0000E+00
Y-92      0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 012:
Y-90
9
0.2304000000E+06
0.9000E+02
0.8448E+05
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 013:
Y-91
9
0.5055264000E+07
0.9100E+02
0.6538E+06
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 014:
Y-92
9
0.1274400000E+05
0.9200E+02
0.0000E+00
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 015:
Y-93
9
0.3636000000E+05
0.9300E+02
0.3870E-15
Zr-93     0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 016:
Zr-95
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
9
0.5527872000E+07
0.9500E+02
0.8935E+06
Nb-95m 0.7000E-02
Nb-95 0.9930E+00
none 0.0000E+00
Nuclide 017:
Zr-97
9
0.6084000000E+05
0.9700E+02
0.1804E-06
Nb-97m 0.9470E+00
Nb-97 0.5300E-01
none 0.0000E+00
Nuclide 018:
Nb-95
9
0.3036960000E+07
0.9500E+02
0.1155E+07
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 019:
Mo-99
7
0.2376000000E+06
0.9900E+02
0.7116E+03
Tc-99m 0.8760E+00
Tc-99 0.1240E+00
none 0.0000E+00
Nuclide 020:
Tc-99m
7
0.2167200000E+05
0.9900E+02
0.6854E+03
Tc-99 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 021:
Ru-103
7
0.3393792000E+07
0.1030E+03
0.7422E+06
Rh-103m 0.9970E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 022:
Ru-105
7
0.1598400000E+05
0.1050E+03
0.0000E+00
Rh-105 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 023:
Ru-106
7
0.3181248000E+08
0.1060E+03
0.5475E+06
Rh-106 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 024:
Rh-105
7
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
0.1272960000E+06
0.1050E+03
0.7530E+00
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 025:
Sb-127
  4
0.3326400000E+06
0.1270E+03
0.4170E+03
Te-127m   0.1760E+00
Te-127    0.8240E+00
none      0.0000E+00
Nuclide 026:
Sb-129
  4
0.1555200000E+05
0.1290E+03
0.0000E+00
Te-129m   0.2250E+00
Te-129    0.7750E+00
none      0.0000E+00
Nuclide 027:
Te-127
  4
0.3366000000E+05
0.1270E+03
0.1068E+05
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 028:
Te-127m
  4
0.9417600000E+07
0.1270E+03
0.1050E+05
Te-127    0.9760E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 029:
Te-129
  4
0.4176000000E+04
0.1290E+03
0.1329E+05
I-129     0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 030:
Te-129m
  4
0.2903040000E+07
0.1290E+03
0.2042E+05
Te-129    0.6500E+00
I-129     0.3500E+00
none      0.0000E+00
Nuclide 031:
Te-131m
  4
0.1080000000E+06
0.1310E+03
0.6667E-02
Te-131    0.2220E+00
I-131     0.7780E+00
none      0.0000E+00
Nuclide 032:
Te-132
  4
0.2815200000E+06
```


Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
0.1320E+03
0.1776E+04
I-132 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 033:
I-131
2
0.6946560000E+06
0.1310E+03
0.6786E+07
Xe-131m 0.1110E-01
none 0.0000E+00
none 0.0000E+00
Nuclide 034:
I-132
2
0.8280000000E+04
0.1320E+03
0.1335E+06
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 035:
I-133
2
0.7488000000E+05
0.1330E+03
0.4146E-02
Xe-133m 0.2900E-01
Xe-133 0.9710E+00
none 0.0000E+00
Nuclide 036:
I-134
2
0.3156000000E+04
0.1340E+03
0.0000E+00
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 037:
I-135
2
0.2379600000E+05
0.1350E+03
0.0000E+00
Xe-135m 0.1540E+00
Xe-135 0.8460E+00
none 0.0000E+00
Nuclide 038:
Xe-133
1
0.4531680000E+06
0.1330E+03
0.2496E+07
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 039:
Xe-135
1
0.3272400000E+05
0.1350E+03
0.0000E+00
Cs-135 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 040:
Cs-134
3
0.6507177120E+08
0.1340E+03
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
0.1982E+06
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 041:
Cs-136
  3
  0.1131840000E+07
  0.1360E+03
  0.1201E+05
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 042:
Cs-137
  3
  0.9467280000E+09
  0.1370E+03
  0.1098E+06
Ba-137m  0.9460E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 043:
Ba-139
  6
  0.4962000000E+04
  0.1390E+03
  0.0000E+00
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 044:
Ba-140
  6
  0.1100736000E+07
  0.1400E+03
  0.2479E+06
La-140   0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 045:
La-140
  9
  0.1449792000E+06
  0.1400E+03
  0.2852E+06
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 046:
La-141
  9
  0.1414800000E+05
  0.1410E+03
  0.0000E+00
Ce-141   0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 047:
La-142
  9
  0.5550000000E+04
  0.1420E+03
  0.0000E+00
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 048:
Ce-141
  8
  0.2808086400E+07
  0.1410E+03
  0.6428E+06
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 049:
Ce-143
  8
  0.1188000000E+06
  0.1430E+03
  0.3038E+00
Pr-143    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 050:
Ce-144
  8
  0.2456352000E+08
  0.1440E+03
  0.9476E+06
Pr-144m   0.1780E-01
Pr-144    0.9822E+00
none      0.0000E+00
Nuclide 051:
Pr-143
  9
  0.1171584000E+07
  0.1430E+03
  0.2672E+06
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 052:
Nd-147
  9
  0.9486720000E+06
  0.1470E+03
  0.7283E+05
Pm-147    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 053:
Np-239
  8
  0.2034720000E+06
  0.2390E+03
  0.2734E+04
Pu-239    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 054:
Pu-238
  8
  0.2768863824E+10
  0.2380E+03
  0.4526E+04
U-234     0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 055:
Pu-239
  8
  0.7594336440E+12
  0.2390E+03
  0.3607E+03
U-235     0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 056:
Pu-240
  8
  0.2062920312E+12
  0.2400E+03
  0.5406E+03
U-236     0.1000E+01
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
none      0.0000E+00
none      0.0000E+00
Nuclide 057:
Pu-241
  8
  0.4544294400E+09
  0.2410E+03
  0.1516E+06
U-237     0.2450E-04
Am-241    0.1000E+01
none      0.0000E+00
Nuclide 058:
Am-241
  9
  0.1363919472E+11
  0.2410E+03
  0.2083E+03
Np-237    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 059:
Cm-242
  9
  0.1406592000E+08
  0.2420E+03
  0.5018E+05
Pu-238    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 060:
Cm-244
  9
  0.5715081360E+09
  0.2440E+03
  0.1335E+05
Pu-240    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 061:
I-130
  2
  0.4449600000E+05
  0.1300E+03
  0.8019E-11
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 062:
Kr-83m
  1
  0.6588000000E+04
  0.8300E+02
  0.0000E+00
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 063:
Xe-138
  1
  0.8502000000E+03
  0.1380E+03
  0.0000E+00
Cs-138    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 064:
Xe-131m
  1
  0.1028160000E+07
  0.1310E+03
  0.2347E+06
none      0.0000E+00
none      0.0000E+00
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
none 0.0000E+00
Nuclide 065:
Xe-133m
  1
  0.1890432000E+06
  0.1330E+03
  0.4104E+03
Xe-133 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 066:
Xe-135m
  1
  0.9174000000E+03
  0.1350E+03
  0.0000E+00
Xe-135 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 067:
Cs-138
  3
  0.1932000000E+04
  0.1380E+03
  0.0000E+00
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 068:
Cs-134m
  3
  0.1044000000E+05
  0.1340E+03
  0.0000E+00
Cs-134 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 069:
Rb-88
  3
  0.1068000000E+04
  0.8800E+02
  0.0000E+00
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 070:
Rb-89
  3
  0.9120000000E+03
  0.8900E+02
  0.0000E+00
Sr-89 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 071:
Sb-124
  4
  0.5201280000E+07
  0.1240E+03
  0.1205E+04
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 072:
Sb-125
  4
  0.8741455200E+08
  0.1250E+03
  0.1545E+05
Te-125m 0.2280E+00
none 0.0000E+00
none 0.0000E+00
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Nuclide 073:
Sb-126
4
0.1071360000E+07
0.1260E+03
0.2071E+03
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 074:
Te-131
4
0.1500000000E+04
0.1310E+03
0.1501E-02
I-131 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 075:
Te-133
4
0.7470000000E+03
0.1330E+03
0.0000E+00
I-133 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 076:
Te-134
4
0.2508000000E+04
0.1340E+03
0.0000E+00
I-134 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 077:
Te-125m
4
0.5011200000E+07
0.1250E+03
0.3464E+04
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 078:
Te-133m
4
0.3324000000E+04
0.1330E+03
0.0000E+00
I-133 0.8700E+00
Te-133 0.1300E+00
none 0.0000E+00
Nuclide 079:
Ba-141
6
0.1096200000E+04
0.1410E+03
0.0000E+00
La-141 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 080:
Ba-137m
6
0.1531200000E+03
0.1370E+03
0.1039E+06
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 081:

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Pd-109
7
0.4833720000E+05
0.1090E+03
0.2648E-10
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 082:
Rh-106
7
0.2990000000E+02
0.1060E+03
0.5475E+06
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 083:
Rh-103m
7
0.3367200000E+04
0.1030E+03
0.6691E+06
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 084:
Tc-101
7
0.8520000000E+03
0.1010E+03
0.0000E+00
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 085:
Eu-154
9
0.2777068800E+09
0.1540E+03
0.1239E+05
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 086:
Eu-155
9
0.1565256960E+09
0.1550E+03
0.8352E+04
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 087:
Eu-156
9
0.1312416000E+07
0.1560E+03
0.5392E+05
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 088:
La-143
9
0.8538000000E+03
0.1430E+03
0.0000E+00
Ce-143 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 089:
Nb-97

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
9
0.4326000000E+04
0.9700E+02
0.1944E-06
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 090:
Nb-95m
9
0.3117600000E+06
0.9500E+02
0.6628E+04
Nb-95     0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 091:
Pm-147
9
0.8278820780E+08
0.1470E+03
0.1310E+06
Sm-147    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 092:
Pm-148
9
0.4639680000E+06
0.1480E+03
0.5445E+04
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 093:
Pm-149
9
0.1910880000E+06
0.1490E+03
0.3833E+02
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 094:
Pm-151
9
0.1022400000E+06
0.1510E+03
0.3752E-02
Sm-151    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 095:
Pm-148m
9
0.3568320000E+07
0.1480E+03
0.1812E+05
Pm-148    0.4600E-01
none      0.0000E+00
none      0.0000E+00
Nuclide 096:
Pr-144
9
0.1036800000E+04
0.1440E+03
0.9476E+06
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 097:
Pr-144m
9
```


Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
0.4320000000E+03
0.1440E+03
0.1137E+05
Pr-144 0.9990E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 098:
Sm-153
9
0.1681200000E+06
0.1530E+03
0.1010E+02
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 099:
Y-94
9
0.1146000000E+04
0.9400E+02
0.0000E+00
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 100:
Y-95
9
0.6420000000E+03
0.9500E+02
0.0000E+00
Zr-95 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 101:
Y-91m
9
0.2982600000E+04
0.9100E+02
0.8652E-17
Y-91 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 102:
Br-82
2
0.1270800000E+06
0.8200E+02
0.3839E-02
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 103:
Br-83
2
0.8604000000E+04
0.8300E+02
0.0000E+00
Kr-83m 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 104:
Br-84
2
0.1908000000E+04
0.8400E+02
0.0000E+00
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 105:
Am-242
9
0.5767200000E+05
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
0.2420E+03
0.2393E+02
Cm-242  0.8270E+00
Pu-242  0.1730E+00
none    0.0000E+00
Nuclide 106:
Np-238
  8
0.1829088000E+06
0.2380E+03
0.2346E+02
Pu-238  0.1000E+01
none    0.0000E+00
none    0.0000E+00
Nuclide 107:
Pu-243
  8
0.1784160000E+05
0.2430E+03
0.5819E-05
Am-243  0.1000E+01
none    0.0000E+00
none    0.0000E+00
End of Nuclear Inventory File
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Attachment 6 CDA 90 Day Decay Nuclide Inventory File

Nuclide Inventory Name:

Palisades AST Design Basis Cask Drop 90 days decay

Power Level:

0.2703E+04

Nuclides:

107

Nuclide 001:

Co-58

7

0.6117120000E+07

0.5800E+02

0.0000E+00

none 0.0000E+00

none 0.0000E+00

none 0.0000E+00

Nuclide 002:

Co-60

7

0.1663401096E+09

0.6000E+02

0.0000E+00

none 0.0000E+00

none 0.0000E+00

none 0.0000E+00

Nuclide 003:

Kr-85

1

0.3382974720E+09

0.8500E+02

0.1512E+07

none 0.0000E+00

none 0.0000E+00

none 0.0000E+00

Nuclide 004:

Kr-85m

1

0.1612800000E+05

0.8500E+02

0.0000E+00

Kr-85 0.2110E+00

none 0.0000E+00

none 0.0000E+00

Nuclide 005:

Kr-87

1

0.4578000000E+04

0.8700E+02

0.0000E+00

Rb-87 0.1000E+01

none 0.0000E+00

none 0.0000E+00

Nuclide 006:

Kr-88

1

0.1022400000E+05

0.8800E+02

0.0000E+00

Rb-88 0.1000E+01

none 0.0000E+00

none 0.0000E+00

Nuclide 007:

Rb-86

3

0.1612224000E+07

0.8600E+02

0.6918E+02

none 0.0000E+00

none 0.0000E+00

none 0.0000E+00

Nuclide 008:

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
Sr-89
5
0.4363200000E+07
0.8900E+02
0.2097E+06
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 009:
Sr-90
5
0.9189573120E+09
0.9000E+02
0.8407E+05
Y-90      0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 010:
Sr-91
5
0.3420000000E+05
0.9100E+02
0.0000E+00
Y-91m     0.5780E+00
Y-91      0.4220E+00
none      0.0000E+00
Nuclide 011:
Sr-92
5
0.9756000000E+04
0.9200E+02
0.0000E+00
Y-92      0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 012:
Y-90
9
0.2304000000E+06
0.9000E+02
0.8409E+05
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 013:
Y-91
9
0.5055264000E+07
0.9100E+02
0.3211E+06
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 014:
Y-92
9
0.1274400000E+05
0.9200E+02
0.0000E+00
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 015:
Y-93
9
0.3636000000E+05
0.9300E+02
0.0000E+00
Zr-93     0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 016:
Zr-95
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
9
0.5527872000E+07
0.9500E+02
0.4665E+06
Nb-95m 0.7000E-02
Nb-95 0.9930E+00
none 0.0000E+00
Nuclide 017:
Zr-97
9
0.6084000000E+05
0.9700E+02
0.0000E+00
Nb-97m 0.9470E+00
Nb-97 0.5300E-01
none 0.0000E+00
Nuclide 018:
Nb-95
9
0.3036960000E+07
0.9500E+02
0.7817E+06
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 019:
Mo-99
7
0.2376000000E+06
0.9900E+02
0.1924E-03
Tc-99m 0.8760E+00
Tc-99 0.1240E+00
none 0.0000E+00
Nuclide 020:
Tc-99m
7
0.2167200000E+05
0.9900E+02
0.1854E-03
Tc-99 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 021:
Ru-103
7
0.3393792000E+07
0.1030E+03
0.2574E+06
Rh-103m 0.9970E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 022:
Ru-105
7
0.1598400000E+05
0.1050E+03
0.0000E+00
Rh-105 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 023:
Ru-106
7
0.3181248000E+08
0.1060E+03
0.4890E+06
Rh-106 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 024:
Rh-105
7
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
0.1272960000E+06
0.1050E+03
0.4149E-12
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 025:
Sb-127
  4
0.3326400000E+06
0.1270E+03
0.8474E-02
Te-127m   0.1760E+00
Te-127    0.8240E+00
none      0.0000E+00
Nuclide 026:
Sb-129
  4
0.1555200000E+05
0.1290E+03
0.0000E+00
Te-129m   0.2250E+00
Te-129    0.7750E+00
none      0.0000E+00
Nuclide 027:
Te-127
  4
0.3366000000E+05
0.1270E+03
0.7022E+04
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 028:
Te-127m
  4
0.9417600000E+07
0.1270E+03
0.7169E+04
Te-127    0.9760E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 029:
Te-129
  4
0.4176000000E+04
0.1290E+03
0.3854E+04
I-129     0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 030:
Te-129m
  4
0.2903040000E+07
0.1290E+03
0.5922E+04
Te-129    0.6500E+00
I-129     0.3500E+00
none      0.0000E+00
Nuclide 031:
Te-131m
  4
0.1080000000E+06
0.1310E+03
0.2368E-16
Te-131    0.2220E+00
I-131     0.7780E+00
none      0.0000E+00
Nuclide 032:
Te-132
  4
0.2815200000E+06
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
0.1320E+03
0.5078E-02
I-132 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 033:
I-131
2
0.6946560000E+06
0.1310E+03
0.3848E+05
Xe-131m 0.1110E-01
none 0.0000E+00
none 0.0000E+00
Nuclide 034:
I-132
2
0.8280000000E+04
0.1320E+03
0.3820E-00
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 035:
I-133
2
0.7488000000E+05
0.1330E+03
0.5985E-23
Xe-133m 0.2900E-01
Xe-133 0.9710E+00
none 0.0000E+00
Nuclide 036:
I-134
2
0.3156000000E+04
0.1340E+03
0.0000E+00
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 037:
I-135
2
0.2379600000E+05
0.1350E+03
0.0000E+00
Xe-135m 0.1540E+00
Xe-135 0.8460E+00
none 0.0000E+00
Nuclide 038:
Xe-133
1
0.4531680000E+06
0.1330E+03
0.8992E+03
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 039:
Xe-135
1
0.3272400000E+05
0.1350E+03
0.0000E+00
Cs-135 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 040:
Cs-134
3
0.6507177120E+08
0.1340E+03
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
0.1876E+06
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 041:
Cs-136
  3
  0.1131840000E+07
  0.1360E+03
  0.5025E+03
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 042:
Cs-137
  3
  0.9467280000E+09
  0.1370E+03
  0.1094E+06
Ba-137m  0.9460E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 043:
Ba-139
  6
  0.4962000000E+04
  0.1390E+03
  0.0000E+00
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 044:
Ba-140
  6
  0.1100736000E+07
  0.1400E+03
  0.9592E+04
La-140   0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 045:
La-140
  9
  0.1449792000E+06
  0.1400E+03
  0.1104E+05
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 046:
La-141
  9
  0.1414800000E+05
  0.1410E+03
  0.0000E+00
Ce-141   0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 047:
La-142
  9
  0.5550000000E+04
  0.1420E+03
  0.0000E+00
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 048:
Ce-141
  8
  0.2808086400E+07
  0.1410E+03
  0.1789E+06
```


Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 049:
Ce-143
  8
  0.1188000000E+06
  0.1430E+03
  0.2222E-13
Pr-143    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 050:
Ce-144
  8
  0.2456352000E+08
  0.1440E+03
  0.8187E+06
Pr-144m   0.1780E-01
Pr-144    0.9822E+00
none      0.0000E+00
Nuclide 051:
Pr-143
  9
  0.1171584000E+07
  0.1430E+03
  0.1245E+05
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 052:
Nd-147
  9
  0.9486720000E+06
  0.1470E+03
  0.1695E+04
Pm-147    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 053:
Np-239
  8
  0.2034720000E+06
  0.2390E+03
  0.4044E+02
Pu-239    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 054:
Pu-238
  8
  0.2768863824E+10
  0.2380E+03
  0.4557E+04
U-234     0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 055:
Pu-239
  8
  0.7594336440E+12
  0.2390E+03
  0.3607E+03
U-235     0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 056:
Pu-240
  8
  0.2062920312E+12
  0.2400E+03
  0.5408E+03
U-236     0.1000E+01
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
none      0.0000E+00
none      0.0000E+00
Nuclide 057:
Pu-241
  8
  0.4544294400E+09
  0.2410E+03
  0.1504E+06
U-237     0.2450E-04
Am-241    0.1000E+01
none      0.0000E+00
Nuclide 058:
Am-241
  9
  0.1363919472E+11
  0.2410E+03
  0.2481E+03
Np-237    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 059:
Cm-242
  9
  0.1406592000E+08
  0.2420E+03
  0.3890E+05
Pu-238    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 060:
Cm-244
  9
  0.5715081360E+09
  0.2440E+03
  0.1327E+05
Pu-240    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 061:
I-130
  2
  0.4449600000E+05
  0.1300E+03
  0.0000E+00
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 062:
Kr-83m
  1
  0.6588000000E+04
  0.8300E+02
  0.0000E+00
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 063:
Xe-138
  1
  0.8502000000E+03
  0.1380E+03
  0.0000E+00
Cs-138    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 064:
Xe-131m
  1
  0.1028160000E+07
  0.1310E+03
  0.9540E+04
none      0.0000E+00
none      0.0000E+00
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
none 0.0000E+00
Nuclide 065:
Xe-133m
  1
  0.1890432000E+06
  0.1330E+03
  0.2319E-05
Xe-133 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 066:
Xe-135m
  1
  0.9174000000E+03
  0.1350E+03
  0.0000E+00
Xe-135 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 067:
Cs-138
  3
  0.1932000000E+04
  0.1380E+03
  0.0000E+00
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 068:
Cs-134m
  3
  0.1044000000E+05
  0.1340E+03
  0.0000E+00
Cs-134 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 069:
Rb-88
  3
  0.1068000000E+04
  0.8800E+02
  0.0000E+00
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 070:
Rb-89
  3
  0.9120000000E+03
  0.8900E+02
  0.0000E+00
Sr-89 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 071:
Sb-124
  4
  0.5201280000E+07
  0.1240E+03
  0.6036E+03
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 072:
Sb-125
  4
  0.8741455200E+08
  0.1250E+03
  0.1484E+05
Te-125m 0.2280E+00
none 0.0000E+00
none 0.0000E+00
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Nuclide 073:
Sb-126
4
0.1071360000E+07
0.1260E+03
0.7348E+01
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 074:
Te-131
4
0.1500000000E+04
0.1310E+03
0.5333E-17
I-131 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 075:
Te-133
4
0.7470000000E+03
0.1330E+03
0.0000E+00
I-133 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 076:
Te-134
4
0.2508000000E+04
0.1340E+03
0.0000E+00
I-134 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 077:
Te-125m
4
0.5011200000E+07
0.1250E+03
0.3470E+04
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 078:
Te-133m
4
0.3324000000E+04
0.1330E+03
0.0000E+00
I-133 0.8700E+00
Te-133 0.1300E+00
none 0.0000E+00
Nuclide 079:
Ba-141
6
0.1096200000E+04
0.1410E+03
0.0000E+00
La-141 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 080:
Ba-137m
6
0.1531200000E+03
0.1370E+03
0.1035E+06
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 081:

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
Pd-109
  7
  0.4833720000E+05
  0.1090E+03
  0.0000E+00
  none      0.0000E+00
  none      0.0000E+00
  none      0.0000E+00
  Nuclide 082:
  Rh-106
    7
    0.2990000000E+02
    0.1060E+03
    0.4890E+06
  none      0.0000E+00
  none      0.0000E+00
  none      0.0000E+00
  Nuclide 083:
  Rh-103m
    7
    0.3367200000E+04
    0.1030E+03
    0.2322E+06
  none      0.0000E+00
  none      0.0000E+00
  none      0.0000E+00
  Nuclide 084:
  Tc-101
    7
    0.8520000000E+03
    0.1010E+03
    0.0000E+00
  none      0.0000E+00
  none      0.0000E+00
  none      0.0000E+00
  Nuclide 085:
  Eu-154
    9
    0.2777068800E+09
    0.1540E+03
    0.1222E+05
  none      0.0000E+00
  none      0.0000E+00
  none      0.0000E+00
  Nuclide 086:
  Eu-155
    9
    0.1565256960E+09
    0.1550E+03
    0.8162E+04
  none      0.0000E+00
  none      0.0000E+00
  none      0.0000E+00
  Nuclide 087:
  Eu-156
    9
    0.1312416000E+07
    0.1560E+03
    0.3486E+04
  none      0.0000E+00
  none      0.0000E+00
  none      0.0000E+00
  Nuclide 088:
  La-143
    9
    0.8538000000E+03
    0.1430E+03
    0.0000E+00
  Ce-143   0.1000E+01
  none     0.0000E+00
  none     0.0000E+00
  Nuclide 089:
  Nb-97
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
9
0.4326000000E+04
0.9700E+02
0.0000E+00
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 090:
Nb-95m
9
0.3117600000E+06
0.9500E+02
0.3460E+04
Nb-95     0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 091:
Pm-147
9
0.8278820780E+08
0.1470E+03
0.1262E+06
Sm-147    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 092:
Pm-148
9
0.4639680000E+06
0.1480E+03
0.3752E+03
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 093:
Pm-149
9
0.1910880000E+06
0.1490E+03
0.2615E-06
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 094:
Pm-151
9
0.1022400000E+06
0.1510E+03
0.2017E-17
Sm-151    0.1000E+01
none      0.0000E+00
none      0.0000E+00
Nuclide 095:
Pm-148m
9
0.3568320000E+07
0.1480E+03
0.6618E+04
Pm-148    0.4600E-01
none      0.0000E+00
none      0.0000E+00
Nuclide 096:
Pr-144
9
0.1036800000E+04
0.1440E+03
0.8187E+06
none      0.0000E+00
none      0.0000E+00
none      0.0000E+00
Nuclide 097:
Pr-144m
9
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

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```
0.4320000000E+03
0.1440E+03
0.9825E+04
Pr-144 0.9990E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 098:
Sm-153
9
0.1681200000E+06
0.1530E+03
0.5257E-08
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 099:
Y-94
9
0.1146000000E+04
0.9400E+02
0.0000E+00
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 100:
Y-95
9
0.6420000000E+03
0.9500E+02
0.0000E+00
Zr-95 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 101:
Y-91m
9
0.2982600000E+04
0.9100E+02
0.0000E+00
Y-91 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 102:
Br-82
2
0.1270800000E+06
0.8200E+02
0.2024E-14
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 103:
Br-83
2
0.8604000000E+04
0.8300E+02
0.0000E+00
Kr-83m 0.1000E+01
none 0.0000E+00
none 0.0000E+00
Nuclide 104:
Br-84
2
0.1908000000E+04
0.8400E+02
0.0000E+00
none 0.0000E+00
none 0.0000E+00
none 0.0000E+00
Nuclide 105:
Am-242
9
0.5767200000E+05
```

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

```
0.2420E+03
0.2391E+02
Cm-242  0.8270E+00
Pu-242  0.1730E+00
none    0.0000E+00
Nuclide 106:
Np-238
  8
0.1829088000E+06
0.2380E+03
0.1201E+00
Pu-238  0.1000E+01
none    0.0000E+00
none    0.0000E+00
Nuclide 107:
Pu-243
  8
0.1784160000E+05
0.2430E+03
0.5819E-05
Am-243  0.1000E+01
none    0.0000E+00
none    0.0000E+00
End of Nuclear Inventory File
```


Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Attachment 7 RADTRAD-NAI Dose Conversion Factor File

NAI-1101-001rev0.DCF

Includes 107 isotopes

9 ORGANS DEFINED IN THIS FILE:

GONADS
BREAST
LUNGS
RED MARR
BONE SUR
THYROID
REMAINDER
EFFECTIVE
SKIN(FGR)

107 NUCLIDES DEFINED IN THIS FILE:

Co-58	Y
Co-60	Y
Kr-85	
Kr-85m	
Kr-87	
Kr-88	
Rb-86	D
Sr-89	Y
Sr-90	Y
Sr-91	Y
Sr-92	Y
Y-90	Y
Y-91	Y
Y-92	Y
Y-93	Y
Zr-95	D
Zr-97	Y
Nb-95	Y
Mo-99	Y
Tc-99m	D
Ru-103	Y
Ru-105	Y
Ru-106	Y
Rh-105	Y
Sb-127	W
Sb-129	W
Te-127	W
Te-127m	W
Te-129	D
Te-129m	W
Te-131m	W
Te-132	W
I-131	D
I-132	D
I-133	D
I-134	D
I-135	D
Xe-133	
Xe-135	
Cs-134	D
Cs-136	D
Cs-137	D
Ba-139	D
Ba-140	D
La-140	W
La-141	D
La-142	D
Ce-141	Y
Ce-143	Y
Ce-144	Y
Pr-143	Y
Nd-147	Y
Np-239	W
Pu-238	W
Pu-239	W
Pu-240	W
Pu-241	W
Am-241	W

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

Calculation Number: NAI-1149-026 Rev. 0

Cm-242 W
 Cm-244 W
 I-130 D
 Kr-83m
 Xe-138
 Xe-131m
 Xe-133m
 Xe-135m
 Cs-138 D
 Cs-134m D
 Rb-88 D
 Rb-89 D
 Sb-124 W
 Sb-125 W
 Sb-126 W
 Te-131 D
 Te-133 D
 Te-134 D
 Te-125m W
 Te-133m D
 Ba-141 D
 Ba-137m
 Pd-109 Y
 Rh-106
 Rh-103m D
 Tc-101 D
 Eu-154 W
 Eu-155 W
 Eu-156 W
 La-143 W
 Nb-97 Y
 Nb-95m Y
 Pm-147 Y
 Pm-148 Y
 Pm-149 Y
 Pm-151 Y
 Pm-148m Y
 Pr-144 Y
 Pr-144m
 Sm-153 W
 Y-94 Y
 Y-95 Y
 Y-91m Y
 Br-82 W
 Br-83 W
 Br-84 D
 Am-242 W
 Np-238 W
 Pu-243 Y

CLOUDSHINE GROUND GROUND GROUND INHALED INHALED INGESTION
 SHINE 8HR SHINE 7DAY SHINE RATE ACUTE CHRONIC

Co-58							
GONADS	4.660E-14	2.867E-11	5.828E-10	9.970E-16	-1.000E+00	6.170E-10	1.040E-09
BREAST	5.300E-14	2.737E-11	5.565E-10	9.520E-16	-1.000E+00	9.370E-10	1.790E-10
LUNGS	4.640E-14	2.617E-11	5.319E-10	9.100E-16	-1.000E+00	1.600E-08	8.530E-11
RED MARR	4.530E-14	2.671E-11	5.430E-10	9.290E-16	-1.000E+00	9.230E-10	2.600E-10
BONE SUR	7.410E-14	3.795E-11	7.716E-10	1.320E-15	-1.000E+00	6.930E-10	1.250E-10
THYROID	4.770E-14	2.720E-11	5.530E-10	9.460E-16	-1.000E+00	8.720E-10	6.310E-11
REMAINDER	4.440E-14	2.585E-11	5.255E-10	8.990E-16	-1.000E+00	1.890E-09	1.580E-09
EFFECTIVE	4.760E-14	2.732E-11	5.553E-10	9.500E-16	-1.000E+00	2.940E-09	8.090E-10
SKIN (FGR)	5.580E-14	3.278E-11	6.664E-10	1.140E-15	-1.000E+00	0.000E+00	0.000E+00
Co-60							
GONADS	1.230E-13	7.056E-11	1.480E-09	2.450E-15	-1.000E+00	4.760E-09	3.190E-09
BREAST	1.390E-13	6.739E-11	1.413E-09	2.340E-15	-1.000E+00	1.840E-08	1.100E-09
LUNGS	1.240E-13	6.537E-11	1.371E-09	2.270E-15	-1.000E+00	3.450E-07	8.770E-10
RED MARR	1.230E-13	6.710E-11	1.407E-09	2.330E-15	-1.000E+00	1.720E-08	1.320E-09
BONE SUR	1.780E-13	8.956E-11	1.879E-09	3.110E-15	-1.000E+00	1.350E-08	9.390E-10
THYROID	1.270E-13	6.480E-11	1.359E-09	2.250E-15	-1.000E+00	1.620E-08	7.880E-10
REMAINDER	1.200E-13	6.508E-11	1.365E-09	2.260E-15	-1.000E+00	3.600E-08	4.970E-09
EFFECTIVE	1.260E-13	6.768E-11	1.419E-09	2.350E-15	-1.000E+00	5.910E-08	2.770E-09
SKIN (FGR)	1.450E-13	7.948E-11	1.667E-09	2.760E-15	-1.000E+00	0.000E+00	0.000E+00
Kr-85							
GONADS	1.170E-16	8.121E-14	1.704E-12	2.820E-18	-1.000E+00	0.000E+00	0.000E+00

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BREAST	1.340E-16	7.891E-14	1.656E-12	2.740E-18	-1.000E+00	0.000E+00	0.000E+00
LUNGS	1.140E-16	7.056E-14	1.481E-12	2.450E-18	-1.000E+00	0.000E+00	0.000E+00
RED MARR	1.090E-16	6.998E-14	1.469E-12	2.430E-18	-1.000E+00	0.000E+00	0.000E+00
BONE SUR	2.200E-16	1.287E-13	2.702E-12	4.470E-18	-1.000E+00	0.000E+00	0.000E+00
THYROID	1.180E-16	7.459E-14	1.565E-12	2.590E-18	-1.000E+00	0.000E+00	0.000E+00
REMAINDER	1.090E-16	6.941E-14	1.457E-12	2.410E-18	-1.000E+00	0.000E+00	0.000E+00
EFFECTIVE	1.190E-16	7.603E-14	1.596E-12	2.640E-18	-1.000E+00	0.000E+00	0.000E+00
SKIN (FGR)	1.320E-14	2.304E-11	4.835E-10	8.000E-16	-1.000E+00	0.000E+00	0.000E+00
Kr-85m							
GONADS	7.310E-15	2.594E-12	3.653E-12	1.570E-16	-1.000E+00	0.000E+00	0.000E+00
BREAST	8.410E-15	2.527E-12	3.560E-12	1.530E-16	-1.000E+00	0.000E+00	0.000E+00
LUNGS	7.040E-15	2.379E-12	3.351E-12	1.440E-16	-1.000E+00	0.000E+00	0.000E+00
RED MARR	6.430E-15	2.346E-12	3.304E-12	1.420E-16	-1.000E+00	0.000E+00	0.000E+00
BONE SUR	1.880E-14	5.286E-12	7.446E-12	3.200E-16	-1.000E+00	0.000E+00	0.000E+00
THYROID	7.330E-15	2.395E-12	3.374E-12	1.450E-16	-1.000E+00	0.000E+00	0.000E+00
REMAINDER	6.640E-15	2.313E-12	3.257E-12	1.400E-16	-1.000E+00	0.000E+00	0.000E+00
EFFECTIVE	7.480E-15	2.511E-12	3.537E-12	1.520E-16	-1.000E+00	0.000E+00	0.000E+00
SKIN (FGR)	2.240E-14	2.247E-11	3.164E-11	1.360E-15	-1.000E+00	0.000E+00	0.000E+00
Kr-87							
GONADS	4.000E-14	4.962E-12	5.026E-12	7.610E-16	-1.000E+00	0.000E+00	0.000E+00
BREAST	4.500E-14	4.740E-12	4.802E-12	7.270E-16	-1.000E+00	0.000E+00	0.000E+00
LUNGS	4.040E-14	4.603E-12	4.663E-12	7.060E-16	-1.000E+00	0.000E+00	0.000E+00
RED MARR	4.000E-14	4.708E-12	4.769E-12	7.220E-16	-1.000E+00	0.000E+00	0.000E+00
BONE SUR	6.020E-14	6.514E-12	6.598E-12	9.990E-16	-1.000E+00	0.000E+00	0.000E+00
THYROID	4.130E-14	4.473E-12	4.531E-12	6.860E-16	-1.000E+00	0.000E+00	0.000E+00
REMAINDER	3.910E-14	4.590E-12	4.650E-12	7.040E-16	-1.000E+00	0.000E+00	0.000E+00
EFFECTIVE	4.120E-14	4.773E-12	4.835E-12	7.320E-16	-1.000E+00	0.000E+00	0.000E+00
SKIN (FGR)	1.370E-13	8.802E-11	8.916E-11	1.350E-14	-1.000E+00	0.000E+00	0.000E+00
Kr-88							
GONADS	9.900E-14	2.278E-11	2.655E-11	1.800E-15	-1.000E+00	0.000E+00	0.000E+00
BREAST	1.110E-13	2.177E-11	2.537E-11	1.720E-15	-1.000E+00	0.000E+00	0.000E+00
LUNGS	1.010E-13	2.139E-11	2.493E-11	1.690E-15	-1.000E+00	0.000E+00	0.000E+00
RED MARR	1.000E-13	2.190E-11	2.552E-11	1.730E-15	-1.000E+00	0.000E+00	0.000E+00
BONE SUR	1.390E-13	2.886E-11	3.363E-11	2.280E-15	-1.000E+00	0.000E+00	0.000E+00
THYROID	1.030E-13	2.012E-11	2.345E-11	1.590E-15	-1.000E+00	0.000E+00	0.000E+00
REMAINDER	9.790E-14	2.139E-11	2.493E-11	1.690E-15	-1.000E+00	0.000E+00	0.000E+00
EFFECTIVE	1.020E-13	2.202E-11	2.567E-11	1.740E-15	-1.000E+00	0.000E+00	0.000E+00
SKIN (FGR)	1.350E-13	5.607E-11	6.534E-11	4.430E-15	-1.000E+00	0.000E+00	0.000E+00
Rb-86							
GONADS	4.710E-15	2.788E-12	5.187E-11	9.740E-17	-1.000E+00	1.340E-09	2.150E-09
BREAST	5.340E-15	2.662E-12	4.953E-11	9.300E-17	-1.000E+00	1.330E-09	2.140E-09
LUNGS	4.710E-15	2.553E-12	4.750E-11	8.920E-17	-1.000E+00	3.300E-09	2.140E-09
RED MARR	4.640E-15	2.619E-12	4.873E-11	9.150E-17	-1.000E+00	2.320E-09	3.720E-09
BONE SUR	7.050E-15	3.635E-12	6.764E-11	1.270E-16	-1.000E+00	4.270E-09	6.860E-09
THYROID	4.840E-15	2.599E-12	4.836E-11	9.080E-17	-1.000E+00	1.330E-09	2.140E-09
REMAINDER	4.520E-15	2.542E-12	4.729E-11	8.880E-17	-1.000E+00	1.380E-09	2.330E-09
EFFECTIVE	4.810E-15	2.665E-12	4.958E-11	9.310E-17	-1.000E+00	1.790E-09	2.530E-09
SKIN (FGR)	4.850E-14	2.210E-10	4.111E-09	7.720E-15	-1.000E+00	0.000E+00	0.000E+00
Sr-89							
GONADS	7.730E-17	7.155E-14	1.436E-12	2.490E-18	-1.000E+00	7.950E-12	8.050E-12
BREAST	9.080E-17	7.212E-14	1.447E-12	2.510E-18	-1.000E+00	7.960E-12	7.980E-12
LUNGS	7.080E-17	5.689E-14	1.142E-12	1.980E-18	-1.000E+00	8.350E-08	7.970E-12
RED MARR	6.390E-17	5.345E-14	1.073E-12	1.860E-18	-1.000E+00	1.070E-10	1.080E-10
BONE SUR	1.940E-16	1.560E-13	3.131E-12	5.430E-18	-1.000E+00	1.590E-10	1.610E-10
THYROID	7.600E-17	6.063E-14	1.217E-12	2.110E-18	-1.000E+00	7.960E-12	7.970E-12
REMAINDER	6.710E-17	5.603E-14	1.124E-12	1.950E-18	-1.000E+00	3.970E-09	8.250E-09
EFFECTIVE	7.730E-17	6.523E-14	1.309E-12	2.270E-18	-1.000E+00	1.120E-08	2.500E-09
SKIN (FGR)	3.690E-14	1.914E-10	3.841E-09	6.660E-15	-1.000E+00	0.000E+00	0.000E+00
Sr-90							
GONADS	7.780E-18	9.590E-15	2.014E-13	3.330E-19	-1.000E+00	2.690E-10	5.040E-11
BREAST	9.490E-18	1.008E-14	2.116E-13	3.500E-19	-1.000E+00	2.690E-10	5.040E-11
LUNGS	6.440E-18	6.307E-15	1.324E-13	2.190E-19	-1.000E+00	2.860E-06	5.040E-11
RED MARR	5.440E-18	5.558E-15	1.167E-13	1.930E-19	-1.000E+00	3.280E-08	6.450E-09
BONE SUR	2.280E-17	2.393E-14	5.025E-13	8.310E-19	-1.000E+00	7.090E-08	1.390E-08
THYROID	7.330E-18	7.171E-15	1.506E-13	2.490E-19	-1.000E+00	2.690E-10	5.040E-11
REMAINDER	6.110E-18	6.422E-15	1.348E-13	2.230E-19	-1.000E+00	5.730E-09	6.700E-09
EFFECTIVE	7.530E-18	8.179E-15	1.717E-13	2.840E-19	-1.000E+00	3.510E-07	3.230E-09
SKIN (FGR)	9.200E-15	4.032E-12	8.465E-11	1.400E-16	-1.000E+00	0.000E+00	0.000E+00
Sr-91							
GONADS	3.380E-14	2.155E-11	5.062E-11	1.026E-15	-1.000E+00	5.650E-11	2.520E-10
BREAST	3.830E-14	2.059E-11	4.838E-11	9.806E-16	-1.000E+00	1.740E-11	3.676E-11
LUNGS	3.370E-14	1.970E-11	4.626E-11	9.376E-16	-1.000E+00	2.130E-09	1.055E-11
RED MARR	3.310E-14	2.011E-11	4.722E-11	9.570E-16	-1.000E+00	2.230E-11	5.659E-11

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BONE SUR	5.200E-14	2.852E-11	6.709E-11	1.360E-15-1.000E+00	1.270E-11	2.070E-11
THYROID	3.470E-14	2.035E-11	4.782E-11	9.693E-16-1.000E+00	9.640E-12	1.968E-12
REMAINDER	3.240E-14	1.948E-11	4.573E-11	9.268E-16-1.000E+00	5.780E-10	2.557E-09
EFFECTIVE	3.450E-14	2.057E-11	4.832E-11	9.793E-16-1.000E+00	4.490E-10	8.455E-10
SKIN (FGR)	8.140E-14	1.748E-10	3.987E-10	8.080E-15-1.000E+00	0.000E+00	0.000E+00
Sr-92						
GONADS	6.610E-14	1.593E-11	1.830E-11	1.300E-15-1.000E+00	1.020E-11	8.180E-11
BREAST	7.480E-14	1.520E-11	1.745E-11	1.240E-15-1.000E+00	6.490E-12	1.700E-11
LUNGS	6.670E-14	1.483E-11	1.703E-11	1.210E-15-1.000E+00	1.050E-09	7.220E-12
RED MARR	6.620E-14	1.520E-11	1.745E-11	1.240E-15-1.000E+00	6.980E-12	2.290E-11
BONE SUR	9.490E-14	2.010E-11	2.308E-11	1.640E-15-1.000E+00	4.360E-12	8.490E-12
THYROID	6.820E-14	1.446E-11	1.661E-11	1.180E-15-1.000E+00	3.920E-12	1.300E-12
REMAINDER	6.450E-14	1.471E-11	1.689E-11	1.200E-15-1.000E+00	2.900E-10	1.720E-09
EFFECTIVE	6.790E-14	1.532E-11	1.759E-11	1.250E-15-1.000E+00	2.180E-10	5.430E-10
SKIN (FGR)	8.560E-14	2.280E-11	2.618E-11	1.860E-15-1.000E+00	0.000E+00	0.000E+00
Y-90						
GONADS	1.890E-16	1.586E-13	1.601E-12	5.750E-18-1.000E+00	5.170E-13	1.430E-14
BREAST	2.200E-16	1.578E-13	1.593E-12	5.720E-18-1.000E+00	5.170E-13	1.270E-14
LUNGS	1.770E-16	1.313E-13	1.326E-12	4.760E-18-1.000E+00	9.310E-09	1.260E-14
RED MARR	1.620E-16	1.261E-13	1.273E-12	4.570E-18-1.000E+00	1.520E-11	3.700E-13
BONE SUR	4.440E-16	3.228E-13	3.259E-12	1.170E-17-1.000E+00	1.510E-11	3.670E-13
THYROID	1.870E-16	1.385E-13	1.398E-12	5.020E-18-1.000E+00	5.170E-13	1.260E-14
REMAINDER	1.680E-16	1.291E-13	1.303E-12	4.680E-18-1.000E+00	3.870E-09	9.680E-09
EFFECTIVE	1.900E-16	1.468E-13	1.482E-12	5.320E-18-1.000E+00	2.280E-09	2.910E-09
SKIN (FGR)	6.240E-14	2.897E-10	2.924E-09	1.050E-14-1.000E+00	0.000E+00	0.000E+00
Y-91						
GONADS	2.560E-16	1.756E-13	3.546E-12	6.110E-18-1.000E+00	8.200E-12	3.540E-12
BREAST	2.930E-16	1.713E-13	3.459E-12	5.960E-18-1.000E+00	8.920E-12	5.540E-13
LUNGS	2.500E-16	1.526E-13	3.082E-12	5.310E-18-1.000E+00	9.870E-08	2.020E-13
RED MARR	2.410E-16	1.521E-13	3.070E-12	5.290E-18-1.000E+00	3.190E-10	6.590E-12
BONE SUR	4.560E-16	2.903E-13	5.862E-12	1.010E-17-1.000E+00	3.180E-10	6.130E-12
THYROID	2.600E-16	1.564E-13	3.157E-12	5.440E-18-1.000E+00	8.500E-12	1.290E-13
REMAINDER	2.390E-16	1.509E-13	3.047E-12	5.250E-18-1.000E+00	4.200E-09	8.570E-09
EFFECTIVE	2.600E-16	1.650E-13	3.332E-12	5.740E-18-1.000E+00	1.320E-08	2.570E-09
SKIN (FGR)	3.850E-14	1.989E-10	4.016E-09	6.920E-15-1.000E+00	0.000E+00	0.000E+00
Y-92						
GONADS	1.270E-14	3.855E-12	4.872E-12	2.650E-16-1.000E+00	2.610E-12	1.960E-11
BREAST	1.440E-14	3.680E-12	4.652E-12	2.530E-16-1.000E+00	1.500E-12	3.550E-12
LUNGS	1.270E-14	3.535E-12	4.468E-12	2.430E-16-1.000E+00	1.240E-09	1.390E-12
RED MARR	1.250E-14	3.608E-12	4.560E-12	2.480E-16-1.000E+00	2.070E-12	4.910E-12
BONE SUR	1.950E-14	5.091E-12	6.435E-12	3.500E-16-1.000E+00	1.510E-12	1.750E-12
THYROID	1.300E-14	3.579E-12	4.523E-12	2.460E-16-1.000E+00	1.050E-12	1.770E-13
REMAINDER	1.220E-14	3.506E-12	4.431E-12	2.410E-16-1.000E+00	2.030E-10	1.700E-09
EFFECTIVE	1.300E-14	3.680E-12	4.652E-12	2.530E-16-1.000E+00	2.110E-10	5.150E-10
SKIN (FGR)	1.140E-13	2.022E-10	2.556E-10	1.390E-14-1.000E+00	0.000E+00	0.000E+00
Y-93						
GONADS	4.670E-15	2.108E-12	4.989E-12	9.510E-17-1.000E+00	5.310E-12	2.200E-11
BREAST	5.300E-15	2.026E-12	4.794E-12	9.140E-17-1.000E+00	1.740E-12	3.130E-12
LUNGS	4.680E-15	1.937E-12	4.585E-12	8.740E-17-1.000E+00	2.520E-09	8.670E-13
RED MARR	4.580E-15	1.972E-12	4.669E-12	8.900E-17-1.000E+00	4.040E-12	4.930E-12
BONE SUR	7.580E-15	2.948E-12	6.977E-12	1.330E-16-1.000E+00	3.140E-12	1.730E-12
THYROID	4.790E-15	1.908E-12	4.516E-12	8.610E-17-1.000E+00	9.260E-13	1.260E-13
REMAINDER	4.510E-15	1.919E-12	4.543E-12	8.660E-17-1.000E+00	9.250E-10	4.090E-09
EFFECTIVE	4.800E-15	2.021E-12	4.784E-12	9.120E-17-1.000E+00	5.820E-10	1.230E-09
SKIN (FGR)	8.500E-14	2.726E-10	6.452E-10	1.230E-14-1.000E+00	0.000E+00	0.000E+00
Zr-95						
GONADS	3.530E-14	2.182E-11	4.421E-10	7.590E-16-1.000E+00	1.880E-09	8.160E-10
BREAST	4.010E-14	2.084E-11	4.223E-10	7.250E-16-1.000E+00	1.910E-09	1.050E-10
LUNGS	3.510E-14	1.989E-11	4.030E-10	6.920E-16-1.000E+00	2.170E-09	2.340E-11
RED MARR	3.430E-14	2.030E-11	4.112E-10	7.060E-16-1.000E+00	1.300E-08	2.140E-10
BONE SUR	5.620E-14	2.875E-11	5.824E-10	1.000E-15-1.000E+00	1.030E-07	4.860E-10
THYROID	3.610E-14	2.076E-11	4.205E-10	7.220E-16-1.000E+00	1.440E-09	8.270E-12
REMAINDER	3.360E-14	1.963E-11	3.978E-10	6.830E-16-1.000E+00	2.280E-09	2.530E-09
EFFECTIVE	3.600E-14	2.078E-11	4.211E-10	7.230E-16-1.000E+00	6.390E-09	1.020E-09
SKIN (FGR)	4.500E-14	2.561E-11	5.190E-10	8.910E-16-1.000E+00	0.000E+00	0.000E+00
Zr-97						
GONADS	8.800E-15	2.179E-11	7.799E-11	9.253E-16-1.000E+00	1.840E-10	6.228E-10
BREAST	9.990E-15	2.083E-11	7.455E-11	8.846E-16-1.000E+00	4.700E-11	8.137E-11
LUNGS	8.810E-15	1.992E-11	7.127E-11	8.456E-16-1.000E+00	4.100E-09	1.770E-11
RED MARR	8.640E-15	2.034E-11	7.279E-11	8.634E-16-1.000E+00	6.370E-11	1.302E-10
BONE SUR	1.380E-14	2.881E-11	1.031E-10	1.224E-15-1.000E+00	3.500E-11	4.558E-11
THYROID	9.030E-15	2.061E-11	7.377E-11	8.755E-16-1.000E+00	2.310E-11	2.671E-12
REMAINDER	8.480E-15	1.966E-11	7.035E-11	8.345E-16-1.000E+00	2.040E-09	6.990E-09

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

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EFFECTIVE	9.020E-15	2.078E-11	7.438E-11	8.824E-16	-1.000E+00	1.170E-09	2.283E-09
SKIN (FGR)	5.550E-14	2.281E-10	8.148E-10	9.587E-15	-1.000E+00	0.000E+00	0.000E+00
Nb-95							
GONADS	3.660E-14	2.253E-11	4.435E-10	7.850E-16	-1.000E+00	4.320E-10	8.050E-10
BREAST	4.160E-14	2.150E-11	4.231E-10	7.490E-16	-1.000E+00	4.070E-10	1.070E-10
LUNGS	3.650E-14	2.055E-11	4.045E-10	7.160E-16	-1.000E+00	8.320E-09	2.740E-11
RED MARR	3.560E-14	2.101E-11	4.135E-10	7.320E-16	-1.000E+00	4.420E-10	1.990E-10
BONE SUR	5.790E-14	2.957E-11	5.819E-10	1.030E-15	-1.000E+00	5.130E-10	2.940E-10
THYROID	3.750E-14	2.144E-11	4.220E-10	7.470E-16	-1.000E+00	3.580E-10	1.180E-11
REMAINDER	3.490E-14	2.032E-11	4.000E-10	7.080E-16	-1.000E+00	1.070E-09	1.470E-09
EFFECTIVE	3.740E-14	2.147E-11	4.226E-10	7.480E-16	-1.000E+00	1.570E-09	6.950E-10
SKIN (FGR)	4.300E-14	2.598E-11	5.112E-10	9.050E-16	-1.000E+00	0.000E+00	0.000E+00
Mo-99							
GONADS	7.130E-15	4.282E-12	4.403E-11	1.550E-16	-1.000E+00	9.510E-11	2.180E-10
BREAST	8.130E-15	4.116E-12	4.233E-11	1.490E-16	-1.000E+00	2.750E-11	3.430E-11
LUNGS	7.060E-15	3.867E-12	3.977E-11	1.400E-16	-1.000E+00	4.290E-09	1.510E-11
RED MARR	6.820E-15	3.923E-12	4.034E-11	1.420E-16	-1.000E+00	5.240E-11	8.320E-11
BONE SUR	1.240E-14	6.105E-12	6.278E-11	2.210E-16	-1.000E+00	4.130E-11	6.320E-11
THYROID	7.270E-15	4.033E-12	4.147E-11	1.460E-16	-1.000E+00	1.520E-11	1.030E-11
REMAINDER	6.740E-15	3.812E-12	3.920E-11	1.380E-16	-1.000E+00	1.740E-09	4.280E-09
EFFECTIVE	7.280E-15	4.061E-12	4.176E-11	1.470E-16	-1.000E+00	1.070E-09	1.360E-09
SKIN (FGR)	3.140E-14	1.039E-10	1.068E-09	3.760E-15	-1.000E+00	0.000E+00	0.000E+00
Tc-99m							
GONADS	5.750E-15	2.334E-12	3.877E-12	1.240E-16	-1.000E+00	2.770E-12	9.750E-12
BREAST	6.650E-15	2.258E-12	3.752E-12	1.200E-16	-1.000E+00	2.150E-12	3.570E-12
LUNGS	5.490E-15	2.127E-12	3.533E-12	1.130E-16	-1.000E+00	2.280E-11	3.140E-12
RED MARR	4.910E-15	2.070E-12	3.439E-12	1.100E-16	-1.000E+00	3.360E-12	6.290E-12
BONE SUR	1.630E-14	5.383E-12	8.942E-12	2.860E-16	-1.000E+00	2.620E-12	4.060E-12
THYROID	5.750E-15	2.145E-12	3.564E-12	1.140E-16	-1.000E+00	5.010E-11	8.460E-11
REMAINDER	5.150E-15	2.070E-12	3.439E-12	1.100E-16	-1.000E+00	1.020E-11	3.340E-11
EFFECTIVE	5.890E-15	2.277E-12	3.783E-12	1.210E-16	-1.000E+00	8.800E-12	1.680E-11
SKIN (FGR)	7.140E-15	2.710E-12	4.502E-12	1.440E-16	-1.000E+00	0.000E+00	0.000E+00
Ru-103							
GONADS	2.190E-14	1.404E-11	2.783E-10	4.892E-16	-1.000E+00	3.070E-10	5.720E-10
BREAST	2.510E-14	1.350E-11	2.677E-10	4.705E-16	-1.000E+00	3.110E-10	1.200E-10
LUNGS	2.180E-14	1.273E-11	2.522E-10	4.432E-16	-1.000E+00	1.560E-08	7.310E-11
RED MARR	2.100E-14	1.287E-11	2.551E-10	4.483E-16	-1.000E+00	3.190E-10	1.660E-10
BONE SUR	3.890E-14	1.958E-11	3.882E-10	6.823E-16	-1.000E+00	2.370E-10	9.631E-11
THYROID	2.240E-14	1.331E-11	2.639E-10	4.638E-16	-1.000E+00	2.570E-10	6.250E-11
REMAINDER	2.080E-14	1.248E-11	2.472E-10	4.346E-16	-1.000E+00	1.250E-09	2.110E-09
EFFECTIVE	2.250E-14	1.332E-11	2.641E-10	4.642E-16	-1.000E+00	2.420E-09	8.271E-10
SKIN (FGR)	2.770E-14	1.785E-11	3.543E-10	6.229E-16	-1.000E+00	0.000E+00	0.000E+00
Ru-105							
GONADS	3.720E-14	1.327E-11	1.861E-11	8.070E-16	-1.000E+00	1.590E-11	9.670E-11
BREAST	4.240E-14	1.271E-11	1.783E-11	7.730E-16	-1.000E+00	6.610E-12	1.590E-11
LUNGS	3.700E-14	1.210E-11	1.697E-11	7.360E-16	-1.000E+00	5.730E-10	6.210E-12
RED MARR	3.590E-14	1.230E-11	1.725E-11	7.480E-16	-1.000E+00	7.700E-12	2.350E-11
BONE SUR	6.280E-14	1.809E-11	2.537E-11	1.100E-15	-1.000E+00	4.620E-12	8.890E-12
THYROID	3.800E-14	1.260E-11	1.766E-11	7.660E-16	-1.000E+00	4.150E-12	1.820E-12
REMAINDER	3.540E-14	1.189E-11	1.667E-11	7.230E-16	-1.000E+00	1.610E-10	8.540E-10
EFFECTIVE	3.810E-14	1.265E-11	1.773E-11	7.690E-16	-1.000E+00	1.230E-10	2.870E-10
SKIN (FGR)	6.730E-14	7.368E-11	1.033E-10	4.480E-15	-1.000E+00	0.000E+00	0.000E+00
Ru-106							
GONADS	0.000E+00	6.411E-12	1.340E-10	2.230E-16	-1.000E+00	1.300E-09	1.640E-09
BREAST	0.000E+00	6.152E-12	1.286E-10	2.140E-16	-1.000E+00	1.780E-09	1.440E-09
LUNGS	0.000E+00	5.836E-12	1.220E-10	2.030E-16	-1.000E+00	1.040E-06	1.420E-09
RED MARR	0.000E+00	5.893E-12	1.232E-10	2.050E-16	-1.000E+00	1.760E-09	1.460E-09
BONE SUR	0.000E+00	8.883E-12	1.856E-10	3.090E-16	-1.000E+00	1.610E-09	1.430E-09
THYROID	0.000E+00	6.066E-12	1.268E-10	2.110E-16	-1.000E+00	1.720E-09	1.410E-09
REMAINDER	0.000E+00	5.721E-12	1.196E-10	1.990E-16	-1.000E+00	1.200E-08	2.110E-08
EFFECTIVE	0.000E+00	6.095E-12	1.274E-10	2.120E-16	-1.000E+00	1.290E-07	7.400E-09
SKIN (FGR)	0.000E+00	4.082E-10	8.531E-09	1.420E-14	-1.000E+00	0.000E+00	0.000E+00
Rh-105							
GONADS	3.640E-15	2.127E-12	1.411E-11	7.980E-17	-1.000E+00	2.110E-11	5.800E-11
BREAST	4.160E-15	2.063E-12	1.369E-11	7.740E-17	-1.000E+00	5.610E-12	8.970E-12
LUNGS	3.570E-15	1.935E-12	1.284E-11	7.260E-17	-1.000E+00	9.580E-10	3.860E-12
RED MARR	3.380E-15	1.946E-12	1.291E-11	7.300E-17	-1.000E+00	7.770E-12	1.470E-11
BONE SUR	7.530E-15	3.332E-12	2.210E-11	1.250E-16	-1.000E+00	4.460E-12	6.750E-12
THYROID	3.680E-15	1.983E-12	1.316E-11	7.440E-17	-1.000E+00	2.880E-12	2.910E-12
REMAINDER	3.390E-15	1.885E-12	1.250E-11	7.070E-17	-1.000E+00	4.530E-10	1.270E-09
EFFECTIVE	3.720E-15	2.031E-12	1.347E-11	7.620E-17	-1.000E+00	2.580E-10	3.990E-10
SKIN (FGR)	1.070E-14	4.691E-12	3.112E-11	1.760E-16	-1.000E+00	0.000E+00	0.000E+00
Sb-127							

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GONADS	3.260E-14	1.985E-11	2.441E-10	7.100E-16	-1.000E+00	2.520E-10	6.140E-10
BREAST	3.720E-14	1.904E-11	2.341E-10	6.810E-16	-1.000E+00	9.120E-11	7.600E-11
LUNGS	3.240E-14	1.809E-11	2.224E-10	6.470E-16	-1.000E+00	6.940E-09	1.570E-11
RED MARR	3.140E-14	1.834E-11	2.255E-10	6.560E-16	-1.000E+00	1.610E-10	1.330E-10
BONE SUR	5.520E-14	2.720E-11	3.345E-10	9.730E-16	-1.000E+00	1.340E-10	5.240E-11
THYROID	3.330E-14	1.884E-11	2.317E-10	6.740E-16	-1.000E+00	6.150E-11	4.640E-12
REMAINDER	3.090E-14	1.775E-11	2.183E-10	6.350E-16	-1.000E+00	2.330E-09	5.870E-09
EFFECTIVE	3.330E-14	1.890E-11	2.324E-10	6.760E-16	-1.000E+00	1.630E-09	1.950E-09
SKIN (FGR)	5.580E-14	7.967E-11	9.799E-10	2.850E-15	-1.000E+00	0.000E+00	0.000E+00
Sb-129							
GONADS	6.970E-14	2.336E-11	3.231E-11	1.440E-15	-1.000E+00	2.150E-11	1.510E-10
BREAST	7.910E-14	2.222E-11	3.074E-11	1.370E-15	-1.000E+00	1.280E-11	2.560E-11
LUNGS	6.980E-14	2.141E-11	2.962E-11	1.320E-15	-1.000E+00	8.980E-10	9.390E-12
RED MARR	6.860E-14	2.190E-11	3.029E-11	1.350E-15	-1.000E+00	1.700E-11	3.670E-11
BONE SUR	1.070E-13	3.033E-11	4.196E-11	1.870E-15	-1.000E+00	1.460E-11	1.340E-11
THYROID	7.160E-14	2.174E-11	3.007E-11	1.340E-15	-1.000E+00	9.720E-12	1.470E-12
REMAINDER	6.710E-14	2.125E-11	2.939E-11	1.310E-15	-1.000E+00	1.870E-10	1.450E-09
EFFECTIVE	7.140E-14	2.238E-11	3.096E-11	1.380E-15	-1.000E+00	1.740E-10	4.840E-10
SKIN (FGR)	1.050E-13	8.273E-11	1.144E-10	5.100E-15	-1.000E+00	0.000E+00	0.000E+00
Te-127							
GONADS	2.370E-16	1.191E-13	2.661E-13	5.480E-18	-1.000E+00	2.020E-12	4.020E-12
BREAST	2.730E-16	1.158E-13	2.588E-13	5.330E-18	-1.000E+00	1.880E-12	3.000E-12
LUNGS	2.320E-16	1.060E-13	2.370E-13	4.880E-18	-1.000E+00	4.270E-10	2.890E-12
RED MARR	2.210E-16	1.058E-13	2.365E-13	4.870E-18	-1.000E+00	4.090E-12	6.570E-12
BONE SUR	4.650E-16	1.862E-13	4.162E-13	8.570E-18	-1.000E+00	4.090E-12	6.460E-12
THYROID	2.400E-16	1.106E-13	2.472E-13	5.090E-18	-1.000E+00	1.840E-12	2.860E-12
REMAINDER	2.210E-16	1.036E-13	2.316E-13	4.770E-18	-1.000E+00	1.110E-10	6.130E-10
EFFECTIVE	2.420E-16	1.125E-13	2.515E-13	5.180E-18	-1.000E+00	8.600E-11	1.870E-10
SKIN (FGR)	1.140E-14	1.173E-11	2.622E-11	5.400E-16	-1.000E+00	0.000E+00	0.000E+00
Te-127m							
GONADS	1.900E-16	4.689E-13	9.642E-12	1.630E-17	-1.000E+00	1.100E-10	1.250E-10
BREAST	2.690E-16	5.150E-13	1.059E-11	1.790E-17	-1.000E+00	1.100E-10	9.740E-11
LUNGS	7.620E-17	1.602E-13	3.295E-12	5.570E-18	-1.000E+00	3.340E-08	9.620E-11
RED MARR	6.430E-17	1.249E-13	2.567E-12	4.340E-18	-1.000E+00	5.360E-09	5.430E-09
BONE SUR	3.940E-16	9.005E-13	1.852E-11	3.130E-17	-1.000E+00	2.040E-08	2.070E-08
THYROID	1.500E-16	2.779E-13	5.714E-12	9.660E-18	-1.000E+00	9.660E-11	9.430E-11
REMAINDER	8.640E-17	1.999E-13	4.111E-12	6.950E-18	-1.000E+00	1.660E-09	2.980E-09
EFFECTIVE	1.470E-16	3.251E-13	6.684E-12	1.130E-17	-1.000E+00	5.810E-09	2.230E-09
SKIN (FGR)	8.490E-16	1.496E-12	3.076E-11	5.200E-17	-1.000E+00	0.000E+00	0.000E+00
Te-129							
GONADS	2.710E-15	3.889E-13	3.922E-13	6.510E-17	-1.000E+00	1.750E-12	1.590E-12
BREAST	3.120E-15	3.800E-13	3.832E-13	6.360E-17	-1.000E+00	1.680E-12	6.050E-13
LUNGS	2.640E-15	3.298E-13	3.326E-13	5.520E-17	-1.000E+00	1.330E-10	4.910E-13
RED MARR	2.540E-15	3.298E-13	3.326E-13	5.520E-17	-1.000E+00	1.970E-12	7.640E-13
BONE SUR	4.880E-15	5.753E-13	5.802E-13	9.630E-17	-1.000E+00	2.030E-12	5.400E-13
THYROID	2.740E-15	3.525E-13	3.555E-13	5.900E-17	-1.000E+00	1.630E-12	3.360E-13
REMAINDER	2.520E-15	3.262E-13	3.289E-13	5.460E-17	-1.000E+00	2.400E-11	1.790E-10
EFFECTIVE	2.750E-15	3.590E-13	3.621E-13	6.010E-17	-1.000E+00	2.420E-11	5.450E-11
SKIN (FGR)	3.570E-14	3.429E-11	3.458E-11	5.740E-15	-1.000E+00	0.000E+00	0.000E+00
Te-129m							
GONADS	1.560E-15	2.206E-12	4.799E-11	8.561E-17	-1.000E+00	1.780E-10	2.420E-10
BREAST	1.810E-15	2.181E-12	4.739E-11	8.454E-17	-1.000E+00	1.690E-10	1.664E-10
LUNGS	1.460E-15	1.741E-12	3.815E-11	6.808E-17	-1.000E+00	4.030E-08	1.593E-10
RED MARR	1.420E-15	1.729E-12	3.793E-11	6.768E-17	-1.000E+00	3.100E-09	3.500E-09
BONE SUR	2.600E-15	3.287E-12	7.147E-11	1.275E-16	-1.000E+00	7.050E-09	7.990E-09
THYROID	1.560E-15	1.923E-12	4.201E-11	7.495E-17	-1.000E+00	1.560E-10	1.572E-10
REMAINDER	1.410E-15	1.746E-12	3.822E-11	6.819E-17	-1.000E+00	3.270E-09	7.196E-09
EFFECTIVE	1.550E-15	1.974E-12	4.308E-11	7.686E-17	-1.000E+00	6.470E-09	2.925E-09
SKIN (FGR)	1.490E-14	1.501E-10	3.360E-09	6.001E-15	-1.000E+00	0.000E+00	0.000E+00
Te-131m							
GONADS	6.850E-14	4.020E-11	2.343E-10	1.535E-15	-1.000E+00	2.340E-10	7.415E-10
BREAST	7.780E-14	3.853E-11	2.246E-10	1.472E-15	-1.000E+00	9.250E-11	1.361E-10
LUNGS	6.830E-14	3.657E-11	2.131E-10	1.397E-15	-1.000E+00	2.230E-09	6.335E-11
RED MARR	6.680E-14	3.736E-11	2.178E-10	1.427E-15	-1.000E+00	1.410E-10	2.435E-10
BONE SUR	1.090E-13	5.467E-11	3.189E-10	2.090E-15	-1.000E+00	2.270E-10	3.248E-10
THYROID	7.020E-14	3.741E-11	2.181E-10	1.429E-15	-1.000E+00	3.610E-08	4.383E-08
REMAINDER	6.550E-14	3.626E-11	2.113E-10	1.385E-15	-1.000E+00	9.460E-10	3.153E-09
EFFECTIVE	7.010E-14	3.825E-11	2.229E-10	1.461E-15	-1.000E+00	1.730E-09	2.514E-09
SKIN (FGR)	8.850E-14	1.033E-10	6.188E-10	4.056E-15	-1.000E+00	0.000E+00	0.000E+00
Te-132							
GONADS	1.020E-14	6.812E-12	7.706E-11	2.450E-16	-1.000E+00	4.150E-10	5.410E-10
BREAST	1.180E-14	6.756E-12	7.643E-11	2.430E-16	-1.000E+00	3.630E-10	3.500E-10
LUNGS	9.650E-15	5.727E-12	6.479E-11	2.060E-16	-1.000E+00	1.670E-09	3.300E-10

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RED MARR	8.950E-15	5.588E-12	6.322E-11	2.010E-16	-1.000E+00	4.270E-10	4.440E-10
BONE SUR	2.420E-14	1.273E-11	1.441E-10	4.580E-16	-1.000E+00	7.120E-10	8.300E-10
THYROID	1.020E-14	5.978E-12	6.762E-11	2.150E-16	-1.000E+00	6.280E-08	5.950E-08
REMAINDER	9.160E-15	5.644E-12	6.385E-11	2.030E-16	-1.000E+00	7.890E-10	1.490E-09
EFFECTIVE	1.030E-14	6.339E-12	7.171E-11	2.280E-16	-1.000E+00	2.550E-09	2.540E-09
SKIN (FGR)	1.390E-14	8.313E-12	9.405E-11	2.990E-16	-1.000E+00	0.000E+00	0.000E+00
I-131							
GONADS	1.780E-14	1.119E-11	1.789E-10	3.940E-16	-1.000E+00	2.530E-11	4.070E-11
BREAST	2.040E-14	1.082E-11	1.730E-10	3.810E-16	-1.000E+00	7.880E-11	1.210E-10
LUNGS	1.760E-14	1.016E-11	1.626E-10	3.580E-16	-1.000E+00	6.570E-10	1.020E-10
RED MARR	1.680E-14	1.022E-11	1.635E-10	3.600E-16	-1.000E+00	6.260E-11	9.440E-11
BONE SUR	3.450E-14	1.675E-11	2.679E-10	5.900E-16	-1.000E+00	5.730E-11	8.720E-11
THYROID	1.810E-14	1.053E-11	1.685E-10	3.710E-16	-1.000E+00	2.920E-07	4.760E-07
REMAINDER	1.670E-14	9.908E-12	1.585E-10	3.490E-16	-1.000E+00	8.030E-11	1.570E-10
EFFECTIVE	1.820E-14	1.067E-11	1.707E-10	3.760E-16	-1.000E+00	8.890E-09	1.440E-08
SKIN (FGR)	2.980E-14	1.825E-11	2.920E-10	6.430E-16	-1.000E+00	0.000E+00	0.000E+00
I-132							
GONADS	1.090E-13	2.523E-11	2.771E-11	2.320E-15	-1.000E+00	9.950E-12	2.330E-11
BREAST	1.240E-13	2.414E-11	2.652E-11	2.220E-15	-1.000E+00	1.410E-11	2.520E-11
LUNGS	1.090E-13	2.305E-11	2.532E-11	2.120E-15	-1.000E+00	2.710E-10	2.640E-11
RED MARR	1.070E-13	2.360E-11	2.592E-11	2.170E-15	-1.000E+00	1.400E-11	2.460E-11
BONE SUR	1.730E-13	3.327E-11	3.655E-11	3.060E-15	-1.000E+00	1.240E-11	2.190E-11
THYROID	1.120E-13	2.381E-11	2.616E-11	2.190E-15	-1.000E+00	1.740E-09	3.870E-09
REMAINDER	1.050E-13	2.283E-11	2.509E-11	2.100E-15	-1.000E+00	3.780E-11	1.650E-10
EFFECTIVE	1.120E-13	2.403E-11	2.640E-11	2.210E-15	-1.000E+00	1.030E-10	1.820E-10
SKIN (FGR)	1.580E-13	8.199E-11	9.007E-11	7.540E-15	-1.000E+00	0.000E+00	0.000E+00
I-133							
GONADS	2.870E-14	1.585E-11	6.748E-11	6.270E-16	-1.000E+00	1.950E-11	3.630E-11
BREAST	3.280E-14	1.519E-11	6.468E-11	6.010E-16	-1.000E+00	2.940E-11	4.680E-11
LUNGS	2.860E-14	1.446E-11	6.156E-11	5.720E-16	-1.000E+00	8.200E-10	4.530E-11
RED MARR	2.770E-14	1.466E-11	6.242E-11	5.800E-16	-1.000E+00	2.720E-11	4.300E-11
BONE SUR	4.870E-14	2.161E-11	9.202E-11	8.550E-16	-1.000E+00	2.520E-11	4.070E-11
THYROID	2.930E-14	1.502E-11	6.393E-11	5.940E-16	-1.000E+00	4.860E-08	9.100E-08
REMAINDER	2.730E-14	1.418E-11	6.038E-11	5.610E-16	-1.000E+00	5.000E-11	1.550E-10
EFFECTIVE	2.940E-14	1.509E-11	6.425E-11	5.970E-16	-1.000E+00	1.580E-09	2.800E-09
SKIN (FGR)	5.830E-14	1.150E-10	4.897E-10	4.550E-15	-1.000E+00	0.000E+00	0.000E+00
I-134							
GONADS	1.270E-13	1.200E-11	1.202E-11	2.640E-15	-1.000E+00	4.250E-12	1.100E-11
BREAST	1.440E-13	1.145E-11	1.147E-11	2.520E-15	-1.000E+00	6.170E-12	1.170E-11
LUNGS	1.270E-13	1.100E-11	1.102E-11	2.420E-15	-1.000E+00	1.430E-10	1.260E-11
RED MARR	1.250E-13	1.127E-11	1.129E-11	2.480E-15	-1.000E+00	6.080E-12	1.090E-11
BONE SUR	1.960E-13	1.568E-11	1.571E-11	3.450E-15	-1.000E+00	5.310E-12	9.320E-12
THYROID	1.300E-13	1.127E-11	1.129E-11	2.480E-15	-1.000E+00	2.880E-10	6.210E-10
REMAINDER	1.220E-13	1.091E-11	1.093E-11	2.400E-15	-1.000E+00	2.270E-11	1.340E-10
EFFECTIVE	1.300E-13	1.150E-11	1.152E-11	2.530E-15	-1.000E+00	3.550E-11	6.660E-11
SKIN (FGR)	1.870E-13	4.477E-11	4.485E-11	9.850E-15	-1.000E+00	0.000E+00	0.000E+00
I-135							
GONADS	7.770E-14	3.113E-11	5.489E-11	1.599E-15	-1.000E+00	1.700E-11	3.610E-11
BREAST	8.790E-14	2.971E-11	5.240E-11	1.526E-15	-1.000E+00	2.340E-11	3.850E-11
LUNGS	7.840E-14	2.886E-11	5.089E-11	1.482E-15	-1.000E+00	4.410E-10	3.750E-11
RED MARR	7.760E-14	2.965E-11	5.228E-11	1.523E-15	-1.000E+00	2.240E-11	3.650E-11
BONE SUR	1.130E-13	3.983E-11	7.024E-11	2.046E-15	-1.000E+00	2.010E-11	3.360E-11
THYROID	8.010E-14	2.852E-11	5.030E-11	1.465E-15	-1.000E+00	8.460E-09	1.790E-08
REMAINDER	7.570E-14	2.883E-11	5.084E-11	1.481E-15	-1.000E+00	4.700E-11	1.540E-10
EFFECTIVE	7.980E-14	2.989E-11	5.271E-11	1.535E-15	-1.000E+00	3.320E-10	6.080E-10
SKIN (FGR)	1.110E-13	9.826E-11	1.733E-10	5.047E-15	-1.000E+00	0.000E+00	0.000E+00
Xe-133							
GONADS	1.610E-15	1.465E-12	2.052E-11	5.200E-17	-1.000E+00	0.000E+00	0.000E+00
BREAST	1.960E-15	1.505E-12	2.107E-11	5.340E-17	-1.000E+00	0.000E+00	0.000E+00
LUNGS	1.320E-15	1.045E-12	1.464E-11	3.710E-17	-1.000E+00	0.000E+00	0.000E+00
RED MARR	1.070E-15	8.791E-13	1.231E-11	3.120E-17	-1.000E+00	0.000E+00	0.000E+00
BONE SUR	5.130E-15	4.254E-12	5.958E-11	1.510E-16	-1.000E+00	0.000E+00	0.000E+00
THYROID	1.510E-15	1.181E-12	1.653E-11	4.190E-17	-1.000E+00	0.000E+00	0.000E+00
REMAINDER	1.240E-15	1.042E-12	1.460E-11	3.700E-17	-1.000E+00	0.000E+00	0.000E+00
EFFECTIVE	1.560E-15	1.299E-12	1.819E-11	4.610E-17	-1.000E+00	0.000E+00	0.000E+00
SKIN (FGR)	4.970E-15	1.953E-12	2.734E-11	6.930E-17	-1.000E+00	0.000E+00	0.000E+00
Xe-135							
GONADS	1.170E-14	5.455E-12	1.194E-11	2.530E-16	-1.000E+00	0.000E+00	0.000E+00
BREAST	1.330E-14	5.325E-12	1.166E-11	2.470E-16	-1.000E+00	0.000E+00	0.000E+00
LUNGS	1.130E-14	4.959E-12	1.086E-11	2.300E-16	-1.000E+00	0.000E+00	0.000E+00
RED MARR	1.070E-14	4.959E-12	1.086E-11	2.300E-16	-1.000E+00	0.000E+00	0.000E+00
BONE SUR	2.570E-14	9.120E-12	1.997E-11	4.230E-16	-1.000E+00	0.000E+00	0.000E+00
THYROID	1.180E-14	5.023E-12	1.100E-11	2.330E-16	-1.000E+00	0.000E+00	0.000E+00

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REMAINDER	1.080E-14	4.829E-12	1.058E-11	2.240E-16	-1.000E+00	0.000E+00	0.000E+00
EFFECTIVE	1.190E-14	5.217E-12	1.142E-11	2.420E-16	-1.000E+00	0.000E+00	0.000E+00
SKIN (FGR)	3.120E-14	4.506E-11	9.867E-11	2.090E-15	-1.000E+00	0.000E+00	0.000E+00
Cs-134							
GONADS	7.400E-14	4.607E-11	9.646E-10	1.600E-15	-1.000E+00	1.300E-08	2.060E-08
BREAST	8.430E-14	4.406E-11	9.224E-10	1.530E-15	-1.000E+00	1.080E-08	1.720E-08
LUNGS	7.370E-14	4.204E-11	8.802E-10	1.460E-15	-1.000E+00	1.180E-08	1.760E-08
RED MARR	7.190E-14	4.262E-11	8.922E-10	1.480E-15	-1.000E+00	1.180E-08	1.870E-08
BONE SUR	1.200E-13	6.105E-11	1.278E-09	2.120E-15	-1.000E+00	1.100E-08	1.740E-08
THYROID	7.570E-14	4.377E-11	9.163E-10	1.520E-15	-1.000E+00	1.110E-08	1.760E-08
REMAINDER	7.060E-14	4.147E-11	8.681E-10	1.440E-15	-1.000E+00	1.390E-08	2.210E-08
EFFECTIVE	7.570E-14	4.377E-11	9.163E-10	1.520E-15	-1.000E+00	1.250E-08	1.980E-08
SKIN (FGR)	9.450E-14	6.249E-11	1.308E-09	2.170E-15	-1.000E+00	0.000E+00	0.000E+00
Cs-136							
GONADS	1.040E-13	6.223E-11	1.102E-09	2.180E-15	-1.000E+00	1.880E-09	3.040E-09
BREAST	1.180E-13	5.966E-11	1.056E-09	2.090E-15	-1.000E+00	1.670E-09	2.650E-09
LUNGS	1.040E-13	5.710E-11	1.011E-09	2.000E-15	-1.000E+00	2.320E-09	2.620E-09
RED MARR	1.010E-13	5.824E-11	1.031E-09	2.040E-15	-1.000E+00	1.860E-09	2.950E-09
BONE SUR	1.660E-13	8.422E-11	1.491E-09	2.950E-15	-1.000E+00	1.700E-09	2.710E-09
THYROID	1.070E-13	5.852E-11	1.036E-09	2.050E-15	-1.000E+00	1.730E-09	2.740E-09
REMAINDER	9.950E-14	5.652E-11	1.001E-09	1.980E-15	-1.000E+00	2.190E-09	3.520E-09
EFFECTIVE	1.060E-13	5.966E-11	1.056E-09	2.090E-15	-1.000E+00	1.980E-09	3.040E-09
SKIN (FGR)	1.250E-13	7.251E-11	1.284E-09	2.540E-15	-1.000E+00	0.000E+00	0.000E+00
Cs-137							
GONADS	7.960E-18	1.669E-11	3.530E-10	5.840E-16	-1.000E+00	8.760E-09	1.390E-08
BREAST	9.670E-18	1.596E-11	3.376E-10	5.585E-16	-1.000E+00	7.840E-09	1.240E-08
LUNGS	6.680E-18	1.517E-11	3.209E-10	5.309E-16	-1.000E+00	8.820E-09	1.270E-08
RED MARR	5.700E-18	1.542E-11	3.260E-10	5.394E-16	-1.000E+00	8.300E-09	1.320E-08
BONE SUR	2.290E-17	2.238E-11	4.734E-10	7.832E-16	-1.000E+00	7.940E-09	1.260E-08
THYROID	7.550E-18	1.588E-11	3.358E-10	5.556E-16	-1.000E+00	7.930E-09	1.260E-08
REMAINDER	6.340E-18	1.490E-11	3.152E-10	5.215E-16	-1.000E+00	9.120E-09	1.450E-08
EFFECTIVE	7.740E-18	1.585E-11	3.353E-10	5.546E-16	-1.000E+00	8.630E-09	1.350E-08
SKIN (FGR)	8.630E-15	5.253E-11	1.110E-09	1.836E-15	-1.000E+00	0.000E+00	0.000E+00
Ba-139							
GONADS	2.130E-15	3.368E-13	3.429E-13	4.790E-17	-1.000E+00	2.560E-12	1.560E-12
BREAST	2.450E-15	3.297E-13	3.357E-13	4.690E-17	-1.000E+00	2.460E-12	5.170E-13
LUNGS	2.030E-15	3.002E-13	3.057E-13	4.270E-17	-1.000E+00	2.530E-10	3.890E-13
RED MARR	1.870E-15	2.932E-13	2.985E-13	4.170E-17	-1.000E+00	3.410E-12	8.590E-13
BONE SUR	5.290E-15	6.841E-13	6.965E-13	9.730E-17	-1.000E+00	2.490E-12	4.380E-13
THYROID	2.130E-15	3.044E-13	3.100E-13	4.330E-17	-1.000E+00	2.400E-12	2.660E-13
REMAINDER	1.920E-15	2.932E-13	2.985E-13	4.170E-17	-1.000E+00	4.820E-11	3.570E-10
EFFECTIVE	2.170E-15	3.227E-13	3.286E-13	4.590E-17	-1.000E+00	4.640E-11	1.080E-10
SKIN (FGR)	6.160E-14	7.241E-11	7.373E-11	1.030E-14	-1.000E+00	0.000E+00	0.000E+00
Ba-140							
GONADS	8.410E-15	5.451E-12	9.607E-11	1.910E-16	-1.000E+00	4.300E-10	9.960E-10
BREAST	9.640E-15	5.280E-12	9.305E-11	1.850E-16	-1.000E+00	2.870E-10	1.590E-10
LUNGS	8.270E-15	4.852E-12	8.550E-11	1.700E-16	-1.000E+00	1.660E-09	6.630E-11
RED MARR	7.930E-15	4.880E-12	8.601E-11	1.710E-16	-1.000E+00	1.290E-09	4.390E-10
BONE SUR	1.550E-14	8.020E-12	1.413E-10	2.810E-16	-1.000E+00	2.410E-09	5.530E-10
THYROID	8.530E-15	5.109E-12	9.003E-11	1.790E-16	-1.000E+00	2.560E-10	5.250E-11
REMAINDER	7.890E-15	4.766E-12	8.399E-11	1.670E-16	-1.000E+00	1.410E-09	7.370E-09
EFFECTIVE	8.580E-15	5.137E-12	9.053E-11	1.800E-16	-1.000E+00	1.010E-09	2.560E-09
SKIN (FGR)	2.520E-14	5.565E-11	9.808E-10	1.950E-15	-1.000E+00	0.000E+00	0.000E+00
La-140							
GONADS	1.140E-13	6.027E-11	4.425E-10	2.240E-15	-1.000E+00	4.540E-10	1.340E-09
BREAST	1.290E-13	5.758E-11	4.228E-10	2.140E-15	-1.000E+00	1.450E-10	1.800E-10
LUNGS	1.150E-13	5.596E-11	4.109E-10	2.080E-15	-1.000E+00	4.210E-09	4.010E-11
RED MARR	1.140E-13	5.731E-11	4.208E-10	2.130E-15	-1.000E+00	2.140E-10	2.810E-10
BONE SUR	1.690E-13	7.776E-11	5.709E-10	2.890E-15	-1.000E+00	1.410E-10	9.770E-11
THYROID	1.180E-13	5.462E-11	4.010E-10	2.030E-15	-1.000E+00	6.870E-11	6.400E-12
REMAINDER	1.110E-13	5.569E-11	4.089E-10	2.070E-15	-1.000E+00	2.120E-09	6.260E-09
EFFECTIVE	1.170E-13	5.812E-11	4.267E-10	2.160E-15	-1.000E+00	1.310E-09	2.280E-09
SKIN (FGR)	1.660E-13	2.217E-10	1.628E-09	8.240E-15	-1.000E+00	0.000E+00	0.000E+00
La-141							
GONADS	2.330E-15	7.315E-13	9.675E-13	4.740E-17	-1.000E+00	1.010E-11	3.770E-12
BREAST	2.640E-15	7.007E-13	9.267E-13	4.540E-17	-1.000E+00	9.840E-12	7.070E-13
LUNGS	2.340E-15	6.713E-13	8.879E-13	4.350E-17	-1.000E+00	6.460E-10	2.720E-13
RED MARR	2.310E-15	6.852E-13	9.063E-13	4.440E-17	-1.000E+00	2.930E-11	1.070E-12
BONE SUR	3.490E-15	9.923E-13	1.312E-12	6.430E-17	-1.000E+00	1.200E-10	6.060E-13
THYROID	2.390E-15	6.590E-13	8.716E-13	4.270E-17	-1.000E+00	9.400E-12	5.290E-14
REMAINDER	2.260E-15	6.682E-13	8.838E-13	4.330E-17	-1.000E+00	2.280E-10	1.240E-09
EFFECTIVE	2.390E-15	7.007E-13	9.267E-13	4.540E-17	-1.000E+00	1.570E-10	3.740E-10
SKIN (FGR)	6.580E-14	1.667E-10	2.204E-10	1.080E-14	-1.000E+00	0.000E+00	0.000E+00

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La-142

GONADS	1.400E-13	1.978E-11	2.034E-11	2.540E-15-1.000E+00	1.660E-11	6.990E-11
BREAST	1.570E-13	1.885E-11	1.938E-11	2.420E-15-1.000E+00	1.130E-11	1.540E-11
LUNGS	1.420E-13	1.846E-11	1.898E-11	2.370E-15-1.000E+00	3.010E-10	8.400E-12
RED MARR	1.420E-13	1.900E-11	1.954E-11	2.440E-15-1.000E+00	1.360E-11	1.930E-11
BONE SUR	1.950E-13	2.484E-11	2.554E-11	3.190E-15-1.000E+00	1.110E-11	7.400E-12
THYROID	1.450E-13	1.768E-11	1.818E-11	2.270E-15-1.000E+00	8.740E-12	1.160E-12
REMAINDER	1.380E-13	1.853E-11	1.906E-11	2.380E-15-1.000E+00	8.070E-11	5.200E-10
EFFECTIVE	1.440E-13	1.916E-11	1.970E-11	2.460E-15-1.000E+00	6.840E-11	1.790E-10
SKIN (FGR)	2.160E-13	9.111E-11	9.368E-11	1.170E-14-1.000E+00	0.000E+00	0.000E+00

Ce-141

GONADS	3.380E-15	2.213E-12	4.332E-11	7.710E-17-1.000E+00	5.540E-11	1.080E-10
BREAST	3.930E-15	2.170E-12	4.247E-11	7.560E-17-1.000E+00	4.460E-11	1.110E-11
LUNGS	3.170E-15	1.951E-12	3.820E-11	6.800E-17-1.000E+00	1.670E-08	1.430E-12
RED MARR	2.830E-15	1.860E-12	3.641E-11	6.480E-17-1.000E+00	8.960E-11	3.390E-11
BONE SUR	9.410E-15	5.166E-12	1.011E-10	1.800E-16-1.000E+00	2.540E-10	2.300E-11
THYROID	3.350E-15	2.003E-12	3.922E-11	6.980E-17-1.000E+00	2.550E-11	1.800E-13
REMAINDER	2.980E-15	1.894E-12	3.708E-11	6.600E-17-1.000E+00	1.260E-09	2.500E-09
EFFECTIVE	3.430E-15	2.118E-12	4.146E-11	7.380E-17-1.000E+00	2.420E-09	7.830E-10
SKIN (FGR)	1.020E-14	3.788E-12	7.416E-11	1.320E-16-1.000E+00	0.000E+00	0.000E+00

Ce-143

GONADS	1.280E-14	7.900E-12	4.958E-11	2.980E-16-1.000E+00	7.530E-11	2.120E-10
BREAST	1.470E-14	7.688E-12	4.825E-11	2.900E-16-1.000E+00	1.660E-11	2.320E-11
LUNGS	1.230E-14	6.893E-12	4.325E-11	2.600E-16-1.000E+00	3.880E-09	3.820E-12
RED MARR	1.170E-14	6.787E-12	4.259E-11	2.560E-16-1.000E+00	2.960E-11	5.070E-11
BONE SUR	2.520E-14	1.323E-11	8.302E-11	4.990E-16-1.000E+00	1.640E-11	1.610E-11
THYROID	1.280E-14	7.211E-12	4.525E-11	2.720E-16-1.000E+00	6.230E-12	4.350E-13
REMAINDER	1.170E-14	6.734E-12	4.226E-11	2.540E-16-1.000E+00	1.420E-09	3.890E-09
EFFECTIVE	1.290E-14	7.396E-12	4.642E-11	2.790E-16-1.000E+00	9.160E-10	1.230E-09
SKIN (FGR)	3.960E-14	1.058E-10	6.638E-10	3.990E-15-1.000E+00	0.000E+00	0.000E+00

Ce-144

GONADS	8.530E-16	6.328E-13	1.319E-11	6.088E-17-1.000E+00	2.390E-10	6.987E-11
BREAST	1.010E-15	6.274E-13	1.307E-11	5.922E-17-1.000E+00	3.480E-10	1.223E-11
LUNGS	7.690E-16	5.228E-13	1.089E-11	5.362E-17-1.000E+00	7.910E-07	6.551E-12
RED MARR	6.680E-16	4.755E-13	9.907E-12	5.247E-17-1.000E+00	2.880E-09	8.923E-11
BONE SUR	2.490E-15	1.646E-12	3.429E-11	1.127E-16-1.000E+00	4.720E-09	1.280E-10
THYROID	8.330E-16	5.529E-13	1.152E-11	5.418E-17-1.000E+00	2.920E-10	5.154E-12
REMAINDER	7.230E-16	5.086E-13	1.060E-11	5.283E-17-1.000E+00	1.910E-08	1.890E-08
EFFECTIVE	8.530E-16	5.909E-13	1.231E-11	5.766E-17-1.000E+00	1.010E-07	5.711E-09
SKIN (FGR)	2.930E-15	7.648E-13	1.594E-11	1.250E-14-1.000E+00	0.000E+00	0.000E+00

Pr-143

GONADS	2.130E-17	2.264E-14	4.032E-13	7.930E-19-1.000E+00	4.370E-18	8.990E-18
BREAST	2.550E-17	2.330E-14	4.149E-13	8.160E-19-1.000E+00	2.220E-18	1.090E-18
LUNGS	1.860E-17	1.642E-14	2.923E-13	5.750E-19-1.000E+00	1.330E-08	1.910E-19
RED MARR	1.620E-17	1.493E-14	2.659E-13	5.230E-19-1.000E+00	1.480E-11	1.030E-12
BONE SUR	5.930E-17	5.454E-14	9.711E-13	1.910E-18-1.000E+00	1.490E-11	1.030E-12
THYROID	2.050E-17	1.802E-14	3.208E-13	6.310E-19-1.000E+00	1.680E-18	2.660E-20
REMAINDER	1.760E-17	1.642E-14	2.923E-13	5.750E-19-1.000E+00	1.970E-09	4.220E-09
EFFECTIVE	2.100E-17	2.002E-14	3.564E-13	7.010E-19-1.000E+00	2.190E-09	1.270E-09
SKIN (FGR)	1.760E-14	5.711E-11	1.017E-09	2.000E-15-1.000E+00	0.000E+00	0.000E+00

Nd-147

GONADS	6.130E-15	4.218E-12	7.235E-11	1.480E-16-1.000E+00	8.410E-11	1.790E-10
BREAST	7.120E-15	4.132E-12	7.088E-11	1.450E-16-1.000E+00	3.450E-11	1.870E-11
LUNGS	5.820E-15	3.648E-12	6.257E-11	1.280E-16-1.000E+00	1.060E-08	2.440E-12
RED MARR	5.400E-15	3.505E-12	6.013E-11	1.230E-16-1.000E+00	9.190E-11	5.050E-11
BONE SUR	1.320E-14	8.265E-12	1.418E-10	2.900E-16-1.000E+00	3.260E-10	2.220E-11
THYROID	6.120E-15	3.876E-12	6.648E-11	1.360E-16-1.000E+00	1.820E-11	2.640E-13
REMAINDER	5.530E-15	3.562E-12	6.111E-11	1.250E-16-1.000E+00	1.760E-09	3.760E-09
EFFECTIVE	6.190E-15	3.961E-12	6.795E-11	1.390E-16-1.000E+00	1.850E-09	1.180E-09
SKIN (FGR)	1.950E-14	3.135E-11	5.377E-10	1.100E-15-1.000E+00	0.000E+00	0.000E+00

Np-239

GONADS	7.530E-15	4.691E-12	4.380E-11	1.710E-16-1.000E+00	7.450E-11	1.620E-10
BREAST	8.730E-15	4.636E-12	4.329E-11	1.690E-16-1.000E+00	1.630E-11	1.720E-11
LUNGS	7.180E-15	4.115E-12	3.842E-11	1.500E-16-1.000E+00	2.360E-09	2.400E-12
RED MARR	6.500E-15	4.005E-12	3.740E-11	1.460E-16-1.000E+00	2.080E-10	4.660E-11
BONE SUR	2.000E-14	1.001E-11	9.349E-11	3.650E-16-1.000E+00	2.030E-09	3.590E-11
THYROID	7.520E-15	4.197E-12	3.919E-11	1.530E-16-1.000E+00	7.620E-12	2.070E-13
REMAINDER	6.760E-15	4.005E-12	3.740E-11	1.460E-16-1.000E+00	9.590E-10	2.770E-09
EFFECTIVE	7.690E-15	4.471E-12	4.175E-11	1.630E-16-1.000E+00	6.780E-10	8.820E-10
SKIN (FGR)	1.600E-14	7.215E-12	6.737E-11	2.630E-16-1.000E+00	0.000E+00	0.000E+00

Pu-238

GONADS	6.560E-18	4.291E-14	9.011E-13	1.490E-18-1.000E+00	2.800E-05	2.330E-09
BREAST	1.270E-17	5.558E-14	1.167E-12	1.930E-18-1.000E+00	1.000E-09	1.800E-13

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LUNGS	1.060E-18	2.267E-15	4.759E-14	7.870E-20	-1.000E+00	1.840E-05	8.640E-14
RED MARR	1.680E-18	5.587E-15	1.173E-13	1.940E-19	-1.000E+00	1.520E-04	1.270E-08
BONE SUR	9.300E-18	3.514E-14	7.378E-13	1.220E-18	-1.000E+00	1.900E-03	1.580E-07
THYROID	4.010E-18	9.792E-15	2.056E-13	3.400E-19	-1.000E+00	9.620E-10	7.990E-14
REMAINDER	1.990E-18	9.216E-15	1.935E-13	3.200E-19	-1.000E+00	7.020E-05	2.180E-08
EFFECTIVE	4.880E-18	2.413E-14	5.068E-13	8.380E-19	-1.000E+00	1.060E-04	1.340E-08
SKIN (FGR)	4.090E-17	2.776E-13	5.830E-12	9.640E-18	-1.000E+00	0.000E+00	0.000E+00
Pu-239							
GONADS	4.840E-18	1.768E-14	3.713E-13	6.140E-19	-1.000E+00	3.180E-05	2.640E-09
BREAST	7.550E-18	2.238E-14	4.699E-13	7.770E-19	-1.000E+00	9.220E-10	1.210E-13
LUNGS	2.650E-18	2.267E-15	4.760E-14	7.870E-20	-1.000E+00	1.730E-05	7.890E-14
RED MARR	2.670E-18	3.456E-15	7.258E-14	1.200E-19	-1.000E+00	1.690E-04	1.410E-08
BONE SUR	9.470E-18	1.673E-14	3.514E-13	5.810E-19	-1.000E+00	2.110E-03	1.760E-07
THYROID	3.880E-18	5.126E-15	1.077E-13	1.780E-19	-1.000E+00	9.030E-10	7.500E-14
REMAINDER	2.860E-18	4.838E-15	1.016E-13	1.680E-19	-1.000E+00	7.560E-05	2.120E-08
EFFECTIVE	4.240E-18	1.057E-14	2.220E-13	3.670E-19	-1.000E+00	1.160E-05	1.400E-08
SKIN (FGR)	1.860E-17	1.057E-13	2.220E-12	3.670E-18	-1.000E+00	0.000E+00	0.000E+00
Pu-240							
GONADS	6.360E-18	4.118E-14	8.649E-13	1.430E-18	-1.000E+00	3.180E-05	2.640E-09
BREAST	1.230E-17	5.328E-14	1.119E-12	1.850E-18	-1.000E+00	9.510E-10	1.730E-13
LUNGS	1.090E-18	2.249E-15	4.723E-14	7.810E-20	-1.000E+00	1.730E-05	8.220E-14
RED MARR	1.650E-18	5.386E-15	1.131E-13	1.870E-19	-1.000E+00	1.690E-04	1.410E-08
BONE SUR	9.260E-18	3.398E-14	7.137E-13	1.180E-18	-1.000E+00	2.110E-03	1.760E-07
THYROID	3.920E-18	9.446E-15	1.984E-13	3.280E-19	-1.000E+00	9.050E-10	7.510E-14
REMAINDER	1.960E-18	8.870E-15	1.863E-13	3.080E-19	-1.000E+00	7.560E-05	2.130E-08
EFFECTIVE	4.750E-18	2.313E-14	4.857E-13	8.030E-19	-1.000E+00	1.160E-04	1.400E-08
SKIN (FGR)	3.920E-17	2.644E-13	5.552E-12	9.180E-18	-1.000E+00	0.000E+00	0.000E+00
Pu-241							
GONADS	7.190E-20	6.653E-17	1.396E-15	2.310E-21	-1.000E+00	6.820E-07	5.660E-11
BREAST	8.670E-20	7.229E-17	1.517E-15	2.510E-21	-1.000E+00	3.060E-11	2.790E-15
LUNGS	6.480E-20	4.090E-17	8.584E-16	1.420E-21	-1.000E+00	7.420E-09	4.480E-15
RED MARR	5.630E-20	4.003E-17	8.403E-16	1.390E-21	-1.000E+00	3.360E-06	2.780E-10
BONE SUR	2.190E-19	1.385E-16	2.908E-15	4.810E-21	-1.000E+00	4.200E-05	3.480E-09
THYROID	6.980E-20	4.522E-17	9.491E-16	1.570E-21	-1.000E+00	1.240E-11	1.010E-15
REMAINDER	6.090E-20	4.291E-17	9.007E-16	1.490E-21	-1.000E+00	1.310E-06	1.850E-10
EFFECTIVE	7.250E-20	5.558E-17	1.167E-15	1.930E-21	-1.000E+00	2.230E-06	2.070E-10
SKIN (FGR)	1.170E-19	2.033E-16	4.268E-15	7.060E-21	-1.000E+00	0.000E+00	0.000E+00
Am-241							
GONADS	8.580E-16	9.360E-13	1.966E-11	3.250E-17	-1.000E+00	3.250E-05	2.700E-07
BREAST	1.070E-15	1.014E-12	2.129E-11	3.520E-17	-1.000E+00	2.670E-09	2.620E-11
LUNGS	6.740E-16	5.789E-13	1.216E-11	2.010E-17	-1.000E+00	1.840E-05	3.360E-11
RED MARR	5.210E-16	4.838E-13	1.016E-11	1.680E-17	-1.000E+00	1.740E-04	1.450E-06
BONE SUR	2.870E-15	2.678E-12	5.625E-11	9.300E-17	-1.000E+00	2.170E-03	1.810E-05
THYROID	7.830E-16	6.365E-13	1.337E-11	2.210E-17	-1.000E+00	1.600E-09	1.320E-11
REMAINDER	6.340E-16	5.933E-13	1.246E-11	2.060E-17	-1.000E+00	7.820E-05	6.660E-07
EFFECTIVE	8.180E-16	7.920E-13	1.663E-11	2.750E-17	-1.000E+00	1.200E-04	9.840E-07
SKIN (FGR)	1.280E-15	2.396E-12	5.032E-11	8.320E-17	-1.000E+00	0.000E+00	0.000E+00
Cm-242							
GONADS	7.830E-18	4.893E-14	1.013E-12	1.700E-18	-1.000E+00	5.700E-07	5.200E-09
BREAST	1.480E-17	6.159E-14	1.275E-12	2.140E-18	-1.000E+00	9.440E-10	8.950E-12
LUNGS	1.130E-18	3.022E-15	6.257E-14	1.050E-19	-1.000E+00	1.550E-05	8.840E-12
RED MARR	1.890E-18	6.562E-15	1.359E-13	2.280E-19	-1.000E+00	3.900E-06	3.570E-08
BONE SUR	1.060E-17	4.231E-14	8.759E-13	1.470E-18	-1.000E+00	4.870E-05	4.460E-07
THYROID	4.910E-18	1.261E-14	2.610E-13	4.380E-19	-1.000E+00	9.410E-10	8.820E-12
REMAINDER	2.270E-18	1.079E-14	2.235E-13	3.750E-19	-1.000E+00	2.450E-06	4.020E-08
EFFECTIVE	5.690E-18	2.751E-14	5.697E-13	9.560E-19	-1.000E+00	4.670E-06	3.100E-08
SKIN (FGR)	4.290E-17	2.700E-13	5.589E-12	9.380E-18	-1.000E+00	0.000E+00	0.000E+00
Cm-244							
GONADS	6.900E-18	4.522E-14	9.492E-13	1.570E-18	-1.000E+00	1.590E-05	1.330E-07
BREAST	1.330E-17	5.702E-14	1.197E-12	1.980E-18	-1.000E+00	1.040E-09	8.820E-12
LUNGS	7.080E-19	2.592E-15	5.441E-14	9.000E-20	-1.000E+00	1.930E-05	8.810E-12
RED MARR	1.460E-18	5.875E-15	1.233E-13	2.040E-19	-1.000E+00	9.380E-05	7.820E-07
BONE SUR	8.820E-18	3.859E-14	8.101E-13	1.340E-18	-1.000E+00	1.170E-03	9.770E-06
THYROID	4.190E-18	1.146E-14	2.406E-13	3.980E-19	-1.000E+00	1.010E-09	8.440E-12
REMAINDER	1.810E-18	9.821E-15	2.062E-13	3.410E-19	-1.000E+00	4.780E-05	4.150E-07
EFFECTIVE	4.910E-18	2.529E-14	5.308E-13	8.780E-19	-1.000E+00	6.700E-05	5.450E-07
SKIN (FGR)	3.910E-17	2.506E-13	5.260E-12	8.700E-18	-1.000E+00	0.000E+00	0.000E+00
I-130							
GONADS	1.010E-13	2.867E-11	5.828E-10	9.970E-16	-1.000E+00	2.810E-11	1.040E-09
BREAST	1.160E-13	2.737E-11	5.565E-10	9.520E-16	-1.000E+00	4.870E-11	1.790E-10
LUNGS	1.010E-13	2.617E-11	5.319E-10	9.100E-16	-1.000E+00	6.030E-10	8.530E-11
RED MARR	9.820E-14	2.671E-11	5.430E-10	9.290E-16	-1.000E+00	4.550E-11	2.600E-10
BONE SUR	1.680E-13	3.795E-11	7.716E-10	1.320E-15	-1.000E+00	4.030E-11	1.250E-10

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

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THYROID	1.040E-13	2.720E-11	5.530E-10	9.460E-16	-1.000E+00	1.990E-08	6.310E-11
REMAINDER	9.660E-14	2.585E-11	5.255E-10	8.990E-16	-1.000E+00	8.020E-11	1.580E-09
EFFECTIVE	1.040E-13	2.732E-11	5.553E-10	9.500E-16	-1.000E+00	7.140E-10	8.090E-10
SKIN (FGR)	1.360E-13	3.278E-11	6.664E-10	1.140E-15	-1.000E+00	0.000E+00	0.000E+00
Kr-83m							
GONADS	1.710E-18	7.056E-11	1.480E-09	2.450E-15	-1.000E+00	0.000E+00	3.190E-09
BREAST	5.050E-18	6.739E-11	1.413E-09	2.340E-15	-1.000E+00	0.000E+00	1.100E-09
LUNGS	1.640E-19	6.537E-11	1.371E-09	2.270E-15	-1.000E+00	0.000E+00	8.770E-10
RED MARR	3.830E-19	6.710E-11	1.407E-09	2.330E-15	-1.000E+00	0.000E+00	1.320E-09
BONE SUR	2.250E-18	8.956E-11	1.879E-09	3.110E-15	-1.000E+00	0.000E+00	9.390E-10
THYROID	6.430E-19	6.480E-11	1.359E-09	2.250E-15	-1.000E+00	0.000E+00	7.880E-10
REMAINDER	5.300E-19	6.508E-11	1.365E-09	2.260E-15	-1.000E+00	0.000E+00	4.970E-09
EFFECTIVE	1.500E-18	6.768E-11	1.419E-09	2.350E-15	-1.000E+00	0.000E+00	2.770E-09
SKIN (FGR)	3.560E-17	7.948E-11	1.667E-09	2.760E-15	-1.000E+00	0.000E+00	0.000E+00
Xe-138							
GONADS	5.590E-14	8.121E-14	1.704E-12	2.820E-18	-1.000E+00	0.000E+00	0.000E+00
BREAST	6.320E-14	7.891E-14	1.656E-12	2.740E-18	-1.000E+00	0.000E+00	0.000E+00
LUNGS	5.660E-14	7.056E-14	1.481E-12	2.450E-18	-1.000E+00	0.000E+00	0.000E+00
RED MARR	5.600E-14	6.998E-14	1.469E-12	2.430E-18	-1.000E+00	0.000E+00	0.000E+00
BONE SUR	8.460E-14	1.287E-13	2.702E-12	4.470E-18	-1.000E+00	0.000E+00	0.000E+00
THYROID	5.770E-14	7.459E-14	1.565E-12	2.590E-18	-1.000E+00	0.000E+00	0.000E+00
REMAINDER	5.490E-14	6.941E-14	1.457E-12	2.410E-18	-1.000E+00	0.000E+00	0.000E+00
EFFECTIVE	5.770E-14	7.603E-14	1.596E-12	2.640E-18	-1.000E+00	0.000E+00	0.000E+00
SKIN (FGR)	1.070E-13	2.304E-11	4.835E-10	8.000E-16	-1.000E+00	0.000E+00	0.000E+00
Xe-131m							
GONADS	4.570E-16	2.594E-12	3.653E-12	1.570E-16	-1.000E+00	0.000E+00	0.000E+00
BREAST	6.020E-16	2.527E-12	3.560E-12	1.530E-16	-1.000E+00	0.000E+00	0.000E+00
LUNGS	2.670E-16	2.379E-12	3.351E-12	1.440E-16	-1.000E+00	0.000E+00	0.000E+00
RED MARR	2.270E-16	2.346E-12	3.304E-12	1.420E-16	-1.000E+00	0.000E+00	0.000E+00
BONE SUR	1.060E-15	5.286E-12	7.446E-12	3.200E-16	-1.000E+00	0.000E+00	0.000E+00
THYROID	3.910E-16	2.395E-12	3.374E-12	1.450E-16	-1.000E+00	0.000E+00	0.000E+00
REMAINDER	2.710E-16	2.313E-12	3.257E-12	1.400E-16	-1.000E+00	0.000E+00	0.000E+00
EFFECTIVE	3.890E-16	2.511E-12	3.537E-12	1.520E-16	-1.000E+00	0.000E+00	0.000E+00
SKIN (FGR)	4.820E-15	2.247E-11	3.164E-11	1.360E-15	-1.000E+00	0.000E+00	0.000E+00
Xe-133m							
GONADS	1.420E-15	4.962E-12	5.026E-12	7.610E-16	-1.000E+00	0.000E+00	0.000E+00
BREAST	1.700E-15	4.740E-12	4.802E-12	7.270E-16	-1.000E+00	0.000E+00	0.000E+00
LUNGS	1.190E-15	4.603E-12	4.663E-12	7.060E-16	-1.000E+00	0.000E+00	0.000E+00
RED MARR	1.100E-15	4.708E-12	4.769E-12	7.220E-16	-1.000E+00	0.000E+00	0.000E+00
BONE SUR	3.230E-15	6.514E-12	6.598E-12	9.990E-16	-1.000E+00	0.000E+00	0.000E+00
THYROID	1.360E-15	4.473E-12	4.531E-12	6.860E-16	-1.000E+00	0.000E+00	0.000E+00
REMAINDER	1.150E-15	4.590E-12	4.650E-12	7.040E-16	-1.000E+00	0.000E+00	0.000E+00
EFFECTIVE	1.370E-15	4.773E-12	4.835E-12	7.320E-16	-1.000E+00	0.000E+00	0.000E+00
SKIN (FGR)	1.040E-14	8.802E-11	8.916E-11	1.350E-14	-1.000E+00	0.000E+00	0.000E+00
Xe-135m							
GONADS	2.000E-14	2.278E-11	2.655E-11	1.800E-15	-1.000E+00	0.000E+00	0.000E+00
BREAST	2.290E-14	2.177E-11	2.537E-11	1.720E-15	-1.000E+00	0.000E+00	0.000E+00
LUNGS	1.980E-14	2.139E-11	2.493E-11	1.690E-15	-1.000E+00	0.000E+00	0.000E+00
RED MARR	1.910E-14	2.190E-11	2.552E-11	1.730E-15	-1.000E+00	0.000E+00	0.000E+00
BONE SUR	3.500E-14	2.886E-11	3.363E-11	2.280E-15	-1.000E+00	0.000E+00	0.000E+00
THYROID	2.040E-14	2.012E-11	2.345E-11	1.590E-15	-1.000E+00	0.000E+00	0.000E+00
REMAINDER	1.890E-14	2.139E-11	2.493E-11	1.690E-15	-1.000E+00	0.000E+00	0.000E+00
EFFECTIVE	2.040E-14	2.202E-11	2.567E-11	1.740E-15	-1.000E+00	0.000E+00	0.000E+00
SKIN (FGR)	2.970E-14	5.607E-11	6.534E-11	4.430E-15	-1.000E+00	0.000E+00	0.000E+00
Cs-138							
GONADS	1.170E-13	2.788E-12	5.187E-11	9.740E-17	-1.000E+00	3.280E-12	2.150E-09
BREAST	1.330E-13	2.662E-12	4.953E-11	9.300E-17	-1.000E+00	4.020E-12	2.140E-09
LUNGS	1.190E-13	2.553E-12	4.750E-11	8.920E-17	-1.000E+00	1.590E-10	2.140E-09
RED MARR	1.180E-13	2.619E-12	4.873E-11	9.150E-17	-1.000E+00	3.950E-12	3.720E-09
BONE SUR	1.700E-13	3.635E-12	6.764E-11	1.270E-16	-1.000E+00	3.550E-12	6.860E-09
THYROID	1.210E-13	2.599E-12	4.836E-11	9.080E-17	-1.000E+00	3.570E-12	2.140E-09
REMAINDER	1.150E-13	2.542E-12	4.729E-11	8.880E-17	-1.000E+00	2.060E-11	2.330E-09
EFFECTIVE	1.210E-13	2.665E-12	4.958E-11	9.310E-17	-1.000E+00	2.740E-11	2.530E-09
SKIN (FGR)	2.170E-13	2.210E-10	4.111E-09	7.720E-15	-1.000E+00	0.000E+00	0.000E+00
Cs-134m							
GONADS	9.300E-16	7.155E-14	1.436E-12	2.490E-18	-1.000E+00	3.610E-12	8.050E-12
BREAST	1.120E-15	7.212E-14	1.447E-12	2.510E-18	-1.000E+00	3.390E-12	7.980E-12
LUNGS	7.840E-16	5.689E-14	1.142E-12	1.980E-18	-1.000E+00	6.400E-11	7.970E-12
RED MARR	6.810E-16	5.345E-14	1.073E-12	1.860E-18	-1.000E+00	3.760E-12	1.080E-10
BONE SUR	2.610E-15	1.560E-13	3.131E-12	5.430E-18	-1.000E+00	3.550E-12	1.610E-10
THYROID	8.880E-16	6.063E-14	1.217E-12	2.110E-18	-1.000E+00	3.340E-12	7.970E-12
REMAINDER	7.450E-16	5.603E-14	1.124E-12	1.950E-18	-1.000E+00	6.900E-12	8.250E-09
EFFECTIVE	9.050E-16	6.523E-14	1.309E-12	2.270E-18	-1.000E+00	1.180E-11	2.500E-09

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

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SKIN (FGR)	2.880E-15	1.914E-10	3.841E-09	6.660E-15	-1.000E+00	0.000E+00	0.000E+00
Rb-88							
GONADS	3.260E-14	9.590E-15	2.014E-13	3.330E-19	-1.000E+00	1.310E-12	5.040E-11
BREAST	3.670E-14	1.008E-14	2.116E-13	3.500E-19	-1.000E+00	1.430E-12	5.040E-11
LUNGS	3.310E-14	6.307E-15	1.324E-13	2.190E-19	-1.000E+00	1.470E-10	5.040E-11
RED MARR	3.300E-14	5.558E-15	1.167E-13	1.930E-19	-1.000E+00	1.450E-12	6.450E-09
BONE SUR	4.620E-14	2.393E-14	5.025E-13	8.310E-19	-1.000E+00	1.470E-12	1.390E-08
THYROID	3.370E-14	7.171E-15	1.506E-13	2.490E-19	-1.000E+00	1.370E-12	5.040E-11
REMAINDER	3.210E-14	6.422E-15	1.348E-13	2.230E-19	-1.000E+00	1.380E-11	6.700E-09
EFFECTIVE	3.360E-14	8.179E-15	1.717E-13	2.840E-19	-1.000E+00	2.260E-11	3.230E-09
SKIN (FGR)	1.830E-13	4.032E-12	8.465E-11	1.400E-16	-1.000E+00	0.000E+00	0.000E+00
Rb-89							
GONADS	1.030E-13	2.155E-11	5.062E-11	1.026E-15	-1.000E+00	1.340E-12	2.520E-10
BREAST	1.170E-13	2.059E-11	4.838E-11	9.806E-16	-1.000E+00	1.730E-12	3.676E-11
LUNGS	1.040E-13	1.970E-11	4.626E-11	9.376E-16	-1.000E+00	6.800E-11	1.055E-11
RED MARR	1.040E-13	2.011E-11	4.722E-11	9.570E-16	-1.000E+00	2.020E-12	5.659E-11
BONE SUR	1.480E-13	2.852E-11	6.709E-11	1.360E-15	-1.000E+00	2.540E-12	2.070E-11
THYROID	1.070E-13	2.035E-11	4.782E-11	9.693E-16	-1.000E+00	1.610E-12	1.968E-12
REMAINDER	1.010E-13	1.948E-11	4.573E-11	9.268E-16	-1.000E+00	8.140E-12	2.557E-09
EFFECTIVE	1.060E-13	2.057E-11	4.832E-11	9.793E-16	-1.000E+00	1.160E-11	8.455E-10
SKIN (FGR)	1.870E-13	1.748E-10	3.987E-10	8.080E-15	-1.000E+00	0.000E+00	0.000E+00
Sb-124							
GONADS	8.890E-14	1.593E-11	1.830E-11	1.300E-15	-1.000E+00	1.040E-09	8.180E-11
BREAST	1.010E-13	1.520E-11	1.745E-11	1.240E-15	-1.000E+00	8.940E-10	1.700E-11
LUNGS	8.970E-14	1.483E-11	1.703E-11	1.210E-15	-1.000E+00	4.140E-08	7.220E-12
RED MARR	8.850E-14	1.520E-11	1.745E-11	1.240E-15	-1.000E+00	1.090E-09	2.290E-11
BONE SUR	1.340E-13	2.010E-11	2.308E-11	1.640E-15	-1.000E+00	1.240E-09	8.490E-12
THYROID	9.150E-14	1.446E-11	1.661E-11	1.180E-15	-1.000E+00	6.740E-10	1.300E-12
REMAINDER	8.660E-14	1.471E-11	1.689E-11	1.200E-15	-1.000E+00	4.180E-09	1.720E-09
EFFECTIVE	9.150E-14	1.532E-11	1.759E-11	1.250E-15	-1.000E+00	6.800E-09	5.430E-10
SKIN (FGR)	1.260E-13	2.280E-11	2.618E-11	1.860E-15	-1.000E+00	0.000E+00	0.000E+00
Sb-125							
GONADS	1.980E-14	1.586E-13	1.601E-12	5.750E-18	-1.000E+00	3.600E-10	1.430E-14
BREAST	2.270E-14	1.578E-13	1.593E-12	5.720E-18	-1.000E+00	4.160E-10	1.270E-14
LUNGS	1.950E-14	1.313E-13	1.326E-12	4.760E-18	-1.000E+00	2.170E-08	1.260E-14
RED MARR	1.870E-14	1.261E-13	1.273E-12	4.570E-18	-1.000E+00	5.350E-10	3.700E-13
BONE SUR	3.530E-14	3.228E-13	3.259E-12	1.170E-17	-1.000E+00	9.780E-10	3.670E-13
THYROID	2.010E-14	1.385E-13	1.398E-12	5.020E-18	-1.000E+00	3.240E-10	1.260E-14
REMAINDER	1.860E-14	1.291E-13	1.303E-12	4.680E-18	-1.000E+00	1.450E-09	9.680E-09
EFFECTIVE	2.020E-14	1.468E-13	1.482E-12	5.320E-18	-1.000E+00	3.300E-09	2.910E-09
SKIN (FGR)	2.650E-14	2.897E-10	2.924E-09	1.050E-14	-1.000E+00	0.000E+00	0.000E+00
Sb-126							
GONADS	1.350E-13	1.756E-13	3.546E-12	6.110E-18	-1.000E+00	1.320E-09	3.540E-12
BREAST	1.530E-13	1.713E-13	3.459E-12	5.960E-18	-1.000E+00	6.440E-10	5.540E-13
LUNGS	1.340E-13	1.526E-13	3.082E-12	5.310E-18	-1.000E+00	1.380E-08	2.020E-13
RED MARR	1.300E-13	1.521E-13	3.070E-12	5.290E-18	-1.000E+00	7.970E-10	6.590E-12
BONE SUR	2.220E-13	2.903E-13	5.862E-12	1.010E-17	-1.000E+00	6.750E-10	6.130E-12
THYROID	1.370E-13	1.564E-13	3.157E-12	5.440E-18	-1.000E+00	4.800E-10	1.290E-13
REMAINDER	1.280E-13	1.509E-13	3.047E-12	5.250E-18	-1.000E+00	3.190E-09	8.570E-09
EFFECTIVE	1.370E-13	1.650E-13	3.332E-12	5.740E-18	-1.000E+00	3.170E-09	2.570E-09
SKIN (FGR)	1.730E-13	1.989E-10	4.016E-09	6.920E-15	-1.000E+00	0.000E+00	0.000E+00
Te-131							
GONADS	1.990E-14	3.855E-12	4.872E-12	2.650E-16	-1.000E+00	6.140E-12	1.960E-11
BREAST	2.280E-14	3.680E-12	4.652E-12	2.530E-16	-1.000E+00	5.530E-12	3.550E-12
LUNGS	1.960E-14	3.535E-12	4.468E-12	2.430E-16	-1.000E+00	2.540E-10	1.390E-12
RED MARR	1.880E-14	3.608E-12	4.560E-12	2.480E-16	-1.000E+00	6.640E-12	4.910E-12
BONE SUR	3.800E-14	5.091E-12	6.435E-12	3.500E-16	-1.000E+00	6.210E-12	1.750E-12
THYROID	2.030E-14	3.579E-12	4.523E-12	2.460E-16	-1.000E+00	2.630E-09	1.770E-13
REMAINDER	1.870E-14	3.506E-12	4.431E-12	2.410E-16	-1.000E+00	5.420E-11	1.700E-09
EFFECTIVE	2.040E-14	3.680E-12	4.652E-12	2.530E-16	-1.000E+00	1.290E-10	5.150E-10
SKIN (FGR)	6.890E-14	2.022E-10	2.556E-10	1.390E-14	-1.000E+00	0.000E+00	0.000E+00
Te-133							
GONADS	4.490E-14	2.108E-12	4.989E-12	9.510E-17	-1.000E+00	6.700E-13	2.200E-11
BREAST	5.100E-14	2.026E-12	4.794E-12	9.140E-17	-1.000E+00	8.480E-13	3.130E-12
LUNGS	4.470E-14	1.937E-12	4.585E-12	8.740E-17	-1.000E+00	4.390E-11	8.670E-13
RED MARR	4.360E-14	1.972E-12	4.669E-12	8.900E-17	-1.000E+00	8.390E-13	4.930E-12
BONE SUR	7.500E-14	2.948E-12	6.977E-12	1.330E-16	-1.000E+00	7.490E-13	1.730E-12
THYROID	4.590E-14	1.908E-12	4.516E-12	8.610E-17	-1.000E+00	5.910E-10	1.260E-13
REMAINDER	4.290E-14	1.919E-12	4.543E-12	8.660E-17	-1.000E+00	5.020E-12	4.090E-09
EFFECTIVE	4.600E-14	2.021E-12	4.784E-12	9.120E-17	-1.000E+00	2.490E-11	1.230E-09
SKIN (FGR)	1.060E-13	2.726E-10	6.452E-10	1.230E-14	-1.000E+00	0.000E+00	0.000E+00
Te-134							
GONADS	4.160E-14	2.182E-11	4.421E-10	7.590E-16	-1.000E+00	9.000E-12	8.160E-10

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BREAST	4.750E-14	2.084E-11	4.223E-10	7.250E-16	-1.000E+00	8.720E-12	1.050E-10
LUNGS	4.100E-14	1.989E-11	4.030E-10	6.920E-16	-1.000E+00	6.020E-11	2.340E-11
RED MARR	3.940E-14	2.030E-11	4.112E-10	7.060E-16	-1.000E+00	9.300E-12	2.140E-10
BONE SUR	7.560E-14	2.875E-11	5.824E-10	1.000E-15	-1.000E+00	8.580E-12	4.860E-10
THYROID	4.230E-14	2.076E-11	4.205E-10	7.220E-16	-1.000E+00	5.540E-10	8.270E-12
REMAINDER	3.910E-14	1.963E-11	3.978E-10	6.830E-16	-1.000E+00	1.880E-11	2.530E-09
EFFECTIVE	4.240E-14	2.078E-11	4.211E-10	7.230E-16	-1.000E+00	3.440E-11	1.020E-09
SKIN (FGR)	6.350E-14	2.561E-11	5.190E-10	8.910E-16	-1.000E+00	0.000E+00	0.000E+00
Te-125m							
GONADS	5.960E-16	2.179E-11	7.799E-11	9.253E-16	-1.000E+00	7.930E-11	6.228E-10
BREAST	8.480E-16	2.083E-11	7.455E-11	8.846E-16	-1.000E+00	7.080E-11	8.137E-11
LUNGS	2.230E-16	1.992E-11	7.127E-11	8.456E-16	-1.000E+00	1.040E-08	1.770E-11
RED MARR	1.860E-16	2.034E-11	7.279E-11	8.634E-16	-1.000E+00	1.150E-09	1.302E-10
BONE SUR	1.220E-15	2.881E-11	1.031E-10	1.224E-15	-1.000E+00	1.180E-08	4.558E-11
THYROID	4.640E-16	2.061E-11	7.377E-11	8.755E-16	-1.000E+00	3.870E-11	2.671E-12
REMAINDER	2.590E-16	1.966E-11	7.035E-11	8.345E-16	-1.000E+00	6.750E-10	6.990E-09
EFFECTIVE	4.530E-16	2.078E-11	7.438E-11	8.824E-16	-1.000E+00	1.970E-09	2.283E-09
SKIN (FGR)	1.940E-15	2.281E-10	8.148E-10	9.587E-15	-1.000E+00	0.000E+00	0.000E+00
Te-133m							
GONADS	1.120E-13	2.253E-11	4.435E-10	7.850E-16	-1.000E+00	8.970E-12	8.050E-10
BREAST	1.270E-13	2.150E-11	4.231E-10	7.490E-16	-1.000E+00	7.820E-12	1.070E-10
LUNGS	1.120E-13	2.055E-11	4.045E-10	7.160E-16	-1.000E+00	1.820E-10	2.740E-11
RED MARR	1.090E-13	2.101E-11	4.135E-10	7.320E-16	-1.000E+00	8.320E-12	1.990E-10
BONE SUR	1.750E-13	2.957E-11	5.819E-10	1.030E-15	-1.000E+00	6.940E-12	2.940E-10
THYROID	1.150E-13	2.144E-11	4.220E-10	7.470E-16	-1.000E+00	2.610E-09	1.180E-11
REMAINDER	1.070E-13	2.032E-11	4.000E-10	7.080E-16	-1.000E+00	4.140E-11	1.470E-09
EFFECTIVE	1.140E-13	2.147E-11	4.226E-10	7.480E-16	-1.000E+00	1.170E-10	6.950E-10
SKIN (FGR)	1.740E-13	2.598E-11	5.112E-10	9.050E-16	-1.000E+00	0.000E+00	0.000E+00
Ba-141							
GONADS	4.060E-14	4.282E-12	4.403E-11	1.550E-16	-1.000E+00	1.410E-12	2.180E-10
BREAST	4.630E-14	4.116E-12	4.233E-11	1.490E-16	-1.000E+00	1.470E-12	3.430E-11
LUNGS	4.030E-14	3.867E-12	3.977E-11	1.400E-16	-1.000E+00	1.160E-10	1.510E-11
RED MARR	3.910E-14	3.923E-12	4.034E-11	1.420E-16	-1.000E+00	2.490E-12	8.320E-11
BONE SUR	7.170E-14	6.105E-12	6.278E-11	2.210E-16	-1.000E+00	4.730E-12	6.320E-11
THYROID	4.150E-14	4.033E-12	4.147E-11	1.460E-16	-1.000E+00	1.330E-12	1.030E-11
REMAINDER	3.870E-14	3.812E-12	3.920E-11	1.380E-16	-1.000E+00	2.270E-11	4.280E-09
EFFECTIVE	4.160E-14	4.061E-12	4.176E-11	1.470E-16	-1.000E+00	2.180E-11	1.360E-09
SKIN (FGR)	1.070E-13	1.039E-10	1.068E-09	3.760E-15	-1.000E+00	0.000E+00	0.000E+00
Ba-137m							
GONADS	2.820E-14	2.334E-12	3.877E-12	1.240E-16	-1.000E+00	0.000E+00	9.750E-12
BREAST	3.220E-14	2.258E-12	3.752E-12	1.200E-16	-1.000E+00	0.000E+00	3.570E-12
LUNGS	2.800E-14	2.127E-12	3.533E-12	1.130E-16	-1.000E+00	0.000E+00	3.140E-12
RED MARR	2.730E-14	2.070E-12	3.439E-12	1.100E-16	-1.000E+00	0.000E+00	6.290E-12
BONE SUR	4.630E-14	5.383E-12	8.942E-12	2.860E-16	-1.000E+00	0.000E+00	4.060E-12
THYROID	2.880E-14	2.145E-12	3.564E-12	1.140E-16	-1.000E+00	0.000E+00	8.460E-11
REMAINDER	2.680E-14	2.070E-12	3.439E-12	1.100E-16	-1.000E+00	0.000E+00	3.340E-11
EFFECTIVE	2.880E-14	2.277E-12	3.783E-12	1.210E-16	-1.000E+00	0.000E+00	1.680E-11
SKIN (FGR)	3.730E-14	2.710E-12	4.502E-12	1.440E-16	-1.000E+00	0.000E+00	0.000E+00
Pd-109							
GONADS	2.710E-16	1.404E-11	2.783E-10	4.892E-16	-1.000E+00	2.130E-12	5.720E-10
BREAST	3.520E-16	1.350E-11	2.677E-10	4.705E-16	-1.000E+00	5.110E-13	1.200E-10
LUNGS	1.940E-16	1.273E-11	2.522E-10	4.432E-16	-1.000E+00	1.200E-09	7.310E-11
RED MARR	1.740E-16	1.287E-11	2.551E-10	4.483E-16	-1.000E+00	9.820E-13	1.660E-10
BONE SUR	7.020E-16	1.958E-11	3.882E-10	6.823E-16	-1.000E+00	9.580E-13	9.631E-11
THYROID	2.460E-16	1.331E-11	2.639E-10	4.638E-16	-1.000E+00	1.550E-13	6.250E-11
REMAINDER	1.920E-16	1.248E-11	2.472E-10	4.346E-16	-1.000E+00	5.040E-10	2.110E-09
EFFECTIVE	2.510E-16	1.332E-11	2.641E-10	4.642E-16	-1.000E+00	2.960E-10	8.271E-10
SKIN (FGR)	2.150E-14	1.785E-11	3.543E-10	6.229E-16	-1.000E+00	0.000E+00	0.000E+00
Rh-106							
GONADS	1.010E-14	1.327E-11	1.861E-11	8.070E-16	-1.000E+00	0.000E+00	9.670E-11
BREAST	1.160E-14	1.271E-11	1.783E-11	7.730E-16	-1.000E+00	0.000E+00	1.590E-11
LUNGS	1.010E-14	1.210E-11	1.697E-11	7.360E-16	-1.000E+00	0.000E+00	6.210E-12
RED MARR	9.750E-15	1.230E-11	1.725E-11	7.480E-16	-1.000E+00	0.000E+00	2.350E-11
BONE SUR	1.720E-14	1.809E-11	2.537E-11	1.100E-15	-1.000E+00	0.000E+00	8.890E-12
THYROID	1.030E-14	1.260E-11	1.766E-11	7.660E-16	-1.000E+00	0.000E+00	1.820E-12
REMAINDER	9.630E-15	1.189E-11	1.667E-11	7.230E-16	-1.000E+00	0.000E+00	8.540E-10
EFFECTIVE	1.040E-14	1.265E-11	1.773E-11	7.690E-16	-1.000E+00	0.000E+00	2.870E-10
SKIN (FGR)	1.090E-13	7.368E-11	1.033E-10	4.480E-15	-1.000E+00	0.000E+00	0.000E+00
Rh-103m							
GONADS	1.250E-17	6.411E-12	1.340E-10	2.230E-16	-1.000E+00	8.910E-14	1.640E-09
BREAST	2.150E-17	6.152E-12	1.286E-10	2.140E-16	-1.000E+00	8.800E-14	1.440E-09
LUNGS	1.870E-18	5.836E-12	1.220E-10	2.030E-16	-1.000E+00	7.750E-12	1.420E-09
RED MARR	2.820E-18	5.893E-12	1.232E-10	2.050E-16	-1.000E+00	8.840E-14	1.460E-09

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BONE SUR	1.760E-17	8.883E-12	1.856E-10	3.090E-16	-1.000E+00	8.730E-14	1.430E-09
THYROID	8.550E-18	6.066E-12	1.268E-10	2.110E-16	-1.000E+00	8.490E-14	1.410E-09
REMAINDER	3.680E-18	5.721E-12	1.196E-10	1.990E-16	-1.000E+00	1.340E-12	2.110E-08
EFFECTIVE	8.800E-18	6.095E-12	1.274E-10	2.120E-16	-1.000E+00	1.380E-12	7.400E-09
SKIN (FGR)	4.490E-17	4.082E-10	8.531E-09	1.420E-14	-1.000E+00	0.000E+00	0.000E+00
Tc-101							
GONADS	1.570E-14	2.127E-12	1.411E-11	7.980E-17	-1.000E+00	2.500E-13	5.800E-11
BREAST	1.800E-14	2.063E-12	1.369E-11	7.740E-17	-1.000E+00	3.030E-13	8.970E-12
LUNGS	1.540E-14	1.935E-12	1.284E-11	7.260E-17	-1.000E+00	2.830E-11	3.860E-12
RED MARR	1.460E-14	1.946E-12	1.291E-11	7.300E-17	-1.000E+00	3.190E-13	1.470E-11
BONE SUR	3.210E-14	3.332E-12	2.210E-11	1.250E-16	-1.000E+00	2.800E-13	6.750E-12
THYROID	1.590E-14	1.983E-12	1.316E-11	7.440E-17	-1.000E+00	7.720E-12	2.910E-12
REMAINDER	1.470E-14	1.885E-12	1.250E-11	7.070E-17	-1.000E+00	3.520E-12	1.270E-09
EFFECTIVE	1.610E-14	2.031E-12	1.347E-11	7.620E-17	-1.000E+00	4.840E-12	3.990E-10
SKIN (FGR)	4.770E-14	4.691E-12	3.112E-11	1.760E-16	-1.000E+00	0.000E+00	0.000E+00
Eu-154							
GONADS	6.000E-14	1.985E-11	2.441E-10	7.100E-16	-1.000E+00	1.170E-08	6.140E-10
BREAST	6.810E-14	1.904E-11	2.341E-10	6.810E-16	-1.000E+00	1.550E-08	7.600E-11
LUNGS	5.990E-14	1.809E-11	2.224E-10	6.470E-16	-1.000E+00	7.920E-08	1.570E-11
RED MARR	5.870E-14	1.834E-11	2.255E-10	6.560E-16	-1.000E+00	1.060E-07	1.330E-10
BONE SUR	9.430E-14	2.720E-11	3.345E-10	9.730E-16	-1.000E+00	5.230E-07	5.240E-11
THYROID	6.150E-14	1.884E-11	2.317E-10	6.740E-16	-1.000E+00	7.140E-09	4.640E-12
REMAINDER	5.750E-14	1.775E-11	2.183E-10	6.350E-16	-1.000E+00	1.130E-07	5.870E-09
EFFECTIVE	6.140E-14	1.890E-11	2.324E-10	6.760E-16	-1.000E+00	7.730E-08	1.950E-09
SKIN (FGR)	8.290E-14	7.967E-11	9.799E-10	2.850E-15	-1.000E+00	0.000E+00	0.000E+00
Eu-155							
GONADS	2.490E-15	2.336E-11	3.231E-11	1.440E-15	-1.000E+00	3.560E-10	1.510E-10
BREAST	2.950E-15	2.222E-11	3.074E-11	1.370E-15	-1.000E+00	6.140E-10	2.560E-11
LUNGS	2.220E-15	2.141E-11	2.962E-11	1.320E-15	-1.000E+00	1.190E-08	9.390E-12
RED MARR	1.850E-15	2.190E-11	3.029E-11	1.350E-15	-1.000E+00	1.430E-08	3.670E-11
BONE SUR	8.090E-15	3.033E-11	4.196E-11	1.870E-15	-1.000E+00	1.520E-07	1.340E-11
THYROID	2.410E-15	2.174E-11	3.007E-11	1.340E-15	-1.000E+00	2.400E-10	1.470E-12
REMAINDER	2.070E-15	2.125E-11	2.939E-11	1.310E-15	-1.000E+00	1.110E-08	1.450E-09
EFFECTIVE	2.490E-15	2.238E-11	3.096E-11	1.380E-15	-1.000E+00	1.120E-08	4.840E-10
SKIN (FGR)	3.390E-15	8.273E-11	1.144E-10	5.100E-15	-1.000E+00	0.000E+00	0.000E+00
Eu-156							
GONADS	6.570E-14	1.191E-13	2.661E-13	5.480E-18	-1.000E+00	6.120E-10	4.020E-12
BREAST	7.420E-14	1.158E-13	2.588E-13	5.330E-18	-1.000E+00	3.640E-10	3.000E-12
LUNGS	6.630E-14	1.060E-13	2.370E-13	4.880E-18	-1.000E+00	1.840E-08	2.890E-12
RED MARR	6.560E-14	1.058E-13	2.365E-13	4.870E-18	-1.000E+00	1.140E-09	6.570E-12
BONE SUR	9.580E-14	1.862E-13	4.162E-13	8.570E-18	-1.000E+00	2.760E-09	6.460E-12
THYROID	6.780E-14	1.106E-13	2.472E-13	5.090E-18	-1.000E+00	2.160E-10	2.860E-12
REMAINDER	6.410E-14	1.036E-13	2.316E-13	4.770E-18	-1.000E+00	3.910E-09	6.130E-10
EFFECTIVE	6.750E-14	1.125E-13	2.515E-13	5.180E-18	-1.000E+00	3.820E-09	1.870E-10
SKIN (FGR)	9.980E-14	1.173E-11	2.622E-11	5.400E-16	-1.000E+00	0.000E+00	0.000E+00
La-143							
GONADS	5.040E-15	4.689E-13	9.642E-12	1.630E-17	-1.000E+00	6.530E-13	1.250E-10
BREAST	5.700E-15	5.150E-13	1.059E-11	1.790E-17	-1.000E+00	3.200E-13	9.740E-11
LUNGS	5.070E-15	1.602E-13	3.295E-12	5.570E-18	-1.000E+00	1.060E-10	9.620E-11
RED MARR	5.010E-15	1.249E-13	2.567E-12	4.340E-18	-1.000E+00	7.300E-13	5.430E-09
BONE SUR	7.590E-15	9.005E-13	1.852E-11	3.130E-17	-1.000E+00	7.290E-13	2.070E-08
THYROID	5.190E-15	2.779E-13	5.714E-12	9.660E-18	-1.000E+00	2.440E-13	9.430E-11
REMAINDER	4.900E-15	1.999E-13	4.111E-12	6.950E-18	-1.000E+00	1.050E-11	2.980E-09
EFFECTIVE	5.180E-15	3.251E-13	6.684E-12	1.130E-17	-1.000E+00	1.620E-11	2.230E-09
SKIN (FGR)	9.640E-14	1.496E-12	3.076E-11	5.200E-17	-1.000E+00	0.000E+00	0.000E+00
Nb-97							
GONADS	3.110E-14	3.889E-13	3.922E-13	6.510E-17	-1.000E+00	8.650E-13	1.590E-12
BREAST	3.550E-14	3.800E-13	3.832E-13	6.360E-17	-1.000E+00	1.120E-12	6.050E-13
LUNGS	3.100E-14	3.298E-13	3.326E-13	5.520E-17	-1.000E+00	1.560E-10	4.910E-13
RED MARR	3.010E-14	3.298E-13	3.326E-13	5.520E-17	-1.000E+00	1.140E-12	7.640E-13
BONE SUR	5.110E-14	5.753E-13	5.802E-13	9.630E-17	-1.000E+00	8.260E-13	5.400E-13
THYROID	3.180E-14	3.525E-13	3.555E-13	5.900E-17	-1.000E+00	9.200E-13	3.360E-13
REMAINDER	2.960E-14	3.262E-13	3.289E-13	5.460E-17	-1.000E+00	1.050E-11	1.790E-10
EFFECTIVE	3.180E-14	3.590E-13	3.621E-13	6.010E-17	-1.000E+00	2.240E-11	5.450E-11
SKIN (FGR)	6.510E-14	3.429E-11	3.458E-11	5.740E-15	-1.000E+00	0.000E+00	0.000E+00
Nb-95m							
GONADS	2.880E-15	2.206E-12	4.799E-11	8.561E-17	-1.000E+00	4.960E-11	2.420E-10
BREAST	3.310E-15	2.181E-12	4.739E-11	8.454E-17	-1.000E+00	4.530E-11	1.664E-10
LUNGS	2.770E-15	1.741E-12	3.815E-11	6.808E-17	-1.000E+00	3.070E-09	1.593E-10
RED MARR	2.590E-15	1.729E-12	3.793E-11	6.768E-17	-1.000E+00	5.870E-11	3.500E-09
BONE SUR	6.600E-15	3.287E-12	7.147E-11	1.275E-16	-1.000E+00	6.610E-11	7.990E-09
THYROID	2.890E-15	1.923E-12	4.201E-11	7.495E-17	-1.000E+00	3.860E-11	1.572E-10
REMAINDER	2.630E-15	1.746E-12	3.822E-11	6.819E-17	-1.000E+00	8.690E-10	7.196E-09

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EFFECTIVE	2.930E-15	1.974E-12	4.308E-11	7.686E-17	-1.000E+00	6.590E-10	2.925E-09
SKIN (FGR)	1.120E-14	1.501E-10	3.360E-09	6.001E-15	-1.000E+00	0.000E+00	0.000E+00
Pm-147							
GONADS	7.480E-19	4.020E-11	2.343E-10	1.535E-15	-1.000E+00	8.250E-15	7.415E-10
BREAST	9.560E-19	3.853E-11	2.246E-10	1.472E-15	-1.000E+00	3.600E-14	1.361E-10
LUNGS	5.450E-19	3.657E-11	2.131E-10	1.397E-15	-1.000E+00	7.740E-08	6.335E-11
RED MARR	4.460E-19	3.736E-11	2.178E-10	1.427E-15	-1.000E+00	1.610E-09	2.435E-10
BONE SUR	2.180E-18	5.467E-11	3.189E-10	2.090E-15	-1.000E+00	2.010E-08	3.248E-10
THYROID	6.750E-19	3.741E-11	2.181E-10	1.429E-15	-1.000E+00	1.980E-14	4.383E-08
REMAINDER	5.260E-19	3.626E-11	2.113E-10	1.385E-15	-1.000E+00	1.560E-09	3.153E-09
EFFECTIVE	6.930E-19	3.825E-11	2.229E-10	1.461E-15	-1.000E+00	1.060E-08	2.514E-09
SKIN (FGR)	8.110E-16	1.033E-10	6.188E-10	4.056E-15	-1.000E+00	0.000E+00	0.000E+00
Pm-148							
GONADS	2.810E-14	6.812E-12	7.706E-11	2.450E-16	-1.000E+00	2.120E-10	5.410E-10
BREAST	3.190E-14	6.756E-12	7.643E-11	2.430E-16	-1.000E+00	7.190E-11	3.500E-10
LUNGS	2.830E-14	5.727E-12	6.479E-11	2.060E-16	-1.000E+00	1.370E-08	3.300E-10
RED MARR	2.790E-14	5.588E-12	6.322E-11	2.010E-16	-1.000E+00	1.070E-10	4.440E-10
BONE SUR	4.240E-14	1.273E-11	1.441E-10	4.580E-16	-1.000E+00	7.080E-11	8.300E-10
THYROID	2.890E-14	5.978E-12	6.762E-11	2.150E-16	-1.000E+00	3.820E-11	5.950E-08
REMAINDER	2.730E-14	5.644E-12	6.385E-11	2.030E-16	-1.000E+00	4.100E-09	1.490E-09
EFFECTIVE	2.890E-14	6.339E-12	7.171E-11	2.280E-16	-1.000E+00	2.950E-09	2.540E-09
SKIN (FGR)	7.970E-14	8.313E-12	9.405E-11	2.990E-16	-1.000E+00	0.000E+00	0.000E+00
Pm-149							
GONADS	5.300E-16	1.119E-11	1.789E-10	3.940E-16	-1.000E+00	3.610E-12	4.070E-11
BREAST	6.070E-16	1.082E-11	1.730E-10	3.810E-16	-1.000E+00	8.200E-13	1.210E-10
LUNGS	5.170E-16	1.016E-11	1.626E-10	3.580E-16	-1.000E+00	3.120E-09	1.020E-10
RED MARR	4.890E-16	1.022E-11	1.635E-10	3.600E-16	-1.000E+00	5.530E-12	9.440E-11
BONE SUR	1.100E-15	1.675E-11	2.679E-10	5.900E-16	-1.000E+00	5.010E-12	8.720E-11
THYROID	5.360E-16	1.053E-11	1.685E-10	3.710E-16	-1.000E+00	3.310E-13	4.760E-07
REMAINDER	4.910E-16	9.908E-12	1.585E-10	3.490E-16	-1.000E+00	1.390E-09	1.570E-10
EFFECTIVE	5.410E-16	1.067E-11	1.707E-10	3.760E-16	-1.000E+00	7.930E-10	1.440E-08
SKIN (FGR)	2.190E-14	1.825E-11	2.920E-10	6.430E-16	-1.000E+00	0.000E+00	0.000E+00
Pm-151							
GONADS	1.480E-14	2.523E-11	2.771E-11	2.320E-15	-1.000E+00	7.170E-11	2.330E-11
BREAST	1.700E-14	2.414E-11	2.652E-11	2.220E-15	-1.000E+00	1.590E-11	2.520E-11
LUNGS	1.440E-14	2.305E-11	2.532E-11	2.120E-15	-1.000E+00	1.640E-09	2.640E-11
RED MARR	1.370E-14	2.360E-11	2.592E-11	2.170E-15	-1.000E+00	2.720E-11	2.460E-11
BONE SUR	2.990E-14	3.327E-11	3.655E-11	3.060E-15	-1.000E+00	1.860E-11	2.190E-11
THYROID	1.500E-14	2.381E-11	2.616E-11	2.190E-15	-1.000E+00	6.180E-12	3.870E-09
REMAINDER	1.370E-14	2.283E-11	2.509E-11	2.100E-15	-1.000E+00	8.390E-10	1.650E-10
EFFECTIVE	1.510E-14	2.403E-11	2.640E-11	2.210E-15	-1.000E+00	4.730E-10	1.820E-10
SKIN (FGR)	3.320E-14	8.199E-11	9.007E-11	7.540E-15	-1.000E+00	0.000E+00	0.000E+00
Pm-148m							
GONADS	9.470E-14	1.585E-11	6.748E-11	6.270E-16	-1.000E+00	1.190E-09	3.630E-11
BREAST	1.080E-13	1.519E-11	6.468E-11	6.010E-16	-1.000E+00	1.240E-09	4.680E-11
LUNGS	9.420E-14	1.446E-11	6.156E-11	5.720E-16	-1.000E+00	3.590E-08	4.530E-11
RED MARR	9.140E-14	1.466E-11	6.242E-11	5.800E-16	-1.000E+00	1.360E-09	4.300E-11
BONE SUR	1.580E-13	2.161E-11	9.202E-11	8.550E-16	-1.000E+00	1.360E-09	4.070E-11
THYROID	9.680E-14	1.502E-11	6.393E-11	5.940E-16	-1.000E+00	1.050E-09	9.100E-08
REMAINDER	9.010E-14	1.418E-11	6.038E-11	5.610E-16	-1.000E+00	3.580E-09	1.550E-10
EFFECTIVE	9.680E-14	1.509E-11	6.425E-11	5.970E-16	-1.000E+00	6.100E-09	2.800E-09
SKIN (FGR)	1.180E-13	1.150E-10	4.897E-10	4.550E-15	-1.000E+00	0.000E+00	0.000E+00
Pr-144							
GONADS	1.900E-15	1.200E-11	1.202E-11	2.640E-15	-1.000E+00	2.410E-15	1.100E-11
BREAST	2.150E-15	1.145E-11	1.147E-11	2.520E-15	-1.000E+00	1.050E-14	1.170E-11
LUNGS	1.900E-15	1.100E-11	1.102E-11	2.420E-15	-1.000E+00	9.400E-11	1.260E-11
RED MARR	1.870E-15	1.127E-11	1.129E-11	2.480E-15	-1.000E+00	1.380E-14	1.090E-11
BONE SUR	2.990E-15	1.568E-11	1.571E-11	3.450E-15	-1.000E+00	1.470E-14	9.320E-12
THYROID	1.950E-15	1.127E-11	1.129E-11	2.480E-15	-1.000E+00	8.470E-15	6.210E-10
REMAINDER	1.840E-15	1.091E-11	1.093E-11	2.400E-15	-1.000E+00	1.400E-12	1.340E-10
EFFECTIVE	1.950E-15	1.150E-11	1.152E-11	2.530E-15	-1.000E+00	1.170E-11	6.660E-11
SKIN (FGR)	8.430E-14	4.477E-11	4.485E-11	9.850E-15	-1.000E+00	0.000E+00	0.000E+00
Pr-144m							
GONADS	3.250E-16	3.113E-11	5.489E-11	1.599E-15	-1.000E+00	0.000E+00	3.610E-11
BREAST	4.200E-16	2.971E-11	5.240E-11	1.526E-15	-1.000E+00	0.000E+00	3.850E-11
LUNGS	2.000E-16	2.886E-11	5.089E-11	1.482E-15	-1.000E+00	0.000E+00	3.750E-11
RED MARR	1.560E-16	2.965E-11	5.228E-11	1.523E-15	-1.000E+00	0.000E+00	3.650E-11
BONE SUR	8.160E-16	3.983E-11	7.024E-11	2.046E-15	-1.000E+00	0.000E+00	3.360E-11
THYROID	2.810E-16	2.852E-11	5.030E-11	1.465E-15	-1.000E+00	0.000E+00	1.790E-08
REMAINDER	1.980E-16	2.883E-11	5.084E-11	1.481E-15	-1.000E+00	0.000E+00	1.540E-10
EFFECTIVE	2.790E-16	2.989E-11	5.271E-11	1.535E-15	-1.000E+00	0.000E+00	6.080E-10
SKIN (FGR)	5.080E-16	9.826E-11	1.733E-10	5.047E-15	-1.000E+00	0.000E+00	0.000E+00
Sm-153							

Palisades Design Basis Cask Drop Accident AST Radiological Analysis

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GONADS	2.330E-15	1.465E-12	2.052E-11	5.200E-17	-1.000E+00	2.360E-11	0.000E+00
BREAST	2.820E-15	1.505E-12	2.107E-11	5.340E-17	-1.000E+00	5.670E-12	0.000E+00
LUNGS	1.970E-15	1.045E-12	1.464E-11	3.710E-17	-1.000E+00	2.050E-09	0.000E+00
RED MARR	1.620E-15	8.791E-13	1.231E-11	3.120E-17	-1.000E+00	6.660E-11	0.000E+00
BONE SUR	7.290E-15	4.254E-12	5.958E-11	1.510E-16	-1.000E+00	1.570E-10	0.000E+00
THYROID	2.220E-15	1.181E-12	1.653E-11	4.190E-17	-1.000E+00	1.510E-12	0.000E+00
REMAINDER	1.850E-15	1.042E-12	1.460E-11	3.700E-17	-1.000E+00	8.840E-10	0.000E+00
EFFECTIVE	2.280E-15	1.299E-12	1.819E-11	4.610E-17	-1.000E+00	5.310E-10	0.000E+00
SKIN (FGR)	1.450E-14	1.953E-12	2.734E-11	6.930E-17	-1.000E+00	0.000E+00	0.000E+00
Y-94							
GONADS	5.490E-14	5.455E-12	1.194E-11	2.530E-16	-1.000E+00	1.230E-13	0.000E+00
BREAST	6.210E-14	5.325E-12	1.166E-11	2.470E-16	-1.000E+00	4.400E-13	0.000E+00
LUNGS	5.500E-14	4.959E-12	1.086E-11	2.300E-16	-1.000E+00	1.480E-10	0.000E+00
RED MARR	5.420E-14	4.959E-12	1.086E-11	2.300E-16	-1.000E+00	4.180E-13	0.000E+00
BONE SUR	8.220E-14	9.120E-12	1.997E-11	4.230E-16	-1.000E+00	3.280E-13	0.000E+00
THYROID	5.650E-14	5.023E-12	1.100E-11	2.330E-16	-1.000E+00	4.120E-13	0.000E+00
REMAINDER	5.300E-14	4.829E-12	1.058E-11	2.240E-16	-1.000E+00	3.080E-12	0.000E+00
EFFECTIVE	5.620E-14	5.217E-12	1.142E-11	2.420E-16	-1.000E+00	1.890E-11	0.000E+00
SKIN (FGR)	1.800E-13	4.506E-11	9.867E-11	2.090E-15	-1.000E+00	0.000E+00	0.000E+00
Y-95							
GONADS	4.650E-14	4.607E-11	9.646E-10	1.600E-15	-1.000E+00	1.070E-13	2.060E-08
BREAST	5.190E-14	4.406E-11	9.224E-10	1.530E-15	-1.000E+00	3.170E-13	1.720E-08
LUNGS	4.720E-14	4.204E-11	8.802E-10	1.460E-15	-1.000E+00	8.040E-11	1.760E-08
RED MARR	4.730E-14	4.262E-11	8.922E-10	1.480E-15	-1.000E+00	3.200E-13	1.870E-08
BONE SUR	6.410E-14	6.105E-11	1.278E-09	2.120E-15	-1.000E+00	3.790E-13	1.740E-08
THYROID	4.840E-14	4.377E-11	9.163E-10	1.520E-15	-1.000E+00	2.790E-13	1.760E-08
REMAINDER	4.590E-14	4.147E-11	8.681E-10	1.440E-15	-1.000E+00	1.250E-12	2.210E-08
EFFECTIVE	4.790E-14	4.377E-11	9.163E-10	1.520E-15	-1.000E+00	1.020E-11	1.980E-08
SKIN (FGR)	1.590E-13	6.249E-11	1.308E-09	2.170E-15	-1.000E+00	0.000E+00	0.000E+00
Y-91m							
GONADS	2.490E-14	6.223E-11	1.102E-09	2.180E-15	-1.000E+00	3.210E-13	3.040E-09
BREAST	2.850E-14	5.966E-11	1.056E-09	2.090E-15	-1.000E+00	6.080E-13	2.650E-09
LUNGS	2.480E-14	5.710E-11	1.011E-09	2.000E-15	-1.000E+00	7.000E-11	2.620E-09
RED MARR	2.390E-14	5.824E-11	1.031E-09	2.040E-15	-1.000E+00	7.740E-13	2.950E-09
BONE SUR	4.280E-14	8.422E-11	1.491E-09	2.950E-15	-1.000E+00	6.210E-13	2.710E-09
THYROID	2.540E-14	5.852E-11	1.036E-09	2.050E-15	-1.000E+00	5.020E-13	2.740E-09
REMAINDER	2.370E-14	5.652E-11	1.001E-09	1.980E-15	-1.000E+00	3.740E-12	3.520E-09
EFFECTIVE	2.550E-14	5.966E-11	1.056E-09	2.090E-15	-1.000E+00	9.820E-12	3.040E-09
SKIN (FGR)	3.110E-14	7.251E-11	1.284E-09	2.540E-15	-1.000E+00	0.000E+00	0.000E+00
Br-82							
GONADS	1.270E-13	1.669E-11	3.530E-10	5.840E-16	-1.000E+00	1.690E-10	1.390E-08
BREAST	1.440E-13	1.596E-11	3.376E-10	5.585E-16	-1.000E+00	2.100E-10	1.240E-08
LUNGS	1.270E-13	1.517E-11	3.209E-10	5.309E-16	-1.000E+00	1.680E-09	1.270E-08
RED MARR	1.240E-13	1.542E-11	3.260E-10	5.394E-16	-1.000E+00	2.180E-10	1.320E-08
BONE SUR	1.990E-13	2.238E-11	4.734E-10	7.832E-16	-1.000E+00	1.920E-10	1.260E-08
THYROID	1.300E-13	1.588E-11	3.358E-10	5.556E-16	-1.000E+00	2.060E-10	1.260E-08
REMAINDER	1.220E-13	1.490E-11	3.152E-10	5.215E-16	-1.000E+00	3.310E-10	1.450E-08
EFFECTIVE	1.300E-13	1.585E-11	3.353E-10	5.546E-16	-1.000E+00	4.130E-10	1.350E-08
SKIN (FGR)	1.540E-13	5.253E-11	1.110E-09	1.836E-15	-1.000E+00	0.000E+00	0.000E+00
Br-83							
GONADS	3.740E-16	3.368E-13	3.429E-13	4.790E-17	-1.000E+00	1.130E-12	1.560E-12
BREAST	4.290E-16	3.297E-13	3.357E-13	4.690E-17	-1.000E+00	1.140E-12	5.170E-13
LUNGS	3.690E-16	3.002E-13	3.057E-13	4.270E-17	-1.000E+00	1.820E-10	3.890E-13
RED MARR	3.540E-16	2.932E-13	2.985E-13	4.170E-17	-1.000E+00	1.140E-12	8.590E-13
BONE SUR	6.750E-16	6.841E-13	6.965E-13	9.730E-17	-1.000E+00	1.140E-12	4.380E-13
THYROID	3.800E-16	3.044E-13	3.100E-13	4.330E-17	-1.000E+00	1.140E-12	2.660E-13
REMAINDER	3.520E-16	2.932E-13	2.985E-13	4.170E-17	-1.000E+00	5.310E-12	3.570E-10
EFFECTIVE	3.820E-16	3.227E-13	3.286E-13	4.590E-17	-1.000E+00	2.410E-11	1.080E-10
SKIN (FGR)	1.850E-14	7.241E-11	7.373E-11	1.030E-14	-1.000E+00	0.000E+00	0.000E+00
Br-84							
GONADS	9.160E-14	5.451E-12	9.607E-11	1.910E-16	-1.000E+00	2.840E-12	9.960E-10
BREAST	1.020E-13	5.280E-12	9.305E-11	1.850E-16	-1.000E+00	3.310E-12	1.590E-10
LUNGS	9.270E-14	4.852E-12	8.550E-11	1.700E-16	-1.000E+00	1.560E-10	6.630E-11
RED MARR	9.260E-14	4.880E-12	8.601E-11	1.710E-16	-1.000E+00	3.270E-12	4.390E-10
BONE SUR	1.280E-13	8.020E-12	1.413E-10	2.810E-16	-1.000E+00	2.990E-12	5.530E-10
THYROID	9.500E-14	5.109E-12	9.003E-11	1.790E-16	-1.000E+00	3.120E-12	5.250E-11
REMAINDER	8.990E-14	4.766E-12	8.399E-11	1.670E-16	-1.000E+00	1.870E-11	7.370E-09
EFFECTIVE	9.410E-14	5.137E-12	9.053E-11	1.800E-16	-1.000E+00	2.610E-11	2.560E-09
SKIN (FGR)	1.880E-13	5.565E-11	9.808E-10	1.950E-15	-1.000E+00	0.000E+00	0.000E+00
Am-242							
GONADS	6.090E-16	6.027E-11	4.425E-10	2.240E-15	-1.000E+00	1.940E-09	1.340E-09
BREAST	7.300E-16	5.758E-11	4.228E-10	2.140E-15	-1.000E+00	2.940E-12	1.800E-10
LUNGS	5.510E-16	5.596E-11	4.109E-10	2.080E-15	-1.000E+00	5.200E-08	4.010E-11

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RED MARR	4.770E-16	5.731E-11	4.208E-10	2.130E-15	-1.000E+00	1.320E-08	2.810E-10
BONE SUR	1.880E-15	7.776E-11	5.709E-10	2.890E-15	-1.000E+00	1.650E-07	9.770E-11
THYROID	5.940E-16	5.462E-11	4.010E-10	2.030E-15	-1.000E+00	2.520E-12	6.400E-12
REMAINDER	5.180E-16	5.569E-11	4.089E-10	2.070E-15	-1.000E+00	8.540E-09	6.260E-09
EFFECTIVE	6.150E-16	5.812E-11	4.267E-10	2.160E-15	-1.000E+00	1.580E-08	2.280E-09
SKIN (FGR)	8.200E-15	2.217E-10	1.628E-09	8.240E-15	-1.000E+00	0.000E+00	0.000E+00
Np-238							
GONADS	2.660E-14	7.315E-13	9.675E-13	4.740E-17	-1.000E+00	1.990E-09	3.770E-12
BREAST	3.020E-14	7.007E-13	9.267E-13	4.540E-17	-1.000E+00	4.180E-11	7.070E-13
LUNGS	2.650E-14	6.713E-13	8.879E-13	4.350E-17	-1.000E+00	3.470E-09	2.720E-13
RED MARR	2.610E-14	6.852E-13	9.063E-13	4.440E-17	-1.000E+00	1.690E-08	1.070E-12
BONE SUR	3.990E-14	9.923E-13	1.312E-12	6.430E-17	-1.000E+00	2.100E-07	6.060E-13
THYROID	2.730E-14	6.590E-13	8.716E-13	4.270E-17	-1.000E+00	2.450E-11	5.290E-14
REMAINDER	2.550E-14	6.682E-13	8.838E-13	4.330E-17	-1.000E+00	2.550E-09	1.240E-09
EFFECTIVE	2.720E-14	7.007E-13	9.267E-13	4.540E-17	-1.000E+00	1.000E-08	3.740E-10
SKIN (FGR)	4.310E-14	1.667E-10	2.204E-10	1.080E-14	-1.000E+00	0.000E+00	0.000E+00
Pu-243							
GONADS	1.020E-15	1.978E-11	2.034E-11	2.540E-15	-1.000E+00	1.670E-12	6.990E-11
BREAST	1.210E-15	1.885E-11	1.938E-11	2.420E-15	-1.000E+00	2.750E-13	1.540E-11
LUNGS	9.280E-16	1.846E-11	1.898E-11	2.370E-15	-1.000E+00	2.270E-10	8.400E-12
RED MARR	7.840E-16	1.900E-11	1.954E-11	2.440E-15	-1.000E+00	5.770E-12	1.930E-11
BONE SUR	3.230E-15	2.484E-11	2.554E-11	3.190E-15	-1.000E+00	6.530E-11	7.400E-12
THYROID	9.910E-16	1.768E-11	1.818E-11	2.270E-15	-1.000E+00	1.130E-13	1.160E-12
REMAINDER	8.660E-16	1.853E-11	1.906E-11	2.380E-15	-1.000E+00	4.690E-11	5.200E-10
EFFECTIVE	1.030E-15	1.916E-11	1.970E-11	2.460E-15	-1.000E+00	4.440E-11	1.790E-10
SKIN (FGR)	8.150E-15	9.111E-11	9.368E-11	1.170E-14	-1.000E+00	0.000E+00	0.000E+00