Calculation of Decayed Radionuclide Inventories for the Compliance Recertification Application

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Information Only

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1. INTRODUCTION

In 1996 the Department of Energy (DOE) completed a performance assessment (PA) calculation for the Waste Isolation Pilot Plant (WIPP). The PA was part of the Compliance Certification Application (CCA) submitted to the Environmental Protection Agency (EPA) to demonstrate compliance with the radiation protection regulations of 40 CFR 191 and 40 CFR 194. As required by the WIPP Land Withdrawal Act (Public Law 102-579), DOE is required to submit documentation to EPA for the recertification of the WIPP every five years in order to continue operating the site. This will require that a Compliance Recertification Application (CRA) be prepared and submitted to the EPA by November 2003.

This analysis is governed by AP-097, *Analysis Plan For Deriving Radionuclide Inventory Information for Performance Assessment Calculations: Compliance Recertification Application* which discusses the methodology that will be used by Sandia National Laboratories (SNL) to determine the WIPP repository radionuclide inventory information for use in the PA calculation for the CRA. In particular, the decayed radionuclide inventory at 2033, 2133, 2383, 3033, 7033 and 12,033 is information needed to address Section 2.2 of AP-097, "Identification of Radionuclides That Dominate Release," and its associated tasks.

This analysis was performed in accordance with the SNL Quality Assurance Program and was prepared as prescribed by the SNL NWMP Procedure, NP 9-1, *Analyses*.

1.1 ACRONYMS

AP	Analysis Plan
CFR	Code of Federal Regulations
CH	Contact Handled
CMS	SNL's Qualified Software Configuration Management System for Performance Assessment
CRA	Compliance Recertification Application
DOE	Department of Energy
EPA	Environmental Protection Agency
ERMS	Electronic Records Management System
LANL	Los Alamos National Laboratory
NP	NWMP Procedure
NWMP	Nuclear Waste Management Program
ORIGEN	Oak Ridge Isotope Generation and Depletion Code
PA	Performance Assessment
RH	Remote Handled
SNL	Sandia National Laboratory
TRU	Transuranic
WIPP	Waste Isolation Pilot Plant

2. PROBLEM DESCRIPTION

Radionuclide inventories have been provided by Los Alamos National Laboratories (LANL, 2003a). The LANL radionuclide inventories were given as of 1/1/2002. In order to determine which

radionuclides are expected to dominate potential releases in the CRA, the inventories must be examined at various times ranging from repository closure (time = 0 years) to the 10,000-year regulatory time limit. Therefore, the radionuclide inventory provided by LANL (LANL 2003a) was decayed for 32 years (to 2033), 100 years (to 2133), 350 years (to 2383), 1000 years (to 3033), 5000 years (to 7033), and 10,000 years (to 12,033) in this calculation.

3. COMPUTATIONAL METHOD

The radionuclide inventories provided by LANL (LANL, 2003a) were decayed using the ORIGEN2 Version 2.2 code (ORNL 2002). ORIGEN2 Version 2.2 has been qualified for radionuclide decay calculations according to SNL NWMP Procedure, NP 19-1, *Software Requirements* (LANL 2003b). The original data provided in LANL 2003a is shown in Table 1.

4. RESULTS

The radionuclide values at 12/31/2033 are given in Table 2. Values at 12/31/2133 are given in Table 3. Values at 12/31/2383 are given in Table 4. Values at 12/31/3033 are given in Table 5. Values at 12/31/7033 are given in Table 6, and values at 12/31/12033 are given in Table 7. The values were derived using ORIGEN2 Version 2.2. The ORIGEN2 Version 2.2 output giving the activity values in Tables 2 through 7 are stored in CMS.

5. RELEVANT PROCEDURES AND REFERENCES

5.1 PROCEDURES

AP-092, "Analysis Plan for Transuranic Waste Inventory Update Report, 2003 " Sandia National Laboratory Nuclear Waste Management Program Analysis Plan, January 8, 2003.

NP 9-1, "Analyses." Sandia National Laboratory Nuclear Waste Management Program Procedure, August 29, 2001.

NP 19-1, "Software Requirements." Sandia National Laboratory Nuclear Waste Management Program Procedure, June 12, 2002.

5.2 REFERENCES

LANL. 2003a. *Response to Request for Radionuclide Activities in TRU Waste Streams from TWBID Revision 2.1, Version 3.12, Data Version D.4.08.* ERMS# 530918. Carlsbad, NM: Los Alamos National Laboratories.

LANL. 2003b. *ORIGEN2 Version 2.2 Verification and Validation Plan and Validation Document.* ERMS# 525787. Carlsbad, NM: Los Alamos National Laboratories.

ORNL. 2002. *RSICC Computer Code CCC-371: ORIGEN2 Version 2.2, Isotope Generation and Depletion Code Matrix Exponential Method.* ERMS# 525791. Oak Ridge, TN: Oak Ridge National Laboratory.

Table 1: Scaled Radionuclide Inventory Values As of 1/1/2002[1]

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Ac-225	9.21E-06	5.20E-06	1.55E+00	3.68E-02
Ac-227	3.00E-06	5.65E-10	5.06E-01	4.00E-06
Ac-228	2.84E-05	2.02E-05	4.79E+00	1.43E-01
Ag-109m	7.49E-10	0.00E+00	1.26E-04	0.00E+00
Ag-110	2.61E-16	2.71E-15	4.40E-11	1.92E-11
Ag-110m	1.98E-14	2.06E-13	3.34E-09	1.46E-09
Am-241	2.38E+00	1.93E+00	4.01E+05	1.36E+04
Am-242	2.79E-07	1.20E-07	4.70E-02	8.52E-04
Am-242m	2.83E-07	2.77E-05	4.78E-02	1.96E-01
Am-243	1.25E-04	1.01E-04	2.10E+01	7.15E-01
Am-245	7.79E-16	0.00E+00	1.31E-10	0.00E+00
At-217	9.22E-06	5.21E-06	1.55E+00	3.69E-02
Ba-137m	5.37E-02	4.74E+01	9.05E+03	3.36E+05
Bi-210	1.53E-05	2.98E-11	2.58E+00	2.11E-07
Bi-211	2.97E-06	5.58E-10	5.00E-01	3.95E-06
Bi-212	3.47E-05	3.82E-04	5.84E+00	2.70E+00
Bi-213	9.20E-06	5.20E-06	1.55E+00	3.68E-02
Bi-214	3.73E-05	1.92E-10	6.29E+00	1.36E-06
Bk-249	5.39E-11	0.00E+00	9.07E-06	0.00E+00
Bk-250	2.16E-17	0.00E+00	3.65E-12	0.00E+00
C-14	7.19E-06	2.90E-04	1.21E+00	2.05E+00
Cd-109	7.58E-10	0.00E+00	1.28E-04	0.00E+00
Cd-113m	0.00E+00	2.31E-05	0.00E+00	1.64E-01
Ce-141	0.00E+00	5.33E-23	0.00E+00	3.77E-19
Ce-144	2.11E-09	2.56E-04	3.56E-04	1.82E+00
Cf-249	4.53E-07	1.18E-07	7.63E-02	8.37E-04
Cf-250	1.09E-06	2.11E-06	1.83E-01	1.50E-02
Cf-251	2.16E-09	2.25E-08	3.64E-04	1.59E-04
Cf-252	1.23E-06	2.50E-06	2.08E-01	1.77E-02
Cm-242	2.34E-07	1.01E-07	3.94E-02	7.15E-04
Cm-243	2.36E-06	6.92E-05	3.97E-01	4.90E-01
Cm-244	4.92E-02	3.82E-02	8.28E+03	2.70E+02
Cm-245	5.00E-08	1.50E-06	8.41E-03	1.06E-02
Cm-246	9.21E-06	9.53E-05	1.55E+00	6.74E-01
Cm-247	1.65E-15	1.33E-03	2.77E-10	9.44E+00
Cm-248	5.42E-07	2.58E-07	9.14E-02	1.83E-03
Cm-250	3.94E-16	0.00E+00	6.64E-11	0.00E+00
Co-60	5.85E-06	2.38E-01	9.85E-01	1.68E+03
Cs-134	1.22E-07	4.75E-03	2.05E-02	3.36E+01
Cs-135	0.00E+00	9.75E-09	0.00E+00	6.90E-05

Table 1: Scaled Radionuclide Inventory Values As of 1/1/2002[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Cs-137	5.73E-02	5.15E+01	9.65E+03	3.65E+05
Eu-152	1.16E-05	9.82E-02	1.95E+00	6.95E+02
Eu-154	9.82E-06	5.98E-02	1.65E+00	4.23E+02
Eu-155	3.99E-07	2.61E-03	6.73E-02	1.85E+01
Fe-55	0.00E+00	5.93E-06	0.00E+00	4.20E-02
Fr-221	9.20E-06	5.20E-06	1.55E+00	3.68E-02
Fr-223	4.10E-08	7.71E-12	6.91E-03	5.45E-08
Gd-152	2.61E-19	2.76E-15	4.40E-14	1.95E-11
H-3	1.29E-03	1.62E-04	2.17E+02	1.15E+00
I-129	3.04E-09	1.16E-05	5.12E-04	8.20E-02
Kr-85	2.74E-06	1.59E-05	4.62E-01	1.13E-01
Mn-54	0.00E+00	2.58E-04	0.00E+00	1.82E+00
Na-22	2.32E-12	4.17E-05	3.91E-07	2.95E-01
Nb-93m	0.00E+00	3.88E-08	0.00E+00	2.75E-04
Nb-95	0.00E+00	1.06E-17	0.00E+00	7.53E-14
Nb-95m	0.00E+00	3.56E-20	0.00E+00	2.52E-16
Nd-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-59	4.54E-07	3.25E-03	7.64E-02	2.30E+01
Ni-63	2.21E-05	1.58E-01	3.72E+00	1.12E+03
Np-237	2.85E-05	9.41E-05	4.80E+00	6.66E-01
Np-238	1.40E-09	6.05E-10	2.36E-04	4.28E-06
Np-239	1.23E-04	8.87E-06	2.08E+01	6.28E-02
Np-240m	7.75E-12	1.57E-07	1.31E-06	1.11E-03
Pa-231	7.19E-06	2.53E-09	1.21E+00	1.79E-05
Pa-233	2.82E-05	3.26E-07	4.75E+00	2.31E-03
Pa-234	5.47E-08	3.99E-07	9.22E-03	2.82E-03
Pa-234m	4.21E-05	3.07E-04	7.09E+00	2.17E+00
Pb-209	9.21E-06	5.20E-06	1.55E+00	3.68E-02
Pb-210	1.55E-05	3.02E-11	2.61E+00	2.13E-07
Pb-211	2.97E-06	5.59E-10	5.00E-01	3.95E-06
Pb-212	3.46E-05	3.80E-04	5.82E+00	2.69E+00
Pb-214	3.74E-05	1.92E-10	6.30E+00	1.36E-06
Pd-107	0.00E+00	4.07E-10	0.00E+00	2.88E-06
Pm-147	1.08E-05	4.96E-02	1.82E+00	3.51E+02
Po-210	1.55E-05	3.01E-11	2.60E+00	2.13E-07
Po-211	9.05E-09	1.70E-12	1.53E-03	1.20E-08
Po-212	2.21E-05	2.43E-04	3.72E+00	1.72E+00
Po-213	9.01E-06	5.09E-06	1.52E+00	3.60E-02
Po-214	3.74E-05	1.92E-10	6.30E+00	1.36E-06

Table 1: Scaled Radionuclide Inventory Values As of 1/1/2002[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Po-215	2.97E-06	5.59E-10	5.00E-01	3.95E-06
Po-216	3.45E-05	3.80E-04	5.82E+00	2.69E+00
Po-218	3.67E-05	1.89E-10	6.19E+00	1.34E-06
Pr-144	2.07E-09	2.51E-04	3.49E-04	1.78E+00
Pu-236	2.60E-09	0.00E+00	4.38E-04	0.00E+00
Pu-238	9.55E+00	5.10E-01	1.61E+06	3.61E+03
Pu-239	3.92E+00	7.59E-01	6.60E+05	5.38E+03
Pu-240	6.34E-01	2.37E-01	1.07E+05	1.68E+03
Pu-241	1.43E+01	1.58E+01	2.40E+06	1.12E+05
Pu-242	1.58E-04	6.69E-05	2.66E+01	4.74E-01
Pu-243	1.63E-15	1.32E-03	2.74E-10	9.33E+00
Pu-244	7.68E-12	1.56E-07	1.29E-06	1.10E-03
Ra-223	3.00E-06	5.64E-10	5.06E-01	3.99E-06
Ra-224	3.45E-05	3.80E-04	5.81E+00	2.69E+00
Ra-225	9.21E-06	5.21E-06	1.55E+00	3.69E-02
Ra-226	3.78E-05	1.95E-10	6.37E+00	1.38E-06
Ra-228	3.36E-05	2.38E-05	5.66E+00	1.69E-01
Rh-106	9.36E-10	9.59E-06	1.58E-04	6.79E-02
Rn-219	2.97E-06	5.58E-10	5.00E-01	3.95E-06
Rn-220	3.45E-05	3.80E-04	5.82E+00	2.69E+00
Rn-222	3.74E-05	1.93E-10	6.31E+00	1.36E-06
Ru-106	9.46E-10	9.60E-06	1.59E-04	6.79E-02
Sb-125	2.99E-08	6.18E-04	5.04E-03	4.38E+00
Sb-126	0.00E+00	5.89E-09	0.00E+00	4.17E-05
Sb-126m	0.00E+00	4.21E-08	0.00E+00	2.98E-04
Se-79	7.84E-10	6.29E-06	1.32E-04	4.46E-02
Sm-147	2.83E-15	9.69E-13	4.77E-10	6.86E-09
Sm-148	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sm-151	3.37E-04	8.20E-02	5.68E+01	5.80E+02
Sn-121m	0.00E+00	7.28E-08	0.00E+00	5.15E-04
Sn-126	0.00E+00	4.21E-08	0.00E+00	2.98E-04
Sr-90	3.41E-01	3.48E+01	5.75E+04	2.46E+05
Tc-99	9.93E-04	2.25E-02	1.67E+02	1.59E+02
Te-123	4.02E-10	0.00E+00	6.78E-05	0.00E+00
Te-123m	2.96E-24	0.00E+00	4.98E-19	0.00E+00
Te-125m	7.24E-09	1.50E-04	1.22E-03	1.06E+00
Th-227	2.92E-06	5.50E-10	4.93E-01	3.89E-06
Th-228	3.49E-05	3.85E-04	5.89E+00	2.72E+00
Th-229	9.23E-06	5.21E-06	1.55E+00	3.69E-02
Th-230	6.01E-07	5.31E-08	1.01E-01	3.76E-04

Table 1: Scaled Radionuclide Inventory Values As of 1/1/2002[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Th-231	2.08E-06	7.38E-06	3.50E-01	5.23E-02
Th-232	3.92E-05	3.08E-05	6.61E+00	2.18E-01
Th-234	4.22E-05	3.07E-04	7.10E+00	2.17E+00
Tl-207	2.95E-06	5.55E-10	4.98E-01	3.93E-06
Tl-208	1.24E-05	1.37E-04	2.09E+00	9.71E-01
Tl-209	2.02E-07	1.14E-07	3.41E-02	8.10E-04
U-232	9.76E-06	3.57E-04	1.64E+00	2.53E+00
U-233	7.34E-03	4.82E-03	1.24E+03	3.41E+01
U-234	9.95E-04	3.07E-03	1.68E+02	2.17E+01
U-235	7.83E-06	1.33E-04	1.32E+00	9.42E-01
U-236	7.69E-07	2.01E-04	1.30E-01	1.42E+00
U-237	1.28E-04	2.48E-06	2.15E+01	1.75E-02
U-238	1.45E-04	1.83E-02	2.44E+01	1.30E+02
U-240	7.60E-12	1.54E-07	1.28E-06	1.09E-03
Y-90	3.41E-01	3.43E+01	5.74E+04	2.43E+05
Y-91	0.00E+00	1.15E-16	0.00E+00	8.11E-13
Zn-65	1.38E-15	0.00E+00	2.32E-10	0.00E+00
Zr-93	6.68E-09	4.79E-05	1.13E-03	3.39E-01
Zr-95	0.00E+00	4.84E-18	0.00E+00	3.43E-14

[1]Decayed to 1/1/2002 (LANL, 2002a)

[2]Total curies estimated by assuming a volume of 5,950,000 ft^3 for CH-TRU waste and 250,000 ft^3 for RH-TRU waste

Table 2: Scaled Radionuclide Inventory Values As of 12/31/2033[1]

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Ac-225	3.11E-05	1.96E-05	5.24E+00	1.39E-01
Ac-227	5.68E-06	3.54E-08	9.57E-01	2.50E-04
Ac-228	3.84E-05	3.00E-05	6.46E+00	2.13E-01
Ag-109m	1.96E-17	0.00E+00	3.30E-12	0.00E+00
Ag-110	2.17E-30	2.26E-29	3.66E-25	1.60E-25
Ag-110m	1.65E-28	1.71E-27	2.78E-23	1.21E-23
Am-241	2.63E+00	2.23E+00	4.42E+05	1.58E+04
Am-242	2.41E-07	2.35E-05	4.06E-02	1.66E-01
Am-242m	2.45E-07	2.39E-05	4.13E-02	1.69E-01
Am-243	1.25E-04	1.05E-04	2.10E+01	7.42E-01
Am-245	7.89E-27	0.00E+00	1.33E-21	0.00E+00
At-217	3.12E-05	1.96E-05	5.25E+00	1.39E-01
Ba-137m	2.56E-02	2.30E+01	4.31E+03	1.63E+05
Bi-210	2.90E-05	1.99E-09	4.89E+00	1.41E-05
Bi-211	5.61E-06	3.49E-08	9.45E-01	2.47E-04
Bi-212	4.59E-05	2.98E-04	7.72E+00	2.11E+00
Bi-213	3.11E-05	1.96E-05	5.24E+00	1.39E-01
Bi-214	3.68E-05	6.96E-09	6.20E+00	4.93E-05
Bk-249	5.46E-22	0.00E+00	9.19E-17	0.00E+00
Bk-250	2.16E-17	0.00E+00	3.64E-12	0.00E+00
C-14	7.16E-06	2.89E-04	1.21E+00	2.05E+00
Cd-109	1.98E-17	0.00E+00	3.34E-12	0.00E+00
Cd-113m	0.00E+00	5.06E-06	0.00E+00	3.58E-02
Ce-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	8.86E-22	1.08E-16	1.49E-16	7.61E-13
Cf-249	4.25E-07	1.11E-07	7.17E-02	7.86E-04
Cf-250	2.00E-07	3.88E-07	3.37E-02	2.74E-03
Cf-251	2.11E-09	2.19E-08	3.55E-04	1.55E-04
Cf-252	2.75E-10	5.58E-10	4.64E-05	3.95E-06
Cm-242	2.02E-07	1.97E-05	3.40E-02	1.39E-01
Cm-243	1.08E-06	3.18E-05	1.82E-01	2.25E-01
Cm-244	1.45E-02	1.12E-02	2.43E+03	7.94E+01
Cm-245	5.10E-08	1.50E-06	8.59E-03	1.06E-02
Cm-246	9.17E-06	9.48E-05	1.54E+00	6.71E-01
Cm-247	4.69E-15	1.33E-03	7.90E-10	9.45E+00
Cm-248	5.42E-07	2.58E-07	9.14E-02	1.83E-03
Cm-250	3.94E-16	0.00E+00	6.63E-11	0.00E+00
Co-60	8.69E-08	3.53E-03	1.46E-02	2.50E+01
Cs-134	2.59E-12	1.01E-07	4.36E-07	7.15E-04
Cs-135	0.00E+00	9.75E-09	0.00E+00	6.90E-05

Table 2: Scaled Radionuclide Inventory Values As of 12/31/2033[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Cs-137	2.73E-02	2.46E+01	4.61E+03	1.74E+05
Eu-152	2.26E-06	1.92E-02	3.81E-01	1.36E+02
Eu-154	7.45E-07	4.54E-03	1.25E-01	3.21E+01
Eu-155	4.56E-09	2.98E-05	7.68E-04	2.11E-01
Fe-55	0.00E+00	1.17E-09	0.00E+00	8.28E-06
Fr-221	3.11E-05	1.96E-05	5.24E+00	1.39E-01
Fr-223	7.75E-08	4.82E-10	1.30E-02	3.41E-06
Gd-152	5.78E-19	5.45E-15	9.74E-14	3.86E-11
H-3	2.14E-04	2.69E-05	3.61E+01	1.90E-01
I-129	3.04E-09	1.16E-05	5.12E-04	8.21E-02
Kr-85	3.47E-07	2.01E-06	5.84E-02	1.43E-02
Mn-54	0.00E+00	1.42E-15	0.00E+00	1.00E-11
Na-22	4.61E-16	8.28E-09	7.77E-11	5.86E-05
Nb-93m	5.12E-09	3.67E-05	8.62E-04	2.60E-01
Nb-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-59	4.54E-07	3.25E-03	7.64E-02	2.30E+01
Ni-63	1.74E-05	1.24E-01	2.92E+00	8.80E+02
Np-237	5.49E-05	1.16E-04	9.25E+00	8.22E-01
Np-238	1.21E-09	1.18E-07	2.04E-04	8.36E-04
Np-239	1.23E-04	1.03E-04	2.07E+01	7.32E-01
Np-240m	7.89E-12	1.57E-07	1.33E-06	1.11E-03
Pa-231	7.19E-06	9.25E-08	1.21E+00	6.55E-04
Pa-233	5.44E-05	1.15E-04	9.17E+00	8.15E-01
Pa-234	1.87E-07	2.36E-05	3.14E-02	1.67E-01
Pa-234m	1.43E-04	1.81E-02	2.42E+01	1.28E+02
Pb-209	3.11E-05	1.96E-05	5.24E+00	1.39E-01
Pb-210	2.93E-05	2.01E-09	4.94E+00	1.42E-05
Pb-211	5.62E-06	3.50E-08	9.46E-01	2.47E-04
Pb-212	4.57E-05	2.97E-04	7.70E+00	2.10E+00
Pb-214	3.69E-05	6.97E-09	6.22E+00	4.93E-05
Pd-107	0.00E+00	4.07E-10	0.00E+00	2.88E-06
Pm-147	2.29E-09	1.06E-05	3.86E-04	7.47E-02
Po-210	2.93E-05	2.01E-09	4.94E+00	1.42E-05
Po-211	1.71E-08	1.07E-10	2.88E-03	7.54E-07
Po-212	2.92E-05	1.90E-04	4.92E+00	1.34E+00
Po-213	3.04E-05	1.92E-05	5.13E+00	1.36E-01
Po-214	3.69E-05	6.97E-09	6.21E+00	4.93E-05

Table 2: Scaled Radionuclide Inventory Values As of 12/31/2033[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Po-215	5.62E-06	3.50E-08	9.46E-01	2.48E-04
Po-216	4.57E-05	2.97E-04	7.69E+00	2.10E+00
Po-218	3.63E-05	6.85E-09	6.11E+00	4.85E-05
Pr-144	8.68E-22	1.05E-16	1.46E-16	7.45E-13
Pu-236	1.09E-12	0.00E+00	1.83E-07	0.00E+00
Pu-238	7.42E+00	3.96E-01	1.25E+06	2.80E+03
Pu-239	3.91E+00	7.59E-01	6.59E+05	5.37E+03
Pu-240	6.32E-01	2.36E-01	1.07E+05	1.67E+03
Pu-241	3.05E+00	3.38E+00	5.14E+05	2.39E+04
Pu-242	1.58E-04	6.69E-05	2.66E+01	4.74E-01
Pu-243	4.63E-15	1.32E-03	7.80E-10	9.33E+00
Pu-244	7.81E-12	1.56E-07	1.32E-06	1.10E-03
Ra-223	5.68E-06	3.53E-08	9.56E-01	2.50E-04
Ra-224	4.56E-05	2.97E-04	7.68E+00	2.10E+00
Ra-225	3.12E-05	1.96E-05	5.25E+00	1.39E-01
Ra-226	3.73E-05	7.05E-09	6.28E+00	4.99E-05
Ra-228	4.53E-05	3.55E-05	7.63E+00	2.51E-01
Rh-106	2.60E-19	2.64E-15	4.38E-14	1.87E-11
Rn-219	5.61E-06	3.49E-08	9.45E-01	2.47E-04
Rn-220	4.57E-05	2.97E-04	7.70E+00	2.10E+00
Rn-222	3.69E-05	6.98E-09	6.22E+00	4.94E-05
Ru-106	2.63E-19	2.66E-15	4.42E-14	1.89E-11
Sb-125	9.96E-12	2.06E-07	1.68E-06	1.46E-03
Sb-126	0.00E+00	5.89E-09	0.00E+00	4.17E-05
Sb-126m	0.00E+00	4.20E-08	0.00E+00	2.98E-04
Se-79	7.84E-10	6.29E-06	1.32E-04	4.45E-02
Sm-147	3.10E-15	2.18E-12	5.22E-10	1.55E-08
Sm-148	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sm-151	2.63E-04	6.41E-02	4.44E+01	4.54E+02
Sn-121m	0.00E+00	4.67E-08	0.00E+00	3.31E-04
Sn-126	0.00E+00	4.21E-08	0.00E+00	2.98E-04
Sr-90	1.59E-01	1.63E+01	2.68E+04	1.15E+05
Tc-99	9.93E-04	2.25E-02	1.67E+02	1.59E+02
Te-123	4.02E-10	0.00E+00	6.78E-05	0.00E+00
Te-123m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-125m	2.41E-12	4.98E-08	4.06E-07	3.53E-04
Th-227	5.53E-06	3.44E-08	9.31E-01	2.44E-04
Th-228	4.62E-05	3.01E-04	7.79E+00	2.13E+00
Th-229	3.12E-05	1.96E-05	5.25E+00	1.39E-01
Th-230	1.00E-06	9.42E-07	1.69E-01	6.67E-03

Table 2: Scaled Radionuclide Inventory Values As of 12/31/2033[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Th-231	7.85E-06	1.31E-04	1.32E+00	9.30E-01
Th-232	3.92E-05	3.08E-05	6.61E+00	2.18E-01
Th-234	1.44E-04	1.82E-02	2.42E+01	1.29E+02
Tl-207	5.58E-06	3.48E-08	9.41E-01	2.46E-04
Tl-208	1.64E-05	1.07E-04	2.77E+00	7.57E-01
Tl-209	6.85E-07	4.31E-07	1.15E-01	3.05E-03
U-232	7.17E-06	2.62E-04	1.21E+00	1.86E+00
U-233	7.34E-03	4.82E-03	1.24E+03	3.41E+01
U-234	1.76E-03	3.11E-03	2.97E+02	2.20E+01
U-235	7.95E-06	1.33E-04	1.34E+00	9.42E-01
U-236	1.37E-06	2.01E-04	2.31E-01	1.42E+00
U-237	7.50E-05	8.30E-05	1.26E+01	5.87E-01
U-238	1.45E-04	1.83E-02	2.44E+01	1.30E+02
U-240	7.73E-12	1.54E-07	1.30E-06	1.09E-03
Y-90	1.57E-01	1.61E+01	2.65E+04	1.14E+05
Y-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	5.15E-30	0.00E+00	8.67E-25	0.00E+00
Zr-93	6.68E-09	4.79E-05	1.12E-03	3.39E-01
Zr-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00

[1]Decayed to 12/31/2033 using ORIGEN2 Version 2.2

[2]Total curies estimated by assuming a volume of 5,950,000 ft^3 for CH-TRU waste and 250,000 ft^3 for RH-TRU waste

Table 3: Scaled Radionuclide Inventory Values As of 12/31/2133[1]

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Ac-225	9.92E-05	6.43E-05	1.67E+01	4.55E-01
Ac-227	7.13E-06	2.86E-07	1.20E+00	2.03E-03
Ac-228	3.87E-05	3.04E-05	6.53E+00	2.15E-01
Ag-109m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ag-110	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ag-110m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Am-241	2.33E+00	2.00E+00	3.92E+05	1.41E+04
Am-242	1.53E-07	1.49E-05	2.57E-02	1.05E-01
Am-242m	1.55E-07	1.52E-05	2.62E-02	1.07E-01
Am-243	1.23E-04	1.16E-04	2.08E+01	8.23E-01
Am-245	0.00E+00	0.00E+00	0.00E+00	0.00E+00
At-217	9.93E-05	6.43E-05	1.67E+01	4.55E-01
Ba-137m	2.54E-03	2.28E+00	4.27E+02	1.62E+04
Bi-210	3.55E-05	6.71E-08	5.97E+00	4.75E-04
Bi-211	7.04E-06	2.83E-07	1.19E+00	2.00E-03
Bi-212	4.17E-05	1.33E-04	7.03E+00	9.41E-01
Bi-213	9.91E-05	6.42E-05	1.67E+01	4.54E-01
Bi-214	3.54E-05	1.06E-07	5.96E+00	7.48E-04
Bk-249	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bk-250	2.15E-17	0.00E+00	3.63E-12	0.00E+00
C-14	7.07E-06	2.86E-04	1.19E+00	2.02E+00
Cd-109	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cd-113m	0.00E+00	4.38E-08	0.00E+00	3.10E-04
Ce-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cf-249	3.49E-07	9.11E-08	5.88E-02	6.45E-04
Cf-250	9.98E-10	1.94E-09	1.68E-04	1.37E-05
Cf-251	1.95E-09	2.03E-08	3.29E-04	1.44E-04
Cf-252	1.07E-21	2.16E-21	1.80E-16	1.53E-17
Cm-242	1.28E-07	1.25E-05	2.16E-02	8.84E-02
Cm-243	9.50E-08	2.79E-06	1.60E-02	1.98E-02
Cm-244	3.14E-04	2.44E-04	5.30E+01	1.73E+00
Cm-245	5.37E-08	1.49E-06	9.05E-03	1.05E-02
Cm-246	9.04E-06	9.34E-05	1.52E+00	6.61E-01
Cm-247	1.37E-14	1.33E-03	2.31E-09	9.45E+00
Cm-248	5.42E-07	2.58E-07	9.14E-02	1.83E-03
Cm-250	3.92E-16	0.00E+00	6.61E-11	0.00E+00
Co-60	1.69E-13	6.84E-09	2.84E-08	4.84E-05
Cs-134	6.52E-27	2.54E-22	1.10E-21	1.80E-18
Cs-135	0.00E+00	9.75E-09	0.00E+00	6.90E-05

Table 3: Scaled Radionuclide Inventory Values As of 12/31/2133[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Cs-137	2.71E-03	2.44E+00	4.57E+02	1.73E+04
Eu-152	1.38E-08	1.18E-04	2.32E-03	8.32E-01
Eu-154	2.35E-10	1.43E-06	3.96E-05	1.01E-02
Eu-155	3.88E-15	2.53E-11	6.53E-10	1.79E-07
Fe-55	0.00E+00	3.09E-21	0.00E+00	2.19E-17
Fr-221	9.91E-05	6.42E-05	1.67E+01	4.55E-01
Fr-223	9.72E-08	3.91E-09	1.64E-02	2.77E-05
Gd-152	6.55E-19	6.10E-15	1.10E-13	4.32E-11
H-3	7.82E-07	9.81E-08	1.32E-01	6.95E-04
I-129	3.04E-09	1.16E-05	5.12E-04	8.21E-02
Kr-85	5.39E-10	3.13E-09	9.08E-05	2.22E-05
Mn-54	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Na-22	1.24E-27	2.23E-20	2.09E-22	1.58E-16
Nb-93m	6.35E-09	4.55E-05	1.07E-03	3.22E-01
Nb-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-59	4.53E-07	3.25E-03	7.64E-02	2.30E+01
Ni-63	8.17E-06	5.85E-02	1.38E+00	4.14E+02
Np-237	1.36E-04	1.86E-04	2.29E+01	1.31E+00
Np-238	7.67E-10	7.49E-08	1.29E-04	5.30E-04
Np-239	1.22E-04	1.15E-04	2.05E+01	8.12E-01
Np-240m	8.30E-12	1.57E-07	1.40E-06	1.11E-03
Pa-231	7.19E-06	3.73E-07	1.21E+00	2.64E-03
Pa-233	1.35E-04	1.84E-04	2.27E+01	1.30E+00
Pa-234	1.87E-07	2.36E-05	3.14E-02	1.67E-01
Pa-234m	1.43E-04	1.81E-02	2.42E+01	1.28E+02
Pb-209	9.92E-05	6.43E-05	1.67E+01	4.55E-01
Pb-210	3.59E-05	6.79E-08	6.04E+00	4.80E-04
Pb-211	7.05E-06	2.83E-07	1.19E+00	2.00E-03
Pb-212	4.16E-05	1.32E-04	7.00E+00	9.37E-01
Pb-214	3.54E-05	1.06E-07	5.97E+00	7.49E-04
Pd-107	0.00E+00	4.07E-10	0.00E+00	2.88E-06
Pm-147	7.69E-21	3.54E-17	1.30E-15	2.51E-13
Po-210	3.59E-05	6.78E-08	6.04E+00	4.80E-04
Po-211	2.15E-08	8.63E-10	3.62E-03	6.11E-06
Po-212	2.66E-05	8.46E-05	4.47E+00	5.99E-01
Po-213	9.70E-05	6.29E-05	1.63E+01	4.45E-01
Po-214	3.54E-05	1.06E-07	5.96E+00	7.49E-04

Table 3: Scaled Radionuclide Inventory Values As of 12/31/2133[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Po-215	7.05E-06	2.83E-07	1.19E+00	2.00E-03
Po-216	4.15E-05	1.32E-04	6.99E+00	9.36E-01
Po-218	3.48E-05	1.04E-07	5.86E+00	7.36E-04
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-236	3.00E-23	0.00E+00	5.05E-18	0.00E+00
Pu-238	3.37E+00	1.80E-01	5.67E+05	1.27E+03
Pu-239	3.90E+00	7.57E-01	6.57E+05	5.36E+03
Pu-240	6.26E-01	2.34E-01	1.05E+05	1.66E+03
Pu-241	2.48E-02	2.74E-02	4.17E+03	1.94E+02
Pu-242	1.58E-04	6.69E-05	2.66E+01	4.74E-01
Pu-243	1.36E-14	1.32E-03	2.28E-09	9.33E+00
Pu-244	8.23E-12	1.56E-07	1.39E-06	1.10E-03
Ra-223	7.12E-06	2.86E-07	1.20E+00	2.03E-03
Ra-224	4.15E-05	1.32E-04	6.99E+00	9.35E-01
Ra-225	9.92E-05	6.43E-05	1.67E+01	4.55E-01
Ra-226	3.58E-05	1.07E-07	6.03E+00	7.58E-04
Ra-228	4.57E-05	3.59E-05	7.70E+00	2.54E-01
Rh-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rn-219	7.04E-06	2.83E-07	1.19E+00	2.00E-03
Rn-220	4.15E-05	1.32E-04	7.00E+00	9.37E-01
Rn-222	3.55E-05	1.06E-07	5.97E+00	7.50E-04
Ru-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-125	1.35E-22	2.79E-18	2.27E-17	1.97E-14
Sb-126	0.00E+00	5.89E-09	0.00E+00	4.17E-05
Sb-126m	0.00E+00	4.20E-08	0.00E+00	2.97E-04
Se-79	7.83E-10	6.29E-06	1.32E-04	4.45E-02
Sm-147	3.10E-15	2.18E-12	5.22E-10	1.55E-08
Sm-148	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sm-151	1.22E-04	2.97E-02	2.05E+01	2.10E+02
Sn-121m	0.00E+00	1.17E-08	0.00E+00	8.26E-05
Sn-126	0.00E+00	4.21E-08	0.00E+00	2.98E-04
Sr-90	1.47E-02	1.50E+00	2.48E+03	1.06E+04
Tc-99	9.93E-04	2.25E-02	1.67E+02	1.59E+02
Te-123	4.02E-10	0.00E+00	6.78E-05	0.00E+00
Te-123m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-125m	3.27E-23	6.75E-19	5.50E-18	4.78E-15
Th-227	6.94E-06	2.79E-07	1.17E+00	1.97E-03
Th-228	4.20E-05	1.34E-04	7.08E+00	9.48E-01
Th-229	9.94E-05	6.44E-05	1.67E+01	4.56E-01
Th-230	3.33E-06	3.78E-06	5.60E-01	2.67E-02

Table 3: Scaled Radionuclide Inventory Values As of 12/31/2133[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Th-231	8.23E-06	1.32E-04	1.39E+00	9.31E-01
Th-232	3.92E-05	3.08E-05	6.61E+00	2.18E-01
Th-234	1.44E-04	1.82E-02	2.42E+01	1.29E+02
Tl-207	7.01E-06	2.82E-07	1.18E+00	1.99E-03
Tl-208	1.50E-05	4.76E-05	2.52E+00	3.37E-01
Tl-209	2.18E-06	1.41E-06	3.67E-01	1.00E-02
U-232	2.74E-06	1.00E-04	4.61E-01	7.09E-01
U-233	7.33E-03	4.81E-03	1.24E+03	3.41E+01
U-234	3.22E-03	3.19E-03	5.42E+02	2.26E+01
U-235	8.33E-06	1.33E-04	1.40E+00	9.43E-01
U-236	3.23E-06	2.02E-04	5.45E-01	1.43E+00
U-237	6.09E-07	6.73E-07	1.03E-01	4.77E-03
U-238	1.45E-04	1.83E-02	2.44E+01	1.30E+02
U-240	8.14E-12	1.54E-07	1.37E-06	1.09E-03
Y-90	1.46E-02	1.49E+00	2.45E+03	1.05E+04
Y-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-93	6.68E-09	4.79E-05	1.12E-03	3.39E-01
Zr-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00

[1]Decayed to 12/31/2133 using ORIGEN2 Version 2.2

[2]Total curies estimated by assuming a volume of 5,950,000 ft^3 for CH-TRU waste and 250,000 ft^3 for RH-TRU waste

Table 4: Scaled Radionuclide Inventory Values As of 12/31/2383[1]

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Ac-225	2.66E-04	1.74E-04	4.49E+01	1.23E+00
Ac-227	7.20E-06	1.07E-06	1.21E+00	7.60E-03
Ac-228	3.87E-05	3.04E-05	6.53E+00	2.15E-01
Ag-109m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ag-110	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ag-110m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Am-241	1.56E+00	1.34E+00	2.62E+05	9.47E+03
Am-242	4.88E-08	4.77E-06	8.23E-03	3.37E-02
Am-242m	4.97E-08	4.85E-06	8.37E-03	3.43E-02
Am-243	1.21E-04	1.45E-04	2.03E+01	1.02E+00
Am-245	0.00E+00	0.00E+00	0.00E+00	0.00E+00
At-217	2.67E-04	1.74E-04	4.49E+01	1.23E+00
Ba-137m	7.87E-06	7.07E-03	1.33E+00	5.01E+01
Bi-210	3.25E-05	8.52E-07	5.48E+00	6.03E-03
Bi-211	7.11E-06	1.06E-06	1.20E+00	7.50E-03
Bi-212	3.92E-05	3.98E-05	6.60E+00	2.82E-01
Bi-213	2.66E-04	1.74E-04	4.48E+01	1.23E+00
Bi-214	3.25E-05	8.51E-07	5.47E+00	6.02E-03
Bk-249	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bk-250	2.13E-17	0.00E+00	3.59E-12	0.00E+00
C-14	6.86E-06	2.77E-04	1.16E+00	1.96E+00
Cd-109	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cd-113m	0.00E+00	3.04E-13	0.00E+00	2.15E-09
Ce-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cf-249	2.13E-07	5.55E-08	3.59E-02	3.93E-04
Cf-250	1.78E-15	3.42E-15	3.00E-10	2.42E-11
Cf-251	1.61E-09	1.67E-08	2.71E-04	1.18E-04
Cf-252	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-242	4.09E-08	4.00E-06	6.90E-03	2.83E-02
Cm-243	2.17E-10	6.39E-09	3.66E-05	4.52E-05
Cm-244	2.20E-08	1.71E-08	3.70E-03	1.21E-04
Cm-245	5.82E-08	1.46E-06	9.80E-03	1.03E-02
Cm-246	8.71E-06	9.01E-05	1.47E+00	6.38E-01
Cm-247	3.35E-14	1.33E-03	5.64E-09	9.45E+00
Cm-248	5.42E-07	2.58E-07	9.13E-02	1.82E-03
Cm-250	3.88E-16	0.00E+00	6.54E-11	0.00E+00
Co-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-135	0.00E+00	9.75E-09	0.00E+00	6.90E-05

Table 4: Scaled Radionuclide Inventory Values As of 12/31/2383[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Cs-137	8.41E-06	7.56E-03	1.42E+00	5.35E+01
Eu-152	4.05E-14	3.45E-10	6.82E-09	2.44E-06
Eu-154	4.18E-19	2.55E-15	7.04E-14	1.80E-11
Eu-155	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fr-221	2.66E-04	1.74E-04	4.49E+01	1.23E+00
Fr-223	9.83E-08	1.46E-08	1.66E-02	1.04E-04
Gd-152	6.56E-19	6.11E-15	1.10E-13	4.33E-11
H-3	6.29E-13	7.90E-14	1.06E-07	5.59E-10
I-129	3.04E-09	1.16E-05	5.12E-04	8.21E-02
Kr-85	5.15E-17	2.99E-16	8.67E-12	2.12E-12
Mn-54	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Na-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-93m	6.36E-09	4.56E-05	1.07E-03	3.23E-01
Nb-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-59	4.52E-07	3.24E-03	7.62E-02	2.29E+01
Ni-63	1.24E-06	8.90E-03	2.09E-01	6.30E+01
Np-237	2.95E-04	3.23E-04	4.96E+01	2.28E+00
Np-238	2.45E-10	2.39E-08	4.13E-05	1.69E-04
Np-239	1.19E-04	1.43E-04	2.00E+01	1.01E+00
Np-240m	9.35E-12	1.57E-07	1.58E-06	1.11E-03
Pa-231	7.20E-06	1.07E-06	1.21E+00	7.60E-03
Pa-233	2.92E-04	3.20E-04	4.92E+01	2.26E+00
Pa-234	1.87E-07	2.36E-05	3.14E-02	1.67E-01
Pa-234m	1.43E-04	1.81E-02	2.42E+01	1.28E+02
Pb-209	2.66E-04	1.74E-04	4.49E+01	1.23E+00
Pb-210	3.29E-05	8.62E-07	5.54E+00	6.10E-03
Pb-211	7.12E-06	1.06E-06	1.20E+00	7.51E-03
Pb-212	3.90E-05	3.96E-05	6.58E+00	2.81E-01
Pb-214	3.26E-05	8.53E-07	5.48E+00	6.04E-03
Pd-107	0.00E+00	4.07E-10	0.00E+00	2.88E-06
Pm-147	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Po-210	3.29E-05	8.61E-07	5.54E+00	6.10E-03
Po-211	2.17E-08	3.24E-09	3.66E-03	2.29E-05
Po-212	2.49E-05	2.53E-05	4.20E+00	1.79E-01
Po-213	2.61E-04	1.70E-04	4.39E+01	1.21E+00

Table 4: Scaled Radionuclide Inventory Values As of 12/31/2383[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Po-214	3.25E-05	8.53E-07	5.48E+00	6.03E-03
Po-215	7.12E-06	1.06E-06	1.20E+00	7.51E-03
Po-216	3.90E-05	3.96E-05	6.57E+00	2.80E-01
Po-218	3.20E-05	8.38E-07	5.39E+00	5.93E-03
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-236	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-238	4.67E-01	2.50E-02	7.87E+04	1.77E+02
Pu-239	3.87E+00	7.51E-01	6.52E+05	5.32E+03
Pu-240	6.09E-01	2.28E-01	1.03E+05	1.61E+03
Pu-241	2.05E-07	1.62E-06	3.46E-02	1.15E-02
Pu-242	1.58E-04	6.69E-05	2.66E+01	4.74E-01
Pu-243	3.31E-14	1.32E-03	5.57E-09	9.33E+00
Pu-244	9.27E-12	1.56E-07	1.56E-06	1.10E-03
Ra-223	7.20E-06	1.07E-06	1.21E+00	7.59E-03
Ra-224	3.90E-05	3.96E-05	6.56E+00	2.80E-01
Ra-225	2.67E-04	1.74E-04	4.49E+01	1.23E+00
Ra-226	3.29E-05	8.62E-07	5.55E+00	6.10E-03
Ra-228	4.57E-05	3.59E-05	7.70E+00	2.54E-01
Rh-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rn-219	7.11E-06	1.06E-06	1.20E+00	7.50E-03
Rn-220	3.90E-05	3.96E-05	6.57E+00	2.80E-01
Rn-222	3.26E-05	8.54E-07	5.49E+00	6.04E-03
Ru-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-125	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-126	0.00E+00	5.87E-09	0.00E+00	4.16E-05
Sb-126m	0.00E+00	4.19E-08	0.00E+00	2.97E-04
Se-79	7.81E-10	6.27E-06	1.32E-04	4.44E-02
Sm-147	3.10E-15	2.18E-12	5.22E-10	1.55E-08
Sm-148	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sm-151	1.78E-05	4.33E-03	3.00E+00	3.06E+01
Sn-121m	0.00E+00	3.64E-10	0.00E+00	2.58E-06
Sn-126	0.00E+00	4.20E-08	0.00E+00	2.97E-04
Sr-90	3.84E-05	3.92E-03	6.47E+00	2.77E+01
Tc-99	9.92E-04	2.25E-02	1.67E+02	1.59E+02
Te-123	4.02E-10	0.00E+00	6.78E-05	0.00E+00
Te-123m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-125m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Th-227	7.01E-06	1.04E-06	1.18E+00	7.40E-03
Th-228	3.95E-05	4.01E-05	6.65E+00	2.84E-01
Th-229	2.67E-04	1.74E-04	4.50E+01	1.23E+00

Table 4: Scaled Radionuclide Inventory Values As of 12/31/2383[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Th-230	1.21E-05	1.10E-05	2.03E+00	7.81E-02
Th-231	9.18E-06	1.32E-04	1.55E+00	9.33E-01
Th-232	3.92E-05	3.08E-05	6.61E+00	2.18E-01
Th-234	1.44E-04	1.82E-02	2.42E+01	1.29E+02
Tl-207	7.08E-06	1.06E-06	1.19E+00	7.47E-03
Tl-208	1.40E-05	1.43E-05	2.37E+00	1.01E-01
Tl-209	5.86E-06	3.83E-06	9.87E-01	2.71E-02
U-232	2.47E-07	9.02E-06	4.16E-02	6.39E-02
U-233	7.33E-03	4.81E-03	1.23E+03	3.40E+01
U-234	4.25E-03	3.26E-03	7.17E+02	2.31E+01
U-235	9.29E-06	1.33E-04	1.57E+00	9.44E-01
U-236	7.81E-06	2.03E-04	1.32E+00	1.44E+00
U-237	5.04E-12	3.97E-11	8.49E-07	2.81E-07
U-238	1.45E-04	1.83E-02	2.44E+01	1.30E+02
U-240	9.17E-12	1.54E-07	1.54E-06	1.09E-03
Y-90	3.79E-05	3.87E-03	6.39E+00	2.74E+01
Y-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-93	6.68E-09	4.79E-05	1.12E-03	3.39E-01
Zr-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00

[1]Decayed to 12/31/2383 using ORIGEN2 Version 2.2

[2]Total curies estimated by assuming a volume of 5,950,000 ft^3 for CH-TRU waste and 250,000 ft^3 for RH-TRU waste

Table 5: Scaled Radionuclide Inventory Values As of 12/31/3033[1]

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Ac-225	6.82E-04	4.47E-04	1.15E+02	3.17E+00
Ac-227	7.25E-06	2.88E-06	1.22E+00	2.04E-02
Ac-228	3.87E-05	3.04E-05	6.53E+00	2.15E-01
Ag-109m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ag-110	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ag-110m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Am-241	5.49E-01	4.72E-01	9.25E+04	3.34E+03
Am-242	2.52E-09	2.46E-07	4.25E-04	1.74E-03
Am-242m	2.56E-09	2.50E-07	4.32E-04	1.77E-03
Am-243	1.13E-04	2.15E-04	1.91E+01	1.52E+00
Am-245	0.00E+00	0.00E+00	0.00E+00	0.00E+00
At-217	6.83E-04	4.48E-04	1.15E+02	3.17E+00
Ba-137m	2.36E-12	2.12E-09	3.98E-07	1.50E-05
Bi-210	3.19E-05	5.80E-06	5.38E+00	4.11E-02
Bi-211	7.16E-06	2.84E-06	1.21E+00	2.01E-02
Bi-212	3.89E-05	3.06E-05	6.55E+00	2.16E-01
Bi-213	6.82E-04	4.47E-04	1.15E+02	3.16E+00
Bi-214	3.19E-05	5.80E-06	5.38E+00	4.10E-02
Bk-249	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bk-250	2.08E-17	0.00E+00	3.50E-12	0.00E+00
C-14	6.34E-06	2.56E-04	1.07E+00	1.81E+00
Cd-109	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cd-113m	0.00E+00	1.18E-26	0.00E+00	8.32E-23
Ce-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cf-249	5.89E-08	1.54E-08	9.92E-03	1.09E-04
Cf-250	2.11E-17	0.00E+00	3.55E-12	0.00E+00
Cf-251	9.74E-10	1.01E-08	1.64E-04	7.17E-05
Cf-252	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-242	2.11E-09	2.06E-07	3.56E-04	1.46E-03
Cm-243	2.96E-17	8.70E-16	4.99E-12	6.16E-12
Cm-244	3.45E-19	2.68E-19	5.81E-14	1.89E-15
Cm-245	6.14E-08	1.38E-06	1.03E-02	9.79E-03
Cm-246	7.92E-06	8.19E-05	1.33E+00	5.80E-01
Cm-247	7.00E-14	1.33E-03	1.18E-08	9.45E+00
Cm-248	5.41E-07	2.57E-07	9.12E-02	1.82E-03
Cm-250	3.78E-16	0.00E+00	6.37E-11	0.00E+00
Co-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-135	0.00E+00	9.74E-09	0.00E+00	6.90E-05

Table 5: Scaled Radionuclide Inventory Values As of 12/31/3033' (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Cs-137	2.53E-12	2.27E-09	4.25E-07	1.61E-05
Eu-152	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eu-154	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eu-155	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fr-221	6.82E-04	4.47E-04	1.15E+02	3.16E+00
Fr-223	9.89E-08	3.93E-08	1.67E-02	2.78E-04
Gd-152	6.56E-19	6.11E-15	1.10E-13	4.33E-11
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-129	3.04E-09	1.16E-05	5.12E-04	8.20E-02
Kr-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mn-54	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Na-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-93m	6.36E-09	4.55E-05	1.07E-03	3.22E-01
Nb-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-59	4.50E-07	3.22E-03	7.58E-02	2.28E+01
Ni-63	9.28E-09	6.65E-05	1.56E-03	4.70E-01
Np-237	4.98E-04	4.98E-04	8.39E+01	3.52E+00
Np-238	1.27E-11	1.24E-09	2.13E-06	8.75E-06
Np-239	1.12E-04	2.12E-04	1.89E+01	1.50E+00
Np-240m	1.21E-11	1.57E-07	2.04E-06	1.11E-03
Pa-231	7.24E-06	2.88E-06	1.22E+00	2.04E-02
Pa-233	4.94E-04	4.93E-04	8.32E+01	3.49E+00
Pa-234	1.87E-07	2.36E-05	3.14E-02	1.67E-01
Pa-234m	1.43E-04	1.81E-02	2.42E+01	1.28E+02
Pb-209	6.82E-04	4.47E-04	1.15E+02	3.16E+00
Pb-210	3.23E-05	5.87E-06	5.44E+00	4.15E-02
Pb-211	7.17E-06	2.85E-06	1.21E+00	2.02E-02
Pb-212	3.88E-05	3.05E-05	6.53E+00	2.16E-01
Pb-214	3.20E-05	5.81E-06	5.39E+00	4.11E-02
Pd-107	0.00E+00	4.07E-10	0.00E+00	2.88E-06
Pm-147	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Po-210	3.23E-05	5.87E-06	5.44E+00	4.15E-02
Po-211	2.18E-08	8.68E-09	3.68E-03	6.15E-05
Po-212	2.48E-05	1.95E-05	4.18E+00	1.38E-01
Po-213	6.68E-04	4.37E-04	1.12E+02	3.10E+00
Po-214	3.20E-05	5.81E-06	5.38E+00	4.11E-02

Table 5: Scaled Radionuclide Inventory Values As of 12/31/3033[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Po-215	7.17E-06	2.85E-06	1.21E+00	2.02E-02
Po-216	3.88E-05	3.04E-05	6.53E+00	2.15E-01
Po-218	3.14E-05	5.71E-06	5.29E+00	4.04E-02
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-236	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-238	2.75E-03	1.47E-04	4.64E+02	1.04E+00
Pu-239	3.80E+00	7.37E-01	6.40E+05	5.22E+03
Pu-240	5.69E-01	2.13E-01	9.58E+04	1.51E+03
Pu-241	6.12E-08	1.38E-06	1.03E-02	9.77E-03
Pu-242	1.58E-04	6.70E-05	2.66E+01	4.74E-01
Pu-243	6.92E-14	1.32E-03	1.17E-08	9.33E+00
Pu-244	1.20E-11	1.56E-07	2.02E-06	1.10E-03
Ra-223	7.24E-06	2.88E-06	1.22E+00	2.04E-02
Ra-224	3.87E-05	3.04E-05	6.52E+00	2.15E-01
Ra-225	6.83E-04	4.47E-04	1.15E+02	3.17E+00
Ra-226	3.23E-05	5.87E-06	5.45E+00	4.16E-02
Ra-228	4.57E-05	3.59E-05	7.70E+00	2.54E-01
Rh-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rn-219	7.16E-06	2.85E-06	1.21E+00	2.01E-02
Rn-220	3.88E-05	3.04E-05	6.53E+00	2.15E-01
Rn-222	3.20E-05	5.81E-06	5.39E+00	4.11E-02
Ru-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-125	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-126	0.00E+00	5.85E-09	0.00E+00	4.14E-05
Sb-126m	0.00E+00	4.18E-08	0.00E+00	2.96E-04
Se-79	7.75E-10	6.23E-06	1.31E-04	4.41E-02
Sm-147	3.10E-15	2.18E-12	5.22E-10	1.55E-08
Sm-148	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sm-151	1.19E-07	2.90E-05	2.00E-02	2.05E-01
Sn-121m	0.00E+00	4.42E-14	0.00E+00	3.13E-10
Sn-126	0.00E+00	4.18E-08	0.00E+00	2.96E-04
Sr-90	7.33E-12	7.48E-10	1.23E-06	5.30E-06
Tc-99	9.90E-04	2.24E-02	1.67E+02	1.59E+02
Te-123	4.02E-10	0.00E+00	6.78E-05	0.00E+00
Te-123m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-125m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Th-227	7.06E-06	2.80E-06	1.19E+00	1.99E-02
Th-228	3.92E-05	3.08E-05	6.61E+00	2.18E-01
Th-229	6.84E-04	4.48E-04	1.15E+02	3.17E+00
Th-230	4.14E-05	3.03E-05	6.98E+00	2.14E-01

Table 5: Scaled Radionuclide Inventory Values As of 12/31/3033[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Th-231	1.16E-05	1.32E-04	1.96E+00	9.36E-01
Th-232	3.92E-05	3.08E-05	6.61E+00	2.18E-01
Th-234	1.44E-04	1.82E-02	2.42E+01	1.29E+02
Tl-207	7.13E-06	2.83E-06	1.20E+00	2.00E-02
Tl-208	1.40E-05	1.10E-05	2.35E+00	7.76E-02
Tl-209	1.50E-05	9.83E-06	2.53E+00	6.96E-02
U-232	4.72E-10	1.73E-08	7.96E-05	1.22E-04
U-233	7.31E-03	4.80E-03	1.23E+03	3.40E+01
U-234	4.42E-03	3.29E-03	7.44E+02	2.33E+01
U-235	1.18E-05	1.34E-04	1.98E+00	9.47E-01
U-236	1.92E-05	2.08E-04	3.23E+00	1.47E+00
U-237	1.50E-12	3.39E-11	2.53E-07	2.40E-07
U-238	1.45E-04	1.83E-02	2.44E+01	1.30E+02
U-240	1.18E-11	1.54E-07	2.00E-06	1.09E-03
Y-90	7.25E-12	7.40E-10	1.22E-06	5.23E-06
Y-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-93	6.68E-09	4.78E-05	1.12E-03	3.39E-01
Zr-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00

[1]Decayed to 12/31/3033 using ORIGEN2 Version 2.2

[2]Total curies estimated by assuming a volume of 5,950,000 ft^3 for CH-TRU waste and 250,000 ft^3 for RH-TRU waste

Table 6: Scaled Radionuclide Inventory Values As of 12/31/7033[1]

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Ac-225	2.73E-03	1.79E-03	4.60E+02	1.27E+01
Ac-227	8.21E-06	1.36E-05	1.38E+00	9.63E-02
Ac-228	3.87E-05	3.04E-05	6.53E+00	2.15E-01
Ag-109m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ag-110	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ag-110m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Am-241	9.00E-04	7.74E-04	1.52E+02	5.48E+00
Am-242	3.02E-17	2.95E-15	5.09E-12	2.09E-11
Am-242m	3.07E-17	3.00E-15	5.17E-12	2.12E-11
Am-243	7.79E-05	5.67E-04	1.31E+01	4.01E+00
Am-245	0.00E+00	0.00E+00	0.00E+00	0.00E+00
At-217	2.73E-03	1.79E-03	4.60E+02	1.27E+01
Ba-137m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bi-210	1.20E-04	8.70E-05	2.02E+01	6.16E-01
Bi-211	8.10E-06	1.34E-05	1.36E+00	9.51E-02
Bi-212	3.89E-05	3.06E-05	6.55E+00	2.16E-01
Bi-213	2.72E-03	1.79E-03	4.59E+02	1.27E+01
Bi-214	1.20E-04	8.69E-05	2.01E+01	6.15E-01
Bk-249	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bk-250	1.77E-17	0.00E+00	2.99E-12	0.00E+00
C-14	3.91E-06	1.58E-04	6.58E-01	1.12E+00
Cd-109	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cd-113m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cf-249	2.16E-11	5.63E-12	3.64E-06	3.99E-08
Cf-250	1.79E-17	0.00E+00	3.02E-12	0.00E+00
Cf-251	4.44E-11	4.62E-10	7.48E-06	3.27E-06
Cf-252	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-242	2.54E-17	2.48E-15	4.28E-12	1.75E-11
Cm-243	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-244	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-245	4.61E-08	9.99E-07	7.77E-03	7.07E-03
Cm-246	4.41E-06	4.56E-05	7.43E-01	3.23E-01
Cm-247	1.24E-13	1.33E-03	2.08E-08	9.45E+00
Cm-248	5.37E-07	2.55E-07	9.04E-02	1.81E-03
Cm-250	3.23E-16	0.00E+00	5.43E-11	0.00E+00
Co-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-135	0.00E+00	9.73E-09	0.00E+00	6.89E-05

Table 6: Scaled Radionuclide Inventory Values As of 12/31/7033[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Cs-137	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eu-152	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eu-154	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eu-155	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fr-221	2.73E-03	1.79E-03	4.59E+02	1.27E+01
Fr-223	1.12E-07	1.86E-07	1.89E-02	1.31E-03
Gd-152	6.56E-19	6.11E-15	1.10E-13	4.33E-11
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-129	3.04E-09	1.16E-05	5.12E-04	8.20E-02
Kr-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mn-54	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Na-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-93m	6.35E-09	4.55E-05	1.07E-03	3.22E-01
Nb-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-59	4.34E-07	3.11E-03	7.32E-02	2.20E+01
Ni-63	7.57E-22	5.42E-18	1.27E-16	3.84E-14
Np-237	6.05E-04	5.88E-04	1.02E+02	4.16E+00
Np-238	1.52E-19	1.48E-17	2.56E-14	1.05E-13
Np-239	7.69E-05	5.59E-04	1.29E+01	3.96E+00
Np-240m	2.88E-11	1.57E-07	4.85E-06	1.11E-03
Pa-231	8.20E-06	1.36E-05	1.38E+00	9.63E-02
Pa-233	5.99E-04	5.83E-04	1.01E+02	4.13E+00
Pa-234	1.87E-07	2.36E-05	3.14E-02	1.67E-01
Pa-234m	1.43E-04	1.81E-02	2.42E+01	1.28E+02
Pb-209	2.73E-03	1.79E-03	4.59E+02	1.27E+01
Pb-210	1.21E-04	8.80E-05	2.04E+01	6.23E-01
Pb-211	8.11E-06	1.35E-05	1.37E+00	9.52E-02
Pb-212	3.88E-05	3.05E-05	6.53E+00	2.16E-01
Pb-214	1.20E-04	8.71E-05	2.02E+01	6.16E-01
Pd-107	0.00E+00	4.07E-10	0.00E+00	2.88E-06
Pm-147	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Po-210	1.21E-04	8.79E-05	2.04E+01	6.22E-01
Po-211	2.47E-08	4.10E-08	4.17E-03	2.90E-04
Po-212	2.48E-05	1.95E-05	4.18E+00	1.38E-01
Po-213	2.67E-03	1.75E-03	4.49E+02	1.24E+01

Table 6: Scaled Radionuclide Inventory Values As of 12/31/7033[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Po-214	1.20E-04	8.70E-05	2.02E+01	6.16E-01
Po-215	8.11E-06	1.35E-05	1.37E+00	9.53E-02
Po-216	3.88E-05	3.04E-05	6.53E+00	2.15E-01
Po-218	1.18E-04	8.56E-05	1.98E+01	6.06E-01
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-236	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-238	1.12E-16	5.89E-15	1.89E-11	4.17E-11
Pu-239	3.39E+00	6.57E-01	5.71E+05	4.65E+03
Pu-240	3.72E-01	1.39E-01	6.27E+04	9.85E+02
Pu-241	4.60E-08	9.97E-07	7.75E-03	7.06E-03
Pu-242	1.57E-04	6.69E-05	2.64E+01	4.74E-01
Pu-243	1.22E-13	1.32E-03	2.06E-08	9.33E+00
Pu-244	2.85E-11	1.56E-07	4.81E-06	1.10E-03
Ra-223	8.20E-06	1.36E-05	1.38E+00	9.63E-02
Ra-224	3.87E-05	3.04E-05	6.52E+00	2.15E-01
Ra-225	2.73E-03	1.79E-03	4.60E+02	1.27E+01
Ra-226	1.21E-04	8.80E-05	2.04E+01	6.23E-01
Ra-228	4.57E-05	3.59E-05	7.70E+00	2.54E-01
Rh-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rn-219	8.10E-06	1.34E-05	1.37E+00	9.51E-02
Rn-220	3.88E-05	3.04E-05	6.53E+00	2.15E-01
Rn-222	1.20E-04	8.72E-05	2.02E+01	6.17E-01
Ru-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-125	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-126	0.00E+00	5.69E-09	0.00E+00	4.03E-05
Sb-126m	0.00E+00	4.06E-08	0.00E+00	2.87E-04
Se-79	7.43E-10	5.97E-06	1.25E-04	4.22E-02
Sm-147	3.10E-15	2.18E-12	5.22E-10	1.55E-08
Sm-148	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sm-151	4.96E-21	1.21E-18	8.36E-16	8.55E-15
Sn-121m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sn-126	0.00E+00	4.07E-08	0.00E+00	2.88E-04
Sr-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99	9.77E-04	2.21E-02	1.65E+02	1.57E+02
Te-123	4.02E-10	0.00E+00	6.78E-05	0.00E+00
Te-123m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-125m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Th-227	7.99E-06	1.32E-05	1.35E+00	9.38E-02
Th-228	3.92E-05	3.08E-05	6.61E+00	2.18E-01
Th-229	2.73E-03	1.79E-03	4.61E+02	1.27E+01

Table 6: Scaled Radionuclide Inventory Values As of 12/31/7033[1] (continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Th-230	1.95E-04	1.49E-04	3.29E+01	1.05E+00
Th-231	2.56E-05	1.35E-04	4.31E+00	9.55E-01
Th-232	3.92E-05	3.08E-05	6.61E+00	2.18E-01
Th-234	1.44E-04	1.82E-02	2.42E+01	1.29E+02
Tl-207	8.07E-06	1.34E-05	1.36E+00	9.47E-02
Tl-208	1.40E-05	1.10E-05	2.35E+00	7.76E-02
Tl-209	6.00E-05	3.94E-05	1.01E+01	2.79E-01
U-232	8.90E-27	3.26E-25	1.50E-21	2.30E-21
U-233	7.19E-03	4.73E-03	1.21E+03	3.34E+01
U-234	4.37E-03	3.46E-03	7.36E+02	2.45E+01
U-235	2.59E-05	1.37E-04	4.36E+00	9.67E-01
U-236	7.41E-05	2.28E-04	1.25E+01	1.62E+00
U-237	1.13E-12	2.45E-11	1.90E-07	1.73E-07
U-238	1.45E-04	1.83E-02	2.44E+01	1.30E+02
U-240	2.82E-11	1.54E-07	4.76E-06	1.09E-03
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-93	6.66E-09	4.78E-05	1.12E-03	3.38E-01
Zr-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-137	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eu-152	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eu-154	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eu-155	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00

[1]Decayed to 12/31/7033 using ORIGEN2 Version 2.2

[2]Total curies estimated by assuming a volume of 5,950,000 ft^3 for CH-TRU waste and 250,000 ft^3 for RH-TRU waste

Table 7: Scaled Radionuclide Inventory Values As of 12/31/12033[1]

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Ac-225	4.36E-03	2.86E-03	7.34E+02	2.03E+01
Ac-227	1.08E-05	2.61E-05	1.82E+00	1.85E-01
Ac-228	3.87E-05	3.04E-05	6.53E+00	2.15E-01
Ag-109m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ag-110	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ag-110m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Am-241	3.27E-07	9.19E-07	5.51E-02	6.50E-03
Am-242	3.79E-27	3.70E-25	6.38E-22	2.62E-21
Am-242m	3.85E-27	3.76E-25	6.49E-22	2.66E-21
Am-243	4.87E-05	8.55E-04	8.20E+00	6.05E+00
Am-245	0.00E+00	0.00E+00	0.00E+00	0.00E+00
At-217	4.36E-03	2.86E-03	7.34E+02	2.03E+01
Ba-137m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bi-210	2.92E-04	2.28E-04	4.91E+01	1.61E+00
Bi-211	1.07E-05	2.58E-05	1.79E+00	1.82E-01
Bi-212	3.89E-05	3.06E-05	6.55E+00	2.16E-01
Bi-213	4.35E-03	2.86E-03	7.33E+02	2.02E+01
Bi-214	2.92E-04	2.28E-04	4.91E+01	1.61E+00
Bk-249	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bk-250	1.45E-17	0.00E+00	2.45E-12	0.00E+00
C-14	2.13E-06	8.62E-05	3.60E-01	6.10E-01
Cd-109	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cd-113m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cf-249	1.10E-15	2.86E-16	1.84E-10	2.02E-12
Cf-250	1.47E-17	0.00E+00	2.48E-12	0.00E+00
Cf-251	9.37E-13	9.74E-12	1.58E-07	6.90E-08
Cf-252	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-242	3.18E-27	3.11E-25	5.36E-22	2.20E-21
Cm-243	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-244	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-245	3.07E-08	6.64E-07	5.17E-03	4.70E-03
Cm-246	2.12E-06	2.19E-05	3.57E-01	1.55E-01
Cm-247	1.26E-13	1.33E-03	2.13E-08	9.44E+00
Cm-248	5.31E-07	2.53E-07	8.95E-02	1.79E-03
Cm-250	2.64E-16	0.00E+00	4.45E-11	0.00E+00
Co-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-135	0.00E+00	9.72E-09	0.00E+00	6.88E-05

Table 7: Scaled Radionuclide Inventory Values As of 12/31/12033[1](continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Cs-137	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eu-152	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eu-154	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eu-155	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fr-221	4.35E-03	2.86E-03	7.33E+02	2.02E+01
Fr-223	1.47E-07	3.56E-07	2.48E-02	2.52E-03
Gd-152	6.56E-19	6.11E-15	1.10E-13	4.33E-11
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-129	3.04E-09	1.16E-05	5.12E-04	8.20E-02
Kr-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mn-54	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Na-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-93m	6.33E-09	4.54E-05	1.07E-03	3.21E-01
Nb-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-59	4.16E-07	2.98E-03	7.01E-02	2.11E+01
Ni-63	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-237	6.04E-04	5.88E-04	1.02E+02	4.16E+00
Np-238	1.90E-29	1.86E-27	3.20E-24	1.31E-23
Np-239	4.81E-05	8.44E-04	8.10E+00	5.97E+00
Np-240m	4.95E-11	1.57E-07	8.34E-06	1.11E-03
Pa-231	1.08E-05	2.61E-05	1.82E+00	1.85E-01
Pa-233	5.99E-04	5.82E-04	1.01E+02	4.12E+00
Pa-234	1.87E-07	2.36E-05	3.14E-02	1.67E-01
Pa-234m	1.43E-04	1.81E-02	2.42E+01	1.28E+02
Pb-209	4.36E-03	2.86E-03	7.34E+02	2.02E+01
Pb-210	2.95E-04	2.30E-04	4.97E+01	1.63E+00
Pb-211	1.07E-05	2.58E-05	1.80E+00	1.83E-01
Pb-212	3.88E-05	3.05E-05	6.53E+00	2.16E-01
Pb-214	2.92E-04	2.28E-04	4.92E+01	1.61E+00
Pd-107	0.00E+00	4.07E-10	0.00E+00	2.88E-06
Pm-147	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Po-210	2.95E-04	2.30E-04	4.97E+01	1.63E+00
Po-211	3.25E-08	7.86E-08	5.48E-03	5.57E-04
Po-212	2.48E-05	1.95E-05	4.18E+00	1.38E-01
Po-213	4.26E-03	2.80E-03	7.18E+02	1.98E+01
Po-214	2.92E-04	2.28E-04	4.92E+01	1.61E+00

Table 7: Scaled Radionuclide Inventory Values As of 12/31/12033[1](continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Po-215	1.07E-05	2.58E-05	1.80E+00	1.83E-01
Po-216	3.88E-05	3.04E-05	6.53E+00	2.15E-01
Po-218	2.87E-04	2.24E-04	4.83E+01	1.59E+00
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-236	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-238	7.56E-27	7.37E-25	1.27E-21	5.22E-21
Pu-239	2.93E+00	5.69E-01	4.94E+05	4.03E+03
Pu-240	2.19E-01	8.19E-02	3.69E+04	5.80E+02
Pu-241	3.06E-08	6.63E-07	5.15E-03	4.69E-03
Pu-242	1.55E-04	6.66E-05	2.62E+01	4.72E-01
Pu-243	1.25E-13	1.32E-03	2.10E-08	9.33E+00
Pu-244	4.90E-11	1.56E-07	8.26E-06	1.10E-03
Ra-223	1.08E-05	2.61E-05	1.82E+00	1.85E-01
Ra-224	3.87E-05	3.04E-05	6.52E+00	2.15E-01
Ra-225	4.36E-03	2.86E-03	7.34E+02	2.03E+01
Ra-226	2.95E-04	2.31E-04	4.98E+01	1.63E+00
Ra-228	4.57E-05	3.59E-05	7.70E+00	2.54E-01
Rh-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rn-219	1.07E-05	2.58E-05	1.80E+00	1.82E-01
Rn-220	3.88E-05	3.04E-05	6.53E+00	2.15E-01
Rn-222	2.92E-04	2.28E-04	4.92E+01	1.62E+00
Ru-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-125	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-126	0.00E+00	5.49E-09	0.00E+00	3.89E-05
Sb-126m	0.00E+00	3.92E-08	0.00E+00	2.78E-04
Se-79	7.05E-10	5.66E-06	1.19E-04	4.00E-02
Sm-147	3.10E-15	2.18E-12	5.22E-10	1.55E-08
Sm-148	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sm-151	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sn-121m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sn-126	0.00E+00	3.93E-08	0.00E+00	2.78E-04
Sr-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99	9.61E-04	2.18E-02	1.62E+02	1.54E+02
Te-123	4.02E-10	0.00E+00	6.78E-05	0.00E+00
Te-123m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-125m	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Th-227	1.05E-05	2.54E-05	1.77E+00	1.80E-01
Th-228	3.92E-05	3.08E-05	6.61E+00	2.18E-01
Th-229	4.36E-03	2.87E-03	7.35E+02	2.03E+01
Th-230	3.77E-04	2.99E-04	6.36E+01	2.12E+00

Table 7: Scaled Radionuclide Inventory Values As of 12/31/12033[1](continued)

Radionuclide	CH-TRU Waste (Ci/m^3)	RH-TRU Waste (Ci/m^3)	CH-TRU Waste (Total Curies[2])	RH-TRU Waste (Total Curies[2])
Th-231	4.10E-05	1.38E-04	6.90E+00	9.76E-01
Th-232	3.92E-05	3.08E-05	6.61E+00	2.18E-01
Th-234	1.44E-04	1.82E-02	2.42E+01	1.29E+02
Tl-207	1.06E-05	2.57E-05	1.79E+00	1.82E-01
Tl-208	1.40E-05	1.10E-05	2.35E+00	7.76E-02
Tl-209	9.58E-05	6.29E-05	1.61E+01	4.45E-01
U-232	0.00E+00	0.00E+00	0.00E+00	0.00E+00
U-233	7.05E-03	4.64E-03	1.19E+03	3.28E+01
U-234	4.31E-03	3.67E-03	7.26E+02	2.60E+01
U-235	4.15E-05	1.40E-04	6.99E+00	9.88E-01
U-236	1.17E-04	2.44E-04	1.97E+01	1.73E+00
U-237	7.51E-13	1.63E-11	1.26E-07	1.15E-07
U-238	1.45E-04	1.83E-02	2.44E+01	1.30E+02
U-240	4.85E-11	1.54E-07	8.18E-06	1.09E-03
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-93	6.65E-09	4.77E-05	1.12E-03	3.37E-01
Zr-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00

[1]Decayed to 12/31/12033 using ORIGEN2 Version 2.2

[2]Total curies estimated by assuming a volume of 5,950,000 ft^3 for CH-TRU waste and 250,000 ft^3 for RH-TRU waste