**A Comprehensive Inventory of Radiological and
Nonradiological Contaminants in Waste Buried or
Projected to be Buried in the Subsurface Disposal
Area of the INEL RWMC During the Years 1984-2003**

Volume 3

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PREFACE

This report, *A Comprehensive Inventory of Radiological and Nonradiological Contaminants in Waste Buried or Projected to be Buried in the Subsurface Disposal Area of the INEL RWMC During the Years 1984–2003*, is composed of three volumes. Volume 1 consists of the main body of the report and Appendices A, C, D, E, F, and G. Appendix B, the complete printout of the inventory database, is provided in Volumes 2 and 3. Because of its size, distribution of Appendix B has been limited. A copy of the volumes containing Appendix B can be provided on request.

DISCLAIMER

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

Appendix B

Complete Printout of Contaminant Inventory and Other Information from the CIDRA Database

(continued)

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 268

1. Preparer: Amaro, C.
2. Date prepared: 07/03/94
3. Generator: TRA
(area or contractor - use code from attached list)
4. Particular facility: 603
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Resin.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1984 Ending year 1993
9. Waste stream volume:
Amount 451.0130 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume
10. Comments (specify number of pertinent question):
4. Also 670 and 632.

General physical form (see attached list) 2. Details on physical form(particularly confinement related)
 Granular.

[ ] other (specify)

Chemical form:

Unknown.

4. Inner packaging: [ ] plastic bag [ ] plastic liner
 [ ] metal liner [ ] none [X] other (specify)
 Other.

Waste container type (see attached list)
 Other.

6. Other characteristics of interest:

Comments (specify number of pertinent question):

5. Also RD5, O is a cask.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
None.										

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column.
If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Resin.	Unknown.	T .02564000000000	CI	1984	1984	N			See continuation page.
C-14	Resin.	Unknown.	T .22050000000000	CI	1984	1984	N			See continuation page.
Fe-55	Resin.	Unknown.	T 10.260000000000	CI	1984	1984	N			See continuation page.
Ni-59	Resin.	Unknown.	T .14360000000000	CI	1984	1984	N			See continuation page.
Ni-63	Resin.	Unknown.	T 14.360000000000	CI	1984	1984	N			See continuation page.
Co-60	Resin.	Unknown.	T 34.880000000000	CI	1984	1984	N			See continuation page.
Sr-90	Resin.	Unknown.	T 14.360000000000	CI	1984	1984	N			See continuation page.
Tc-99	Resin.	Unknown.	T .00076930000000	CI	1984	1984	N			See continuation page.
I-129	Resin.	Unknown.	T .00000318000000	CI	1984	1984	N			See continuation page.

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For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Resin.	Unknown.	T 15.900000000000	CI	1984	1984	N			See continuation page.
Ce-144	Resin.	Unknown.	T .39490000000000	CI	1984	1984	N			See continuation page.
Eu-154	Resin.	Unknown.	T .37440000000000	CI	1984	1984	N			See continuation page.
Eu-155	Resin.	Unknown.	T .15900000000000	CI	1984	1984	N			See continuation page.
U-234	Resin.	Unknown.	T .00021540000000	CI	1984	1984	N			See continuation page.
U-235	Resin.	Unknown.	T .00000471800000	CI	1984	1984	N			See continuation page.
U-236	Resin.	Unknown.	T .00008719000000	CI	1984	1984	N			See continuation page.
Np-237	Resin.	Unknown.	T .00013330000000	CI	1984	1984	N			See continuation page.
Pu-238	Resin.	Unknown.	T .00923200000000	CI	1984	1984	N			See continuation page.

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Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Resin.	Unknown.	T .00235900000000	CI	1984	1984	N			See continuation page.
Pu-240	Resin.	Unknown.	T .00143600000000	CI	1984	1984	N			See continuation page.
Pu-241	Resin.	Unknown.	T .76930000000000	CI	1984	1984	N			See continuation page.
Am-241	Resin.	Unknown.	T .20510000000000	CI	1984	1984	N			See continuation page.
Cm-242	Resin.	Unknown.	T .01436000000000	CI	1984	1984	N			See continuation page.
Cm-244	Resin.	Unknown.	T .00666700000000	CI	1984	1984	N			See continuation page.
Ba-140	Resin.	Unknown.	T .96736000000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.
Ce-141	Resin.	Unknown.	T .92100000000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.
Ce-144	Resin.	Unknown.	T 4.48500000000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-58	Resin.	Unknown.	T .79048000000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.
Co-60	Resin.	Unknown.	T 30.213100000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.
Cr-51	Resin.	Unknown.	T 675.21000000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.
Cs-134	Resin.	Unknown.	T .29628000000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.
Cs-137	Resin.	Unknown.	T .26080000000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.
La-140	Resin.	Unknown.	T 1.0693600000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.
Mn-54	Resin.	Unknown.	T .23848000000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.
Nb-95	Resin.	Unknown.	T .75200000000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.
Zn-65	Resin.	Unknown.	T .47600000000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Zr-95	Resin.	Unknown.	T 1.1280000000000	CI	1984	1984	N	-20%	+20%	See comment (a) below.
H-3	Resin.	Unknown.	T .012380000000000	CI	1985	1985	N			See continuation page.
C-14	Resin.	Unknown.	T .106500000000000	CI	1985	1985	N			See continuation page.
Fe-55	Resin.	Unknown.	T 4.95400000000000	CI	1985	1985	N			See continuation page.
Ni-59	Resin.	Unknown.	T .069350000000000	CI	1985	1985	N			See continuation page.
Ni-63	Resin.	Unknown.	T 6.93500000000000	CI	1985	1985	N			See continuation page.
Co-60	Resin.	Unknown.	T 16.8400000000000	CI	1985	1985	N			See continuation page.
Sr-90	Resin.	Unknown.	T 6.93500000000000	CI	1985	1985	N			See continuation page.
Tc-99	Resin.	Unknown.	T .000371500000000	CI	1985	1985	N			See continuation page.

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Additional information or explanations (indicate pertinent contaminant)

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I-129	Resin.	Unknown.	T .00000153560000	CI	1985	1985	N			See continuation page.
Cs-137	Resin.	Unknown.	T 7.67800000000000	CI	1985	1985	N			See continuation page.
Ce-144	Resin.	Unknown.	T .190700000000000	CI	1985	1985	N			See continuation page.
Eu-154	Resin.	Unknown.	T .180800000000000	CI	1985	1985	N			See continuation page.
Eu-155	Resin.	Unknown.	T .076780000000000	CI	1985	1985	N			See continuation page.
U-234	Resin.	Unknown.	T .000104000000000	CI	1985	1985	N			See continuation page.
U-235	Resin.	Unknown.	T .00000227900000	CI	1985	1985	N			See continuation page.
U-236	Resin.	Unknown.	T .00004211000000	CI	1985	1985	N			See continuation page.
Np-237	Resin.	Unknown.	T .00006440000000	CI	1985	1985	N			See continuation page.

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Pu-238	Resin.	Unknown.	T .00445800000000	CI	1985	1985	N			See continuation page.
Pu-239	Resin.	Unknown.	T .00113900000000	CI	1985	1985	N			See continuation page.
Pu-240	Resin.	Unknown.	T .00069350000000	CI	1985	1985	N			See continuation page.
Pu-241	Resin.	Unknown.	T .37150000000000	CI	1985	1985	N			See continuation page.
Am-241	Resin.	Unknown.	T .09907000000000	CI	1985	1985	N			See continuation page.
Cm-242	Resin.	Unknown.	T .00693500000000	CI	1985	1985	N			See continuation page.
Cm-244	Resin.	Unknown.	T .00322000000000	CI	1985	1985	N			See continuation page.
Ba-140	Resin.	Unknown.	T .07800000000000	CI	1985	1985	N	-20%	+20%	See comment (a) below.
Ce-141	Resin.	Unknown.	T .38000000000000	CI	1985	1985	N	-20%	+20%	See comment (a) below.

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Ce-144	Resin.	Unknown.	T .510000000000000	CI	1985	1985	N	-20%	+20%	See comment (a) below.
Co-58	Resin.	Unknown.	T 19.4400000000000	CI	1985	1985	N	-20%	+20%	See comment (a) below.
Co-60	Resin.	Unknown.	T 2019.02600000000	CI	1985	1985	N	-20%	+20%	See comment (a) below.
Cr-51	Resin.	Unknown.	T .140000000000000	CI	1985	1985	N	-20%	+20%	See comment (a) below.
Cs-134	Resin.	Unknown.	T .125000000000000	CI	1985	1985	N	-20%	+20%	See comment (a) below.
Cs-137	Resin.	Unknown.	T .283200000000000	CI	1985	1985	N	-20%	+20%	See comment (a) below.
La-140	Resin.	Unknown.	T .084600000000000	CI	1985	1985	N	-20%	+20%	See comment (a) below.
Mn-54	Resin.	Unknown.	T .543000000000000	CI	1985	1985	N	-20%	+20%	See comment (a) below.
Nb-95	Resin.	Unknown.	T .138000000000000	CI	1985	1985	N	-20%	+20%	See comment (a) below.

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Zn-65	Resin.	Unknown.	T .32640000000000	CI	1985	1985	N	-20%	+20%	See comment (a) below.
H-3	Resin.	Unknown.	T .00435500000000	CI	1986	1986	N			See continuation page.
C-14	Resin.	Unknown.	T .03746000000000	CI	1986	1986	N			See continuation page.
Fe-55	Resin.	Unknown.	T 1.74200000000000	CI	1986	1986	N			See continuation page.
Ni-59	Resin.	Unknown.	T .02439000000000	CI	1986	1986	N			See continuation page.
Ni-63	Resin.	Unknown.	T 2.43900000000000	CI	1986	1986	N			See continuation page.
Co-60	Resin.	Unknown.	T 5.92300000000000	CI	1986	1986	N			See continuation page.
Sr-90	Resin.	Unknown.	T 2.43900000000000	CI	1986	1986	N			See continuation page.
Tc-99	Resin.	Unknown.	T .00013070000000	CI	1986	1986	N			See continuation page.

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I-129	Resin.	Unknown.	T .00000054000000	CI	1986	1986	N			See continuation page.
Cs-137	Resin.	Unknown.	T 2.70000000000000	CI	1986	1986	N			See continuation page.
Ce-144	Resin.	Unknown.	T .06707000000000	CI	1986	1986	N			See continuation page.
Eu-154	Resin.	Unknown.	T .06359000000000	CI	1986	1986	N			See continuation page.
Eu-155	Resin.	Unknown.	T .02700000000000	CI	1986	1986	N			See continuation page.
U-234	Resin.	Unknown.	T .00003658000000	CI	1986	1986	N			See continuation page.
U-235	Resin.	Unknown.	T .00000080140000	CI	1986	1986	N			See continuation page.
U-236	Resin.	Unknown.	T .00001481000000	CI	1986	1986	N			See continuation page.
Np-237	Resin.	Unknown.	T .00002265000000	CI	1986	1986	N			See continuation page.

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Pu-238	Resin.	Unknown.	T .00156800000000	CI	1986	1986	N			See continuation page.
Pu-239	Resin.	Unknown.	T .00040070000000	CI	1986	1986	N			See continuation page.
Pu-240	Resin.	Unknown.	T .00024390000000	CI	1986	1986	N			See continuation page.
Pu-241	Resin.	Unknown.	T .13070000000000	CI	1986	1986	N			See continuation page.
Am-241	Resin.	Unknown.	T .03484000000000	CI	1986	1986	N			See continuation page.
Cm-242	Resin.	Unknown.	T .00243900000000	CI	1986	1986	N			See continuation page.
Cm-244	Resin.	Unknown.	T .00113200000000	CI	1986	1986	N			See continuation page.
Co-58	Resin.	Unknown.	T 2.717000000000	CI	1986	1986	N	-20%	+20%	See comment (a) below.
Co-60	Resin.	Unknown.	T 10.599500000000	CI	1986	1986	N	-20%	+20%	See comment (a) below.

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For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cr-51	Resin.	Unknown.	T 1027.49900000000	CI	1986	1986	N	-20%	+20%	See comment (a) below.
Fe-59	Resin.	Unknown.	T .050000000000000	CI	1986	1986	N	-20%	+20%	See comment (a) below.
Mn-54	Resin.	Unknown.	T .072000000000000	CI	1986	1986	N	-20%	+20%	See comment (a) below.
Na-24	Resin.	Unknown.	T 2.20000000000000	CI	1986	1986	N	-20%	+20%	See comment (a) below.
H-3	Resin.	Unknown.	T .003756000000000	CI	1987	1987	N			See continuation page.
C-14	Resin.	Unknown.	T .032300000000000	CI	1987	1987	N			See continuation page.
Fe-55	Resin.	Unknown.	T 1.50200000000000	CI	1987	1987	N			See continuation page.
Ni-59	Resin.	Unknown.	T .021030000000000	CI	1987	1987	N			See continuation page.
Ni-63	Resin.	Unknown.	T 2.10300000000000	CI	1987	1987	N			See continuation page.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

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b. A sample(s) was analyzed by RML. Based on professional judgment, the total uncertainty associated with the sample(s) was calculated to be approximately +/- 10%.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Resin.	Unknown.	T 5.10800000000000	CI	1987	1987	N			See continuation page.
Sr-90	Resin.	Unknown.	T 2.10300000000000	CI	1987	1987	N			See continuation page.
Tc-99	Resin.	Unknown.	T .00011270000000	CI	1987	1987	N			See continuation page.
I-129	Resin.	Unknown.	T .00000046560000	CI	1987	1987	N			See continuation page.
Cs-137	Resin.	Unknown.	T 2.32800000000000	CI	1987	1987	N			See continuation page.
Ce-144	Resin.	Unknown.	T .05784000000000	CI	1987	1987	N			See continuation page.
Eu-154	Resin.	Unknown.	T .05483000000000	CI	1987	1987	N			See continuation page.
Eu-155	Resin.	Unknown.	T .02328000000000	CI	1987	1987	N			See continuation page.
U-234	Resin.	Unknown.	T .00003155000000	CI	1987	1987	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-235	Resin.	Unknown.	T .00000069100000	CI	1987	1987	N			See continuation page.
U-236	Resin.	Unknown.	T .00001277000000	CI	1987	1987	N			See continuation page.
Np-237	Resin.	Unknown.	T .00001953000000	CI	1987	1987	N			See continuation page.
Pu-238	Resin.	Unknown.	T .00135200000000	CI	1987	1987	N			See continuation page.
Pu-239	Resin.	Unknown.	T .00034550000000	CI	1987	1987	N			See continuation page.
Pu-240	Resin.	Unknown.	T .00021030000000	CI	1987	1987	N			See continuation page.
Pu-241	Resin.	Unknown.	T .11270000000000	CI	1987	1987	N			See continuation page.
Am-241	Resin.	Unknown.	T .03004000000000	CI	1987	1987	N			See continuation page.
Cm-242	Resin.	Unknown.	T .00210300000000	CI	1987	1987	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cm-244	Resin.	Unknown.	T .00097650000000	CI	1987	1987	N			See continuation page.
Ag-110	Resin.	Unknown.	T 1.91300000000000	CI	1987	1987	N	-20%	+20%	See comment (a) below.
Ce-141	Resin.	Unknown.	T .02400000000000	CI	1987	1987	N	-20%	+20%	See comment (a) below.
Ce-144	Resin.	Unknown.	T 13.0500000000000	CI	1987	1987	N	-20%	+20%	See comment (a) below.
Co-58	Resin.	Unknown.	T 25.6859000000000	CI	1987	1987	N	-20%	+20%	See comment (a) below.
Co-60	Resin.	Unknown.	T 43.6972300000000	CI	1987	1987	N	-20%	+20%	See comment (a) below.
Cr-51	Resin.	Unknown.	T 261.853000000000	CI	1987	1987	N	-20%	+20%	See comment (a) below.
Hf-175	Resin.	Unknown.	T 2.74100000000000	CI	1987	1987	N	-20%	+20%	See comment (a) below.
Mn-54	Resin.	Unknown.	T 9.67550000000000	CI	1987	1987	N	-20%	+20%	See comment (a) below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Zn-65	Resin.	Unknown.	T 19.484900000000	CI	1987	1987	N	-20%	+20%	See comment (a) below.
H-3	Resin.	Unknown.	T .00165900000000	CI	1988	1988	N			See continuation page.
C-14	Resin.	Unknown.	T .01427000000000	CI	1988	1988	N			See continuation page.
Fe-55	Resin.	Unknown.	T .66350000000000	CI	1988	1988	N			See continuation page.
Ni-59	Resin.	Unknown.	T .00928900000000	CI	1988	1988	N			See continuation page.
Ni-63	Resin.	Unknown.	T .92890000000000	CI	1988	1988	N			See continuation page.
Co-60	Resin.	Unknown.	T 2.25600000000000	CI	1988	1988	N			See continuation page.
Sr-90	Resin.	Unknown.	T .92890000000000	CI	1988	1988	N			See continuation page.
Tc-99	Resin.	Unknown.	T .00004976000000	CI	1988	1988	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
I-129	Resin.	Unknown.	T .00000020560000	CI	1988	1988	N			See continuation page.
Cs-137	Resin.	Unknown.	T 1.02800000000000	CI	1988	1988	N			See continuation page.
Ce-144	Resin.	Unknown.	T .02555000000000	CI	1988	1988	N			See continuation page.
Eu-154	Resin.	Unknown.	T .02422000000000	CI	1988	1988	N			See continuation page.
Eu-155	Resin.	Unknown.	T .01028000000000	CI	1988	1988	N			See continuation page.
U-234	Resin.	Unknown.	T .00001393000000	CI	1988	1988	N			See continuation page.
U-235	Resin.	Unknown.	T .00000030520000	CI	1988	1988	N			See continuation page.
U-236	Resin.	Unknown.	T .00000564000000	CI	1988	1988	N			See continuation page.
Np-237	Resin.	Unknown.	T .00000862600000	CI	1988	1988	N			See continuation page.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-238	Resin.	Unknown.	T .00059720000000	CI	1988	1988	N			See continuation page.
Pu-239	Resin.	Unknown.	T .00015260000000	CI	1988	1988	N			See continuation page.
Pu-240	Resin.	Unknown.	T .00009289000000	CI	1988	1988	N			See continuation page.
Pu-241	Resin.	Unknown.	T .04976000000000	CI	1988	1988	N			See continuation page.
Am-241	Resin.	Unknown.	T .01327000000000	CI	1988	1988	N			See continuation page.
Cm-242	Resin.	Unknown.	T .00092890000000	CI	1988	1988	N			See continuation page.
Cm-244	Resin.	Unknown.	T .00043130000000	CI	1988	1988	N			See continuation page.
Ag-110	Resin.	Unknown.	T .02370000000000	CI	1988	1988	N	-20%	+20%	See comment (a) below.
Ce-144	Resin.	Unknown.	T .21600000000000	CI	1988	1988	N	-20%	+20%	See comment (a) below.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-58	Resin.	Unknown.	T .83400000000000	CI	1988	1988	N	-20%	+20%	See comment (a) below.
Co-60	Resin.	Unknown.	T 2.23740000000000	CI	1988	1988	N	-20%	+20%	See comment (a) below.
Cr-51	Resin.	Unknown.	T 120.655000000000	CI	1988	1988	N	-20%	+20%	See comment (a) below.
Cs-134	Resin.	Unknown.	T .00310000000000	CI	1988	1988	N	-20%	+20%	See comment (a) below.
Cs-137	Resin.	Unknown.	T .21980000000000	CI	1988	1988	N	-20%	+20%	See comment (a) below.
Hf-181	Resin.	Unknown.	T .07570000000000	CI	1988	1988	N	-20%	+20%	See comment (a) below.
Mn-54	Resin.	Unknown.	T .31900000000000	CI	1988	1988	N	-20%	+20%	See comment (a) below.
Sr-90	Resin.	Unknown.	T .15100000000000	CI	1988	1988	N	-20%	+20%	See comment (a) below.
Zn-65	Resin.	Unknown.	T .24800000000000	CI	1988	1988	N	-20%	+20%	See comment (a) below.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Resin.	Unknown.	T .00058120000000	CI	1989	1989	N			See continuation page.
C-14	Resin.	Unknown.	T .00499800000000	CI	1989	1989	N			See continuation page.
Fe-55	Resin.	Unknown.	T .23250000000000	CI	1989	1989	N			See continuation page.
Ni-59	Resin.	Unknown.	T .00325500000000	CI	1989	1989	N			See continuation page.
Ni-63	Resin.	Unknown.	T .32550000000000	CI	1989	1989	N			See continuation page.
Co-60	Resin.	Unknown.	T .79040000000000	CI	1989	1989	N			See continuation page.
Sr-90	Resin.	Unknown.	T .32550000000000	CI	1989	1989	N			See continuation page.
Tc-99	Resin.	Unknown.	T .00001744000000	CI	1989	1989	N			See continuation page.
I-129	Resin.	Unknown.	T .00000007206000	CI	1989	1989	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Resin..	Unknown.	T .36030000000000	CI	1989	1989	N			See continuation page.
Ce-144	Resin.	Unknown.	T .00895000000000	CI	1989	1989	N			See continuation page.
Eu-154	Resin.	Unknown.	T .00848600000000	CI	1989	1989	N			See continuation page.
Eu-155	Resin.	Unknown.	T .00360300000000	CI	1989	1989	N			See continuation page.
U-234	Resin.	Unknown.	T .00000488200000	CI	1989	1989	N			See continuation page.
U-235	Resin.	Unknown.	T .00000010690000	CI	1989	1989	N			See continuation page.
U-236	Resin.	Unknown.	T .00000197600000	CI	1989	1989	N			See continuation page.
Np-237	Resin.	Unknown.	T .00000302200000	CI	1989	1989	N			See continuation page.
Pu-238	Resin.	Unknown.	T .00020920000000	CI	1989	1989	N			See continuation page.

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Pu-239	Resin.	Unknown.	T .00005347000000	CI	1989	1989	N			See continuation page.
Pu-240	Resin.	Unknown.	T .00003255000000	CI	1989	1989	N			See continuation page.
Pu-241	Resin.	Unknown.	T .01744000000000	CI	1989	1989	N			See continuation page.
Am-241	Resin.	Unknown.	T .00465000000000	CI	1989	1989	N			See continuation page.
Cm-242	Resin.	Unknown.	T .00032550000000	CI	1989	1989	N			See continuation page.
Cm-244	Resin.	Unknown.	T .00015110000000	CI	1989	1989	N			See continuation page.
Ce-144	Resin.	Unknown.	T .15200000000000	CI	1989	1989	N	-20%	+20%	See comment (a) below.
Co-58	Resin.	Unknown.	T .73800000000000	CI	1989	1989	N	-20%	+20%	See comment (a) below.
Co-60	Resin.	Unknown.	T 2.90700000000000	CI	1989	1989	N	-20%	+20%	See comment (a) below.

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If not, mark N and give the minimum value and maximum value.

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Radioisotope	Physical Form	Chemical Form	(Annual/Total) Quantity	Unit	Begin Year	End Year	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cr-51	Resin.	Unknown.	T 71.775000000000	CI	1989	1989	N	-20%	+20%	See comment (a) below.
Hf-181	Resin.	Unknown.	T .14730000000000	CI	1989	1989	N	-20%	+20%	See comment (a) below.
Mn-54	Resin.	Unknown.	T .10100000000000	CI	1989	1989	N	-20%	+20%	See comment (a) below.
Zn-65	Resin.	Unknown.	T .34570000000000	CI	1989	1989	N	-20%	+20%	See comment (a) below.
H-3	Resin.	Unknown.	T .00018240000000	CI	1990	1990	N			See continuation page.
C-14	Resin.	Unknown.	T .00156900000000	CI	1990	1990	N			See continuation page.
Fe-55	Resin.	Unknown.	T .07296000000000	CI	1990	1990	N			See continuation page.
Ni-59	Resin.	Unknown.	T .00102100000000	CI	1990	1990	N			See continuation page.
Ni-63	Resin.	Unknown.	T .10210000000000	CI	1990	1990	N			See continuation page.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Resin.	Unknown.	T .24810000000000	CI	1990	1990	N			See continuation page.
Sr-90	Resin.	Unknown.	T .10210000000000	CI	1990	1990	N			See continuation page.
Tc-99	Resin.	Unknown.	T .00000547200000	CI	1990	1990	N			See continuation page.
I-129	Resin.	Unknown.	T .00000002262000	CI	1990	1990	N			See continuation page.
Cs-137	Resin.	Unknown.	T .11310000000000	CI	1990	1990	N			See continuation page.
Ce-144	Resin.	Unknown.	T .00280900000000	CI	1990	1990	N			See continuation page.
Eu-154	Resin.	Unknown.	T .00266300000000	CI	1990	1990	N			See continuation page.
Eu-155	Resin.	Unknown.	T .00113100000000	CI	1990	1990	N			See continuation page.
U-234	Resin.	Unknown.	T .00000153200000	CI	1990	1990	N			See continuation page.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-235	Resin.	Unknown.	T .00000003360000	CI	1990	1990	N			See continuation page.
U-236	Resin.	Unknown.	T .000000062020000	CI	1990	1990	N			See continuation page.
Np-237	Resin.	Unknown.	T .000000094850000	CI	1990	1990	N			See continuation page.
Pu-238	Resin.	Unknown.	T .00006566000000	CI	1990	1990	N			See continuation page.
Pu-239	Resin.	Unknown.	T .00001678000000	CI	1990	1990	N			See continuation page.
Pu-240	Resin.	Unknown.	T .00001021000000	CI	1990	1990	N			See continuation page.
Pu-241	Resin.	Unknown.	T .00547200000000	CI	1990	1990	N			See continuation page.
Am-241	Resin.	Unknown.	T .00145900000000	CI	1990	1990	N			See continuation page.
Cm-242	Resin.	Unknown.	T .00010210000000	CI	1990	1990	N			See continuation page.

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Cm-244	Resin.	Unknown.	T .00004742000000	CI	1990	1990	N			See continuation page.
Ba-140	Resin.	Unknown.	T .08357000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Ce-141	Resin.	Unknown.	T .22436000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Ce-144	Resin.	Unknown.	T 1.20341000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Co-57	Resin.	Unknown.	T .01515000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Co-58	Resin.	Unknown.	T 1.51045000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Co-60	Resin.	Unknown.	T 6.12680000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Cr-51	Resin.	Unknown.	T 52.808000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Cs-134	Resin.	Unknown.	T .06197000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.

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Cs-137	Resin.	Unknown.	T .14725000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Eu-152	Resin.	Unknown.	T .00160000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Fe-59	Resin.	Unknown.	T .00497000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
H-3	Resin.	Unknown.	T .00782000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Hf-181	Resin.	Unknown.	T .33950000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
La-140	Resin.	Unknown.	T .10045000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Mn-54	Resin.	Unknown.	T .66196000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Nb-95	Resin.	Unknown.	T .37118000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Ni-63	Resin.	Unknown.	T .15400000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.

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Pr-144	Resin.	Unknown.	T .990500000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Ru-103	Resin.	Unknown.	T .100670000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Sb-124	Resin.	Unknown.	T .000680000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Sb-125	Resin.	Unknown.	T .015200000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Sc-46	Resin.	Unknown.	T .028700000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Se-75	Resin.	Unknown.	T .010140000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Sn-113	Resin.	Unknown.	T .003300000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Sr-89	Resin.	Unknown.	T .476940000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Sr-90	Resin.	Unknown.	T .158960000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.

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Sr-92	Resin.	Unknown.	T .00160000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Ta-182	Resin.	Unknown.	T .00605000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Y-88	Resin.	Unknown.	T .00300000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Zn-65	Resin.	Unknown.	T 1.21130000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Zr-95	Resin.	Unknown.	T .33160000000000	CI	1990	1990	N	-20%	+20%	See comment (a) below.
Ba-140	Resin.	Unknown.	T .06060000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Br-82	Resin.	Unknown.	T .00100000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Cd-109	Resin.	Unknown.	T .01090000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Ce-141	Resin.	Unknown.	T .17060000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.

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Ce-144	Resin.	Unknown.	T .77150000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Co-57	Resin.	Unknown.	T .00180000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Co-58	Resin.	Unknown.	T 1.18700000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Co-60	Resin.	Unknown.	T 5.25170000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Cr-51	Resin.	Unknown.	T 119.024000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Cs-134	Resin.	Unknown.	T .05390000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Cs-137	Resin.	Unknown.	T .24440000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Eu-152	Resin.	Unknown.	T .00160000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Eu-154	Resin.	Unknown.	T .09640000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.

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Fe-59	Resin.	Unknown.	T .00200000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
H-3	Resin.	Unknown.	T .02820000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Hf-175	Resin.	Unknown.	T .04090000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Hf-181	Resin.	Unknown.	T .14100000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
I-131	Resin.	Unknown.	T .05680000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
I-132	Resin.	Unknown.	T .04460000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
La-140	Resin.	Unknown.	T .07750000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Mn-54	Resin.	Unknown.	T .49750000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Nb-95	Resin.	Unknown.	T .10930000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.

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Pr-144	Resin.	Unknown.	T .09500000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Ru-103	Resin.	Unknown.	T .01890000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Sb-124	Resin.	Unknown.	T .00540000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Sc-46	Resin.	Unknown.	T .02990000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Se-75	Resin.	Unknown.	T .02000000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Sr-89	Resin.	Unknown.	T .00090000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Sr-90	Resin.	Unknown.	T .35840000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Ta-182	Resin.	Unknown.	T .00160000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Zn-65	Resin.	Unknown.	T 2.1672000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.

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Zr-95	Resin.	Unknown.	T .10550000000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Am-241	Resin.	Unknown.	T .00730000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Ba-140	Resin.	Unknown.	T .88110000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Ce-139	Resin.	Unknown.	T .00030000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Ce-141	Resin.	Unknown.	T 1.14780000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Ce-144	Resin.	Unknown.	T .66470000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Co-58	Resin.	Unknown.	T 1.14330000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Co-60	Resin.	Unknown.	T 5.91240000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Cr-51	Resin.	Unknown.	T 56.485400000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.

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Cs-134	Resin.	Unknown.	T .09810000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Cs-137	Resin.	Unknown.	T .63620000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Eu-154	Resin.	Unknown.	T .01000000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Eu-155	Resin.	Unknown.	T .00370000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Fe-59	Resin.	Unknown.	T .00530000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
H-3	Resin.	Unknown.	T .02660000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Hf-175	Resin.	Unknown.	T .00050000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Hf-181	Resin.	Unknown.	T .92670000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
I-131	Resin.	Unknown.	T .00560000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.

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I-132	Resin.	Unknown.	T .96360000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
I-133	Resin.	Unknown.	T .00150000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Ir-192	Resin.	Unknown.	T .00080000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
La-140	Resin.	Unknown.	T 1.13480000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Mn-54	Resin.	Unknown.	T .48680000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Mn-56	Resin.	Unknown.	T 1.30600000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Mo-99	Resin.	Unknown.	T .00395000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Na-24	Resin.	Unknown.	T .51950000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Nb-95	Resin.	Unknown.	T .08135000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.

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Pr-144	Resin.	Unknown.	T .06380000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Re-188	Resin.	Unknown.	T .00930000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Ru-103	Resin.	Unknown.	T .06930000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Sb-124	Resin.	Unknown.	T .00030000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Sc-46	Resin.	Unknown.	T .04050000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Se-75	Resin.	Unknown.	T .00630000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Sr-89	Resin.	Unknown.	T 1.67500000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Sr-90	Resin.	Unknown.	T .78300000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Sr-91	Resin.	Unknown.	T .00440000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes that a sample was analyzed. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

A sample(s) was analyzed by RML. Based on professional judgment, the total uncertainty associated with the sample(s) was calculated to be approximately +/- 10%.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Te-132	Resin.	Unknown.	T .00030000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Y-93	Resin.	Unknown.	T .11070000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Zn-65	Resin.	Unknown.	T .12862000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Zr-95	Resin.	Unknown.	T .18110000000000	CI	1992	1992	N	-20%	+20%	See comment (a) below.
Am-241	Resin.	Unknown.	T .01490000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Ba-140	Resin.	Unknown.	T .00360000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Ce-141	Resin.	Unknown.	T .03520000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Ce-144	Resin.	Unknown.	T .57970000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Co-58	Resin.	Unknown.	T .22310000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

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A sample(s) was analyzed by RML. Based on professional judgment, the total uncertainty associated with the sample(s) was calculated to be approximately +/- 10%.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Resin.	Unknown.	T 2.87677000000000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
Cr-51	Resin.	Unknown.	T 46.7156000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Cs-134	Resin.	Unknown.	T .105990000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Cs-137	Resin.	Unknown.	T 1.47480000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Eu-154	Resin.	Unknown.	T .017600000000000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
H-3	Resin.	Unknown.	T .013600000000000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
Hf-181	Resin.	Unknown.	T .034800000000000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
I-131	Resin.	Unknown.	T .006600000000000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
Ir-192	Resin.	Unknown.	T .001900000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

a. The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes that a sample was analyzed. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

b. A sample(s) was analyzed by RML. Based on professional judgment, the total uncertainty associated with the sample(s) was calculated to be approximately +/- 10%.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
La-140	Resin.	Unknown.	T .003600000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Mn-54	Resin.	Unknown.	T .166000000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Mo-99	Resin.	Unknown.	T .019000000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Nb-95	Resin.	Unknown.	T .152100000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Pr-144	Resin.	Unknown.	T .253700000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Ru-103	Resin.	Unknown.	T .005600000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Sb-124	Resin.	Unknown.	T .000500000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Sb-125	Resin.	Unknown.	T .004000000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Sc-46	Resin.	Unknown.	T .005600000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

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A sample(s) was analyzed by RML. Based on professional judgment, the total uncertainty associated with the sample(s) was calculated to be approximately +/- 10%.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Se-75	Resin.	Unknown.	T .009000000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Sr-89	Resin.	Unknown.	T .801500000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Sr-90	Resin.	Unknown.	T 8.52600000000000	CI	1993	1993	N	-20%	+20%	See comment (a) below.
Zn-65	Resin.	Unknown.	T .473300000000000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
Zr-95	Resin.	Unknown.	T .087300000000000	CI	1993	1993	N	-10%	+10%	See comment (b) below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes that a sample was analyzed. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

A sample(s) was analyzed by RML. Based on professional judgment, the total uncertainty associated with the sample(s) was calculated to be approximately +/- 10%.

Type of source of information:
check box)

☐ RWMIS ☐ other database
☐ sample analysis data
☐ operating records ☒ interview
☐ expert judgment ☒ reports
☐ other

Do the estimates of contaminant
amounts in Part C and D represent:

☐ best estimate
☐ worst case
☐ other

Do the data conflict with RWMIS?
(Historical or Present Data Only)

☐ no
☐ yes

Major unknowns in inventories of
contaminants:

P and MFP were unknown.

2. Details concerning source (names, report no., dates, etc.)
L.J. Toomer: ATR-WCR-009-92, ATR-WCR-004-92, ATR-WCR-003-92,
ATR-WCR-002-92, ATR-WCR-001-92.

C.R. Amaro, "Amalgamation of Low Level Waste,"
WROC-WCR-007-93.

4. If other than best estimate, explain why:

6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

MAP and MFP radionuclides were chosen based on EPRI NP-5077
for dry active waste for PWRs. PWR was chosen because it is
similar to ATR, the reactor at TRA. The radionuclides were
chosen based on a combination of the following: cross
section, half-lives, and their fission product.

Continuation of Part D _____ Column or Question Number or Title Uncertainty basis.

Because of the form (the various types and shapes) of the material, it is not known whether a shipment's activity was determined with a G-M counter or with a NAI detector using smears. Therefore, the true activity and uncertainty is unknown. The G-M counter method has been assumed as the method used to estimate the gamma emitting radionuclides. Although a G-M counter cannot estimate alpha emitting radionuclides, the alpha activities were scaled from the gamma activities. Therefore, the G-M counter correction applies for the alpha emitters, CIDRA calculated best estimate, and upper and lower bounds, accordingly.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 270

Preparer: Amaro, C.2. Date prepared: 07/03/94Generator: TRA

Area or contractor - use code from attached list)

4. Particular facility: 603
(building number - use code from attached list)Number of waste stream from this facility:
4R6. Waste stream:
Core and loop components.

Type of radioactive waste (check box):

☐ TRU or suspect TRU☐ LLW☐ non-radioactiveActual years disposed of at SDA:
Starting year 1987 Ending year 19939. Waste stream volume:
Amount 22.8360 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

10. Comments (specify number of pertinent question):

4. This is the same waste as earlier stream TRA-603-4, but is actually from 670.

1. General physical form (see attached list) Other core, reactor vessel, loop component
[ ] other (specify) _____
2. Details on physical form (particularly confinement related)
Solids, such as loop piping, stainless steel and aluminum
pieces, equipment leads, end pile tubes or end boxes from
fuel elements.
3. Chemical form:
Metallic (stainless steel and aluminum).
4. Inner packaging: [ ] plastic bag [X] plastic liner
[ ] metal liner [ ] none [ ] other (specify) _____
5. Waste container type (see attached list) Other.
6. Other characteristics of interest: _____
7. Comments (specify number of pertinent question):
5. Also I, O cannot be defined by the preparer.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Metallic.	Unknown.	T 440.800000000000	CI	1987	1987	N			See continuation page.
C-14	Metallic.	Unknown.	T 59.1400000000000	CI	1987	1987	N			See continuation page.
Fe-55	Metallic.	Unknown.	T 10210.0000000000	CI	1987	1987	N			See continuation page.
Ni-59	Metallic.	Unknown.	T 3.06400000000000	CI	1987	1987	N			See continuation page.
Ni-63	Metallic.	Unknown.	T 1720.00000000000	CI	1987	1987	N			See continuation page.
Co-60	Metallic.	Unknown.	T 3602.00000000000	CI	1987	1987	N			See continuation page.
Sr-90	Metallic.	Unknown.	T 4.94600000000000	CI	1987	1987	N			See continuation page.
Tc-99	Metallic.	Unknown.	T .967700000000000	CI	1987	1987	N			See continuation page.
I-129	Metallic.	Unknown.	T .000251640000000	CI	1987	1987	N			See continuation page.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Metallic.	Unknown.	T 1075.0000000000	CI	1987	1987	N			See continuation page.
Ce-144	Metallic.	Unknown.	T 25.270000000000	CI	1987	1987	N			See continuation page.
Eu-154	Metallic.	Unknown.	T .01559000000000	CI	1987	1987	N			See continuation page.
Eu-155	Metallic.	Unknown.	T 50.530000000000	CI	1987	1987	N			See continuation page.
U-234	Metallic.	Unknown.	T .01129000000000	CI	1987	1987	N			See continuation page.
U-235	Metallic.	Unknown.	T .00024190000000	CI	1987	1987	N			See continuation page.
U-236	Metallic.	Unknown.	T .00430100000000	CI	1987	1987	N			See continuation page.
Np-237	Metallic.	Unknown.	T .00698900000000	CI	1987	1987	N			See continuation page.
Pu-238	Metallic.	Unknown.	T .29030000000000	CI	1987	1987	N			See continuation page.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Metallic.	Unknown.	T .29030000000000	CI	1987	1987	N			See continuation page.
Pu-240	Metallic.	Unknown.	T .03064000000000	CI	1987	1987	N			See continuation page.
Pu-241	Metallic.	Unknown.	T 31.720000000000	CI	1987	1987	N			See continuation page.
Am-241	Metallic.	Unknown.	T .14520000000000	CI	1987	1987	N			See continuation page.
Cm-242	Metallic.	Unknown.	T .14520000000000	CI	1987	1987	N			See continuation page.
Cm-244	Metallic.	Unknown.	T .13440000000000	CI	1987	1987	N			See continuation page.
Co-60	Metallic.	Unknown.	T 5688.0000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Co-60	Metallic.	Unknown.	T 519.9000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Cr-51	Metallic.	Unknown.	T 86.0000000000	CI	1991	1991	N	-20%	+20%	See comment below.

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Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Fe-55	Metallic.	Unknown.	T 797.300000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Fe-59	Metallic.	Unknown.	T .800000000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Mn-54	Metallic.	Unknown.	T 53.4700000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Ni-63	Metallic.	Unknown.	T 77.3550000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Pm-147	Metallic.	Unknown.	T 2.39000000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Sb-125	Metallic.	Unknown.	T 27.3700000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Sc-46	Metallic.	Unknown.	T 49.9500000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Sn-113	Metallic.	Unknown.	T 18.0000000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Sn-117m	Metallic.	Unknown.	T 119.280000000000	CI	1991	1991	N	-20%	+20%	See comment below.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Te-125m	Metallic.	Unknown.	T 1.0000000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Zn-65	Metallic.	Unknown.	T 801.55000000000	CI	1991	1991	N	-20%	+20%	See comment below.
C-14	Metallic.	Unknown.	T .000377000000000	CI	1992	1992	N	-20%	+20%	See comment below.
Co-60	Metallic.	Unknown.	T 12.5700000000000	CI	1992	1992	N	-20%	+20%	See comment below.
Cr-51	Metallic.	Unknown.	T .070000000000000	CI	1992	1992	N	-20%	+20%	See comment below.
Fe-55	Metallic.	Unknown.	T 64.9000000000000	CI	1992	1992	N	-20%	+20%	See comment below.
H-3	Metallic.	Unknown.	T .00000000060000	CI	1992	1992	N	-20%	+20%	See comment below.
Mn-54	Metallic.	Unknown.	T 8.9800000000000	CI	1992	1992	N	-20%	+20%	See comment below.
Nb-94	Metallic.	Unknown.	T .00000002540000	CI	1992	1992	N	-20%	+20%	See comment below.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Nb-95	Metallic.	Unknown.	T 130.000000000000	CI	1992	1992	N	-20%	+20%	See comment below.
Ni-59	Metallic.	Unknown.	T .0037700000000000	CI	1992	1992	N	-20%	+20%	See comment below.
Ni-63	Metallic.	Unknown.	T .7000000000000000	CI	1992	1992	N	-20%	+20%	See comment below.
Sb-125	Metallic.	Unknown.	T 17.8400000000000	CI	1992	1992	N	-20%	+20%	See comment below.
Sn-113	Metallic.	Unknown.	T 4.00000000000000	CI	1992	1992	N	-20%	+20%	See comment below.
Sn-119m	Metallic.	Unknown.	T 59.7400000000000	CI	1992	1992	N	-20%	+20%	See comment below.
Sr-90	Metallic.	Unknown.	T .00000000150000	CI	1992	1992	N	-20%	+20%	See comment below.
Tc-99	Metallic.	Unknown.	T .00000072900000	CI	1992	1992	N	-20%	+20%	See comment below.
Te-125m	Metallic.	Unknown.	T 40.6900000000000	CI	1992	1992	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Zn-65	Metallic.	Unknown.	T 121.750000000000	CI	1992	1992	N	-20%	+20%	See comment below.
Zr-95	Metallic.	Unknown.	T 62.000000000000	CI	1992	1992	N	-20%	+20%	See comment below.
C-14	Metallic.	Unknown.	T .01400000000000	CI	1993	1993	N	-20%	+20%	See comment below.
Co-58	Metallic.	Unknown.	T 5.000000000000	CI	1993	1993	N	-20%	+20%	See comment below.
Co-60	Metallic.	Unknown.	T 285.000000000000	CI	1993	1993	N	-20%	+20%	See comment below.
Fe-55	Metallic.	Unknown.	T 690.000000000000	CI	1993	1993	N	-20%	+20%	See comment below.
H-3	Metallic.	Unknown.	T .00011000000000	CI	1993	1993	N	-20%	+20%	See comment below.
Mn-54	Metallic.	Unknown.	T 83.000000000000	CI	1993	1993	N	-20%	+20%	See comment below.
Nb-94	Metallic.	Unknown.	T .00000090000000	CI	1993	1993	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-59	Metallic.	Unknown.	T .11200000000000	CI	1993	1993	N	-20%	+20%	See comment below.
Ni-63	Metallic.	Unknown.	T 15.000000000000	CI	1993	1993	N	-20%	+20%	See comment below.
Sb-125	Metallic.	Unknown.	T 5.000000000000	CI	1993	1993	N	-20%	+20%	See comment below.
Sn-119m	Metallic.	Unknown.	T 15.000000000000	CI	1993	1993	N	-20%	+20%	See comment below.
Sr-90	Metallic.	Unknown.	T .00000000250000	CI	1993	1993	N	-20%	+20%	See comment below.
Tc-99	Metallic.	Unknown.	T .00002500000000	CI	1993	1993	N	-20%	+20%	See comment below.
Zn-65	Metallic.	Unknown.	T 82.000000000000	CI	1993	1993	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

1. Type of source of information:
(check box)

☒ RWMIS   ☐ other database
☐ sample analysis data
☐ operating records   ☐ interview
☐ expert judgment   ☐ reports
☐ other

3. Do the estimates of contaminant
quantities in Part C and D represent:
☒ best estimate
☐ worst case
☐ other

5. Do the data conflict with RWMIS?
(Historical or Present Data Only)
☐ no
☒ yes

7. Major unknowns in inventories of
contaminants:
MAP and MFP were unknown.

2. Details concerning source (names, report no., dates, etc.)

4. If other than best estimate, explain why:

6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the activity
will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

MAP and MFP radionuclides were chosen based on EPR1 NP-5077
for dry active waste for PWRs. PWR was chosen because it is
similar to ATR, the reactor at TRA. The radionuclides were
chosen based on a combination of the following: cross
section, half-lives, and their fission products.

Continuation of Part D	Column or Question Number or Title	Uncertainty basis.
		Because of the form (the various types and shapes) of the material, it is not known whether a
		shipment's activity was determined with a G-M counter or with a NAI detector using smears.
		Therefore, the true activity and uncertainty is unknown. The G-M counter method has been assumed as
		the method used to estimate the gamma emitting radionuclides. Although a G-M counter cannot
		estimate alpha emitting radionuclides, the alpha activities were scaled from the gamma activities.
		Therefore, the G-M counter correction applies for the alpha emitters, CIDRA calculated best
		estimate, and upper and lower bounds, accordingly.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 271

1. Preparer: Amaro, C.2. Date prepared: 07/03/943. Generator: TRA
(area or contractor - use code from attached list)4. Particular facility: 603
(building number - use code from attached list)5. Number of waste stream from this facility:
6R6. Waste stream:
Sludge.7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive8. Actual years disposed of at SDA:
starting year 1985 Ending year 19919. Waste stream volume:
Amount 7.6650 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

10. Comments (specify number of pertinent question):

4. Waste actually came from building 732, but is identical to waste generated previously as stream TRA-603-6. Also, the TRA-ERP facility is unknown, as the preparer interviewed various people in an effort to locate this facility.

1. General physical form (see attached list) 2. Details on physical form(particularly confinement related)
judge.

[ ] other (specify)

Chemical form:

Unknown.

4. Inner packaging: [ ] plastic bag [ ] plastic liner

[ ] metal liner [ ] none [X] other (specify)

Unknown.

Waste container type (see attached list)

wooden box.

6. Other characteristics of interest:

Comments (specify number of pertinent question):

5. Also RDL.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
None.										

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Unknown.	Unknown.	T .00001000000000	CI	1986	1986	N			See continuation page.
C-14	Unknown.	Unknown.	T .00000100000000	CI	1986	1986	N			See continuation page.
Fe-55	Unknown.	Unknown.	T .00007700000000	CI	1986	1986	N			See continuation page.
Ni-59	Unknown.	Unknown.	T .00000040000000	CI	1986	1986	N			See continuation page.
Ni-63	Unknown.	Unknown.	T .00003200000000	CI	1986	1986	N			See continuation page.
Co-60	Unknown.	Unknown.	T .00008700000000	CI	1986	1986	N			See continuation page.
Sr-90	Unknown.	Unknown.	T .00000006400000	CI	1986	1986	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .00000001000000	CI	1986	1986	N			See continuation page.
I-129	Unknown.	Unknown.	T	CI	1986	1986	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error). Additional radionuclides (e.g. U-235) were identified and calibrated, but are not shown here as their activity is less than 1E-11 curies.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Unknown.	Unknown.	T .00001300000000	CI	1986	1986	N			See continuation page.
Ce-144	Unknown.	Unknown.	T .00000420000000	CI	1986	1986	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00000031000000	CI	1986	1986	N			See continuation page.
Eu-155	Unknown.	Unknown.	T .00000013000000	CI	1986	1986	N			See continuation page.
U-234	Unknown.	Unknown.	T .00000000020000	CI	1986	1986	N			See continuation page.
U-236	Unknown.	Unknown.	T .00000000010000	CI	1986	1986	N			See continuation page.
Np-237	Unknown.	Unknown.	T .00000000010000	CI	1986	1986	N			See continuation page.
Pu-238	Unknown.	Unknown.	T .00000033000000	CI	1986	1986	N			See continuation page.
Pu-239	Unknown.	Unknown.	T .00000000340000	CI	1986	1986	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error). Additional radionuclides (e.g. U-235) were identified and calibrated, but are not shown here as their activity was less than 1E-11 curies.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-240	Unknown.	Unknown.	T .00000000210000	CI	1986	1986	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .00000037000000	CI	1986	1986	N			See continuation page.
Am-241	Unknown.	Unknown.	T .00000000140000	CI	1986	1986	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .00000000270000	CI	1986	1986	N			See continuation page.
Cm-244	Unknown.	Unknown.	T .00000000130000	CI	1992	1992	N	-20%	+20%	See comment below.
Co-60	Unknown.	Unknown.	T .00002610500000	CI	1992	1992	N	-20%	+20%	See comment below.
Cs-134	Unknown.	Unknown.	T .00000118600000	CI	1992	1992	N	-20%	+20%	See comment below.
Cs-137	Unknown.	Unknown.	T .00039107000000	CI	1992	1992	N	-20%	+20%	See comment below.
Eu-152	Unknown.	Unknown.	T .00000054150000	CI	1992	1992	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error). Additional radionuclides (e.g. U-235) were identified and calibrated, but are not shown here as their activity is less than 1E-11 curies.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-154	Unknown.	Unknown.	T .00000030400000	CI	1992	1992	N	-20%	+20%	See comment below.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error). Additional radionuclides (e.g. U-235) were identified and calibrated, but are not shown here as their activity was less than 1E-11 curies.

1. Type of source of information:
(check box)

☒ RWMIS   ☐ other database
☐ sample analysis data
☐ operating records   ☐ interview
☐ expert judgment   ☐ reports
☐ other

3. Do the estimates of contaminant
quantities in Part C and D represent:

☒ best estimate
☐ worst case
☐ other

5. Do the data conflict with RWMIS?
(Historical or Present Data Only)

☐ no
☒ yes

7. Major unknowns in inventories of
contaminants:

MAP and MFP were unknown.

2. Details concerning source (names, report no., dates, etc.)

4. If other than best estimate, explain why:

6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

MAP and MFP radionuclides were chosen based on EPR1 NP-5077
for dry active waste for PWRs. PWR was chosen because it is
similar to ATR, the reactor at TRA. The radionuclides were
chosen based on a combination of the following: cross
section, half-lives, and their fission products.

Continuation of Part D _____ Column or Question Number or Title Uncertainty basis.

Because of the form (the various types and shapes) of the material, it is not known whether a shipment's activity was determined with a G-M counter or with a NAI detector using smears. Therefore, the true activity and uncertainty is unknown. The G-M counter method has been assumed as the method used to estimate the gamma emitting radionuclides. Although a G-M counter cannot estimate alpha emitting radionuclides, the alpha activities were scaled from the gamma activities. Therefore, the G-M counter correction applies for the alpha emitters, CIDRA calculated best estimate, and upper and lower bounds, accordingly.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWM SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 272

Preparer: Amaro, C.2. Date prepared: 07/03/94Generator: TRA
Area or contractor - use code from attached list)4. Particular facility: 603
(building number - use code from attached list)Number of waste stream from this facility:
7R6. Waste stream:
Glass.Type of radioactive waste (check box):
☐ TRU or suspect TRU
☐ LLW
☐ non-radioactiveActual years disposed of at SDA:
Starting year 1987 Ending year 19879. Waste stream volume:
Amount 0.0284 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

. Comments (specify number of pertinent question):

4. Waste actually came from Building 632, but is identical to the waste previously generated in stream TRA-603-7.

1. General physical form (see attached list) 2. Details on physical form (particularly confinement related)
Glass. This stream is made of glass.
[ ] other (specify)

3. Chemical form: 4. Inner packaging: [ ] plastic bag [X] plastic liner
SiO₂. [ ] metal liner [ ] none [ ] other (specify)

5. Waste container type (see attached list) 6. Other characteristics of interest:
Insert.

7. Comments (specify number of pertinent question):

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Glass.	SiO ₂ .	T .68000000000000	CI	1987	1987	N			See continuation page.
C-14	Glass.	SiO ₂ .	T .09122000000000	CI	1987	1987	N			See continuation page.
Fe-55	Glass.	SiO ₂ .	T 15.760000000000	CI	1987	1987	N			See continuation page.
Ni-59	Glass.	SiO ₂ .	T .00472700000000	CI	1987	1987	N			See continuation page.
Ni-63	Glass.	SiO ₂ .	T 2.654000000000	CI	1987	1987	N			See continuation page.
Co-60	Glass.	SiO ₂ .	T 5.556000000000	CI	1987	1987	N			See continuation page.
Sr-90	Glass.	SiO ₂ .	T .00763000000000	CI	1987	1987	N			See continuation page.
Tc-99	Glass.	SiO ₂ .	T .00149300000000	CI	1987	1987	N			See continuation page.
I-129	Glass.	SiO ₂ .	T .00000038808000	CI	1987	1987	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Glass.	SiO ₂ .	T 1.6590000000000	CI	1987	1987	N			See continuation page.
Ce-144	Glass.	SiO ₂ .	T .03898000000000	CI	1987	1987	N			See continuation page.
Eu-154	Glass.	SiO ₂ .	T .00002405000000	CI	1987	1987	N			See continuation page.
Eu-155	Glass.	SiO ₂ .	T .07795000000000	CI	1987	1987	N			See continuation page.
U-234	Glass.	SiO ₂ .	T .00001742000000	CI	1987	1987	N			See continuation page.
U-235	Glass.	SiO ₂ .	T .00000037320000	CI	1987	1987	N			See continuation page.
U-236	Glass.	SiO ₂ .	T .00000663400000	CI	1987	1987	N			See continuation page.
Np-237	Glass.	SiO ₂ .	T .00001078000000	CI	1987	1987	N			See continuation page.
Pu-238	Glass.	SiO ₂ .	T .00044780000000	CI	1987	1987	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

A sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form .	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Glass.	SiO ₂ .	T .00044780000000	CI	1987	1987	N			See continuation page.
Pu-240	Glass.	SiO ₂ .	T .00004727000000	CI	1987	1987	N			See continuation page.
Pu-241	Glass.	SiO ₂ .	T .04893000000000	CI	1987	1987	N			See continuation page.
Am-241	Glass.	SiO ₂ .	T .00022390000000	CI	1987	1987	N			See continuation page.
Cm-242	Glass.	SiO ₂ .	T .00022390000000	CI	1987	1987	N			See continuation page.
Cm-244	Glass.	SiO ₂ .	T .00020730000000	CI	1987	1987	N			See continuation page.
Cs-134	Glass.	SiO ₂ .	T .59000000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Gd-153	Glass.	SiO ₂ .	T .98000000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Ir-192	Glass.	SiO ₂ .	T .49000000000000	CI	1987	1987	N	-20%	+20%	See comment below.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

1. Type of source of information:
(check box)

☒ RWMIS   ☐ other database
☐ sample analysis data
☐ operating records   ☐ interview
☐ expert judgment   ☐ reports
☐ other

3. Do the estimates of contaminant
quantities in Part C and D represent:

☒ best estimate
☐ worst case
☐ other

5. Do the data conflict with RWMIS?
(Historical or Present Data Only)

☐ no
☒ yes

7. Major unknowns in inventories of
contaminants:

MAP and MFP were unknown.

2. Details concerning source (names, report no., dates, etc.)

4. If other than best estimate, explain why:

6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

MAP and MFP radionuclides were chosen based on EPR1 NP-5077
for dry active waste for PWRs. PWR was chosen because it is
similar to ATR, the reactor at TRA. The radionuclides were
chosen based on a combination of the following: cross
section, half-lives, and their fission products.

Continuation of Part D _____ Column or Question Number or Title Uncertainty basis.

Because of the form (the various types and shapes) of the material, it is not known whether a shipment's activity was determined with a G-M counter or a NAI detector using smears. Therefore, the true activity and uncertainty is unknown. The G-M counter method has been assumed as the method used to estimate the gamma emitting radionuclides. Although a G-M counter cannot estimate alpha emitting radionuclides, the alpha activities were scaled from the gamma activities. Therefore, the G-M counter corrections applies for the alpha emitters, CIDRA calculated best estimate, and upper and lower bounds, accordingly.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 273

1. Preparer: Amaro, C.2. Date prepared: 07/03/943. Generator: TRA
Area or contractor - use code from attached list)4. Particular facility: 603
(building number - use code from attached list)5. Number of waste stream from this facility:
15R6. Waste stream:
Metal, such as aluminum and stainless steel.7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive8. Actual years disposed of at SDA:
Starting year 1984 Ending year 19939. Waste stream volume:
Amount 273.0580 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

10. Comments (specify number of pertinent question):

4. Also 632, 604, 635, 670, 661, 605, 637, 732, and TRANSA. The facility, TRANSA, could not be identified by the preparer.

1. General physical form (see attached list) 2. Details on physical form (particularly confinement related)
Other scrap metals. A variety of metals, such as aluminum and stainless steel.
[ ] other (specify)

3. Chemical form:
Unknown.

4. Inner packaging: [ ] plastic bag [X] plastic liner
[ ] metal liner [ ] none [ ] other (specify)

5. Waste container type (see attached list) 6. Other characteristics of interest:
Insert.

7. Comments (specify number of pertinent question):

5. Also O, PB3, BXM, BXW, RD5, BLX, and BLM.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
one.										

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-58	Metallic.	Unknown.	T .100000000000000	CI	1984	1984	N	-20%	+20%	See comment below.
Co-60	Metallic.	Unknown.	T .100000000000000	CI	1984	1984	N	-20%	+20%	See comment below.
H-3	Metallic.	Unknown.	T .000016400000000	CI	1985	1985	N			See continuation page.
C-14	Metallic.	Unknown.	T .000002200000000	CI	1985	1985	N			See continuation page.
Fe-55	Metallic.	Unknown.	T .000380000000000	CI	1985	1985	N			See continuation page.
Ni-59	Metallic.	Unknown.	T .000000114000000	CI	1985	1985	N			See continuation page.
Ni-63	Metallic.	Unknown.	T .000064000000000	CI	1985	1985	N			See continuation page.
Co-60	Metallic.	Unknown.	T .000134000000000	CI	1985	1985	N			See continuation page.
Sr-90	Metallic.	Unknown.	T .000000184000000	CI	1985	1985	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error). Additional radionuclides (e.g. U-235) were identified and calibrated, but are not shown here as their activity was less than 1E-11 curies.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Tc-99	Metallic.	Unknown.	T .00000003600000	CI	1985	1985	N			See continuation page.
I-129	Metallic.	Unknown.	T .00000010400000	CI	1985	1985	N			See continuation page.
Cs-137	Metallic.	Unknown.	T .00004000000000	CI	1985	1985	N			See continuation page.
Ce-144	Metallic.	Unknown.	T .00000094000000	CI	1985	1985	N			See continuation page.
Eu-154	Metallic.	Unknown.	T .00000000060000	CI	1985	1985	N			See continuation page.
Eu-155	Metallic.	Unknown.	T .00000188000000	CI	1985	1985	N			See continuation page.
U-234	Metallic.	Unknown.	T .00000000040000	CI	1985	1985	N			See continuation page.
U-236	Metallic.	Unknown.	T .00000000020000	CI	1985	1985	N			See continuation page.
Np-237	Metallic.	Unknown.	T .00000000030000	CI	1985	1985	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error). Additional radionuclides (e.g. U-235) were identified and calibrated, but are not shown here as their activity was less than 1E-11 curies.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-238	Metallic.	Unknown.	T .00000001080000	CI	1985	1985	N			See continuation page.
Pu-239	Metallic.	Unknown.	T .00000001080000	CI	1985	1985	N			See continuation page.
Pu-240	Metallic.	Unknown.	T .00000000110000	CI	1985	1985	N			See continuation page.
Pu-241	Metallic.	Unknown.	T .00000118000000	CI	1985	1985	N			See continuation page.
Am-241	Metallic.	Unknown.	T .00000000540000	CI	1985	1985	N			See continuation page.
Cm-242	Metallic.	Unknown.	T .00000000540000	CI	1985	1985	N			See continuation page.
Cm-244	Metallic.	Unknown.	T .00000000500000	CI	1985	1985	N			See continuation page.
Co-58	Metallic.	Unknown.	T .00150000000000	CI	1985	1985	N	-20%	+20%	See comment below.
Co-60	Metallic.	Unknown.	T .00750000000000	CI	1985	1985	N	-20%	+20%	See comment below.

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Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error). Additional radionuclides (e.g. U-235) were identified and calibrated, but are not shown here as their activity was less than 1E-11 curies.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-134	Metallic.	Unknown.	T .00370000000000	CI	1985	1985	N	-20%	+20%	See comment below.
Cs-137	Metallic.	Unknown.	T .13000000000000	CI	1985	1985	N	-20%	+20%	See comment below.
Mn-54	Metallic.	Unknown.	T .00220000000000	CI	1985	1985	N	-20%	+20%	See comment below.
H-3	Metallic.	Unknown.	T .33520000000000	CI	1987	1987	N			See continuation page.
C-14	Metallic.	Unknown.	T .04497000000000	CI	1987	1987	N			See continuation page.
Fe-55	Metallic.	Unknown.	T 7.76700000000000	CI	1987	1987	N			See continuation page.
Ni-59	Metallic.	Unknown.	T .00233000000000	CI	1987	1987	N			See continuation page.
Ni-63	Metallic.	Unknown.	T 1.30800000000000	CI	1987	1987	N			See continuation page.
Co-60	Metallic.	Unknown.	T 2.73900000000000	CI	1987	1987	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sr-90	Metallic.	Unknown.	T .00376100000000	CI	1987	1987	N			See continuation page.
Tc-99	Metallic.	Unknown.	T .00073590000000	CI	1987	1987	N			See continuation page.
I-129	Metallic.	Unknown.	T .00212600000000	CI	1987	1987	N			See continuation page.
Cs-137	Metallic.	Unknown.	T .81760000000000	CI	1987	1987	N			See continuation page.
Ce-144	Metallic.	Unknown.	T .01921000000000	CI	1987	1987	N			See continuation page.
Eu-154	Metallic.	Unknown.	T .00001186000000	CI	1987	1987	N			See continuation page.
Eu-155	Metallic.	Unknown.	T .03843000000000	CI	1987	1987	N			See continuation page.
U-234	Metallic.	Unknown.	T .00000858500000	CI	1987	1987	N			See continuation page.
U-235	Metallic.	Unknown.	T .00000018400000	CI	1987	1987	N			See continuation page.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error). Additional radionuclides (e.g. U-235) were identified and calibrated, but are not shown here as their activity was less than 1E-11 curies.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-236	Metallic.	Unknown.	T .00000327000000	CI	1987	1987	N			See continuation page.
Np-237	Metallic.	Unknown.	T .00000531500000	CI	1987	1987	N			See continuation page.
Pu-238	Metallic.	Unknown.	T .00022080000000	CI	1987	1987	N			See continuation page.
Pu-239	Metallic.	Unknown.	T .00022080000000	CI	1987	1987	N			See continuation page.
Pu-240	Metallic.	Unknown.	T .00002330000000	CI	1987	1987	N			See continuation page.
Pu-241	Metallic.	Unknown.	T .02412000000000	CI	1987	1987	N			See continuation page.
Am-241	Metallic.	Unknown.	T .00011040000000	CI	1987	1987	N			See continuation page.
Cm-242	Metallic.	Unknown.	T .00011040000000	CI	1987	1987	N			See continuation page.
Cm-244	Metallic.	Unknown.	T .00010220000000	CI	1987	1987	N			See continuation page.

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radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the

preparer assigned a 20% error (doubling the 10% error). Additional radionuclides (e.g. U-235) were identified and calibrated, but are not shown here as their activity

is less than 1E-11 curies.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ce-144	Metallic.	Unknown.	T .560000000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Co-60	Metallic.	Unknown.	T 5.04000000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Cs-134	Metallic.	Unknown.	T .672000000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Cs-137	Metallic.	Unknown.	T 2.68800000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Zr-95	Metallic.	Unknown.	T 1.12000000000000	CI	1987	1987	N	-20%	+20%	See comment below.
H-3	Metallic.	Unknown.	T .203300000000000	CI	1988	1988	N			See continuation page.
C-14	Metallic.	Unknown.	T .027280000000000	CI	1988	1988	N			See continuation page.
Fe-55	Metallic.	Unknown.	T 4.71200000000000	CI	1988	1988	N			See continuation page.
Ni-59	Metallic.	Unknown.	T .141300000000000	CI	1988	1988	N			See continuation page.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-63	Metallic.	Unknown.	T .79350000000000	CI	1988	1988	N			See continuation page.
Co-60	Metallic.	Unknown.	T 1.61100000000000	CI	1988	1988	N			See continuation page.
Sr-90	Metallic.	Unknown.	T .002281000000000	CI	1988	1988	N			See continuation page.
Tc-99	Metallic.	Unknown.	T .000446400000000	CI	1988	1988	N			See continuation page.
I-129	Metallic.	Unknown.	T .001289000000000	CI	1988	1988	N			See continuation page.
Cs-137	Metallic.	Unknown.	T .495900000000000	CI	1988	1988	N			See continuation page.
Ce-144	Metallic.	Unknown.	T .011650000000000	CI	1988	1988	N			See continuation page.
Eu-154	Metallic.	Unknown.	T .000007191000000	CI	1988	1988	N			See continuation page.
Eu-155	Metallic.	Unknown.	T .023310000000000	CI	1988	1988	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

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For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-234	Metallic.	Unknown.	T .00000520700000	CI	1988	1988	N			See continuation page.
U-235	Metallic.	Unknown.	T .00000011160000	CI	1988	1988	N			See continuation page.
U-236	Metallic.	Unknown.	T .00000198400000	CI	1988	1988	N			See continuation page.
Np-237	Metallic.	Unknown.	T .00000322400000	CI	1988	1988	N			See continuation page.
Pu-238	Metallic.	Unknown.	T .00013390000000	CI	1988	1988	N			See continuation page.
Pu-239	Metallic.	Unknown.	T .00013390000000	CI	1988	1988	N			See continuation page.
Pu-240	Metallic.	Unknown.	T .00001413000000	CI	1988	1988	N			See continuation page.
Pu-241	Metallic.	Unknown.	T .01463000000000	CI	1988	1988	N			See continuation page.
Am-241	Metallic.	Unknown.	T .00006695000000	CI	1988	1988	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cm-242	Metallic.	Unknown.	T .00006695000000	CI	1988	1988	N			See continuation page.
Cm-244	Metallic.	Unknown.	T .00006199000000	CI	1988	1988	N			See continuation page.
Cr-51	Metallic.	Unknown.	T 13.993000000000	CI	1988	1988	N	-20%	+20%	See comment below.
Co-60	Metallic.	Unknown.	T .39233000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Cs-137	Metallic.	Unknown.	T 51.665000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Am-241	Metallic.	Unknown.	T 3.1009137067000	CI	1991	1991	N	-20%	+20%	See comment below.
Eu-152	Metallic.	Unknown.	T .00999191060000	CI	1991	1991	N	-20%	+20%	See comment below.
Eu-154	Metallic.	Unknown.	T .00070470000000	CI	1991	1991	N	-20%	+20%	See comment below.
Eu-155	Metallic.	Unknown.	T .33891600000000	CI	1991	1991	N	-20%	+20%	See comment below.

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-134	Metallic.	Unknown.	T 1.6370500000000	CI	1991	1991	N	-20%	+20%	See comment below.
Co-60	Metallic.	Unknown.	T .00747899490000	CI	1992	1992	N	-20%	+20%	See comment below.
Cs-137	Metallic.	Unknown.	T .02596676610000	CI	1992	1992	N	-20%	+20%	See comment below.
Eu-152	Metallic.	Unknown.	T .00000502190000	CI	1992	1992	N	-20%	+20%	See comment below.
Eu-154	Metallic.	Unknown.	T .00012808500000	CI	1992	1992	N	-20%	+20%	See comment below.
Sb-125	Metallic.	Unknown.	T .00008800000000	CI	1992	1992	N	-20%	+20%	See comment below.
Co-58	Metallic.	Unknown.	T .00002608500000	CI	1992	1992	N	-20%	+20%	See comment below.
Cs-134	Metallic.	Unknown.	T .00039446500000	CI	1992	1992	N	-20%	+20%	See comment below.
Mn-54	Metallic.	Unknown.	T .00012961500000	CI	1992	1992	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

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For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Sam- ples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Zn-65	Metallic.	Unknown.	T .000094000000000	CI	1992	1992	N	-20%	+20%	See comment below.
Cs-137	Metallic.	Unknown.	T .0000000000004000	CI	1993	1993	N	-20%	+20%	See comment below.
Pu-238	Metallic.	Unknown.	T .0000004280000000	CI	1993	1993	N	-20%	+20%	See comment below.
Pu-239	Metallic.	Unknown.	T .0000000380000000	CI	1993	1993	N	-20%	+20%	See comment below.
Am-241	Metallic.	Unknown.	T .000000007540000	CI	1993	1993	N	-20%	+20%	See comment below.
Cm-242	Metallic.	Unknown.	T .000000000080000	CI	1993	1993	N	-20%	+20%	See comment below.
Cm-244	Metallic.	Unknown.	T .000000001360000	CI	1993	1993	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RMLIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error). Additional radionuclides (e.g. U-235) were identified and calibrated, but are not shown here as their activity is less than 1E-11 curies.

. Type of source of information:
check box)

X] RWMIS [ ] other database
] sample analysis data
] operating records [ ] interview
] expert judgment [ ] reports
] other

. Do the estimates of contaminant
quantities in Part C and D represent:

X] best estimate
] worst case
] other

. Do the data conflict with RWMIS?
(Historical or Present Data Only)

] no
X] yes

. Major unknowns in inventories of
contaminants:

AP and MFP were unknown.

2. Details concerning source (names, report no., dates, etc.)

4. If other than best estimate, explain why:

6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

MAP and MFP radionuclides were chosen based on EPR1 NP-5077
for dry active waste for PWRs. PWR was chosen because it is
similar to ATR, the reactor at TRA. The radionuclides were
chosen based on a combination of the following: cross
section, half-lives, and their fission products.

Continuation of Part D Column or Question Number or Title Uncertainty basis.

cause of the form (the various types and shapes) of the material, it is not known whether a
equipment's activity was determined with a G-M counter or a NAI detector using smears. Therefore,
the true activity and uncertainty is unknown. The G-M counter method has been assumed as the method
used to estimate the gamma emitting radionuclides. Although a G-M counter cannot estimate alpha
emitting radionuclides, the alpha activities were scaled from the gamma activities. Therefore, the
G-M counter correction applies for the alpha emitters, CIDRA calculated best estimate, upper and
lower bounds, accordingly.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 274

1. Preparer: Amaro, C.
2. Date prepared: 07/03/94
3. Generator: TRA
(area or contractor - use code from attached list)
4. Particular facility: 603
(building number - use code from attached list)
5. Number of waste stream from this facility:
18R
6. Waste stream:
Plant waste which consists of rags, floor sweepings,
and glassware. It is compactible.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1984 Ending year 1986
9. Waste stream volume:
Amount 37.2661 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume
10. Comments (specify number of pertinent question):
4. Also 604 and 607.

1. General physical form (see attached list) _____
class. _____
X] other (specify) _____
aper. _____
2. Details on physical form(particularly confinement related)
Consists of rags, floor sweepings, and glassware. It is
compactible.
3. Chemical form: _____
unknown. _____
4. Inner packaging: [ ] plastic bag [X] plastic liner
[ ] metal liner [ ] none [ ] other (specify) _____
5. Waste container type (see attached list) _____
ale. _____
6. Other characteristics of interest: _____
7. Comments (specify number of pertinent question): _____

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
None.										

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Unknown.	Unknown.	T .01208000000000	CI	1984	1984	N			See continuation page.
C-14	Unknown.	Unknown.	T .00162100000000	CI	1984	1984	N			See continuation page.
Fe-55	Unknown.	Unknown.	T .27990000000000	CI	1984	1984	N			See continuation page.
Ni-59	Unknown.	Unknown.	T .00008397000000	CI	1984	1984	N			See continuation page.
Ni-63	Unknown.	Unknown.	T .04714000000000	CI	1984	1984	N			See continuation page.
Co-60	Unknown.	Unknown.	T .09870000000000	CI	1984	1984	N			See continuation page.
Sr-90	Unknown.	Unknown.	T .00013550000000	CI	1984	1984	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .00002652000000	CI	1984	1984	N			See continuation page.
I-129	Unknown.	Unknown.	T .00000000689000	CI	1984	1984	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Unknown.	Unknown.	T .02946000000000	CI	1984	1984	N			See continuation page.
Ce-144	Unknown.	Unknown.	T .00069240000000	CI	1984	1984	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00000042720000	CI	1984	1984	N			See continuation page.
Eu-155	Unknown.	Unknown.	T .00138500000000	CI	1984	1984	N			See continuation page.
U-234	Unknown.	Unknown.	T .00000030940000	CI	1984	1984	N			See continuation page.
U-235	Unknown.	Unknown.	T .00000000660000	CI	1984	1984	N			See continuation page.
U-236	Unknown.	Unknown.	T .00000011790000	CI	1984	1984	N			See continuation page.
Np-237	Unknown.	Unknown.	T .00000019150000	CI	1984	1984	N			See continuation page.
Pu-238	Unknown.	Unknown.	T .00000795500000	CI	1984	1984	N			See continuation page.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Unknown.	Unknown.	T .00000795500000	CI	1984	1984	N			See continuation page.
Pu-240	Unknown.	Unknown.	T .00000083970000	CI	1984	1984	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .00086920000000	CI	1984	1984	N			See continuation page.
Am-241	Unknown.	Unknown.	T .00000397800000	CI	1984	1984	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .00000397800000	CI	1984	1984	N			See continuation page.
Cm-244	Unknown.	Unknown.	T .00000368300000	CI	1984	1984	N			See continuation page.
H-3	Unknown.	Unknown.	T .01208000000000	CI	1985	1985	N			See continuation page.
C-14	Unknown.	Unknown.	T .00162000000000	CI	1985	1985	N			See continuation page.
Fe-55	Unknown.	Unknown.	T .27980000000000	CI	1985	1985	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-59	Unknown.	Unknown.	T .00008395000000	CI	1985	1985	N			See continuation page.
Ni-63	Unknown.	Unknown.	T .04713000000000	CI	1985	1985	N			See continuation page.
Co-60	Unknown.	Unknown.	T .09868000000000	CI	1985	1985	N			See continuation page.
Sr-90	Unknown.	Unknown.	T .00013550000000	CI	1985	1985	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .00002651000000	CI	1985	1985	N			See continuation page.
I-129	Unknown.	Unknown.	T .00000000689000	CI	1985	1985	N			See continuation page.
Cs-137	Unknown.	Unknown.	T .02946000000000	CI	1985	1985	N			See continuation page.
Ce-144	Unknown.	Unknown.	T .00069220000000	CI	1985	1985	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00000042710000	CI	1985	1985	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

If the sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Sam- ples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-155	Unknown.	Unknown.	T .0013840000000000	CI	1985	1985	N			See continuation page.
U-234	Unknown.	Unknown.	T .000000030930000	CI	1985	1985	N			See continuation page.
U-235	Unknown.	Unknown.	T .00000000660000	CI	1985	1985	N			See continuation page.
U-236	Unknown.	Unknown.	T .00000011780000	CI	1985	1985	N			See continuation page.
Np-237	Unknown.	Unknown.	T .00000019150000	CI	1985	1985	N			See continuation page.
Pu-238	Unknown.	Unknown.	T .000000795300000	CI	1985	1985	N			See continuation page.
Pu-239	Unknown.	Unknown.	T .000000795300000	CI	1985	1985	N			See continuation page.
Pu-240	Unknown.	Unknown.	T .00000083950000	CI	1985	1985	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .000869000000000	CI	1985	1985	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

If sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RMIS ionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Unknown.	Unknown.	T .00000397700000	CI	1985	1985	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .00000397700000	CI	1985	1985	N			See continuation page.
Cm-244	Unknown.	Unknown.	T .00000368200000	CI	1985	1985	N			See continuation page.
H-3	Unknown.	Unknown.	T .01552000000000	CI	1986	1986	N			See continuation page.
C-14	Unknown.	Unknown.	T .00208100000000	CI	1986	1986	N			See continuation page.
Fe-55	Unknown.	Unknown.	T .35950000000000	CI	1986	1986	N			See continuation page.
Ni-59	Unknown.	Unknown.	T .00010790000000	CI	1986	1986	N			See continuation page.
Ni-63	Unknown.	Unknown.	T .06055000000000	CI	1986	1986	N			See continuation page.
Co-60	Unknown.	Unknown.	T .12680000000000	CI	1986	1986	N			See continuation page.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sr-90	Unknown.	Unknown.	T .00017410000000	CI	1986	1986	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .00003406000000	CI	1986	1986	N			See continuation page.
I-129	Unknown.	Unknown.	T .00000000886000	CI	1986	1986	N			See continuation page.
Cs-137	Unknown.	Unknown.	T .03784000000000	CI	1986	1986	N			See continuation page.
Ce-144	Unknown.	Unknown.	T .00088930000000	CI	1986	1986	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00000054870000	CI	1986	1986	N			See continuation page.
Eu-155	Unknown.	Unknown.	T .00177900000000	CI	1986	1986	N			See continuation page.
U-234	Unknown.	Unknown.	T .00000039740000	CI	1986	1986	N			See continuation page.
U-235	Unknown.	Unknown.	T .00000000850000	CI	1986	1986	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-236	Unknown.	Unknown.	T .00000015140000	CI	1986	1986	N			See continuation page.
Np-237	Unknown.	Unknown.	T .00000024600000	CI	1986	1986	N			See continuation page.
Pu-238	Unknown.	Unknown.	T .00001022000000	CI	1986	1986	N			See continuation page.
Pu-239	Unknown.	Unknown.	T .00001022000000	CI	1986	1986	N			See continuation page.
Pu-240	Unknown.	Unknown.	T .00000107900000	CI	1986	1986	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .00111600000000	CI	1986	1986	N			See continuation page.
Am-241	Unknown.	Unknown.	T .00000510900000	CI	1986	1986	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .00000510900000	CI	1986	1986	N			See continuation page.
Cm-244	Unknown.	Unknown.	T .00000473000000	CI	1986	1986	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

Type of source of information:
(check box)

☒ RWMIS [ ] other database
☐ sample analysis data
☐ operating records [ ] interview
☐ expert judgment [ ] reports
☐ other

Do the estimates of contaminant
quantities in Part C and D represent:

☒ best estimate
☐ worst case
☐ other

Do the data conflict with RWMIS?
(Historical or Present Data Only)

☐ no
☒ yes

Major unknowns in inventories of
contaminants:

MAP and MFP were unknown.

2. Details concerning source (names, report no., dates, etc.)

4. If other than best estimate, explain why:

6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

MAP and MFP radionuclides were chosen based on EPR1 NP-5077
for dry active waste from PWRs. PWR was chosen because it
is similar to ATR, the reactor at TRA. The radionuclides
were chosen based on a combination of the following: cross
section, half-lives, and their fission products.

Continuation of Part D _____ Column or Question Number or Title Uncertainty basis.

Because of the form (the various types and shapes) of the material, it is not known whether a shipment's activity was determined with a G-M counter or a NAI detector using smears. Therefore, the true activity and uncertainty is unknown. The G-M counter method has been assumed as the method used to estimate the gamma emitting radionuclides. Although a G-M counter cannot estimate alpha emitting radionuclides, the alpha activities were scaled from the gamma activities. Therefore, the G-M counter correction applies for the alpha emitters, CIDRA calculated best estimate, and upper and lower bounds, accordingly.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 275

1. Preparer: Amaro, C.2. Date prepared: 07/02/943. Generator: TRA
(area or contractor - use code from attached list)4. Particular facility: 603
(building number - use code from attached list)5. Number of waste stream from this facility:
21R6. Waste stream:
Construction materials, concrete, brick, sand, soil
and asphalt.7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive8. Actual years disposed of at SDA:
Starting year 1986 Ending year 19929. Waste stream volume:
Amount 47.0878 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

10. Comments (specify number of pertinent question):

4. The waste is actually from buildings 635, 701, 632, and 661.

1. General physical form (see attached list) _____
Concrete, brick, and asphalt.
[X] other (specify) _____
3. _____
2. Details on physical form(particularly confinement related)
Material is a combination of concrete, soil, gravel and
brick.
_____
_____
3. Chemical form: _____
Unknown.
_____
4. Inner packaging: [ ] plastic bag [X] plastic liner
[ ] metal liner [ ] none [ ] other (specify)
_____
5. Waste container type (see attached list) _____
Wooden box.
_____
6. Other characteristics of interest:
_____
7. Comments (specify number of pertinent question):
5. Also BLM.
_____

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp Les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Unknown.	Unknown.	T .05622000000000	CI	1986	1986	N			See continuation page.
C-14	Unknown.	Unknown.	T .00754200000000	CI	1986	1986	N			See continuation page.
Fe-55	Unknown.	Unknown.	T 1.30300000000000	CI	1986	1986	N			See continuation page.
Ni-59	Unknown.	Unknown.	T .00039080000000	CI	1986	1986	N			See continuation page.
Ni-63	Unknown.	Unknown.	T .21940000000000	CI	1986	1986	N			See continuation page.
Co-60	Unknown.	Unknown.	T .45940000000000	CI	1986	1986	N			See continuation page.
Sr-90	Unknown.	Unknown.	T .00063080000000	CI	1986	1986	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .00012340000000	CI	1986	1986	² N			See continuation page.
I-129	Unknown.	Unknown.	T .00000003209000	CI	1986	1986	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

If the sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Unknown.	Unknown.	T .13710000000000	CI	1986	1986	N			See continuation page.
Ce-144	Unknown.	Unknown.	T .00322200000000	CI	1986	1986	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00000198800000	CI	1986	1986	N			See continuation page.
Eu-155	Unknown.	Unknown.	T .00644500000000	CI	1986	1986	N			See continuation page.
U-234	Unknown.	Unknown.	T .00000144000000	CI	1986	1986	N			See continuation page.
U-235	Unknown.	Unknown.	T .00000003090000	CI	1986	1986	N			See continuation page.
U-236	Unknown.	Unknown.	T .00000054850000	CI	1986	1986	N			See continuation page.
Np-237	Unknown.	Unknown.	T .00000089130000	CI	1986	1986	N			See continuation page.
Pu-238	Unknown.	Unknown.	T .00003702000000	CI	1986	1986	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

If a sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Unknown.	Unknown.	T .00003702000000	CI	1986	1986	N			See continuation page.
Pu-240	Unknown.	Unknown.	T .00000390800000	CI	1986	1986	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .00404500000000	CI	1986	1986	N			See continuation page.
Am-241	Unknown.	Unknown.	T .00001851000000	CI	1986	1986	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .00001851000000	CI	1986	1986	N			See continuation page.
Cm-244	Unknown.	Unknown.	T .00001714000000	CI	1986	1986	N			See continuation page.
Cs-137	Unknown.	Unknown.	T .00000000100000	CI	1992	1992	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

1. Type of source of information:
(check box)

☒ RWMIS ☐ other database
☐ sample analysis data
☐ operating records ☐ interview
☐ expert judgment ☐ reports
☐ other

3. Do the estimates of contaminant
quantities in Part C and D represent:

☒ best estimate
☐ worst case
☐ other

5. Do the data conflict with RWMIS?
(Historical or Present Data Only)

☐ no
☒ yes

7. Major unknowns in inventories of
contaminants:

MAP and MFP were unknown.

2. Details concerning source (names, report no., dates, etc.)

4. If other than best estimate, explain why:

6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

MAP and MFP radionuclides were chosen based on EPR1 NP-5077
for dry active waste for PWRs. PWR was chosen because it is
similar to ATR, the reactor at TRA. The radionuclides were
chosen based on a combination of the following: cross
section, half-lives, and their fission products.

Continuation of Part D _____ Column or Question Number or Title Uncertainty basis.

because of the form (the various types and shapes) of the material, it is not known whether a shipment's activity was determined with a G-M counter or with a NAI detector using smears. Therefore, the true activity and uncertainty is unknown. The G-M counter method has been assumed as the method used to estimate the gamma emitting radionuclides. Although a G-M counter cannot estimate alpha emitting radionuclides, the alpha activities were scaled from the gamma activities. Therefore, the G-M counter correction applies for the alpha emitters, CIDRA calculated best estimate, and upper and lower bounds, accordingly.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 278

1. Preparer: Amaro, C.2. Date prepared: 07/03/943. Generator: TRA
(area or contractor - use code from attached list)4. Particular facility: 603
(building number - use code from attached list)5. Number of waste stream from this facility:
26R6. Waste stream:
Lead.7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive8. Actual years disposed of at SDA:
Starting year 1987 Ending year 19879. Waste stream volume:
Amount 36.0152 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

10. Comments (specify number of pertinent question):

4. The actual waste is from TRA-B&W and TRA-ERP. The preparer of this report was unable to determine these facilities.

1. General physical form (see attached list) 2. Details on physical form (particularly confinement related)
lead.

[ ] other (specify)

3. Chemical form:

[ ] metal.

4. Inner packaging: [ ] plastic bag [X] plastic liner
[ ] metal liner [ ] none [ ] other (specify)

5. Waste container type (see attached list)
metal box.

6. Other characteristics of interest:

7. Comments (specify number of pertinent question):

5. Also BXW.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
39-92-1 Lead	Metal.	Lead.	T 1558600.0000000	GM	1987	1987	N			Unknown.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Metal.	Lead.	T .00002062600000	CI	1987	1987	N			See comment below.
Cs-137	Metal.	Lead.	T .00001323170000	CI	1987	1987	N			See comment below.
U-235	Metal.	Lead.	T .00035531090000	CI	1987	1987	N			See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

Type of source of information:
check box)

- ☐ RWMIS ☐ other database
- ☐ sample analysis data
- ☐ operating records ☐ interview
- ☐ expert judgment ☒ reports
- ☐ other

Do the estimates of contaminant
amounts in Part C and D represent:

- ☐ best estimate
- ☐ worst case
- ☐ other

Do the data conflict with RWMIS?
(Historical or Present Data Only)

- ☐ no
- ☐ yes

Major unknowns in inventories of
contaminants:
p and MFP were unknown.

2. Details concerning source (names, report no., dates, etc.)
A.D. Rogers, Distribution, ADR-8-86 "Elimination of Lead
from Low-level Waste", June 24, 1986.

A.D. Rogers Distribution, ADR 46-88, "Use of Lead in
Low-level Waste Packages Schedule Exception", December 16,
1987.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

MAP and MFP radionuclides were chosen based on EPR1 NP-5077
for dry active waste for PWRs. PWR was chosen because it is
similar to ATR, the reactor at TRA. The radionuclides were
chosen based on a combination of the following: cross
section, half-lives, and their fission products.

Continuation of Part D _____ Column or Question Number or Title Uncertainty basis.

Because of the form (the various types and shapes) of the material, it is not known whether a
instrument's activity was determined with a G-M counter of a NAI detector using smears. Therefore,
the true activity and uncertainty is unknown. The G-M counter method has been assumed as the method
used to estimate the gamma emitting radionuclides. Although a G-M counter cannot estimate alpha
emitting radionuclides, the alpha activities were scaled from the gamma activities. Therefore, the
G-M counter correction applies for the alpha emitters, CIDRA calculated best estimate, and upper and
lower bounds, accordingly.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

RT A - GENERAL INFORMATION RDT - 277

Preparer: Amaro, C.2. Date prepared: 07/03/94Generator: TRA
Area or contractor - use code from attached list)4. Particular facility: 603
(building number - use code from attached list)Number of waste stream from this facility:
27R6. Waste stream:
Noncompactible waste, such as glass, metals, etc.Type of radioactive waste (check box):
☐ TRU or suspect TRU
☐ LLW
☐ non-radioactiveActual years disposed of at SDA:
Starting year 1984 Ending year 19869. Waste stream volume:
Amount 939.4170 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

. Comments (specify number of pertinent question):

1. General physical form (see attached list) 2. Details on physical form (particularly confinement related)
Glass. This stream is a combination of noncompactible items, such
[X] other (specify) as glass and metal.
Metal.

3. Chemical form: 4. Inner packaging: [ ] plastic bag [X] plastic liner
Unknown. [ ] metal liner [ ] none [ ] other (specify)

5. Waste container type (see attached list) 6. Other characteristics of interest:
Wooden box.

7. Comments (specify number of pertinent question):
5. Also BLM, 0; the preparer cannot determine what 0 is.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
one.										

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Unknown.	Unknown.	T 1.08800000000000	CI	1984	1984	N			See continuation page.
C-14	Unknown.	Unknown.	T .146000000000000	CI	1984	1984	N			See continuation page.
Fe-55	Unknown.	Unknown.	T 25.2100000000000	CI	1984	1984	N			See continuation page.
Ni-59	Unknown.	Unknown.	T .007563000000000	CI	1984	1984	N			See continuation page.
Ni-63	Unknown.	Unknown.	T 4.24600000000000	CI	1984	1984	N			See continuation page.
Co-60	Unknown.	Unknown.	T 8.89000000000000	CI	1984	1984	N			See continuation page.
Sr-90	Unknown.	Unknown.	T .012210000000000	CI	1984	1984	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .002388000000000	CI	1984	1984	N			See continuation page.
I-129	Unknown.	Unknown.	T .00000062100000	CI	1984	1984	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

If the sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Unknown.	Unknown.	T 2.6540000000000	CI	1984	1984	N			See continuation page.
Ce-144	Unknown.	Unknown.	T .06236000000000	CI	1984	1984	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00003848000000	CI	1984	1984	N			See continuation page.
Eu-155	Unknown.	Unknown.	T .12470000000000	CI	1984	1984	N			See continuation page.
J-234	Unknown.	Unknown.	T .00002786000000	CI	1984	1984	N			See continuation page.
J-235	Unknown.	Unknown.	T .00000059710000	CI	1984	1984	N			See continuation page.
J-236	Unknown.	Unknown.	T .00001062000000	CI	1984	1984	N			See continuation page.
Pp-237	Unknown.	Unknown.	T .00001725000000	CI	1984	1984	N			See continuation page.
Pu-238	Unknown.	Unknown.	T .00071650000000	CI	1984	1984	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

If sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Unknown.	Unknown.	T .00071650000000	CI	1984	1984	N			See continuation page.
Pu-240	Unknown.	Unknown.	T .00007563000000	CI	1984	1984	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .07829000000000	CI	1984	1984	N			See continuation page.
Am-241	Unknown.	Unknown.	T .00035830000000	CI	1984	1984	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .00035830000000	CI	1984	1984	N			See continuation page.
Cm-244	Unknown.	Unknown.	T .00033170000000	CI	1984	1984	N			See continuation page.
U-235	Unknown.	Unknown.	T .00556000000000	CI	1984	1984	N	-20%	+20%	See comment below.
U-238	Unknown.	Unknown.	T .00556000000000	CI	1984	1984	N	-20%	+20%	See comment below.
H-3	Unknown.	Unknown.	T 3.170000000000	CI	1985	1985	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

If the sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
C-14	Unknown.	Unknown.	T .42530000000000	CI	1985	1985	N			See continuation page.
Fe-55	Unknown.	Unknown.	T 73.450000000000	CI	1985	1985	N			See continuation page.
Ni-59	Unknown.	Unknown.	T .02204000000000	CI	1985	1985	N			See continuation page.
Ni-63	Unknown.	Unknown.	T 12.370000000000	CI	1985	1985	N			See continuation page.
Co-60	Unknown.	Unknown.	T 25.900000000000	CI	1985	1985	N			See continuation page.
Sr-90	Unknown.	Unknown.	T .03557000000000	CI	1985	1985	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .00695900000000	CI	1985	1985	N			See continuation page.
I-129	Unknown.	Unknown.	T .00000180900000	CI	1985	1985	N			See continuation page.
Cs-137	Unknown.	Unknown.	T 7.7320000000000	CI	1985	1985	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

This sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ce-144	Unknown.	Unknown.	T .18170000000000	CI	1985	1985	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00011210000000	CI	1985	1985	N			See continuation page.
Eu-155	Unknown.	Unknown.	T .36340000000000	CI	1985	1985	N			See continuation page.
U-234	Unknown.	Unknown.	T .00008119000000	CI	1985	1985	N			See continuation page.
U-235	Unknown.	Unknown.	T .00000174000000	CI	1985	1985	N			See continuation page.
U-236	Unknown.	Unknown.	T .00003093000000	CI	1985	1985	N			See continuation page.
Np-237	Unknown.	Unknown.	T .00005026000000	CI	1985	1985	N			See continuation page.
Pu-238	Unknown.	Unknown.	T .00208800000000	CI	1985	1985	N			See continuation page.
Pu-239	Unknown.	Unknown.	T .00208800000000	CI	1985	1985	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

If the sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-240	Unknown.	Unknown.	T .000220400000000	CI	1985	1985	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .228100000000000	CI	1985	1985	N			See continuation page.
Am-241	Unknown.	Unknown.	T .001044000000000	CI	1985	1985	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .001044000000000	CI	1985	1985	N			See continuation page.
Cm-244	Unknown.	Unknown.	T .000966500000000	CI	1985	1985	N			See continuation page.
Co-58	Unknown.	Unknown.	T .100000000000000	CI	1985	1985	N	-20%	+20%	See comment below.
Co-60	Unknown.	Unknown.	T 3.40000000000000	CI	1985	1985	N	-20%	+20%	See comment below.
Cs-134	Unknown.	Unknown.	T 1.29000000000000	CI	1985	1985	N	-20%	+20%	See comment below.
Cs-137	Unknown.	Unknown.	T 11.1900000000000	CI	1985	1985	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

If sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Mn-54	Unknown.	Unknown.	T .05000000000000	CI	1985	1985	N	-20%	+20%	See comment below.
H-3	Unknown.	Unknown.	T .54120000000000	CI	1986	1986	N			See continuation page.
C-14	Unknown.	Unknown.	T .07260000000000	CI	1986	1986	N			See continuation page.
Fe-55	Unknown.	Unknown.	T 12.540000000000	CI	1986	1986	N			See continuation page.
Ni-59	Unknown.	Unknown.	T .00376200000000	CI	1986	1986	N			See continuation page.
Ni-63	Unknown.	Unknown.	T 2.1120000000000	CI	1986	1986	N			See continuation page.
Co-60	Unknown.	Unknown.	T 4.4220000000000	CI	1986	1986	N			See continuation page.
Sr-90	Unknown.	Unknown.	T .00607200000000	CI	1986	1986	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .00118800000000	CI	1986	1986	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
I-129	Unknown.	Unknown.	T .00000030888000	CI	1986	1986	N			See continuation page.
Cs-137	Unknown.	Unknown.	T 1.32000000000000	CI	1986	1986	N			See continuation page.
Ce-144	Unknown.	Unknown.	T .03102000000000	CI	1986	1986	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00001914000000	CI	1986	1986	N			See continuation page.
Eu-155	Unknown.	Unknown.	T .06204000000000	CI	1986	1986	N			See continuation page.
U-234	Unknown.	Unknown.	T .00001386000000	CI	1986	1986	N			See continuation page.
U-235	Unknown.	Unknown.	T .00000029700000	CI	1986	1986	N			See continuation page.
U-236	Unknown.	Unknown.	T .00000528000000	CI	1986	1986	N			See continuation page.
Np-237	Unknown.	Unknown.	T .00000858000000	CI	1986	1986	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

Each sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-238	Unknown.	Unknown.	T .00035640000000	CI	1986	1986	N			See continuation page.
Pu-239	Unknown.	Unknown.	T .00035640000000	CI	1986	1986	N			See continuation page.
Pu-240	Unknown.	Unknown.	T .00003762000000	CI	1986	1986	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .03894000000000	CI	1986	1986	N			See continuation page.
Am-241	Unknown.	Unknown.	T .00017820000000	CI	1986	1986	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .00017820000000	CI	1986	1986	N			See continuation page.
Cm-244	Unknown.	Unknown.	T .00016500000000	CI	1986	1986	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

If the sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

Type of source of information:
(check box)

☐ RWMIS ☐ other database
☐ sample analysis data
☐ operating records ☐ interview
☐ expert judgment ☒ reports
☐ other

Do the estimates of contaminant
quantities in Part C and D represent:
☐ best estimate
☐ worst case
☐ other

Do the data conflict with RWMIS?
(Historical or Present Data Only)
☐ no
☐ yes

Major unknowns in inventories of
contaminants:
MAP and MFP were unknown.

2. Details concerning source (names, report no., dates, etc.)

4. If other than best estimate, explain why:

6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

MAP and MFP radionuclides were chosen based on EPR1 NP-5077
for dry active waste for PWRs. PWR was chosen because it is
similar to ATR, the reactor at TRA. The radionuclides were
chosen based on a combination of the following: cross
section, half-lives, and their fission products.

Continuation of Part D   Column or Question Number or Title Uncertainty basis.

Because of the form (the various types and shapes) of the material, it is not known whether a shipment's activity was determined with a G-M counter or with a NAI detector using smears. Therefore, the true activity and uncertainty is unknown. The G-M counter method has been assumed as the method used to estimate the gamma emitting radionuclides. Although a G-M counter cannot estimate alpha emitting radionuclides, the alpha activities were scaled from the gamma activities. Therefore, the G-M counter correction applies for the alpha emitters, CIDRA calculated best estimate, and upper and lower bounds, accordingly.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 276

Preparer: Amaro, C.2. Date prepared: 07/03/94Generator: TRA
Area or contractor - use code from attached list)4. Particular facility: 603
(building number - use code from attached list)Number of waste stream from this facility:
28R6. Waste stream:
A combination of glass, halogenated plastic,
absorbed liquid, metal chips, wire, etc.Type of radioactive waste (check box):
☐ TRU or suspect TRU
☐ LLW
☐ non-radioactive

Actual years disposed of at SDA:
Starting year 1987 Ending year 19899. Waste stream volume:
Amount 32.5800 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

. Comments (specify number of pertinent question):

1. General physical form (see attached list) 2. Details on physical form (particularly confinement related)
[X] other (specify) A combination of glass, halogenated plastic, absorbed
multiple form. liquids, metal chips, wire, etc.
3. Chemical form: 4. Inner packaging: [ ] plastic bag [X] plastic liner
unknown. [ ] metal liner [ ] none [ ] other (specify)
5. Waste container type (see attached list) 6. Other characteristics of interest:
wooden box.
7. Comments (specify number of pertinent question):

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Unknown.	Unknown.	T .01866000000000	CI	1987	1987	N			See continuation page.
C-14	Unknown.	Unknown.	T .00250200000000	CI	1987	1987	N			See continuation page.
Fe-55	Unknown.	Unknown.	T .43220000000000	CI	1987	1987	N			See continuation page.
Ni-59	Unknown.	Unknown.	T .00012970000000	CI	1987	1987	N			See continuation page.
Ni-63	Unknown.	Unknown.	T .07280000000000	CI	1987	1987	N			See continuation page.
Co-60	Unknown.	Unknown.	T .15240000000000	CI	1987	1987	N			See continuation page.
Sr-90	Unknown.	Unknown.	T .00020930000000	CI	1987	1987	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .00004095000000	CI	1987	1987	N			See continuation page.
I-129	Unknown.	Unknown.	T .00000001065000	CI	1987	1987	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Unknown.	Unknown.	T .04550000000000	CI	1987	1987	N			See continuation page.
Ce-144	Unknown.	Unknown.	T .00106900000000	CI	1987	1987	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00000065980000	CI	1987	1987	N			See continuation page.
Eu-155	Unknown.	Unknown.	T .00213900000000	CI	1987	1987	N			See continuation page.
U-234	Unknown.	Unknown.	T .00000047770000	CI	1987	1987	N			See continuation page.
U-235	Unknown.	Unknown.	T .00000001020000	CI	1987	1987	N			See continuation page.
U-236	Unknown.	Unknown.	T .00000018200000	CI	1987	1987	N			See continuation page.
Np-237	Unknown.	Unknown.	T .00000029580000	CI	1987	1987	N			See continuation page.
Pu-238	Unknown.	Unknown.	T .00001229000000	CI	1987	1987	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Unknown.	Unknown.	T .00001229000000	CI	1987	1987	N			See continuation page.
Pu-240	Unknown.	Unknown.	T .00000129700000	CI	1987	1987	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .00134200000000	CI	1987	1987	N			See continuation page.
Am-241	Unknown.	Unknown.	T .00000614300000	CI	1987	1987	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .00000614300000	CI	1987	1987	N			See continuation page.
Cm-244	Unknown.	Unknown.	T .00000568800000	CI	1987	1987	N			See continuation page.
H-3	Unknown.	Unknown.	T .03208000000000	CI	1989	1989	N			See continuation page.
C-14	Unknown.	Unknown.	T .00430300000000	CI	1989	1989	N			See continuation page.
Fe-55	Unknown.	Unknown.	T .74330000000000	CI	1989	1989	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-59	Unknown.	Unknown.	T .00022300000000	CI	1989	1989	N			See continuation page.
Ni-63	Unknown.	Unknown.	T .12520000000000	CI	1989	1989	N			See continuation page.
Co-60	Unknown.	Unknown.	T .26210000000000	CI	1989	1989	N			See continuation page.
Sr-90	Unknown.	Unknown.	T .00035990000000	CI	1989	1989	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .00007042000000	CI	1989	1989	N			See continuation page.
I-129	Unknown.	Unknown.	T .00000001831000	CI	1989	1989	N			See continuation page.
Cs-137	Unknown.	Unknown.	T .07824000000000	CI	1989	1989	N			See continuation page.
Ce-144	Unknown.	Unknown.	T .00183900000000	CI	1989	1989	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00000113400000	CI	1989	1989	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-155	Unknown.	Unknown.	T .00367700000000	CI	1989	1989	N			See continuation page.
U-234	Unknown.	Unknown.	T .00000082150000	CI	1989	1989	N			See continuation page.
U-235	Unknown.	Unknown.	T .00000001760000	CI	1989	1989	N			See continuation page.
U-236	Unknown.	Unknown.	T .00000031300000	CI	1989	1989	N			See continuation page.
Np-237	Unknown.	Unknown.	T .00000050860000	CI	1989	1989	N			See continuation page.
Pu-238	Unknown.	Unknown.	T .00002112000000	CI	1989	1989	N			See continuation page.
Pu-239	Unknown.	Unknown.	T .00002112000000	CI	1989	1989	N			See continuation page.
Pu-240	Unknown.	Unknown.	T .00000223000000	CI	1989	1989	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .00230800000000	CI	1989	1989	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Unknown.	Unknown.	T .00001056000000	CI	1989	1989	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .00001056000000	CI	1989	1989	N			See continuation page.
Cm-244	Unknown.	Unknown.	T .00000978000000	CI	1989	1989	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

1. Type of source of information:
(check box)

☒ RWMIS   ☐ other database
☐ sample analysis data
☐ operating records   ☐ interview
☐ expert judgment   ☐ reports
☐ other

3. Do the estimates of contaminant
quantities in Part C and D represent:

☒ best estimate
☐ worst case
☐ other

5. Do the data conflict with RWMIS?
(Historical or Present Data Only)

☐ no
☒ yes

7. Major unknowns in inventories of
contaminants:

MAP and MFP were unknown.

2. Details concerning source (names, report no., dates, etc.)

4. If other than best estimate, explain why:

6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

MAP and MFP radionuclides were chosen based on EPR1 NP-5077
for dry active waste for PWRs. PWR was chosen because it is
similar to ATR, the reactor at TRA. The radionuclides were
chosen based on a combination of the following: cross
section, half-lives, and their fission products.

Continuation of Part D	Column or Question Number or Title	Uncertainty basis.
		cause of the form (the various types and shapes) of the material, it is not known whether a
		ipment's activity was determined with a G-M counter or with a NAI detector using smears.
		erefore, the activity and uncertainty is unknown. The G-M counter method has been assumed as the
		ethod used to estimate the gamma emitting radionuclides. Although a G-M counter cannot estimate
		pha emitting radionuclides, the alpha activities were scaled from the gamma activities.
		erefore, the G-M counter correction applies for the alpha emitters, CIDRA calculated best
		estimate, and upper and lower bounds, accordingly.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 269

1. Preparer: Amaro, C.2. Date prepared: 07/03/943. Generator: TRA
(area or contractor - use code from attached list)4. Particular facility: 632
(building number - use code from attached list)5. Number of waste stream from this facility:
2R6. Waste stream:
Hot cell waste consists of small amounts of metal,
glassware, plastic bottles, anti-c's, etc.7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive8. Actual years disposed of at SDA:
Starting year 1984 Ending year 19869. Waste stream volume:
Amount 0.5684 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

10. Comments (specify number of pertinent question):

General physical form (see attached list) 2. Details on physical form(particularly confinement related)
 ass. A combination of forms, such as glass, plastic, metal,
 [ ] other (specify) paper, etc.

Chemical form:
 known. 4. Inner packaging: [ ] plastic bag [X] plastic liner
 [ ] metal liner [ ] none [ ] other (specify)

Waste container type (see attached list) 6. Other characteristics of interest:
 insert.

Comments (specify number of pertinent question):

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
None.										

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Unknown.	Unknown.	T 1.2280000000000	CI	1984	1984	N			See continuation page.
C-14	Unknown.	Unknown.	T .16470000000000	CI	1984	1984	N			See continuation page.
Fe-55	Unknown.	Unknown.	T 28.440000000000	CI	1984	1984	N			See continuation page.
Ni-59	Unknown.	Unknown.	T .00853300000000	CI	1984	1984	N			See continuation page.
Ni-63	Unknown.	Unknown.	T 4.7900000000000	CI	1984	1984	N			See continuation page.
Co-60	Unknown.	Unknown.	T 10.030000000000	CI	1984	1984	N			See continuation page.
Sr-90	Unknown.	Unknown.	T .01377000000000	CI	1984	1984	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .00269500000000	CI	1984	1984	N			See continuation page.
I-129	Unknown.	Unknown.	T .00000070056000	CI	1984	1984	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Unknown.	Unknown.	T 2.99400000000000	CI	1984	1984	N			See continuation page.
Ce-144	Unknown.	Unknown.	T .070360000000000	CI	1984	1984	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00004341000000	CI	1984	1984	N			See continuation page.
Eu-155	Unknown.	Unknown.	T .140700000000000	CI	1984	1984	N			See continuation page.
U-234	Unknown.	Unknown.	T .00003144000000	CI	1984	1984	N			See continuation page.
U-235	Unknown.	Unknown.	T .00000067360000	CI	1984	1984	N			See continuation page.
U-236	Unknown.	Unknown.	T .00001198000000	CI	1984	1984	N			See continuation page.
Np-237	Unknown.	Unknown.	T .00001946000000	CI	1984	1984	N			See continuation page.
Pu-238	Unknown.	Unknown.	T .00080840000000	CI	1984	1984	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Unknown.	Unknown.	T .000808400000000	CI	1984	1984	N			See continuation page.
Pu-240	Unknown.	Unknown.	T .000085330000000	CI	1984	1984	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .088320000000000	CI	1984	1984	N			See continuation page.
Am-241	Unknown.	Unknown.	T .000404200000000	CI	1984	1984	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .000404200000000	CI	1984	1984	N			See continuation page.
Cm-244	Unknown.	Unknown.	T .000374300000000	CI	1984	1984	N			See continuation page.
Ce-144	Unknown.	Unknown.	T 10.2800000000000	CI	1984	1984	N	-20%	+20%	See comment below.
Co-60	Unknown.	Unknown.	T 131.7500000000000	CI	1984	1984	N	-20%	+20%	See comment below.
Cs-134	Unknown.	Unknown.	T 19.8800000000000	CI	1984	1984	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Unknown.	Unknown.	T 67.500000000000	CI	1984	1984	N	-20%	+20%	See comment below.
Nb-95	Unknown.	Unknown.	T 2.310000000000	CI	1984	1984	N	-20%	+20%	See comment below.
U-235	Unknown.	Unknown.	T .00027820000000	CI	1984	1984	N	-20%	+20%	See comment below.
Zr-95	Unknown.	Unknown.	T 6.050000000000	CI	1984	1984	N	-20%	+20%	See comment below.
H-3	Unknown.	Unknown.	T 1.587000000000	CI	1985	1985	N			See continuation page.
C-14	Unknown.	Unknown.	T .212900000000	CI	1985	1985	N			See continuation page.
Fe-55	Unknown.	Unknown.	T 36.780000000000	CI	1985	1985	N			See continuation page.
Ni-59	Unknown.	Unknown.	T .011030000000	CI	1985	1985	N			See continuation page.
Ni-63	Unknown.	Unknown.	T 6.195000000000	CI	1985	1985	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Unknown.	Unknown.	T 12.970000000000	CI	1985	1985	N			See continuation page.
Sr-90	Unknown.	Unknown.	T .01781000000000	CI	1985	1985	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .00348500000000	CI	1985	1985	N			See continuation page.
I-129	Unknown.	Unknown.	T .00000090630000	CI	1985	1985	N			See continuation page.
Cs-137	Unknown.	Unknown.	T 3.87200000000000	CI	1985	1985	N			See continuation page.
Ce-144	Unknown.	Unknown.	T .09099000000000	CI	1985	1985	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00005614000000	CI	1985	1985	N			See continuation page.
Eu-155	Unknown.	Unknown.	T .18200000000000	CI	1985	1985	N			See continuation page.
U-234	Unknown.	Unknown.	T .00004065000000	CI	1985	1985	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-235	Unknown.	Unknown.	T .00000087120000	CI	1985	1985	N			See continuation page.
U-236	Unknown.	Unknown.	T .00001549000000	CI	1985	1985	N			See continuation page.
Np-237	Unknown.	Unknown.	T .00002517000000	CI	1985	1985	N			See continuation page.
Pu-238	Unknown.	Unknown.	T .00104500000000	CI	1985	1985	N			See continuation page.
Pu-239	Unknown.	Unknown.	T .00104500000000	CI	1985	1985	N			See continuation page.
Pu-240	Unknown.	Unknown.	T .00011030000000	CI	1985	1985	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .11420000000000	CI	1985	1985	N			See continuation page.
Am-241	Unknown.	Unknown.	T .00052270000000	CI	1985	1985	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .00052270000000	CI	1985	1985	N			See continuation page.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cm-244	Unknown.	Unknown.	T .00048400000000	CI	1985	1985	N			See continuation page.
Ce-144	Unknown.	Unknown.	T 15.490000000000	CI	1985	1985	N	-20%	+20%	See comment below.
Co-60	Unknown.	Unknown.	T 143.640000000000	CI	1985	1985	N	-20%	+20%	See comment below.
Cs-134	Unknown.	Unknown.	T 24.390000000000	CI	1985	1985	N	-20%	+20%	See comment below.
Cs-137	Unknown.	Unknown.	T 88.290000000000	CI	1985	1985	N	-20%	+20%	See comment below.
Nb-95	Unknown.	Unknown.	T 11.570000000000	CI	1985	1985	N	-20%	+20%	See comment below.
U-238	Unknown.	Unknown.	T .00120000000000	CI	1985	1985	N	-20%	+20%	See comment below.
Zr-95	Unknown.	Unknown.	T 28.260000000000	CI	1985	1985	N	-20%	+20%	See comment below.
H-3	Unknown.	Unknown.	T .72570000000000	CI	1986	1986	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

If sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
C-14	Unknown.	Unknown.	T .09735000000000	CI	1986	1986	N			See continuation page.
Fe-55	Unknown.	Unknown.	T 16.810000000000	CI	1986	1986	N			See continuation page.
Ni-59	Unknown.	Unknown.	T .00504400000000	CI	1986	1986	N			See continuation page.
Ni-63	Unknown.	Unknown.	T 2.83200000000000	CI	1986	1986	N			See continuation page.
Co-60	Unknown.	Unknown.	T 5.92900000000000	CI	1986	1986	N			See continuation page.
Sr-90	Unknown.	Unknown.	T .00814200000000	CI	1986	1986	N			See continuation page.
Tc-99	Unknown.	Unknown.	T .00159300000000	CI	1986	1986	N			See continuation page.
I-129	Unknown.	Unknown.	T .00000041418000	CI	1986	1986	N			See continuation page.
Cs-137	Unknown.	Unknown.	T 1.77000000000000	CI	1986	1986	N			See continuation page.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle s situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ce-144	Unknown.	Unknown.	T .04160000000000	CI	1986	1986	N			See continuation page.
Eu-154	Unknown.	Unknown.	T .00002566000000	CI	1986	1986	N			See continuation page.
Eu-155	Unknown.	Unknown.	T .08319000000000	CI	1986	1986	N			See continuation page.
U-234	Unknown.	Unknown.	T .00001858000000	CI	1986	1986	N			See continuation page.
U-235	Unknown.	Unknown.	T .00000039820000	CI	1986	1986	N			See continuation page.
U-236	Unknown.	Unknown.	T .00000708000000	CI	1986	1986	N			See continuation page.
Np-237	Unknown.	Unknown.	T .00001150000000	CI	1986	1986	N			See continuation page.
Pu-238	Unknown.	Unknown.	T .00047790000000	CI	1986	1986	N			See continuation page.
Pu-239	Unknown.	Unknown.	T .00047790000000	CI	1986	1986	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-240	Unknown.	Unknown.	T .00005044000000	CI	1986	1986	N			See continuation page.
Pu-241	Unknown.	Unknown.	T .05221000000000	CI	1986	1986	N			See continuation page.
Am-241	Unknown.	Unknown.	T .00023890000000	CI	1986	1986	N			See continuation page.
Cm-242	Unknown.	Unknown.	T .00023890000000	CI	1986	1986	N			See continuation page.
Cm-244	Unknown.	Unknown.	T .00022130000000	CI	1986	1986	N			See continuation page.
Ce-144	Unknown.	Unknown.	T 4.950000000000	CI	1986	1986	N	-20%	+20%	See comment below.
Co-60	Unknown.	Unknown.	T 183.4400000000	CI	1986	1986	N	-20%	+20%	See comment below.
Cs-134	Unknown.	Unknown.	T 16.155000000000	CI	1986	1986	N	-20%	+20%	See comment below.
Cs-137	Unknown.	Unknown.	T 93.480000000000	CI	1986	1986	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-238	Unknown.	Unknown.	T .00099900000000	CI	1986	1986	N	-20%	+20%	See comment below.
Zr-95	Unknown.	Unknown.	T 37.120000000000	CI	1986	1986	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

1. Type of source of information:
(check box)

☒ RWMIS   ☐ other database
☐ sample analysis data
☒ operating records   ☒ interview
☐ expert judgment   ☐ reports
☐ other

3. Do the estimates of contaminant
quantities in Part C and D represent:

☒ best estimate
☐ worst case
☐ other

5. Do the data conflict with RWMIS?
(Historical or Present Data Only)

☐ no
☒ yes

7. Major unknowns in inventories of
contaminants:

Unidentified beta gamma (U-B-G) were
unknown.

2. Details concerning source (names, report no., dates, etc.)
Hot cell operation records along with interviewing a
previous hot cell employee.

4. If other than best estimate, explain why:

6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

U-B-G radionuclides were chosen based on EPR1 NP-5077 for
dry active waste for PWRs. PWR was chosen because it is
similar to ATR, the reactor at TRA. The radionuclides were
chosen based on a combination of the following: cross
section, half-lives, and their fission product.

Continuation of Part D	Column or Question Number or Title	Uncertainty basis.
		because of the form (the various types and shapes) of the material, it is not known whether a shipment's activity was determined with a G-M counter or with a NAI detector, using smears.
		Therefore, the true activity and uncertainty is unknown. The G-M counter method has been assumed as the method used to estimate the gamma emitting radionuclides. Although a G-M counter cannot estimate alpha emitting radionuclides, the alpha activities were scaled from the gamma activities.
		Therefore, the G-M counter correction applies for the alpha emitters, CIDRA calculated best estimate, and upper and lower bounds, accordingly.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 279

1. Preparer: Amaro, C.
2. Date prepared: 07/03/94
3. Generator: TRA
(area or contractor - use code from attached list)
4. Particular facility: 632
(building number - use code from attached list)
5. Number of waste stream from this facility:
3R
6. Waste stream:
Absorbed liquids.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1991 Ending year 1993
9. Waste stream volume:
Amount 1.1392 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume
10. Comments (specify number of pertinent question):
4. Also TRA-ERP, which the preparer believes is building 603.

1. General physical form (see attached list) _____
[X] other (specify) _____
other liquid setups. _____
2. Details on physical form (particularly confinement related)
Liquid has been absorbed by another material.
_____
_____
3. Chemical form: _____
unknown. _____
4. Inner packaging: [ ] plastic bag [X] plastic liner
[ ] metal liner [ ] none [ ] other (specify) _____
5. Waste container type (see attached list) _____
wooden box. _____
6. Other characteristics of interest: _____
7. Comments (specify number of pertinent question):
5. Also RDL. _____

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
None.										

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Unknown.	Unknown.	T .00000773600000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Cs-137	Unknown.	Unknown.	T .00011604000000	CI	1991	1991	N	-20%	+20%	See comment (a) below.
Ag-108m	Solid.	Unknown.	T .00000010600000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
Am-241	Solid.	Unknown.	T .00000005620000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
Co-60	Solid.	Unknown.	T .00002090000000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
Cs-134	Solid.	Unknown.	T .00000042100000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
Cs-137	Solid.	Unknown.	T .00006300000000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
Eu-152	Solid.	Unknown.	T .00000006820000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
Eu-154	Solid.	Unknown.	T .00000016900000	CI	1993	1993	N	-10%	+10%	See comment (b) below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

A sample(s) was analyzed by the RML. Based on professional judgment, the total uncertainty for the sample(s) was calculated to be approximately +/- 10%.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sb-125	Solid.	Unknown.	T .00000002180000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
U-234	Solid.	Unknown.	T .00000043400000	CI	1993	1993	N	-10%	+10%	See comment (b) below.
U-235	Solid.	Unknown.	T .00000002280000	CI	1993	1993	N	-10%	+10%	See comment (b) below.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

a. The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

b. A sample(s) was analyzed by the RML. Based on professional judgment, the total uncertainty for the sample(s) was calculated to be approximately +/- 10%.

. Type of source of information:
(check box)

- X] RWMIS [ ] other database
X] sample analysis data
[ ] operating records [X] interview
[ ] expert judgment [X] reports
[ ] other

. Do the estimates of contaminant
quantities in Part C and D represent:

- X] best estimate
[ ] worst case
[ ] other

. Do the data conflict with RWMIS?
(Historical or Present Data Only)

- X] no
[ ] yes

. Major unknowns in inventories of
contaminants:

AP and MFP were unknown.

2. Details concerning source (names, report no., dates, etc.)
The preparer of this report shipped some of this material.
It is characterized in WROC-WCR-007-93 Write up. C.R.
Amaro, "Amalgamation of Low-level Waste".

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
MAP and MFP radionuclides were chosen based on EPR1 NP-5077
for dry active waste for PWRs. PWR was chosen because it is
similar to ATR, the reactor at TRA. The radionuclides were
chosen based on a combination of the following: cross
section, half-lives, and their fission products.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 280

1. Preparer: Amaro, C.
2. Date prepared: 07/03/94
3. Generator: TRA
(area or contractor - use code from attached list)
4. Particular facility: 642
(building number - use code from attached list)
5. Number of waste stream from this facility:
7R
6. Waste stream:
Combustible material, such as paper, wood, plastic,
rags and wipes.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1987 Ending year 1992
9. Waste stream volume:
Amount 89.2421 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume
10. Comments (specify number of pertinent question):
4. Waste is actually from 603, 632, 670, and TRA-B&W; the preparer could not determine what
facility TRA-B&W was. Stream is same type of content as TRA-642-7 from earlier period.

1. General physical form (see attached list) 2. Details on physical form (particularly confinement related)
Combustibles (paper, cloth, wood, etc.) Material is in the form of paper, wood, cloth, plastic, rags
[ ] other (specify) and wipes.

3. Chemical form:
Unknown.

4. Inner packaging: [ ] plastic bag [X] plastic liner
[ ] metal liner [ ] none [ ] other (specify)

5. Waste container type (see attached list) 6. Other characteristics of interest:
Wooden box.

7. Comments (specify number of pertinent question):

5. Also PB3, I, and BXM.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
None.										

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column.
If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Particulate.	Unknown.	T .05741000000000	CI	1987	1987	N			See continuation page.
C-14	Particulate.	Unknown.	T .00770100000000	CI	1987	1987	N			See continuation page.
Fe-55	Particulate.	Unknown.	T 1.33000000000000	CI	1987	1987	N			See continuation page.
Ni-59	Particulate.	Unknown.	T .00039900000000	CI	1987	1987	N			See continuation page.
Ni-63	Particulate.	Unknown.	T .22400000000000	CI	1987	1987	N			See continuation page.
Co-60	Particulate.	Unknown.	T .46900000000000	CI	1987	1987	N			See continuation page.
Sr-90	Particulate.	Unknown.	T .00064410000000	CI	1987	1987	N			See continuation page.
Tc-99	Particulate.	Unknown.	T .00012600000000	CI	1987	1987	N			See continuation page.
I-129	Particulate.	Unknown.	T .00000003276000	CI	1987	1987	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Particulate.	Unknown.	T .14000000000000	CI	1987	1987	N			See continuation page.
Ce-144	Particulate.	Unknown.	T .00329000000000	CI	1987	1987	N			See continuation page.
Eu-154	Particulate.	Unknown.	T .00000203000000	CI	1987	1987	N			See continuation page.
Eu-155	Particulate.	Unknown.	T .00658100000000	CI	1987	1987	N			See continuation page.
U-234	Particulate.	Unknown.	T .00000147000000	CI	1987	1987	N			See continuation page.
U-235	Particulate.	Unknown.	T .00000003150000	CI	1987	1987	N			See continuation page.
U-236	Particulate.	Unknown.	T .00000056010000	CI	1987	1987	N			See continuation page.
Np-237	Particulate.	Unknown.	T .00000091010000	CI	1987	1987	N			See continuation page.
Pu-238	Particulate.	Unknown.	T .00003780000000	CI	1987	1987	N			See continuation page.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Particulate.	Unknown.	T .000037800000000	CI	1987	1987	N			See continuation page.
Pu-240	Particulate.	Unknown.	T .000003990000000	CI	1987	1987	N			See continuation page.
Pu-241	Particulate.	Unknown.	T .004130000000000	CI	1987	1987	N			See continuation page.
Am-241	Particulate.	Unknown.	T .000018900000000	CI	1987	1987	N			See continuation page.
Cm-242	Particulate.	Unknown.	T .000018900000000	CI	1987	1987	N			See continuation page.
Cm-244	Particulate.	Unknown.	T .000017500000000	CI	1987	1987	N			See continuation page.
Ce-144	Particulate.	Unknown.	T .140000000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Co-60	Particulate.	Unknown.	T 2.3975001044000	CI	1987	1987	N	-20%	+20%	See comment below.
Cs-134	Particulate.	Unknown.	T .363000000000000	CI	1987	1987	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

If the sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Particulate.	Unknown.	T 1.1270900672000	CI	1987	1987	N	-20%	+20%	See comment below.
Eu-152	Particulate.	Unknown.	T .975000000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Gd-153	Particulate.	Unknown.	T .325000000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Ir-192	Particulate.	Unknown.	T .162500000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Zr-95	Particulate.	Unknown.	T .280000000000000	CI	1987	1987	N	-20%	+20%	See comment below.
U-235	Particulate.	Unknown.	T .00000180240000	CI	1987	1987	N	-20%	+20%	See comment below.
H-3	Particulate.	Unknown.	T .002521000000000	CI	1988	1988	N			See continuation page.
C-14	Particulate.	Unknown.	T .000338200000000	CI	1988	1988	N			See continuation page.
Fe-55	Particulate.	Unknown.	T .058420000000000	CI	1988	1988	N			See continuation page.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-59	Particulate.	Unknown.	T .00001753000000	CI	1988	1988	N			See continuation page.
Ni-63	Particulate.	Unknown.	T .00984000000000	CI	1988	1988	N			See continuation page.
Co-60	Particulate.	Unknown.	T .02060000000000	CI	1988	1988	N			See continuation page.
Sr-90	Particulate.	Unknown.	T .00002829000000	CI	1988	1988	N			See continuation page.
Tc-99	Particulate.	Unknown.	T .00000553500000	CI	1988	1988	N			See continuation page.
I-129	Particulate.	Unknown.	T .00000000144000	CI	1988	1988	N			See continuation page.
Cs-137	Particulate.	Unknown.	T .00615000000000	CI	1988	1988	N			See continuation page.
Ce-144	Particulate.	Unknown.	T .00014450000000	CI	1988	1988	N			See continuation page.
Eu-154	Particulate.	Unknown.	T .00000008920000	CI	1988	1988	N			See continuation page.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-155	Particulate.	Unknown.	T .00028910000000	CI	1988	1988	N			See continuation page.
U-234	Particulate.	Unknown.	T .00000006460000	CI	1988	1988	N			See continuation page.
U-235	Particulate.	Unknown.	T .00000000140000	CI	1988	1988	N			See continuation page.
U-236	Particulate.	Unknown.	T .00000002460000	CI	1988	1988	N			See continuation page.
Np-237	Particulate.	Unknown.	T .00000004000000	CI	1988	1988	N			See continuation page.
Pu-238	Particulate.	Unknown.	T .00000166000000	CI	1988	1988	N			See continuation page.
Pu-239	Particulate.	Unknown.	T .00000166000000	CI	1988	1988	N			See continuation page.
Pu-240	Particulate.	Unknown.	T .00000017530000	CI	1988	1988	N			See continuation page.
Pu-241	Particulate.	Unknown.	T .00018140000000	CI	1988	1988	N			See continuation page.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Particulate.	Unknown.	T .00000083020000	CI	1988	1988	N			See continuation page.
Cm-242	Particulate.	Unknown.	T .00000083020000	CI	1988	1988	N			
Cm-244	Particulate.	Unknown.	T .00000076880000	CI	1988	1988	N			
Co-58	Particulate.	Unknown.	T .00002608500000	CI	1992	1992	N	-20%	+20%	See comment below.
Co-60	Particulate.	Unknown.	T .00747899490000	CI	1992	1992	N	-20%	+20%	See comment below.
Cs-134	Particulate.	Unknown.	T .00039446500000	CI	1992	1992	N	-20%	+20%	See comment below.
Cs-137	Particulate.	Unknown.	T .02596676610000	CI	1992	1992	N	-20%	+20%	See comment below.
Eu-152	Particulate.	Unknown.	T .00012808500000	CI	1992	1992	N	-20%	+20%	See comment below.
Eu-154	Particulate.	Unknown.	T .00009290000000	CI	1992	1992	N	-20%	+20%	See comment below.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Mn-54	Particulate.	Unknown.	T .00012961500000	CI	1992	1992	N	-20%	+20%	See comment below.
Sb-125	Particulate.	Unknown.	T .00008800000000	CI	1992	1992	N	-20%	+20%	See comment below.
Zn-65	Particulate.	Unknown.	T .00009400000000	CI	1992	1992	N	-20%	+20%	See comment below.

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The sample column is marked "N" because the preparer cannot prove a sample was counted by the Radiation Measurements Laboratory (RML) at TRA, but based on the RWMIS radionuclide identification, the preparer believes a sample was counted. A 5-10% error is normal for a sample analyzed by the RML, however, being conservative, the preparer assigned a 20% error (doubling the 10% error).

1. Type of source of information:
(check box)

☒ RWMIS   ☐ other database
☐ sample analysis data
☐ operating records   ☐ interview
☐ expert judgment   ☐ reports
☐ other

3. Do the estimates of contaminant
quantities in Part C and D represent:

☒ best estimate
☐ worst case
☐ other

5. Do the data conflict with RWMIS?
(Historical or Present Data Only)

☐ no
☒ yes

7. Major unknowns in inventories of
contaminants:

MAP and MFP and U-B-G (unidentified
beta-gamma) were unknown.

2. Details concerning source (names, report no., dates, etc.)

4. If other than best estimate, explain why:

6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

MAP, MFP and U-B-G, were chosen based on EPR1 NP-5077 for
dry active waste for PWRs. PWR was chosen because it is
similar to ATR, the reactor at TRA. The radionuclides were
chosen based on a combination of the following: cross
section, half-lives, and their fission products.

Continuation of Part D _____ Column or Question Number or Title Uncertainty basis.

Because of the various types of materials, it is not known whether a shipment's activity was determined with a G-M counter or a NAI detector using smears. Therefore, the true activity and uncertainty is unknown. The G-M counter method has been assumed as the method used to estimate the gamma emitting radionuclides. Although a G-M counter cannot estimate alpha emitting radionuclides, the alpha activities were scaled from the gamma activities. Therefore, the G-M counter correction applies for the alpha emitters, CIDRA calculated best estimate, and upper and lower bounds, accordingly.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 299

1. Preparer: Amaro, C.2. Date prepared: 07/03/943. Generator: TRA
area or contractor - use code from attached list)4. Particular facility: 670
(building number - use code from attached list)5. Number of waste stream from this facility:
1R6. Waste stream:
Beryllium reflectors from ATR.7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive8. Actual years disposed of at SDA:
starting year 1993 Ending year 19939. Waste stream volume:
Amount 2.2920 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

10. Comments (specify number of pertinent question):

1. General physical form (see attached list) 2. Details on physical form (particularly confinement related)
Be metal blocks (6) in all.

[X] other (specify)

Beryllium.

3. Chemical form:

Be metal.

4. Inner packaging: [ ] plastic bag [X] plastic liner
[ ] metal liner [ ] none [ ] other (specify)

5. Waste container type (see attached list) 6. Other characteristics of interest:
Other.

7. Comments (specify number of pertinent question):

Three shipments in a 27 cubic foot ATR canal trash liner inside the waste calciner filter cask.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
440-41-7 Beryllium	Solid.	Beryllium.	T 6327000.0000000	GM	1993	1993	N	-1%	+1%	

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

Minimum and maximum values are not known. It was assumed that the mass was determined by weighing to an accuracy of +/- 1%.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Metallic.		T 846.000000000000	CI	1993	1993	N	-50%	+100%	
H-3	Metallic.	H.	T 293000.000000000	CI	1993	1993	N	-50%	+100%	
Ni-63	Metallic.		T 3060.000000000000	CI	1993	1993	N	-50%	+100%	
Ni-59	Metal.		T 29.4000000000000	CI	1993	1993	N	-50%	+100%	
Nb-94	Metal.		T .204000000000000	CI	1993	1993	N	-50%	+100%	
C-14	Metal.		T .001800000000000	CI	1993	1993	N	-50%	+100%	

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

Type of source of information:
(check box)

- ☐ RWMIS ☐ other database
- ☐ sample analysis data
- ☐ operating records ☒ interview
- ☐ expert judgment ☐ reports
- ☐ other

Do the estimates of contaminant
quantities in Part C and D represent:

- ☐ best estimate
- ☐ worst case
- ☐ other

Do the data conflict with RWMIS?
(Historical or Present Data Only)

- ☐ no
- ☐ yes

Major unknowns in inventories of
contaminants:
ne.

2. Details concerning source (names, report no., dates, etc.)
See Continuation Page of Part E.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
This waste stream was removed from the reactor about 1986.
Short-lived radionuclides, such as Cr-51 and Fe-59, have
decayed by 1993 to extremely small activities and are not
included here.

Continuation of Part EColumn or Question Number or Title 2.

J.A. Jacobi letter to T.L. Clements, JAJ-006-93, "Beryllium Reflector Component Disposal Response," Sept. 17, 1993; J.O. Bower letter to R.N. Bhatt, JOB-09-94, "ATR Beryllium Inventory", March 16, 1994; S.J. Maheras, et al, "Radioactive Waste Management Complex Low-Level Waste Radiological Waste Radiological Performance Assessment", EGG-WM-8773, I.N.E.L., May 1994; P.K. Nagata distribution, "Letter Report on Tritium Release from Buried Beryllium Reflectors", Dec. 14, 1994; T.A. Tomberlin letter to P.K. Nagata, TOM-1-94, "Review of Letter Report on Tritium Release from Buried Beryllium Reflectors", Jan. 19, 1994; T.A. Tomberlin letter to M.M. Garland, TOM-2-94, "Projected Tritium Inventory in the ATR Reflector at the End of Cycle 102B-1", Jan. 26, 1994; T.A. Tomberlin letter to L.J. Toomer, TOM-7-92, "Characterization Update for Beryllium Reflector Components in the ATR Canal", Nov. 5, 1992; Communication from T. Hopkins, EG&G Idaho, Dec. 22, 1992; Communication from S.J. Maheras to R.N. Beatty, EG&E Idaho, Aug. 31, 1992; W.W. Gary letter to J.A. Lake, WWG-362-92, "Disposition of ATR Beryllium"; G.R. Longhurst letter to J. G. Crocker, GRL-15-91, "Disposition of ATR Beryllium", May 6, 1991; G.R. Longhurst letter to W.W. Gay, GRL-13-91, "Experiment Core and Components Disposition", April 16, 1991; D. R. Wilkinson letter to L.J. Toomer, DWR-77-92, "Final Review and Evaluation for Test Reactors Area (TRA) Advanced Test Reactor (ATR) Waste Characterization Report", Oct. 20, 1992; T. A. Tomberlin letter to R.N. Beatty, TOM-04-91, "Characterization of ATR Beryllium Reflector Components in the ATR Canal as of April 15, 1991", April 19, 1991; T.A. Tomberlin letter to R.N. Beatty, TOM-05-91, "Characterization of Outer Shim Control Cylinders in the ATR Canal as of April 15, 1991", May 8, 1991; J.A. Jacobi letter to D.R. Wilkinson, JAJ-30-92, "Characterization of Beryllium Waste Stream", July 10, 1992; J.D. Wells letter to L.J. Toomer, JDW-43-92, "Waste Package Containment Requirements", Aug. 11, 1992; R.N. Beatty letter to S.J. Maheras, RNB-11-92, "Estimated Isotope Activity in ATR Beryllium Reflector Blocks and Outer Shim Control Cylinders", June 11, 1992; D.R. Wilkinson letter to D.J. Bright, DRW-39-92, "Test Reactors Area Advanced Test Reactor (TRA/ATR) Beryllium Action Item DLF #324 Response", May 15, 1992; F.C. Fogarty letter to H.P. Mann, FCF-146-92, "Disposal of Expended Beryllium Reflector Material", May 11, 1992; G.R. Longhurst distribution, GRL-20-92, "Reclamation of ATR Beryllium", March 23, 1992; R.M. Brown letter to A.D. Rodgers, RMB-01-88, "ATR Beryllium/Tritium Waste", Oct. 7, 1987; B.R. Baldwin letter to R.A. Brown, BRB-17-87, "Tritium Data for ATR Beryllium Blocks", May 8, 1987; B.R. Baldwin letter to D.W. Suthers, BRB-10-87, "Report of RWMC Beryllium Meeting", May 8, 1987; T.A. Tomberlin letter to D.E. Sheldon, TOM-30-86, "Tritium Content and Stability in Beryllium Stored in ATR Canal", Dec. 22, 1986; J.O. Brower letter to R.N. Bhatt, JOB-23-94, "ATR Tritium Waste Inventory", Oct. 28, 1994.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 304

Preparer: Amaro, C.2. Date prepared: 07/16/94Generator: TRA
Area or contractor - use code from attached list)4. Particular facility: 603
(building number - use code from attached list)Number of waste stream from this facility:
1P6. Waste stream:
Resin.Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactiveActual years disposed of at SDA:
Starting year 1994 Ending year 20039. Waste stream volume:
Amount 425.4600 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume0. Comments (specify number of pertinent question):
4. Also 670 and 632.

General physical form (see attached list) 2. Details on physical form(particularly confinement related)
in. Granular.

other (specify)

Chemical form:
nown.

4. Inner packaging: ☐ plastic bag ☐ plastic liner
☐ metal liner ☐ none ☒ other (specify)
Other.

Waste container type (see attached list) 6. Other characteristics of interest:
er.

Comments (specify number of pertinent question):

5. Also probably RD5; 0 is a cask.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
None.										

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Resin.	Unknown.	T .22100000000000	CI	1994	2003	Y	N			
Sc-46	Resin.	Unknown.	T .29700000000000	CI	1994	2003	Y	N			
Cr-51	Resin.	Unknown.	T 181.000000000000	CI	1994	2003	Y	N			
Mn-54	Resin.	Unknown.	T 4.09900000000000	CI	1994	2003	Y	N			
Fe-59	Resin.	Unknown.	T .09540000000000	CI	1994	2003	Y	N			
Co-58	Resin.	Unknown.	T 8.49700000000000	CI	1994	2003	Y	N			
Co-60	Resin.	Unknown.	T 50.670000000000	CI	1994	2003	Y	N			
Zn-65	Resin.	Unknown.	T 9.59300000000000	CI	1994	2003	Y	N			
Se-75	Resin.	Unknown.	T .07560000000000	CI	1994	2003	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle s situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sr-90	Resin.	Unknown.	T 2.7820000000000	CI	1994	2003	Y	N			
Zr-95	Resin.	Unknown.	T 1.1150000000000	CI	1994	2003	Y	N			
Nb-95	Resin.	Unknown.	T 1.0920000000000	CI	1994	2003	Y	N			
Mo-99	Resin.	Unknown.	T .19000000000000	CI	1994	2003	Y	N			
Ru-103	Resin.	Unknown.	T .12950000000000	CI	1994	2003	Y	N			
I-131	Resin.	Unknown.	T .00200000000000	CI	1994	2003	Y	N			
Xe-133	Resin.	Unknown.	T .00400000000000	CI	1994	2003	Y	N			
Cs-134	Resin.	Unknown.	T 1.0420000000000	CI	1994	2003	Y	N			
Cs-137	Resin.	Unknown.	T .40430000000000	CI	1994	2003	Y	N			

f sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. not, mark N and give the minimum value and maximum value.
ditional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ba-140	Resin.	Unknown.	T .21420000000000	CI	1994	2003	Y	N			
La-140	Resin.	Unknown.	T .72540000000000	CI	1994	2003	Y	N			
Ce-141	Resin.	Unknown.	T .97600000000000	CI	1994	2003	Y	N			
Ce-144	Resin.	Unknown.	T 3.03900000000000	CI	1994	2003	Y	N			
Pr-144	Resin.	Unknown.	T 1.72300000000000	CI	1994	2003	Y	N			
Hf-181	Resin.	Unknown.	T 1.30800000000000	CI	1994	2003	Y	N			
Am-241	Resin.	Unknown.	T .01400000000000	CI	1994	2003	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

1. Type of source of information:
(check box)

- ☐ RWMIS ☐ other database
☐ sample analysis data
☐ operating records ☐ interview
☐ expert judgment ☐ reports
☒ generator forecasts
☐ other

3. Do the estimates of contaminant
quantities in Part C and D represent:

- ☒ best estimate
☐ worst case
☐ other

5. Do the data conflict with RWMIS?
(Historical or Present Data Only)

- ☒ no
☐ yes

7. Major unknowns in inventories of
contaminants:
none.

2. Details concerning source (names, report no., dates, etc.)
These numbers were based on S.J. Keating's letter to V.C.
Randall, SJK-005-93, "Test Reactor Area (TRA) Radioactive
Waste Forecasts", November 17, 1993.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

RT A - GENERAL INFORMATION PDT - 296

Preparer: Amaro, C.2. Date prepared: 07/16/94Generator: TRA
Area or contractor - use code from attached list)4. Particular facility: 603
(building number - use code from attached list)Number of waste stream from this facility:
4P6. Waste stream:
Core and loop components.Type of radioactive waste (check box):
☐ TRU or suspect TRU
☐ LLW
☐ non-radioactiveActual years disposed of at SDA:
Starting year 1994 Ending year 20039. Waste stream volume:
Amount 22.9200 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

. Comments (specify number of pertinent question):

4. This waste stream is the same as TRA-603-4, but is from 670.

1. General physical form (see attached list) ther core, reactor vessel, loop component] other (specify) _____ _____ 3. Chemical form: etallic, such as stainless steel and luminum. _____ 5. Waste container type (see attached list) thér. _____ 7. Comments (specify number of pertinent question): 5. And I; O cannot be defined by the preparer. _____	2. Details on physical form (particularly confinement related) Solids, such as loop piping, stainless steel and aluminum pieces, equipment leads and pile tubes or end boxes from fuel elements. _____ _____ 4. Inner packaging: [ ] plastic bag [X] plastic liner [ ] metal liner [ ] none [ ] other (specify) _____ 6. Other characteristics of interest: _____

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Metallic.	Unknown.	T 116.400000000000	CI	1994	1994	N	N			
C-14	Metallic.	Unknown.	T 15.610000000000	CI	1994	1994	N	N			
Fe-55	Metallic.	Unknown.	T 2697.00000000000	CI	1994	1994	N	N			
Ni-59	Metallic.	Unknown.	T .809000000000000	CI	1994	1994	N	N			
Ni-63	Metallic.	Unknown.	T 454.200000000000	CI	1994	1994	N	N			
Co-60	Metallic.	Unknown.	T 950.900000000000	CI	1994	1994	N	N			
Sr-90	Metallic.	Unknown.	T 1.30600000000000	CI	1994	1994	N	N			
Tc-99	Metallic.	Unknown.	T .255500000000000	CI	1994	1994	N	N			
I-129	Metallic.	Unknown.	T .000066420000000	CI	1994	1994	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Metallic.	Unknown.	T 283.800000000000	CI	1994	1994	N	N			
Ce-144	Metallic.	Unknown.	T 6.67000000000000	CI	1994	1994	N	N			
Eu-154	Metallic.	Unknown.	T .004116000000000	CI	1994	1994	N	N			
Eu-155	Metallic.	Unknown.	T 13.3400000000000	CI	1994	1994	N	N			
U-234	Metallic.	Unknown.	T .002980000000000	CI	1994	1994	N	N			
U-235	Metallic.	Unknown.	T .000063870000000	CI	1994	1994	N	N			
U-236	Metallic.	Unknown.	T .001135000000000	CI	1994	1994	N	N			
Np-237	Metallic.	Unknown.	T .001845000000000	CI	1994	1994	N	N			
Pu-238	Metallic.	Unknown.	T .076640000000000	CI	1994	1994	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Metallic.	Unknown.	T .07664000000000	CI	1994	1994	N	N			
Pu-240	Metallic.	Unknown.	T .00809000000000	CI	1994	1994	N	N			
Pu-241	Metallic.	Unknown.	T 8.37300000000000	CI	1994	1994	N	N			
Am-241	Metallic.	Unknown.	T .03832000000000	CI	1994	1994	N	N			
Cm-242	Metallic.	Unknown.	T .03832000000000	CI	1994	1994	N	N			
Cm-244	Metallic.	Unknown.	T .03548000000000	CI	1994	1994	N	N			
H-3	Metallic.	Unknown.	T 116.400000000000	CI	1995	1995	N	N			
C-14	Metallic.	Unknown.	T 15.610000000000	CI	1995	1995	N	N			
Fe-55	Metallic.	Unknown.	T 2697.0000000000	CI	1995	1995	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-59	Metallic.	Unknown.	T .80900000000000	CI	1995	1995	N	N			
Ni-63	Metallic.	Unknown.	T 454.200000000000	CI	1995	1995	N	N			
Co-60	Metallic.	Unknown.	T 950.900000000000	CI	1995	1995	N	N			
Sr-90	Metallic.	Unknown.	T 1.30600000000000	CI	1995	1995	N	N			
Tc-99	Metallic.	Unknown.	T .25550000000000	CI	1995	1995	N	N			
I-129	Metallic.	Unknown.	T .00006642000000	CI	1995	1995	N	N			
Cs-137	Metallic.	Unknown.	T 283.800000000000	CI	1995	1995	N	N			
Ce-144	Metallic.	Unknown.	T 6.67000000000000	CI	1995	1995	N	N			
Eu-154	Metallic.	Unknown.	T .00411600000000	CI	1995	1995	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-155	Metallic.	Unknown.	T 13.340000000000	CI	1995	1995	N	N			
U-234	Metallic.	Unknown.	T .00298000000000	CI	1995	1995	N	N			
U-235	Metallic.	Unknown.	T .00006387000000	CI	1995	1995	N	N			
U-236	Metallic.	Unknown.	T .00113500000000	CI	1995	1995	N	N			
Np-237	Metallic.	Unknown.	T .00184500000000	CI	1995	1995	N	N			
Pu-238	Metallic.	Unknown.	T .07664000000000	CI	1995	1995	N	N			
Pu-239	Metallic.	Unknown.	T .07664000000000	CI	1995	1995	N	N			
Pu-240	Metallic.	Unknown.	T .00809000000000	CI	1995	1995	N	N			
Pu-241	Metallic.	Unknown.	T 8.37300000000000	CI	1995	1995	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Metallic.	Unknown.	T .03832000000000	CI	1995	1995	N	N			
Cm-242	Metallic.	Unknown.	T .03832000000000	CI	1995	1995	N	N			
Cm-244	Metallic.	Unknown.	T .03548000000000	CI	1995	1995	N	N			
H-3	Metallic.	Unknown.	T 116.400000000000	CI	1996	1996	N	N			
C-14	Metallic.	Unknown.	T 15.610000000000	CI	1996	1996	N	N			
Fe-55	Metallic.	Unknown.	T 2697.0000000000	CI	1996	1996	N	N			
Ni-59	Metallic.	Unknown.	T .80900000000000	CI	1996	1996	N	N			
Ni-63	Metallic.	Unknown.	T 454.200000000000	CI	1996	1996	N	N			
Co-60	Metallic.	Unknown.	T 950.900000000000	CI	1996	1996	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sr-90	Metallic.	Unknown.	T 1.3060000000000	CI	1996	1996	N	N			
Tc-99	Metallic.	Unknown.	T .2555000000000	CI	1996	1996	N	N			
I-129	Metallic.	Unknown.	T .0000664200000	CI	1996	1996	N	N			
Cs-137	Metallic.	Unknown.	T 283.80000000000	CI	1996	1996	N	N			
Ce-144	Metallic.	Unknown.	T 6.6700000000000	CI	1996	1996	N	N			
Eu-154	Metallic.	Unknown.	T .0041160000000	CI	1996	1996	N	N			
Eu-155	Metallic.	Unknown.	T 13.34000000000	CI	1996	1996	N	N			
U-234	Metallic.	Unknown.	T .0029800000000	CI	1996	1996	N	N			
U-235	Metallic.	Unknown.	T .0000638700000	CI	1996	1996	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-236	Metallic.	Unknown.	T .00113500000000	CI	1996	1996	N	N			
Np-237	Metallic.	Unknown.	T .00184500000000	CI	1996	1996	N	N			
Pu-238	Metallic.	Unknown.	T .07664000000000	CI	1996	1996	N	N			
Pu-239	Metallic.	Unknown.	T .07664000000000	CI	1996	1996	N	N			
Pu-240	Metallic.	Unknown.	T .00809000000000	CI	1996	1996	N	N			
Pu-241	Metallic.	Unknown.	T 8.3730000000000	CI	1996	1996	N	N			
Am-241	Metallic.	Unknown.	T .03832000000000	CI	1996	1996	N	N			
Cm-242	Metallic.	Unknown.	T .03832000000000	CI	1996	1996	N	N			
Cm-244	Metallic.	Unknown.	T .03548000000000	CI	1996	1996	N	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore- cast	Samp- les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Metallic.	Unknown.	T 116.400000000000	CI	1997	1997	N	N			
C-14	Metallic.	Unknown.	T 15.610000000000	CI	1997	1997	N	N			
Fe-55	Metallic.	Unknown.	T 2697.0000000000	CI	1997	1997	N	N			
Ni-59	Metallic.	Unknown.	T .80900000000000	CI	1997	1997	N	N			
Ni-63	Metallic.	Unknown.	T 454.20000000000	CI	1997	1997	N	N			
Co-60	Metallic.	Unknown.	T 950.90000000000	CI	1997	1997	N	N			
Sr-90	Metallic.	Unknown.	T 1.306000000000	CI	1997	1997	N	N			
Tc-99	Metallic.	Unknown.	T .25550000000000	CI	1997	1997	N	N			
I-129	Metallic.	Unknown.	T .00006642000000	CI	1997	1997	N	N			

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Cs-137	Metallic.	Unknown.	T 283.800000000000	CI	1997	1997	N	N			
Ce-144	Metallic.	Unknown.	T 6.67000000000000	CI	1997	1997	N	N			
Eu-154	Metallic.	Unknown.	T .004116000000000	CI	1997	1997	N	N			
Eu-155	Metallic.	Unknown.	T 13.3400000000000	CI	1997	1997	N	N			
U-234	Metallic.	Unknown.	T .002980000000000	CI	1997	1997	N	N			
U-235	Metallic.	Unknown.	T .000063870000000	CI	1997	1997	N	N			
U-236	Metallic.	Unknown.	T .001135000000000	CI	1997	1997	N	N			
Np-237	Metallic.	Unknown.	T .001845000000000	CI	1997	1997	N	N			
Pu-238	Metallic.	Unknown.	T .076640000000000	CI	1997	1997	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore- cast	Samp- les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Metallic.	Unknown.	T .07664000000000	CI	1997	1997	N	N			
Pu-240	Metallic.	Unknown.	T .00809000000000	CI	1997	1997	N	N			
Pu-241	Metallic.	Unknown.	T 8.37300000000000	CI	1997	1997	N	N			
Am-241	Metallic.	Unknown.	T .03832000000000	CI	1997	1997	N	N			
Cm-242	Metallic.	Unknown.	T .03832000000000	CI	1997	1997	N	N			
Cm-244	Metallic.	Unknown.	T .03548000000000	CI	1997	1997	N	N			
H-3	Metallic.	Unknown.	T 116.400000000000	CI	1998	1998	N	N			
C-14	Metallic.	Unknown.	T 15.610000000000	CI	1998	1998	N	N			
Fe-55	Metallic.	Unknown.	T 2697.0000000000	CI	1998	1998	N	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Li-59	Metallic.	Unknown.	T .80900000000000	CI	1998	1998	N	N			
Li-63	Metallic.	Unknown.	T 454.200000000000	CI	1998	1998	N	N			
Co-60	Metallic.	Unknown.	T 950.900000000000	CI	1998	1998	N	N			
Cr-90	Metallic.	Unknown.	T 1.30600000000000	CI	1998	1998	N	N			
C-99	Metallic.	Unknown.	T .25550000000000	CI	1998	1998	N	N			
I-129	Metallic.	Unknown.	T .00006642000000	CI	1998	1998	N	N			
Cs-137	Metallic.	Unknown.	T 283.800000000000	CI	1998	1998	N	N			
Ce-144	Metallic.	Unknown.	T 6.67000000000000	CI	1998	1998	N	N			
Eu-154	Metallic.	Unknown.	T .00411600000000	CI	1998	1998	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-155	Metallic.	Unknown.	T 13.340000000000	CI	1998	1998	N	N			
U-234	Metallic.	Unknown.	T .00298000000000	CI	1998	1998	N	N			
U-235	Metallic.	Unknown.	T .00006387000000	CI	1998	1998	N	N			
U-236	Metallic.	Unknown.	T .00113500000000	CI	1998	1998	N	N			
Np-237	Metallic.	Unknown.	T .00184500000000	CI	1998	1998	N	N			
Pu-238	Metallic.	Unknown.	T .07664000000000	CI	1998	1998	N	N			
Pu-239	Metallic.	Unknown.	T .07664000000000	CI	1998	1998	N	N			
Pu-240	Metallic.	Unknown.	T .00809000000000	CI	1998	1998	N	N			
Pu-241	Metallic.	Unknown.	T 8.37300000000000	CI	1998	1998	N	N			

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Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Metallic.	Unknown.	T .038320000000000	CI	1998	1998	N	N			
Am-242	Metallic.	Unknown.	T .038320000000000	CI	1998	1998	N	N			
Am-244	Metallic.	Unknown.	T .035480000000000	CI	1998	1998	N	N			
Am-243	Metallic.	Unknown.	T 116.400000000000	CI	1999	1999	N	N			
Am-241m	Metallic.	Unknown.	T 15.6100000000000	CI	1999	1999	N	N			
Am-241	Metallic.	Unknown.	T 2697.00000000000	CI	1999	1999	N	N			
Am-241	Metallic.	Unknown.	T .809000000000000	CI	1999	1999	N	N			
Am-241	Metallic.	Unknown.	T 454.200000000000	CI	1999	1999	N	N			
Am-241	Metallic.	Unknown.	T 950.900000000000	CI	1999	1999	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sr-90	Metallic.	Unknown.	T 1.30600000000000	CI	1999	1999	N	N			
Tc-99	Metallic.	Unknown.	T .255500000000000	CI	1999	1999	N	N			
I-129	Metallic.	Unknown.	T .000066420000000	CI	1999	1999	N	N			
Cs-137	Metallic.	Unknown.	T 283.800000000000	CI	1999	1999	N	N			
Ce-144	Metallic.	Unknown.	T 6.67000000000000	CI	1999	1999	N	N			
Eu-154	Metallic.	Unknown.	T .004116000000000	CI	1999	1999	N	N			
Eu-155	Metallic.	Unknown.	T 13.3400000000000	CI	1999	1999	N	N			
U-234	Metallic.	Unknown.	T .002980000000000	CI	1999	1999	N	N			
U-235	Metallic.	Unknown.	T .000063870000000	CI	1999	1999	N	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-236	Metallic.	Unknown.	T .00113500000000	CI	1999	1999	N	N			
Pu-237	Metallic.	Unknown.	T .00184500000000	CI	1999	1999	N	N			
Pu-238	Metallic.	Unknown.	T .07664000000000	CI	1999	1999	N	N			
Pu-239	Metallic.	Unknown.	T .07664000000000	CI	1999	1999	N	N			
Pu-240	Metallic.	Unknown.	T .00809000000000	CI	1999	1999	N	N			
Pu-241	Metallic.	Unknown.	T 8.37300000000000	CI	1999	1999	N	N			
Am-241	Metallic.	Unknown.	T .03832000000000	CI	1999	1999	N	N			
Cm-242	Metallic.	Unknown.	T .03832000000000	CI	1999	1999	N	N			
Cm-244	Metallic.	Unknown.	T .03548000000000	CI	1999	1999	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Metallic.	Unknown.	T 116.400000000000	CI	2000	2000	N	N			
C-14	Metallic.	Unknown.	T 15.610000000000	CI	2000	2000	N	N			
Fe-55	Metallic.	Unknown.	T 2697.0000000000	CI	2000	2000	N	N			
Ni-59	Metallic.	Unknown.	T .80900000000000	CI	2000	2000	N	N			
Ni-63	Metallic.	Unknown.	T 454.20000000000	CI	2000	2000	N	N			
Co-60	Metallic.	Unknown.	T 950.90000000000	CI	2000	2000	N	N			
Sr-90	Metallic.	Unknown.	T 1.3060000000000	CI	2000	2000	N	N			
Tc-99	Metallic.	Unknown.	T .25550000000000	CI	2000	2000	N	N			
I-129	Metallic.	Unknown.	T .00006642000000	CI	2000	2000	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Metallic.	Unknown.	T 283.800000000000	CI	2000	2000	N	N			
Ce-144	Metallic.	Unknown.	T 6.67000000000000	CI	2000	2000	N	N			
Eu-154	Metallic.	Unknown.	T .004116000000000	CI	2000	2000	N	N			
Eu-155	Metallic.	Unknown.	T 13.3400000000000	CI	2000	2000	N	N			
U-234	Metallic.	Unknown.	T .002980000000000	CI	2000	2000	N	N			
U-235	Metallic.	Unknown.	T .000063870000000	CI	2000	2000	N	N			
U-236	Metallic.	Unknown.	T .001135000000000	CI	2000	2000	N	N			
Np-237	Metallic.	Unknown.	T .001845000000000	CI	2000	2000	N	N			
Pu-238	Metallic.	Unknown.	T .076640000000000	CI	2000	2000	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Metallic.	Unknown.	T .07664000000000	CI	2000	2000	N	N			
Pu-240	Metallic.	Unknown.	T .00809000000000	CI	2000	2000	N	N			
Pu-241	Metallic.	Unknown.	T 8.37300000000000	CI	2000	2000	N	N			
Am-241	Metallic.	Unknown.	T .03832000000000	CI	2000	2000	N	N			
Cm-242	Metallic.	Unknown.	T .03832000000000	CI	2000	2000	N	N			
Cm-244	Metallic.	Unknown.	T .03548000000000	CI	2000	2000	N	N			
H-3	Metallic.	Unknown.	T 116.400000000000	CI	2001	2001	N	N			
C-14	Metallic.	Unknown.	T 15.610000000000	CI	2001	2001	N	N			
Fe-55	Metallic.	Unknown.	T 2697.0000000000	CI	2001	2001	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

Each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Li-59	Metallic.	Unknown.	T .80900000000000	CI	2001	2001	N	N			
Li-63	Metallic.	Unknown.	T 454.200000000000	CI	2001	2001	N	N			
Co-60	Metallic.	Unknown.	T 950.900000000000	CI	2001	2001	N	N			
Sr-90	Metallic.	Unknown.	T 1.30600000000000	CI	2001	2001	N	N			
Tc-99	Metallic.	Unknown.	T .255500000000000	CI	2001	2001	N	N			
I-129	Metallic.	Unknown.	T .00006642000000	CI	2001	2001	N	N			
Cs-137	Metallic.	Unknown.	T 283.800000000000	CI	2001	2001	N	N			
Ce-144	Metallic.	Unknown.	T 6.67000000000000	CI	2001	2001	N	N			
Eu-154	Metallic.	Unknown.	T .004116000000000	CI	2001	2001	N	N			

sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. Not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-155	Metallic.	Unknown.	T 13.340000000000	CI	2001	2001	N	N			
U-234	Metallic.	Unknown.	T .00298000000000	CI	2001	2001	N	N			
U-235	Metallic.	Unknown.	T .00006387000000	CI	2001	2001	N	N			
U-236	Metallic.	Unknown.	T .00113500000000	CI	2001	2001	N	N			
Np-237	Metallic.	Unknown.	T .00184500000000	CI	2001	2001	N	N			
Pu-238	Metallic.	Unknown.	T .07664000000000	CI	2001	2001	N	N			
Pu-239	Metallic.	Unknown.	T .07664000000000	CI	2001	2001	N	N			
Pu-240	Metallic.	Unknown.	T .00809000000000	CI	2001	2001	N	N			
Pu-241	Metallic.	Unknown.	T 8.373000000000	CI	2001	2001	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Metallic.	Unknown.	T .038320000000000	CI	2001	2001	N	N			
Cm-242	Metallic.	Unknown.	T .038320000000000	CI	2001	2001	N	N			
Cm-244	Metallic.	Unknown.	T .035480000000000	CI	2001	2001	N	N			
H-3	Metallic.	Unknown.	T 116.400000000000	CI	2002	2002	N	N			
C-14	Metallic.	Unknown.	T 15.6100000000000	CI	2002	2002	N	N			
Fe-55	Metallic.	Unknown.	T 2697.00000000000	CI	2002	2002	N	N			
Ni-59	Metallic.	Unknown.	T .809000000000000	CI	2002	2002	N	N			
Ni-63	Metallic.	Unknown.	T 454.200000000000	CI	2002	2002	N	N			
Co-60	Metallic.	Unknown.	T 950.900000000000	CI	2002	2002	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sr-90	Metallic.	Unknown.	T 1.3060000000000	CI	2002	2002	N	N			
Tc-99	Metallic.	Unknown.	T .25550000000000	CI	2002	2002	N	N			
I-129	Metallic.	Unknown.	T .00006642000000	CI	2002	2002	N	N			
Cs-137	Metallic.	Unknown.	T 283.80000000000	CI	2002	2002	N	N			
Ce-144	Metallic.	Unknown.	T 6.6700000000000	CI	2002	2002	N	N			
Eu-154	Metallic.	Unknown.	T .00411600000000	CI	2002	2002	N	N			
Eu-155	Metallic.	Unknown.	T 13.340000000000	CI	2002	2002	N	N			
U-234	Metallic.	Unknown.	T .00298000000000	CI	2002	2002	N	N			
U-235	Metallic.	Unknown.	T .00006387000000	CI	2002	2002	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-236	Metallic.	Unknown.	T .00113500000000	CI	2002	2002	N	N			
Np-237	Metallic.	Unknown.	T .00184500000000	CI	2002	2002	N	N			
Pu-238	Metallic.	Unknown.	T .07664000000000	CI	2002	2002	N	N			
Pu-239	Metallic.	Unknown.	T .07664000000000	CI	2002	2002	N	N			
Pu-240	Metallic.	Unknown.	T .00809000000000	CI	2002	2002	N	N			
Pu-241	Metallic.	Unknown.	T 8.37300000000000	CI	2002	2002	N	N			
Am-241	Metallic.	Unknown.	T .03832000000000	CI	2002	2002	N	N			
Cm-242	Metallic.	Unknown.	T .03832000000000	CI	2002	2002	N	N			
Cm-244	Metallic.	Unknown.	T .03548000000000	CI	2002	2002	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore- cast	Samp- les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Metallic.	Unknown.	T 116.400000000000	CI	2003	2003	N	N			
C-14	Metallic.	Unknown.	T 15.6100000000000	CI	2003	2003	N	N			
Fe-55	Metallic.	Unknown.	T 2697.00000000000	CI	2003	2003	N	N			
Ni-59	Metallic.	Unknown.	T .809000000000000	CI	2003	2003	N	N			
Ni-63	Metallic.	Unknown.	T 454.200000000000	CI	2003	2003	N	N			
Co-60	Metallic.	Unknown.	T 950.900000000000	CI	2003	2003	N	N			
Sr-90	Metallic.	Unknown.	T 1.30600000000000	CI	2003	2003	N	N			
Tc-99	Metallic.	Unknown.	T .255500000000000	CI	2003	2003	N	N			
I-129	Metallic.	Unknown.	T .000066420000000	CI	2003	2003	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Metallic.	Unknown.	T 283.800000000000	CI	2003	2003	N	N			
Ce-144	Metallic.	Unknown.	T 6.67000000000000	CI	2003	2003	N	N			
Eu-154	Metallic.	Unknown.	T .004116000000000	CI	2003	2003	N	N			
Eu-155	Metallic.	Unknown.	T 13.3400000000000	CI	2003	2003	N	N			
U-234	Metallic.	Unknown.	T .002980000000000	CI	2003	2003	N	N			
U-235	Metallic.	Unknown.	T .000063870000000	CI	2003	2003	N	N			
U-236	Metallic.	Unknown.	T .001135000000000	CI	2003	2003	N	N			
Np-237	Metallic.	Unknown.	T .001845000000000	CI	2003	2003	N	N			
Pu-238	Metallic.	Unknown.	T .076640000000000	CI	2003	2003	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore- cast	Samp- les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Metallic.	Unknown.	T .07664000000000	CI	2003	2003	N	N			
Pu-240	Metallic.	Unknown.	T .00809000000000	CI	2003	2003	N	N			
Pu-241	Metallic.	Unknown.	T 8.37300000000000	CI	2003	2003	N	N			
Am-241	Metallic.	Unknown.	T .03832000000000	CI	2003	2003	N	N			
Cm-242	Metallic.	Unknown.	T .03832000000000	CI	2003	2003	N	N			
Cm-244	Metallic.	Unknown.	T .03548000000000	CI	2003	2003	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

Type of source of information:
(check box)

☐ RWMIS ☐ other database
☐ sample analysis data
☐ operating records ☐ interview
☐ expert judgment ☐ reports
☐ generator forecasts
☐ other

Do the estimates of contaminant
 quantities in Part C and D represent:
☐ best estimate
☐ worst case
☐ other

Do the data conflict with RWMIS?
 (Historical or Present Data Only)
☐ no
☐ yes

Major unknowns in inventories of
 contaminants:
☐ identified beta gamma (U-B-G) was
 known. The Ci content was unknown.

2. Details concerning source (names, report no., dates, etc.)

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4. If other than best estimate, explain why:

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6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

U-B-G radionuclides were chosen based on EPR1 NP-5077 for
dry active waste for PWRs. PWR was chosen because it is
similar to the ATR, the reactor at TRA. The radionuclides
chosen were based on a combination of the following: cross
sections, half lives and fission products. To determine the
Ci content, 1991-93 Ci content was averaged, then multiplied
by 10 (for 1994-2003 - 10 years) and this Ci volume was
assigned to the unidentified beta-gamma.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 297

1. Preparer: Amaro, C.2. Date prepared: 07/16/943. Generator: TRA
area or contractor - use code from attached list)4. Particular facility: 603
(building number - use code from attached list)5. Number of waste stream from this facility:
15P6. Waste stream:
Metal, such as aluminum and stainless steel.7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive8. Actual years disposed of at SDA:
starting year 1994 Ending year 20039. Waste stream volume:
Amount 85.0000 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume10. Comments (specify number of pertinent question):
4. Also probably 632, 670, 635 and others.

General physical form (see attached list) 2. Details on physical form(particularly confinement related)
 er scrap metals. A variety of metals, such as stainless steel and aluminum.
 other (specify)

Chemical form: 4. Inner packaging: [ ] plastic bag [X] plastic liner
 nown. [ ] metal liner [ ] none [ ] other (specify)

Waste container type (see attached list) 6. Other characteristics of interest:
 sert.

Comments (specify number of pertinent question):
 5. Probably also O, PB3, BXM, BXW, RD5, BLX, and BLM.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore- cast	Samp- les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
I-131	Metallic.	Unknown.	T .69470000000000	CI	1994	1994	N	N			
C-14	Metallic.	Unknown.	T .09319000000000	CI	1994	1994	N	N			
Fe-55	Metallic.	Unknown.	T 16.100000000000	CI	1994	1994	N	N			
Ni-59	Metallic.	Unknown.	T .00482900000000	CI	1994	1994	N	N			
Ni-63	Metallic.	Unknown.	T 2.7110000000000	CI	1994	1994	N	N			
Co-60	Metallic.	Unknown.	T 5.6760000000000	CI	1994	1994	N	N			
Sr-90	Metallic.	Unknown.	T .00779400000000	CI	1994	1994	N	N			
Tc-99	Metallic.	Unknown.	T .00152500000000	CI	1994	1994	N	N			
I-129	Metallic.	Unknown.	T .00000039645000	CI	1994	1994	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Provide additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Metallic.	Unknown.	T 1.6940000000000	CI	1994	1994	N	N			
Ce-144	Metallic.	Unknown.	T .03982000000000	CI	1994	1994	N	N			
Eu-154	Metallic.	Unknown.	T .00002457000000	CI	1994	1994	N	N			
Eu-155	Metallic.	Unknown.	T .07963000000000	CI	1994	1994	N	N			
U-234	Metallic.	Unknown.	T .00001779000000	CI	1994	1994	N	N			
U-235	Metallic.	Unknown.	T .00000038120000	CI	1994	1994	N	N			
U-236	Metallic.	Unknown.	T .00000677700000	CI	1994	1994	N	N			
Np-237	Metallic.	Unknown.	T .00001101000000	CI	1994	1994	N	N			
Pu-238	Metallic.	Unknown.	T .00045750000000	CI	1994	1994	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Metallic.	Unknown.	T .00045750000000	CI	1994	1994	N	N			
Pu-240	Metallic.	Unknown.	T .00004829000000	CI	1994	1994	N	N			
Pu-241	Metallic.	Unknown.	T .04998000000000	CI	1994	1994	N	N			
Am-241	Metallic.	Unknown.	T .00022870000000	CI	1994	1994	N	N			
Cm-242	Metallic.	Unknown.	T .00022870000000	CI	1994	1994	N	N			
Cm-244	Metallic.	Unknown.	T .00021180000000	CI	1994	1994	N	N			
H-3	Metallic.	Unknown.	T .69470000000000	CI	1995	1995	N	N			
C-14	Metallic.	Unknown.	T .09319000000000	CI	1995	1995	N	N			
Fe-55	Metallic.	Unknown.	T 16.100000000000	CI	1995	1995	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-59	Metallic.	Unknown.	T .00482900000000	CI	1995	1995	N	N			
Ni-63	Metallic.	Unknown.	T 2.71100000000000	CI	1995	1995	N	N			
Co-60	Metallic.	Unknown.	T 5.67600000000000	CI	1995	1995	N	N			
Sr-90	Metallic.	Unknown.	T .00779400000000	CI	1995	1995	N	N			
Tc-99	Metallic.	Unknown.	T .00152500000000	CI	1995	1995	N	N			
I-129	Metallic.	Unknown.	T .00000039645000	CI	1995	1995	N	N			
Cs-137	Metallic.	Unknown.	T 1.69400000000000	CI	1995	1995	N	N			
Ce-144	Metallic.	Unknown.	T .03982000000000	CI	1995	1995	N	N			
Eu-154	Metallic.	Unknown.	T .00002457000000	CI	1995	1995	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-155	Metallic.	Unknown.	T .07963000000000	CI	1995	1995	N	N			
U-234	Metallic.	Unknown.	T .00001779000000	CI	1995	1995	N	N			
U-235	Metallic.	Unknown.	T .00000038120000	CI	1995	1995	N	N			
U-236	Metallic.	Unknown.	T .00000677700000	CI	1995	1995	N	N			
Np-237	Metallic.	Unknown.	T .00001101000000	CI	1995	1995	N	N			
Pu-238	Metallic.	Unknown.	T .00045750000000	CI	1995	1995	N	N			
Pu-239	Metallic.	Unknown.	T .00045750000000	CI	1995	1995	N	N			
Pu-240	Metallic.	Unknown.	T .00004829000000	CI	1995	1995	N	N			
Pu-241	Metallic.	Unknown.	T .04998000000000	CI	1995	1995	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Metallic.	Unknown.	T .000228700000000	CI	1995	1995	N	N			
Cm-242	Metallic.	Unknown.	T .000228700000000	CI	1995	1995	N	N			
Cm-244	Metallic.	Unknown.	T .000211800000000	CI	1995	1995	N	N			
H-3	Metallic.	Unknown.	T .694700000000000	CI	1996	1996	N	N			
C-14	Metallic.	Unknown.	T .093190000000000	CI	1996	1996	N	N			
Fe-55	Metallic.	Unknown.	T 16.1000000000000	CI	1996	1996	N	N			
Ni-59	Metallic.	Unknown.	T .004829000000000	CI	1996	1996	N	N			
Ni-63	Metallic.	Unknown.	T 2.71100000000000	CI	1996	1996	N	N			
Co-60	Metallic.	Unknown.	T 5.67600000000000	CI	1996	1996	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cr-90	Metallic.	Unknown.	T .00779400000000	CI	1996	1996	N	N			
Cr-99	Metallic.	Unknown.	T .00152500000000	CI	1996	1996	N	N			
Cr-129	Metallic.	Unknown.	T .00000039645000	CI	1996	1996	N	N			
Cr-137	Metallic.	Unknown.	T 1.69400000000000	CI	1996	1996	N	N			
Cr-144	Metallic.	Unknown.	T .03982000000000	CI	1996	1996	N	N			
Cr-154	Metallic.	Unknown.	T .00002457000000	CI	1996	1996	N	N			
Cr-155	Metallic.	Unknown.	T .07963000000000	CI	1996	1996	N	N			
Cr-234	Metallic.	Unknown.	T .00001779000000	CI	1996	1996	N	N			
Cr-235	Metallic.	Unknown.	T .00000038120000	CI	1996	1996	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-236	Metallic.	Unknown.	T .00000677700000	CI	1996	1996	N	N			
Np-237	Metallic.	Unknown.	T .00001101000000	CI	1996	1996	N	N			
Pu-238	Metallic.	Unknown.	T .00045750000000	CI	1996	1996	N	N			
Pu-239	Metallic.	Unknown.	T .00045750000000	CI	1996	1996	N	N			
Pu-240	Metallic.	Unknown.	T .00004829000000	CI	1996	1996	N	N			
Pu-241	Metallic.	Unknown.	T .04998000000000	CI	1996	1996	N	N			
Am-241	Metallic.	Unknown.	T .00022870000000	CI	1996	1996	N	N			
Cm-242	Metallic.	Unknown.	T .00022870000000	CI	1996	1996	N	N			
Cm-244	Metallic.	Unknown.	T .00021180000000	CI	1996	1996	N	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Metallic.	Unknown.	T .69470000000000	CI	1997	1997	N	N			
C-14	Metallic.	Unknown.	T .09319000000000	CI	1997	1997	N	N			
Fe-55	Metallic.	Unknown.	T 16.100000000000	CI	1997	1997	N	N			
Ni-59	Metallic.	Unknown.	T .00482900000000	CI	1997	1997	N	N			
Ni-63	Metallic.	Unknown.	T 2.7110000000000	CI	1997	1997	N	N			
Co-60	Metallic.	Unknown.	T 5.6760000000000	CI	1997	1997	N	N			
Sr-90	Metallic.	Unknown.	T .00779400000000	CI	1997	1997	N	N			
Tc-99	Metallic.	Unknown.	T .00152500000000	CI	1997	1997	N	N			
I-129	Metallic.	Unknown.	T .00000039645000	CI	1997	1997	N	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Metallic.	Unknown.	T 1.6940000000000	CI	1997	1997	N	N			
Ce-144	Metallic.	Unknown.	T .039820000000000	CI	1997	1997	N	N			
Eu-154	Metallic.	Unknown.	T .000024570000000	CI	1997	1997	N	N			
Eu-155	Metallic.	Unknown.	T .079630000000000	CI	1997	1997	N	N			
U-234	Metallic.	Unknown.	T .000017790000000	CI	1997	1997	N	N			
U-235	Metallic.	Unknown.	T .000000381200000	CI	1997	1997	N	N			
U-236	Metallic.	Unknown.	T .000006777000000	CI	1997	1997	N	N			
Np-237	Metallic.	Unknown.	T .000011010000000	CI	1997	1997	N	N			
Pu-238	Metallic.	Unknown.	T .000457500000000	CI	1997	1997	N	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Metallic.	Unknown.	T .00045750000000	CI	1997	1997	N	N			
Pu-240	Metallic.	Unknown.	T .00004829000000	CI	1997	1997	N	N			
Pu-241	Metallic.	Unknown.	T .04998000000000	CI	1997	1997	N	N			
Am-241	Metallic.	Unknown.	T .00022870000000	CI	1997	1997	N	N			
Cm-242	Metallic.	Unknown.	T .00022870000000	CI	1997	1997	N	N			
Cm-244	Metallic.	Unknown.	T .00021180000000	CI	1997	1997	N	N			
H-3	Metallic.	Unknown.	T .69470000000000	CI	1998	1998	N	N			
C-14	Metallic.	Unknown.	T .09319000000000	CI	1998	1998	N	N			
Fe-55	Metallic.	Unknown.	T 16.100000000000	CI	1998	1998	N	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-59	Metallic.	Unknown.	T .004829000000000	CI	1998	1998	N	N			
Ni-63	Metallic.	Unknown.	T 2.71100000000000	CI	1998	1998	N	N			
Co-60	Metallic.	Unknown.	T 5.67600000000000	CI	1998	1998	N	N			
Sr-90	Metallic.	Unknown.	T .007794000000000	CI	1998	1998	N	N			
Tc-99	Metallic.	Unknown.	T .001525000000000	CI	1998	1998	N	N			
I-129	Metallic.	Unknown.	T .00000039645000	CI	1998	1998	N	N			
Cs-137	Metallic.	Unknown.	T 1.69400000000000	CI	1998	1998	N	N			
Ce-144	Metallic.	Unknown.	T .039820000000000	CI	1998	1998	N	N			
Eu-154	Metallic.	Unknown.	T .000024570000000	CI	1998	1998	N	N			

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Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-155	Metallic.	Unknown.	T .07963000000000	CI	1998	1998	N	N			
U-234	Metallic.	Unknown.	T .00001779000000	CI	1998	1998	N	N			
U-235	Metallic.	Unknown.	T .00000038120000	CI	1998	1998	N	N			
U-236	Metallic.	Unknown.	T .00000677700000	CI	1998	1998	N	N			
Np-237	Metallic.	Unknown.	T .00001101000000	CI	1998	1998	N	N			
Pu-238	Metallic.	Unknown.	T .00045750000000	CI	1998	1998	N	N			
Pu-239	Metallic.	Unknown.	T .00045750000000	CI	1998	1998	N	N			
Pu-240	Metallic.	Unknown.	T .00004829000000	CI	1998	1998	N	N			
Pu-241	Metallic.	Unknown.	T .04998000000000	CI	1998	1998	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. Not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Metallic.	Unknown.	T .000228700000000	CI	1998	1998	N	N			
Cm-242	Metallic.	Unknown.	T .000228700000000	CI	1998	1998	N	N			
Cm-244	Metallic.	Unknown.	T .000211800000000	CI	1998	1998	N	N			
H-3	Metallic.	Unknown.	T .694700000000000	CI	1999	1999	N	N			
C-14	Metallic.	Unknown.	T .093190000000000	CI	1999	1999	N	N			
Fe-55	Metallic.	Unknown.	T 16.1000000000000	CI	1999	1999	N	N			
Ni-59	Metallic.	Unknown.	T .004829000000000	CI	1999	1999	N	N			
Ni-63	Metallic.	Unknown.	T 2.71100000000000	CI	1999	1999	N	N			
Co-60	Metallic.	Unknown.	T 5.67600000000000	CI	1999	1999	N	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore- cast	Samp- les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sr-90	Metallic.	Unknown.	T .00779400000000	CI	1999	1999	N	N			
Tc-99	Metallic.	Unknown.	T .00152500000000	CI	1999	1999	N	N			
I-129	Metallic.	Unknown.	T .00000039645000	CI	1999	1999	N	N			
Cs-137	Metallic.	Unknown.	T 1.69400000000000	CI	1999	1999	N	N			
Ce-144	Metallic.	Unknown.	T .03982000000000	CI	1999	1999	N	N			
Eu-154	Metallic.	Unknown.	T .00002457000000	CI	1999	1999	N	N			
Eu-155	Metallic.	Unknown.	T .07963000000000	CI	1999	1999	N	N			
U-234	Metallic.	Unknown.	T .00001779000000	CI	1999	1999	N	N			
U-235	Metallic.	Unknown.	T .00000038120000	CI	1999	1999	N	N			

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U-236	Metallic.	Unknown.	T .00000677700000	CI	1999	1999	N	N			
Np-237	Metallic.	Unknown.	T .00001101000000	CI	1999	1999	N	N			
Pu-238	Metallic.	Unknown.	T .00045750000000	CI	1999	1999	N	N			
Pu-239	Metallic.	Unknown.	T .00045750000000	CI	1999	1999	N	N			
Pu-240	Metallic.	Unknown.	T .00004829000000	CI	1999	1999	N	N			
Pu-241	Metallic.	Unknown.	T .04998000000000	CI	1999	1999	N	N			
Am-241	Metallic.	Unknown.	T .00022870000000	CI	1999	1999	N	N			
Cm-242	Metallic.	Unknown.	T .00022870000000	CI	1999	1999	N	N			
Cm-244	Metallic.	Unknown.	T .00021180000000	CI	1999	1999	N	N			

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H-3	Metallic.	Unknown.	T .694700000000000	CI	2000	2000	N	N			
C-14	Metallic.	Unknown.	T .093190000000000	CI	2000	2000	N	N			
Fe-55	Metallic.	Unknown.	T 16.1000000000000	CI	2000	2000	N	N			
Ni-59	Metallic.	Unknown.	T .004829000000000	CI	2000	2000	N	N			
Ni-63	Metallic.	Unknown.	T 2.71100000000000	CI	2000	2000	N	N			
Co-60	Metallic.	Unknown.	T 5.67600000000000	CI	2000	2000	N	N			
Sr-90	Metallic.	Unknown.	T .007794000000000	CI	2000	2000	N	N			
Tc-99	Metallic.	Unknown.	T .001525000000000	CI	2000	2000	N	N			
I-129	Metallic.	Unknown.	T .00000039645000	CI	2000	2000	N	N			

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Cs-137	Metallic.	Unknown.	T 1.69400000000000	CI	2000	2000	N	N			
Ce-144	Metallic.	Unknown.	T .039820000000000	CI	2000	2000	N	N			
Eu-154	Metallic.	Unknown.	T .000024570000000	CI	2000	2000	N	N			
Eu-155	Metallic.	Unknown.	T .079630000000000	CI	2000	2000	N	N			
U-234	Metallic.	Unknown.	T .000017790000000	CI	2000	2000	N	N			
U-235	Metallic.	Unknown.	T .00000038120000	CI	2000	2000	N	N			
U-236	Metallic.	Unknown.	T .00000677700000	CI	2000	2000	N	N			
Np-237	Metallic.	Unknown.	T .00001101000000	CI	2000	2000	N	N			
Pu-238	Metallic.	Unknown.	T .000457500000000	CI	2000	2000	N	N			

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Pu-239	Metallic.	Unknown.	T .00045750000000	CI	2000	2000	N	N			
Pu-240	Metallic.	Unknown.	T .00004829000000	CI	2000	2000	N	N			
Pu-241	Metallic.	Unknown.	T .04998000000000	CI	2000	2000	N	N			
Am-241	Metallic.	Unknown.	T .00022870000000	CI	2000	2000	N	N			
Cm-242	Metallic.	Unknown.	T .00022870000000	CI	2000	2000	N	N			
Cm-244	Metallic.	Unknown.	T .00021180000000	CI	2000	2000	N	N			
H-3	Metallic.	Unknown.	T .69470000000000	CI	2001	2001	N	N			
C-14	Metallic.	Unknown.	T .09319000000000	CI	2001	2001	N	N			
Fe-55	Metallic.	Unknown.	T 16.100000000000	CI	2001	2001	N	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-59	Metallic.	Unknown.	T .004829000000000	CI	2001	2001	N	N			
Ni-63	Metallic.	Unknown.	T 2.71100000000000	CI	2001	2001	N	N			
Co-60	Metallic.	Unknown.	T 5.67600000000000	CI	2001	2001	N	N			
Sr-90	Metallic.	Unknown.	T .007794000000000	CI	2001	2001	N	N			
Tc-99	Metallic.	Unknown.	T .001525000000000	CI	2001	2001	N	N			
I-129	Metallic.	Unknown.	T .00000039645000	CI	2001	2001	N	N			
Cs-137	Metallic.	Unknown.	T 1.69400000000000	CI	2001	2001	N	N			
Ce-144	Metallic.	Unknown.	T .039820000000000	CI	2001	2001	N	N			
Eu-154	Metallic.	Unknown.	T .000024570000000	CI	2001	2001	N	N			

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Eu-155	Metallic.	Unknown.	T .07963000000000	CI	2001	2001	N	N			
U-234	Metallic.	Unknown.	T .00001779000000	CI	2001	2001	N	N			
U-235	Metallic.	Unknown.	T .00000038120000	CI	2001	2001	N	N			
U-236	Metallic.	Unknown.	T .00000677700000	CI	2001	2001	N	N			
Np-237	Metallic.	Unknown.	T .00001101000000	CI	2001	2001	N	N			
Pu-238	Metallic.	Unknown.	T .00045750000000	CI	2001	2001	N	N			
Pu-239	Metallic.	Unknown.	T .00045750000000	CI	2001	2001	N	N			
Pu-240	Metallic.	Unknown.	T .00004829000000	CI	2001	2001	N	N			
Pu-241	Metallic.	Unknown.	T .04998000000000	CI	2001	2001	N	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Metallic.	Unknown.	T .00022870000000	CI	2001	2001	N	N			
Cm-242	Metallic.	Unknown.	T .00022870000000	CI	2001	2001	N	N			
Cm-244	Metallic.	Unknown.	T .00021180000000	CI	2001	2001	N	N			
H-3	Metallic.	Unknown.	T .69470000000000	CI	2002	2002	N	N			
C-14	Metallic.	Unknown.	T .09319000000000	CI	2002	2002	N	N			
Fe-55	Metallic.	Unknown.	T 16.100000000000	CI	2002	2002	N	N			
Ni-59	Metallic.	Unknown.	T .00482900000000	CI	2002	2002	N	N			
Ni-63	Metallic.	Unknown.	T 2.71100000000000	CI	2002	2002	N	N			
Co-60	Metallic.	Unknown.	T 5.67600000000000	CI	2002	2002	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sr-90	Metallic.	Unknown.	T .00779400000000	CI	2002	2002	N	N			
Tc-99	Metallic.	Unknown.	T .00152500000000	CI	2002	2002	N	N			
I-129	Metallic.	Unknown.	T .00000039645000	CI	2002	2002	N	N			
Cs-137	Metallic.	Unknown.	T 1.69400000000000	CI	2002	2002	N	N			
Ce-144	Metallic.	Unknown.	T .03982000000000	CI	2002	2002	N	N			
Eu-154	Metallic.	Unknown.	T .00002457000000	CI	2002	2002	N	N			
Eu-155	Metallic.	Unknown.	T .07963000000000	CI	2002	2002	N	N			
U-234	Metallic.	Unknown.	T .00001779000000	CI	2002	2002	N	N			
U-235	Metallic.	Unknown.	T .00000038120000	CI	2002	2002	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-236	Metallic.	Unknown.	T .000006777000000	CI	2002	2002	N	N			
Np-237	Metallic.	Unknown.	T .000011010000000	CI	2002	2002	N	N			
Pu-238	Metallic.	Unknown.	T .000457500000000	CI	2002	2002	N	N			
Pu-239	Metallic.	Unknown.	T .000457500000000	CI	2002	2002	N	N			
Pu-240	Metallic.	Unknown.	T .000048290000000	CI	2002	2002	N	N			
Pu-241	Metallic.	Unknown.	T .049980000000000	CI	2002	2002	N	N			
Am-241	Metallic.	Unknown.	T .000228700000000	CI	2002	2002	N	N			
Cm-242	Metallic.	Unknown.	T .000228700000000	CI	2002	2002	N	N			
Cm-244	Metallic.	Unknown.	T .000211800000000	CI	2002	2002	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Metallic.	Unknown.	T .69470000000000	CI	2003	2003	N	N			
C-14	Metallic.	Unknown.	T .09319000000000	CI	2003	2003	N	N			
Fe-55	Metallic.	Unknown.	T 16.100000000000	CI	2003	2003	N	N			
Ni-59	Metallic.	Unknown.	T .00482900000000	CI	2003	2003	N	N			
Ni-63	Metallic.	Unknown.	T 2.7110000000000	CI	2003	2003	N	N			
Co-60	Metallic.	Unknown.	T 5.6760000000000	CI	2003	2003	N	N			
Sr-90	Metallic.	Unknown.	T .00779400000000	CI	2003	2003	N	N			
Tc-99	Metallic.	Unknown.	T .00152500000000	CI	2003	2003	N	N			
I-129	Metallic.	Unknown.	T .00000039645000	CI	2003	2003	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

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Cs-137	Metallic.	Unknown.	T 1.6940000000000	CI	2003	2003	N	N			
Ce-144	Metallic.	Unknown.	T .039820000000000	CI	2003	2003	N	N			
Eu-154	Metallic.	Unknown.	T .000024570000000	CI	2003	2003	N	N			
Eu-155	Metallic.	Unknown.	T .079630000000000	CI	2003	2003	N	N			
U-234	Metallic.	Unknown.	T .000017790000000	CI	2003	2003	N	N			
U-235	Metallic.	Unknown.	T .000000381200000	CI	2003	2003	N	N			
U-236	Metallic.	Unknown.	T .000006777000000	CI	2003	2003	N	N			
Np-237	Metallic.	Unknown.	T .000011010000000	CI	2003	2003	N	N			
Pu-238	Metallic.	Unknown.	T .000457500000000	CI	2003	2003	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
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For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Metallic.	Unknown.	T .00045750000000	CI	2003	2003	N	N			
Pu-240	Metallic.	Unknown.	T .00004829000000	CI	2003	2003	N	N			
Pu-241	Metallic.	Unknown.	T .04998000000000	CI	2003	2003	N	N			
Am-241	Metallic.	Unknown.	T .00022870000000	CI	2003	2003	N	N			
Cm-242	Metallic.	Unknown.	T .00022870000000	CI	2003	2003	N	N			
Cm-244	Metallic.	Unknown.	T .00021180000000	CI	2003	2003	N	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

1. Type of source of information:
(check box)

- ☒ RWMIS ☐ other database
☐ sample analysis data
☐ operating records ☐ interview
☐ expert judgment ☐ reports
☐ generator forecasts
☐ other

3. Do the estimates of contaminant
quantities in Part C and D represent:

- ☒ best estimate
☐ worst case
☐ other

5. Do the data conflict with RWMIS?
(Historical or Present Data Only)

- ☐ no
☒ yes

7. Major unknowns in inventories of
contaminants:
Unidentified beta gamma (U-B-G) were
unknown. The Ci content was unknown.

2. Details concerning source (names, report no., dates, etc.)

4. If other than best estimate, explain why:

6. If yes, explain why:

A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:

U-B-G were identified based on EPRI NP-5077 for PWRs. PWR
was chosen because it is similar to ATR, the reactor at TRA.
The radionuclides chosen were based on a combination of the
following: cross section, half lives and fission products.
The preparer averaged the Ci content over 1984-1993, then
multiplied that number by 10 to reflect the number of
projected years.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

RT A - GENERAL INFORMATION PDT - 298

Preparer: Amaro, C.2. Date prepared: 07/16/94Generator: TRA
Area or contractor - use code from attached list)4. Particular facility: 603
(building number - use code from attached list)Number of waste stream from this facility:
27P6. Waste stream:
Non-compactible waste, such as glass, metal, etc.Type of radioactive waste (check box):
☐ TRU or suspect TRU
☐ LLW
☐ non-radioactiveActual years disposed of at SDA:
Starting year 1994 Ending year 20039. Waste stream volume:
Amount 250.0000 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume. Comments (specify number of pertinent question):
4. Also 670 and probably several other buildings.

1. General physical form (see attached list) _____
other scrap metals.
[X] other (specify) _____
glass. _____
2. Details on physical form (particularly confinement related)
This stream is a combination of non-compactible items, such
as glass and metal.
3. Chemical form: _____
unknown. _____
4. Inner packaging: [ ] plastic bag [X] plastic liner
[ ] metal liner [ ] none [ ] other (specify) _____
5. Waste container type (see attached list) _____
wooden box. _____
6. Other characteristics of interest: _____
7. Comments (specify number of pertinent question):
5. Probably also BLM and other containers.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
H-3	Unknown.	Unknown.	T 2.0460000000000	CI	1994	1994	Y	N			
C-14	Unknown.	Unknown.	T .27440000000000	CI	1994	1994	Y	N			
Fe-55	Unknown.	Unknown.	T 47.400000000000	CI	1994	1994	Y	N			
Ni-59	Unknown.	Unknown.	T .01422000000000	CI	1994	1994	Y	N			
Ni-63	Unknown.	Unknown.	T 7.9840000000000	CI	1994	1994	Y	N			
Co-60	Unknown.	Unknown.	T 16.720000000000	CI	1994	1994	Y	N			
Sr-90	Unknown.	Unknown.	T .02295000000000	CI	1994	1994	Y	N			
Tc-99	Unknown.	Unknown.	T .00449100000000	CI	1994	1994	Y	N			
I-129	Unknown.	Unknown.	T .00000116730000	CI	1994	1994	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Unknown.	Unknown.	T 4.99000000000000	CI	1994	1994	Y	N			
Ce-144	Unknown.	Unknown.	T .117300000000000	CI	1994	1994	Y	N			
Eu-154	Unknown.	Unknown.	T .000072350000000	CI	1994	1994	Y	N			
Eu-155	Unknown.	Unknown.	T .234500000000000	CI	1994	1994	Y	N			
U-234	Unknown.	Unknown.	T .000052390000000	CI	1994	1994	Y	N			
U-235	Unknown.	Unknown.	T .000001123000000	CI	1994	1994	Y	N			
U-236	Unknown.	Unknown.	T .000019960000000	CI	1994	1994	Y	N			
Np-237	Unknown.	Unknown.	T .000032430000000	CI	1994	1994	Y	N			
Pu-238	Unknown.	Unknown.	T .001347000000000	CI	1994	1994	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Unknown.	Unknown.	T .00134700000000	CI	1994	1994	Y	N			
Pu-240	Unknown.	Unknown.	T .00014220000000	CI	1994	1994	Y	N			
Pu-241	Unknown.	Unknown.	T .14720000000000	CI	1994	1994	Y	N			
Am-241	Unknown.	Unknown.	T .00067360000000	CI	1994	1994	Y	N			
Cm-242	Unknown.	Unknown.	T .00067360000000	CI	1994	1994	Y	N			
Cm-244	Unknown.	Unknown.	T .00062370000000	CI	1994	1994	Y	N			
H-3	Unknown.	Unknown.	T 2.04600000000000	CI	1995	1995	Y	N			
C-14	Unknown.	Unknown.	T .27440000000000	CI	1995	1995	Y	N			
Fe-55	Unknown.	Unknown.	T 47.400000000000	CI	1995	1995	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-59	Unknown.	Unknown.	T .01422000000000	CI	1995	1995	Y	N			
Ni-63	Unknown.	Unknown.	T 7.98400000000000	CI	1995	1995	Y	N			
Co-60	Unknown.	Unknown.	T 16.7200000000000	CI	1995	1995	Y	N			
Sr-90	Unknown.	Unknown.	T .02295000000000	CI	1995	1995	Y	N			
Tc-99	Unknown.	Unknown.	T .00449100000000	CI	1995	1995	Y	N			
I-129	Unknown.	Unknown.	T .00000116730000	CI	1995	1995	Y	N			
Cs-137	Unknown.	Unknown.	T 4.99000000000000	CI	1995	1995	Y	N			
Ce-144	Unknown.	Unknown.	T .11730000000000	CI	1995	1995	Y	N			
Eu-154	Unknown.	Unknown.	T .00007235000000	CI	1995	1995	Y	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-155	Unknown.	Unknown.	T .23450000000000	CI	1995	1995	Y	N			
U-234	Unknown.	Unknown.	T .00005239000000	CI	1995	1995	Y	N			
U-235	Unknown.	Unknown.	T .00000112300000	CI	1995	1995	Y	N			
U-236	Unknown.	Unknown.	T .00001996000000	CI	1995	1995	Y	N			
Np-237	Unknown.	Unknown.	T .00003243000000	CI	1995	1995	Y	N			
Pu-238	Unknown.	Unknown.	T .00134700000000	CI	1995	1995	Y	N			
Pu-239	Unknown.	Unknown.	T .00134700000000	CI	1995	1995	Y	N			
Pu-240	Unknown.	Unknown.	T .00014220000000	CI	1995	1995	Y	N			
Pu-241	Unknown.	Unknown.	T .14720000000000	CI	1995	1995	Y	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Unknown.	Unknown.	T .000673600000000	CI	1995	1995	Y	N			
Cm-242	Unknown.	Unknown.	T .000673600000000	CI	1995	1995	Y	N			
Cm-244	Unknown.	Unknown.	T .000623700000000	CI	1995	1995	Y	N			
H-3	Unknown.	Unknown.	T 2.04600000000000	CI	1996	1996	Y	N			
C-14	Unknown.	Unknown.	T .274400000000000	CI	1996	1996	Y	N			
Fe-55	Unknown.	Unknown.	T 47.4000000000000	CI	1996	1996	Y	N			
Ni-59	Unknown.	Unknown.	T .014220000000000	CI	1996	1996	Y	N			
Ni-63	Unknown.	Unknown.	T 7.98400000000000	CI	1996	1996	Y	N			
Co-60	Unknown.	Unknown.	T 16.7200000000000	CI	1996	1996	Y	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sr-90	Unknown.	Unknown.	T .02295000000000	CI	1996	1996	Y	N			
Tc-99	Unknown.	Unknown.	T .00449100000000	CI	1996	1996	Y	N			
I-129	Unknown.	Unknown.	T .00000116730000	CI	1996	1996	Y	N			
Cs-137	Unknown.	Unknown.	T 4.99000000000000	CI	1996	1996	Y	N			
Ce-144	Unknown.	Unknown.	T .11730000000000	CI	1996	1996	Y	N			
Eu-154	Unknown.	Unknown.	T .00007235000000	CI	1996	1996	Y	N			
Eu-155	Unknown.	Unknown.	T .23450000000000	CI	1996	1996	Y	N			
U-234	Unknown.	Unknown.	T .00005239000000	CI	1996	1996	Y	N			
U-235	Unknown.	Unknown.	T .00000112300000	CI	1996	1996	Y	N			

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Np-237	Unknown.	Unknown.	T .00003243000000	CI	1996	1996	Y	N			
Pu-238	Unknown.	Unknown.	T .00134700000000	CI	1996	1996	Y	N			
Pu-239	Unknown.	Unknown.	T .00134700000000	CI	1996	1996	Y	N			
Pu-240	Unknown.	Unknown.	T .00014220000000	CI	1996	1996	Y	N			
Pu-241	Unknown.	Unknown.	T .14720000000000	CI	1996	1996	Y	N			
Am-241	Unknown.	Unknown.	T .00067360000000	CI	1996	1996	Y	N			
Cm-242	Unknown.	Unknown.	T .00067360000000	CI	1996	1996	Y	N			
Cm-244	Unknown.	Unknown.	T .00062370000000	CI	1996	1996	Y	N			

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C-14	Unknown.	Unknown.	T .27440000000000	CI	1997	1997	Y	N			
Fe-55	Unknown.	Unknown.	T 47.400000000000	CI	1997	1997	Y	N			
Ni-59	Unknown.	Unknown.	T .01422000000000	CI	1997	1997	Y	N			
Ni-63	Unknown.	Unknown.	T 7.9840000000000	CI	1997	1997	Y	N			
Co-60	Unknown.	Unknown.	T 16.720000000000	CI	1997	1997	Y	N			
Sr-90	Unknown.	Unknown.	T .02295000000000	CI	1997	1997	Y	N			
Tc-99	Unknown.	Unknown.	T .00449100000000	CI	1997	1997	Y	N			
I-129	Unknown.	Unknown.	T .00000116730000	CI	1997	1997	Y	N			

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Cs-137	Unknown.	Unknown.	T 4.9900000000000	CI	1997	1997	Y	N			
Ce-144	Unknown.	Unknown.	T .11730000000000	CI	1997	1997	Y	N			
Eu-154	Unknown.	Unknown.	T .00007235000000	CI	1997	1997	Y	N			
Eu-155	Unknown.	Unknown.	T .23450000000000	CI	1997	1997	Y	N			
U-234	Unknown.	Unknown.	T .00005239000000	CI	1997	1997	Y	N			
U-235	Unknown.	Unknown.	T .00000112300000	CI	1997	1997	Y	N			
U-236	Unknown.	Unknown.	T .00001996000000	CI	1997	1997	Y	N			
Np-237	Unknown.	Unknown.	T .00003243000000	CI	1997	1997	Y	N			
Pu-238	Unknown.	Unknown.	T .00134700000000	CI	1997	1997	Y	N			

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Pu-239	Unknown.	Unknown.	T .00134700000000	CI	1997	1997	Y	N			
Pu-240	Unknown.	Unknown.	T .00014220000000	CI	1997	1997	Y	N			
Pu-241	Unknown.	Unknown.	T .14720000000000	CI	1997	1997	Y	N			
Am-241	Unknown.	Unknown.	T .00067360000000	CI	1997	1997	Y	N			
Cm-242	Unknown.	Unknown.	T .00067360000000	CI	1997	1997	Y	N			
Cm-244	Unknown.	Unknown.	T .00062370000000	CI	1997	1997	Y	N			
H-3	Unknown.	Unknown.	T 2.04600000000000	CI	1998	1998	Y	N			
C-14	Unknown.	Unknown.	T .27440000000000	CI	1998	1998	Y	N			
Fe-55	Unknown.	Unknown.	T 47.4000000000000	CI	1998	1998	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-59	Unknown.	Unknown.	T .01422000000000	CI	1998	1998	Y	N			
Ni-63	Unknown.	Unknown.	T 7.98400000000000	CI	1998	1998	Y	N			
Co-60	Unknown.	Unknown.	T 16.72000000000000	CI	1998	1998	Y	N			
Sr-90	Unknown.	Unknown.	T .0229500000000000	CI	1998	1998	Y	N			
Tc-99	Unknown.	Unknown.	T .0044910000000000	CI	1998	1998	Y	N			
I-129	Unknown.	Unknown.	T .0000011673000000	CI	1998	1998	Y	N			
Cs-137	Unknown.	Unknown.	T 4.9900000000000000	CI	1998	1998	Y	N			
Ce-144	Unknown.	Unknown.	T .1173000000000000	CI	1998	1998	Y	N			
Eu-154	Unknown.	Unknown.	T .0000723500000000	CI	1998	1998	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Provide additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-155	Unknown.	Unknown.	T .23450000000000	CI	1998	1998	Y	N			
U-234	Unknown.	Unknown.	T .00005239000000	CI	1998	1998	Y	N			
U-235	Unknown.	Unknown.	T .00000112300000	CI	1998	1998	Y	N			
U-236	Unknown.	Unknown.	T .00001996000000	CI	1998	1998	Y	N			
Np-237	Unknown.	Unknown.	T .00003243000000	CI	1998	1998	Y	N			
Pu-238	Unknown.	Unknown.	T .00134700000000	CI	1998	1998	Y	N			
Pu-239	Unknown.	Unknown.	T .00134700000000	CI	1998	1998	Y	N			
Pu-240	Unknown.	Unknown.	T .00014220000000	CI	1998	1998	Y	N			
Pu-241	Unknown.	Unknown.	T .14720000000000	CI	1998	1998	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Unknown.	Unknown.	T .00067360000000	CI	1998	1998	Y	N			
Cm-242	Unknown.	Unknown.	T .00067360000000	CI	1998	1998	Y	N			
Cm-244	Unknown.	Unknown.	T .00062370000000	CI	1998	1998	Y	N			
H-3	Unknown.	Unknown.	T 2.046000000000	CI	1999	1999	Y	N			
C-14	Unknown.	Unknown.	T .27440000000000	CI	1999	1999	Y	N			
Fe-55	Unknown.	Unknown.	T 47.400000000000	CI	1999	1999	Y	N			
Ni-59	Unknown.	Unknown.	T .01422000000000	CI	1999	1999	Y	N			
Ni-63	Unknown.	Unknown.	T 7.984000000000	CI	1999	1999	Y	N			
Co-60	Unknown.	Unknown.	T 16.720000000000	CI	1999	1999	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
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For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sr-90	Unknown.	Unknown.	T .02295000000000	CI	1999	1999	Y	N			
Tc-99	Unknown.	Unknown.	T .00449100000000	CI	1999	1999	Y	N			
I-129	Unknown.	Unknown.	T .00000116730000	CI	1999	1999	Y	N			
Cs-137	Unknown.	Unknown.	T 4.99000000000000	CI	1999	1999	Y	N			
Ce-144	Unknown.	Unknown.	T .11730000000000	CI	1999	1999	Y	N			
Eu-154	Unknown.	Unknown.	T .00007235000000	CI	1999	1999	Y	N			
Eu-155	Unknown.	Unknown.	T .23450000000000	CI	1999	1999	Y	N			
U-234	Unknown.	Unknown.	T .00005239000000	CI	1999	1999	Y	N			
U-235	Unknown.	Unknown.	T .00000112300000	CI	1999	1999	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Provide additional information or explanations (indicate pertinent contaminant)

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-236	Unknown.	Unknown.	T .000019960000000	CI	1999	1999	Y	N			
Np-237	Unknown.	Unknown.	T .000032430000000	CI	1999	1999	Y	N			
Pu-238	Unknown.	Unknown.	T .001347000000000	CI	1999	1999	Y	N			
Pu-239	Unknown.	Unknown.	T .001347000000000	CI	1999	1999	Y	N			
Pu-240	Unknown.	Unknown.	T .000142200000000	CI	1999	1999	Y	N			
Pu-241	Unknown.	Unknown.	T .147200000000000	CI	1999	1999	Y	N			
Am-241	Unknown.	Unknown.	T .000673600000000	CI	1999	1999	Y	N			
Cm-242	Unknown.	Unknown.	T .000673600000000	CI	1999	1999	Y	N			
Cm-244	Unknown.	Unknown.	T .000623700000000	CI	1999	1999	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(Annual/Total) Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samples	Maximum Value/STD	Basis for Uncertainty
H-3	Unknown.	Unknown.	T 2.0460000000000	CI	2000	2000	Y	N			
C-14	Unknown.	Unknown.	T .2744000000000	CI	2000	2000	Y	N			
Fe-55	Unknown.	Unknown.	T 47.400000000000	CI	2000	2000	Y	N			
Ni-59	Unknown.	Unknown.	T .0142200000000	CI	2000	2000	Y	N			
Ni-63	Unknown.	Unknown.	T 7.984000000000	CI	2000	2000	Y	N			
Co-60	Unknown.	Unknown.	T 16.72000000000	CI	2000	2000	Y	N			
Sr-90	Unknown.	Unknown.	T .0229500000000	CI	2000	2000	Y	N			
Tc-99	Unknown.	Unknown.	T .0044910000000	CI	2000	2000	Y	N			
I-129	Unknown.	Unknown.	T .0000011673000	CI	2000	2000	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Unknown.	Unknown.	T 4.9900000000000	CI	2000	2000	Y	N			
Ce-144	Unknown.	Unknown.	T .117300000000000	CI	2000	2000	Y	N			
Eu-154	Unknown.	Unknown.	T .000072350000000	CI	2000	2000	Y	N			
Eu-155	Unknown.	Unknown.	T .234500000000000	CI	2000	2000	Y	N			
U-234	Unknown.	Unknown.	T .000052390000000	CI	2000	2000	Y	N			
U-235	Unknown.	Unknown.	T .000001123000000	CI	2000	2000	Y	N			
U-236	Unknown.	Unknown.	T .000019960000000	CI	2000	2000	Y	N			
Np-237	Unknown.	Unknown.	T .000032430000000	CI	2000	2000	Y	N			
Pu-238	Unknown.	Unknown.	T .001347000000000	CI	2000	2000	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Unknown.	Unknown.	T .00134700000000	CI	2000	2000	Y	N			
Pu-240	Unknown.	Unknown.	T .00014220000000	CI	2000	2000	Y	N			
Pu-241	Unknown.	Unknown.	T .14720000000000	CI	2000	2000	Y	N			
Am-241	Unknown.	Unknown.	T .00067360000000	CI	2000	2000	Y	N			
Cm-242	Unknown.	Unknown.	T .00067360000000	CI	2000	2000	Y	N			
Cm-244	Unknown.	Unknown.	T .00062370000000	CI	2000	2000	Y	N			
H-3	Unknown.	Unknown.	T 2.0460000000000	CI	2001	2001	Y	N			
C-14	Unknown.	Unknown.	T .27440000000000	CI	2001	2001	Y	N			
Fe-55	Unknown.	Unknown.	T 47.400000000000	CI	2001	2001	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-59	Unknown.	Unknown.	T .01422000000000	CI	2001	2001	Y	N			
Ni-63	Unknown.	Unknown.	T 7.98400000000000	CI	2001	2001	Y	N			
Co-60	Unknown.	Unknown.	T 16.72000000000000	CI	2001	2001	Y	N			
Sr-90	Unknown.	Unknown.	T .0229500000000000	CI	2001	2001	Y	N			
Tc-99	Unknown.	Unknown.	T .0044910000000000	CI	2001	2001	Y	N			
I-129	Unknown.	Unknown.	T .0000011673000000	CI	2001	2001	Y	N			
Cs-137	Unknown.	Unknown.	T 4.9900000000000000	CI	2001	2001	Y	N			
Ce-144	Unknown.	Unknown.	T .1173000000000000	CI	2001	2001	Y	N			
Eu-154	Unknown.	Unknown.	T .0000723500000000	CI	2001	2001	Y	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-155	Unknown.	Unknown.	T .23450000000000	CI	2001	2001	Y	N			
U-234	Unknown.	Unknown.	T .00005239000000	CI	2001	2001	Y	N			
U-235	Unknown.	Unknown.	T .00000112300000	CI	2001	2001	Y	N			
U-236	Unknown.	Unknown.	T .00001996000000	CI	2001	2001	Y	N			
Np-237	Unknown.	Unknown.	T .00003243000000	CI	2001	2001	Y	N			
Pu-238	Unknown.	Unknown.	T .00134700000000	CI	2001	2001	Y	N			
Pu-239	Unknown.	Unknown.	T .00134700000000	CI	2001	2001	Y	N			
Pu-240	Unknown.	Unknown.	T .00014220000000	CI	2001	2001	Y	N			
Pu-241	Unknown.	Unknown.	T .14720000000000	CI	2001	2001	Y	N			

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Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Unknown.	Unknown.	T .00067360000000	CI	2001	2001	Y	N			
Cm-242	Unknown.	Unknown.	T .00067360000000	CI	2001	2001	Y	N			
Cm-244	Unknown.	Unknown.	T .00062370000000	CI	2001	2001	Y	N			
H-3	Unknown.	Unknown.	T 2.0460000000000	CI	2002	2002	Y	N			
C-14	Unknown.	Unknown.	T .27440000000000	CI	2002	2002	Y	N			
Fe-55	Unknown.	Unknown.	T 47.400000000000	CI	2002	2002	Y	N			
Ni-59	Unknown.	Unknown.	T .01422000000000	CI	2002	2002	Y	N			
Ni-63	Unknown.	Unknown.	T 7.9840000000000	CI	2002	2002	Y	N			
Co-60	Unknown.	Unknown.	T 16.720000000000	CI	2002	2002	Y	N			

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Additional information or explanations (indicate pertinent contaminant)

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Sr-90	Unknown.	Unknown.	T .022950000000000	CI	2002	2002	Y	N			
Tc-99	Unknown.	Unknown.	T .004491000000000	CI	2002	2002	Y	N			
I-129	Unknown.	Unknown.	T .000001167300000	CI	2002	2002	Y	N			
Cs-137	Unknown.	Unknown.	T 4.990000000000000	CI	2002	2002	Y	N			
Ce-144	Unknown.	Unknown.	T .117300000000000	CI	2002	2002	Y	N			
Eu-154	Unknown.	Unknown.	T .000072350000000	CI	2002	2002	Y	N			
Eu-155	Unknown.	Unknown.	T .234500000000000	CI	2002	2002	Y	N			
U-234	Unknown.	Unknown.	T .000052390000000	CI	2002	2002	Y	N			
U-235	Unknown.	Unknown.	T .000001123000000	CI	2002	2002	Y	N			

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U-236	Unknown.	Unknown.	T .00001996000000	CI	2002	2002	Y	N			
Np-237	Unknown.	Unknown.	T .00003243000000	CI	2002	2002	Y	N			
Pu-238	Unknown.	Unknown.	T .00134700000000	CI	2002	2002	Y	N			
Pu-239	Unknown.	Unknown.	T .00134700000000	CI	2002	2002	Y	N			
Pu-240	Unknown.	Unknown.	T .00014220000000	CI	2002	2002	Y	N			
Pu-241	Unknown.	Unknown.	T .14720000000000	CI	2002	2002	Y	N			
Am-241	Unknown.	Unknown.	T .00067360000000	CI	2002	2002	Y	N			
Cm-242	Unknown.	Unknown.	T .00067360000000	CI	2002	2002	Y	N			
Cm-244	Unknown.	Unknown.	T .00062370000000	CI	2002	2002	Y	N			

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Fe-55	Unknown.	Unknown.	T 47.400000000000	CI	2003	2003	Y	N			
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Ni-63	Unknown.	Unknown.	T 7.9840000000000	CI	2003	2003	Y	N			
Co-60	Unknown.	Unknown.	T 16.720000000000	CI	2003	2003	Y	N			
Sr-90	Unknown.	Unknown.	T .02295000000000	CI	2003	2003	Y	N			
Tc-99	Unknown.	Unknown.	T .00449100000000	CI	2003	2003	Y	N			
I-129	Unknown.	Unknown.	T .00000116730000	CI	2003	2003	Y	N			

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Additional information or explanations (indicate pertinent contaminant)

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Ce-144	Unknown.	Unknown.	T .117300000000000	CI	2003	2003	Y	N			
Eu-154	Unknown.	Unknown.	T .000072350000000	CI	2003	2003	Y	N			
Eu-155	Unknown.	Unknown.	T .234500000000000	CI	2003	2003	Y	N			
U-234	Unknown.	Unknown.	T .000052390000000	CI	2003	2003	Y	N			
U-235	Unknown.	Unknown.	T .000001123000000	CI	2003	2003	Y	N			
U-236	Unknown.	Unknown.	T .000019960000000	CI	2003	2003	Y	N			
Np-237	Unknown.	Unknown.	T .000032430000000	CI	2003	2003	Y	N			
Pu-238	Unknown.	Unknown.	T .001347000000000	CI	2003	2003	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Unknown.	Unknown.	T .00134700000000	CI	2003	2003	Y	N			
Pu-240	Unknown.	Unknown.	T .00014220000000	CI	2003	2003	Y	N			
Pu-241	Unknown.	Unknown.	T .14720000000000	CI	2003	2003	Y	N			
Am-241	Unknown.	Unknown.	T .00067360000000	CI	2003	2003	Y	N			
Cm-242	Unknown.	Unknown.	T .00067360000000	CI	2003	2003	Y	N			
Cm-244	Unknown.	Unknown.	T .00062370000000	CI	2003	2003	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

Type of source of information:
check box)

- ☐ RWMIS ☐ other database
- ☐ sample analysis data
- ☐ operating records ☐ interview
- ☐ expert judgment ☐ reports
- ☐ generator forecasts
- ☐ other

Do the estimates of contaminant
amounts in Part C and D represent:

- ☐ best estimate
- ☐ worst case
- ☐ other

Do the data conflict with RWMIS?
(Historical or Present Data Only)

- ☐ no
- ☐ yes

Major unknowns in inventories of
contaminants:

Identified beta gamma (U-B-G) was
known. The Ci content is unknown.

2. Details concerning source (names, report no., dates, etc.)
SJK-005-93, S.J. Keating's letter to V.C. Randall on
November 17, 1993, "Test Reactor Area (TRA) Radioactive
Waste Forecasts".

4. If other than best estimate, explain why:

6. If yes, explain why:
A portion of or all of the measurements were assumed to be
taken using a G-M detector which only measures gamma
emitters; beta emitters have been added to the RWMIS
activity based on scaling factors. Therefore, the total
activity will be greater than that in RWMIS.

8. Key assumptions used to deal with the unknowns:
U-B-G radionuclides were chosen based on EPR1 NP-5077 for
dry active waste for PWRs. The PWR similar to ATR, the
reactor at TRA. The radionuclides chosen were based on a
combination of the following: cross section, half lives, and
fission products. This stream is a combination of what is
reported in S.J. Keating letter to V.C. Randall, SJK-005-93
"Test Reactor Area (TRA) Radioactive Wastes Forecasts",
November 17, 1993 and averaging 1984-1993 noncompactible
waste. The present waste average was multiplied by 10 to
reflect the 10 projected years.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 300

1. Preparer: Amaro, C.2. Date prepared: 07/16/943. Generator: TRA
(area or contractor - use code from attached list)4. Particular facility: 670
(building number - use code from attached list)5. Number of waste stream from this facility:
1P6. Waste stream:
Beryllium block and shims from ATR.7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive8. Actual years disposed of at SDA:
Starting year 1995 Ending year 20009. Waste stream volume:
Amount 648.0000 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

10. Comments (specify number of pertinent question):

1. General physical form (see attached list) <u>[X] other (specify)</u> <u>beryllium.</u>	2. Details on physical form(particularly confinement related) <u>Be metal and outer shims.</u> _____ _____
3. Chemical form: <u>e metal.</u>	4. Inner packaging: [ ] plastic bag [X] plastic liner [ ] metal liner [ ] none [ ] other (specify) _____
5. Waste container type (see attached list) <u>ther.</u>	6. Other characteristics of interest: _____
7. Comments (specify number of pertinent question):	

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
7440-41-7 Beryllium	Solid.	Beryllium.	T 50516000.000000	GM	1995	1995	N	-1%	+1%	

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
 Additional information or explanations (indicate pertinent contaminant)
 Maximum and minimum values are not known. It was assumed that the mass was determined by weighing, to accuracy of +/- 1%.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Metallic.		T 3384.0000000000	CI	1995	1995	N	N	-50%	+100%	
H-3	Metallic.	H.	T 1320000.00000000	CI	1995	1995	N	N	-50%	+100%	
Ni-63	Metallic.		T 12240.0000000000	CI	1995	1995	N	N	-50%	+100%	
Ni-59	Metallic.		T 117.600000000000	CI	1995	1995	N	N	-50%	+100%	
Nb-94	Metallic.		T .816000000000000	CI	1995	1995	N	N	-50%	+100%	
C-14	Metallic.		T .007200000000000	CI	1995	1995	N	N	-50%	+100%	
Co-60	Metallic.		T 125416.000000000	CI	2000	2000	N	N	-50%	+100%	
H-3	Metallic.	H.	T 1336000.00000000	CI	2000	2000	N	N	-50%	+100%	
Ni-63	Metallic.		T 7280.0000000000	CI	2000	2000	N	N	-50%	+100%	

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The waste stream will not be shipped for disposal until future years. However, the activation product radionuclides already exist in the affected metal components.

Although the waste generator forecast letter was used in the analysis, division of the activities by a factor of 4 to reflect bias in the forecast is inappropriate in this case because the activity already exists. Therefore, a symbol "N" (no) was placed in the forecast column.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A) annual/(T)otal quantity	Unit	Begin Year	End Year	Forecast	Sample Value?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ni-59		Metallc.	1 68.96000000000000	CI	2000	2000	N	N	-50%	+100%	
Nb-94		Metallc.	1 1.1040000000000000	CI	2000	2000	N	N	-50%	+100%	
C-14		Metallc.	1 2.2424000000000000	CI	2000	2000	N	N	-50%	+100%	

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column.

If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

This waste stream will not be shipped for disposal until future years. However, the activation product radionuclides already exist in the affected metal components. Although the waste generator forecast letter was used in the analysis, division of the activities by a factor of 4 to reflect bias in the forecast is inappropriate in this case because the activity already exists. Therefore, a symbol "N" (no) was placed in the forecast column.

Type of source of information:
(check box)

- ☐ RWMIS ☐ other database
- ☐ sample analysis data
- ☐ operating records ☒ interview
- ☐ expert judgment ☐ reports
- ☐ generator forecasts
- ☐ other

Do the estimates of contaminant
quantities in Part C and D represent:
☐ best estimate
☐ worst case
☐ other

Do the data conflict with RWMIS?
(Historical or Present Data Only)
☐ no
☐ yes

Major unknowns in inventories of
contaminants:
ne.

2. Details concerning source (names, report no., dates, etc.)
See Continuation Page of Part E.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
The short-lived Cr-51 and Fe-59 were deleted, based on
assuming that they will have been almost completely decayed
by the time the waste is buried, after storage for several
years.
On forecasted waste, totals on the individual radionuclides
can't match the forecasted totals. Twelve shipments each
with two blocks for the year 1995. Four shipments each with
four outer shims for the year 2000.

Continuation of Part E _____ Column or Question Number or Title 2.

.A. Jacobi letter to T.L. Clements, JAJ-006-93, "Beryllium Reflector Component Disposal Response", Sept. 17, 1993; J.O. Bower letter to R.N. Bhatt, JOB-09-94, "ATR Beryllium Inventory", March 16, 1994; S.J. Maheras, et al, "Radioactive Waste Management Complex Low-Level Waste Radiological Performance Assessment", EGG-WM-8773, INEL, May 1994; P.K. Nagata distribution, "Letter Report on Tritium Release from Buried Beryllium Reflectors", Dec. 14, 1993; T.A. Tomberlin letter to P.K. Nagata, TOM-1-94, "Review of Letter Report on Tritium Release From Buried Beryllium Reflectors", Jan. 19, 1994; T.A. Tomberlin letter to M.M. Garland, TOM-2-94, "Projected Tritium Inventory in the ATR Reflector at the End of Cycle 102B-1", Jan. 26, 1994; T.A. Tomberlin letter to L.J. Toomer, OM-7-92, "Characterization Update for Beryllium Reflector Components in the ATR Canal", Nov. 5, 1992; Communication from T. Hopkins, EG&G Idaho, Dec. 22, 1992; Communication from S.J. Maheras to N.N. Beatty, EG&G Idaho, August 31, 1992; W.W. Gary letter to J.A. Lake, WVG-362-92, "Disposition of TR Beryllium"; G.R. Longhurst letter to J.G. Crocker, GRL-13-91, "Disposition of ATR Beryllium, May 1991; G.R. Longhurst letter to W.W. Gary, GRL-13-91, "Experiment Core and Components Disposition", April 16, 1991; D.R. Wilkinson letter to L.J. Toomer, DRW-77-92, "Final Review and valuation for Test Reactors Area (TRA) Advanced Test Reactor (ATR) Waste Characterization Report", October 20, 1992; T. A. Tomberlin letter to R.N. Beatty, TOM-04-91, "Characterization of ATR Beryllium Reflector Components in the ATR Canal as of April 15, 1991", April 19, 1991; T.A. Tomberlin letter to R.N. Beatty, TOM-05-91, "Characterization of Outer Shim Control Cylinders in the ATR Canal as of April 15, 1991", May 8, 1991; J.A. Jacobi letter to D.R. Wilkinson, JAJ-30-92, "Characterization of Beryllium Waste Stream", July 10, 1992; J.D. Wells letter to L.J. Toomer, DW-43-92, "Waste Package Containment Requirements", August 11, 1992; R.N. Beatty letter to S.J. Maheras, RNB-11-92, "Estimated Isotope Activity in ATR Beryllium Reflector Blocks and Outer Shim Control Cylinders", June 11, 1992; D.R. Wilkinson letter to D.J. Bright, DWR-39-92, "Test Reactors Area Advanced Test Reactor (TRA/ATR) Beryllium Action Item DLF #324 Response", May 15, 1992; F.C. Cogarty letter to H.P. Mann, FCF-146-92, "Disposal of Expanded Beryllium Reflector Material", May 11, 1992; G.R. Longhurst distribution, GRL-20-92, "Reclamation of ATR Beryllium", March 23, 1992; M.M. Brown letter to A.D. Rodgers, RMB-01-88, "ATR Beryllium/Tritium Waste", Oct. 7, 1987; B.R. Baldwin letter to R.A. Brown, BRB-17-87, "Tritium Permeation Rate from ATR Beryllium", July 17, 1987; B.R. Baldwin letter to R.M. Brown, BRB-11-87, "Tritium Data for ATR Beryllium Blocks", May 8, 1987; B.R. Baldwin letter to D.W. Suthers, BRB-10-87, "Report of RWMC Beryllium Meeting", May 8, 1987; T.A. Tomberlin letter to D.E. Sheldon, TOM-30-86, "Tritium Content and Stability in Beryllium Stored in ATR Canal", Dec. 22, 1986; S.J. Keating letter to V.C. Randall, SJK-005-93, "Test Reactor Area (TRA) Radioactive Waste Forecasts"; J.O. Brower letter to R.N. Bhatt, JOB-23-94, "ATR Tritium Waste Inventory", Oct. 28, 1994.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 257

1. Preparer: Rhodes, Donald W.2. Date prepared: 07/06/943. Generator: WER
area or contractor - use code from attached list)4. Particular facility: COM
(building number - use code from attached list)5. Number of waste stream from this facility:
1R6. Waste stream:
Compactible wastes with low radionuclide content
received from all of the facilities at the INEL for
size reduction by compaction.7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive8. Actual years disposed of at SDA:
starting year 1987 Ending year 19919. Waste stream volume:
Amount 826.0000 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume

10. Comments (specify number of pertinent question):

General physical form (see attached list) 2. Details on physical form(particularly confinement related)
er scrap metals. Metal, filters, cloth, paper, plastic. Waste is compacted
other (specify) using a 200-ton compacter to reduce the volume prior to
disposal in the RWMC.

Chemical form:
bon steel, stainless steel, fiberglass
lters), plastic (halogenated and
-halogenated), and cellulose (wood).

4. Inner packaging: [ ] plastic bag [ ] plastic liner
[ ] metal liner [X] none [ ] other (specify)

Waste container type (see attached list)
al box.

6. Other characteristics of interest:
A total of 292 shipments was made to the RWMC.

Comments (specify number of pertinent question):

1. Also 21, 22, 23, 42, and 44.

5. Also BIN.

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
ne.										

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Sorbed on solids.	Probably oxide.	T 4.0000000000000	CI	1987	1991	N			
Cs-137	Sorbed on solids.	Probably oxide.	T 4.0000000000000	CI	1987	1991	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

Radionuclide content was negligible considering the large volume of waste disposed of, and it was reported as MAP and MFP on the waste shipment forms. The values are reported here as Co-60 and Cs-137, since these would be the radionuclides most easily measured by radiation instruments.

Type of source of information:
(check box)

- ☐ RWMIS ☒ other database
☐ sample analysis data
☐ operating records ☐ interview
☐ expert judgment ☐ reports
☐ other

Do the estimates of contaminant
quantities in Part C and D represent:

- ☒ best estimate
☐ worst case
☐ other

Do the data conflict with RWMIS?
(Historical or Present Data Only)

- ☒ no
☐ yes

Major unknowns in inventories of
contaminants:
Individual radionuclides were not reported.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout for 1984-93. Tech Note data compiled from
RWMIS by C.J. Barnard and M.J. Schlafman. Report
WM-F1-81-026 Rev. 9, June 1993, SAR for the Waste
Experimental Reduction Facility.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
The MAP and MFP were considered to be Co-60 and Cs-137
respectively.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

RT A - GENERAL INFORMATION RDT - 256

Preparer: Rhodes, Donald W.2. Date prepared: 07/06/94Generator: WER4. Particular facility: INC
(building number - use code from attached list)

Area or contractor - use code from attached list)

Number of waste stream from this facility:

6. Waste stream:
Waste received from all facilities at the INEL was
incinerated prior to disposal. The ash was disposed
of at the RWMC.1R

Type of radioactive waste (check box):

☐ TRU or suspect TRU☐ LLW☐ non-radioactive

Actual years disposed of at SDA:

Starting year 1987 Ending year 1993

9. Waste stream volume:

Amount 162.0000 Units Cubic meters.Check box: ☐ annual or ☒ total over all yearsCheck box: ☒ container volume or ☐ waste volume

. Comments (specify number of pertinent question):

6. Waste was required to meet the strict criteria with respect to radionuclide and hazardous
material content before it could be incinerated.

General physical form (see attached list) not, ash. ☐ other (specify) Chemical form: silica, calcium, and silicate. Waste container type (see attached list) metal barrel. Comments (specify number of pertinent question): 1. Also 11, 42, 41, and 44. 5. Also BXW, MWB, BIN, TX4, and BXM.	2. Details on physical form(particularly confinement related) Waste was primarily ash from the incineration of combustible materials, but also sometimes was solidified in concrete before disposal at the RWMC. Sometimes minor amounts of glass or metal chips were part of the waste. 4. Inner packaging: ☒ plastic bag ☐ plastic liner ☐ metal liner ☐ none ☐ other (specify) 6. Other characteristics of interest:

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Sorbed in ash.	Oxide.	T .190000000000000	CI	1987	1993	N			
Cs-137	Sorbed in ash.	Oxide.	T .210000000000000	CI	1987	1993	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The radionuclide content was primarily MAP, MFP. The values for MAP and MFP were converted to Co-60 and Cs-137 respectively. Other radionuclides were very minor compared to these two.

Type of source of information:
(check box)

☒ RWMIS ☐ other database
☐ sample analysis data
☐ operating records ☐ interview
☐ expert judgment ☐ reports
☐ other

Do the estimates of contaminant
quantities in Part C and D represent:

☒ best estimate
☐ worst case
☐ other

Do the data conflict with RWMIS?
(Historical or Present Data Only)

☒ no
☐ yes

Major unknowns in inventories of
contaminants:
Major radionuclide contamination reported
is MAP and MFP.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout 1984-93. Tech Note data compiled from RWMIS
by C.J. Barnard and M.J. Schlafman. Report WM-F1-81-026 Rev.
5, September 1985, SAR for the Waste Experimental Reduction
Facility.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
MAP and MFP assumed to be Co-60 and Cs-137 respectively.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

RT A - GENERAL INFORMATION RDT - 258

Preparer: Rhodes, Donald W.2. Date prepared: 07/06/94Generator: WER4. Particular facility: MET
(building number - use code from attached list)

Area or contractor - use code from attached list)

Number of waste stream from this facility:

1R6. Waste stream:
Primarily structural materials and equipment that
have been reduced in size at the WERF facility to
minimize the volume prior to disposal.

Type of radioactive waste (check box):

☐ TRU or suspect TRU☐ LLW☐ non-radioactive

Actual years disposed of at SDA:

Starting year 1985 Ending year 1991

9. Waste stream volume:

Amount 879.0000 Units Cubic meters.Check box: ☐ annual or ☒ total over all yearsCheck box: ☒ container volume or ☐ waste volume

10. Comments (specify number of pertinent question):

General physical form (see attached list)
 er scrap metals.
 other (specify)

2. Details on physical form(particularly confinement related)
Structural materials are dismantled and cut up with a plasma
arc torch so they will use up less storage volume at the
RWMC. Some metals were melted and cast into ingot.

Chemical form:
 al, carbon steel, stainless steel, and
 minum.

4. Inner packaging: ☐ plastic bag ☐ plastic liner
☐ metal liner ☒ none ☐ other (specify)

Waste container type (see attached list)
 oden box.

6. Other characteristics of interest:

Comments (specify number of pertinent question):

1. Also 21 and 42.

5. Also BLX, ING, O, Pb2 and Pb3.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Occluded in metal.	Metal.	T .670000000000000	CI	1985	1991	N			
Cs-137	Sorbed on metal.	Oxide.	T .730000000000000	CI	1985	1991	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

Radionuclide contaminants were listed as MAP and MFP on the waste disposal records. These values are reported here as Co-60 and Cs-137, which are probably the dominant radionuclides.

1. Type of source of information:
(check box)

- ☒ RWMIS ☐ other database
☐ sample analysis data
☐ operating records ☐ interview
☒ expert judgment ☒ reports
☐ other

2. Do the estimates of contaminant
quantities in Part C and D represent:

- ☒ best estimate
☐ worst case
☐ other

3. Do the data conflict with RWMIS?
(Historical or Present Data Only)

- ☒ no
☐ yes

4. Major unknowns in inventories of
contaminants:
The radionuclide contaminants are reported
as MAP and MFP.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout for 1984-93. Tech Note data compiled from
RWMIS by C.J. Barnard and M.J. Schlafman. Report
WM-F1-81-026, SAR for the Waste Experimental Reduction
Facility, Rev. 5, September 1985.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
Assumed that the major radionuclides were Co-60 and Cs-137
for MAP and MFP respectively.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 306

Preparer: Rhodes, Donald W.2. Date prepared: 08/22/94Generator: WER4. Particular facility: COM

area or contractor - use code from attached list)

(building number - use code from attached list)

Number of waste stream from this facility:

1P

6. Waste stream:

The waste stream is noncombustible material, such as
 light gauge metals, glass, acid producing
 combustible materials, such as plastics containing
 PVC, and combustible materials that exceed allowable
 radiation limits for incineration.

Type of radioactive waste (check box):

] TRU or suspect TRU

X] LLW

] non-radioactive

Actual years disposed of at SDA:

starting year 1994 Ending year 2003

9. Waste stream volume:

Amount 1716.0000 Units Cubic meters.

Check box: [ ] annual or [X] total over all years

Check box: [X] container volume or [ ] waste volume

0. Comments (specify number of pertinent question):

9. This is the volume after compaction. Prior to compaction, the volume was estimated to be

8577M3. Compaction is assumed to produce a 5:1 reduction in volume. The facilities that produce

the waste are TRA, CPP, NRF, TAN, ANL and a backlog of waste currently stored at WERF.

General physical form (see attached list) 2. Details on physical form(particularly confinement related)
 er scrap metals. Light gauge metals, wood, plastic, glass. In general,
 other (specify) noncombustibles with low radioactive contamination.

Chemical form: 4. Inner packaging: [ ] plastic bag [ ] plastic liner
al (stainless steel, carbon steel, [ ] metal liner [X] none [ ] other (specify)
minum) halogen-containing plastics, and
lulose (wood).

Waste container type (see attached list) 6. Other characteristics of interest:
al box.

Comments (specify number of pertinent question):
1. Also 42 and 44.

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
ne.										

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Fe-55	Occluded in metal.	Metal.	T 9.06000000000000	CI	1994	2003	Y	N			
Mn-56	Occluded in metal.	Metal.	T 1.62000000000000	CI	1994	2003	Y	N			
Co-60	Occluded in metal.	Metal.	T 40.11000000000000	CI	1994	2003	Y	N			
Co-58	Occluded in metal.	Metal.	T 5.38000000000000	CI	1994	2003	Y	N			
Mn-54	Occluded in metal.	Metal.	T 3.37000000000000	CI	1994	2003	Y	N			
Sr-90	Sorbed on waste solids.	Probably oxides.	T 22.31000000000000	CI	1994	2003	Y	N			
Y-90	Sorbed on waste solids.	Probably oxides.	T 22.31000000000000	CI	1994	2003	Y	N			
Eu-154	Sorbed on waste solids.	Probably oxides.	T .1900000000000000	CI	1994	2003	Y	N			
N-3	Sorbed on waste solids.	Probably oxides.	T 4.47000000000000	CI	1994	2003	Y	N	-50%	+50%	Professional judgment.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

Estimated curies were reported by TRA, CPP, NRF, ANL and TAN. These amounts were totaled for each radionuclide and the totals used to estimate the curies in the backlog at WERF by assuming that the number of curies was proportional to the volume of the waste. This number was then added to the total for each radionuclide from all of the listed facilities to obtain the above values.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ru-106	Sorbed on waste solids.	Probably oxides.	T .130000000000000	CI	1994	2003	Y	N			
Rh-106	Sorbed on waste solids.	Probably oxides.	T .130000000000000	CI	1994	2003	Y	N			
Eu-152	Sorbed on waste solids.	Probably oxides.	T 5.50000000000000	CI	1994	2003	Y	N			
Cs-134	Sorbed on waste solids.	Probably oxides.	T 6.59000000000000	CI	1994	2003	Y	N			
Cs-137	Sorbed on waste solids.	Probably oxides.	T 41.1500000000000	CI	1994	2003	Y	N			
Ce-144	Sorbed on waste solids.	Probably oxides.	T 1.39000000000000	CI	1994	2003	Y	N			
Pr-144	Sorbed on waste solids.	Probably oxides.	T 1.39000000000000	CI	1994	2003	Y	N			
Eu-155	Sorbed on waste solids.	Probably oxides.	T .740000000000000	CI	1994	2003	Y	N			
I-129	Sorbed on waste solids.	Probably oxides.	T .002000000000000	CI	1994	2003	Y	N	-50%	+50%	Professional judgment.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The estimated curies were reported by TRA, CPP, NRF, ANL and TAN. These amounts were totaled for each radionuclide and the totals used to estimate the curies in the waste backlog at WERF by assuming that the number of curies was proportional to the volume of the waste. This number was then added to the total for each radionuclide for all of the listed facilities to obtain the above values.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sb-125	Sorbed on waste solids.	Probably oxides.	T .180000000000000	CI	1994	2003	Y	N			
Ir-192	Sorbed on waste solids.	Probably oxides.	T 5.10000000000000	CI	1994	2003	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

Estimated curies were reported by TRA, CPP, NRF, ANL and TAN. These amounts were totaled for each radionuclide and the totals used to estimate the curies in the waste backlog at WERF by assuming that the number of curies was proportional to the volume of the waste. This number was then added to the total for each radionuclide from all of the listed facilities to obtain the above values.

. Type of source of information:
check box)

- ☐ RWMIS ☐ other database
☐ sample analysis data
☐ operating records ☒ interview
☒ expert judgment ☒ reports
☒ generator forecasts
☐ other

. Do the estimates of contaminant
quantities in Part C and D represent:

- ☒ best estimate
☐ worst case
☐ other

. Do the data conflict with RWMIS?
(Historical or Present Data Only)

- ☒ no
☐ yes

. Major unknowns in inventories of
contaminants:

Uncertain about future programs that will
produce the waste. Uncertain about startup
data for WERF.

2. Details concerning source (names, report no., dates, etc.)
Report WERF SAR, Vol. 1, WM-F1-81-026 Rev.9, June 1993.
Solid Radioactive Waste Forecast (RST-018-93) prepared by
J.R. Hitz and approved by R.L. Skinner, 11/15/93.
Conversation with J.L. Butler. See other sources on
continuation pages.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

Assumed the anticipated programs that will produce the waste
are valid. Assumed that WERF compaction will begin
operation the early part of 1995. Disposal is assumed to
begin in 1995.

Continuation of Part E   Column or Question Number or Title 2.

West Reactor Area (TRA) Radioactive Waste Forecasts, SJK-005-93, Nov. 17, 1993. Solid Radioactive
Waste Forecast, KAK-16-93, Nov. 15, 1993. NRF Forecasts for Waste sent to WERF,
1995-2003-PRL-15-94, Aug. 9, 1994. Solid Radioactive Waste Forecast for TAN, prepared by Mat
Vanister, Nov. 18, 1993. Solid Radioactive Waste Forecast for TAN prepared by David Gibbon, Nov.
16, 1993. Data Input for RPDT for RWMC SDA, R.P. Grant, Sept. 30, 1994.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 307

Preparer: Rhodes, Donald W.2. Date prepared: 08/22/94Generator: WER
Area or contractor - use code from attached list)4. Particular facility: INC
(building number - use code from attached list)Number of waste stream from this facility:
1P6. Waste stream:
This waste stream is combustible waste that is
scheduled to be incinerated at WERF or at a similar
off-site facility.Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactiveActual years disposed of at SDA:
Starting year 1994 Ending year 20039. Waste stream volume:
Amount 92.0000 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume

10. Comments (specify number of pertinent question):

9. This is the volume of ash that will be buried in the RWMC resulting from incineration of the
combustible waste. Incineration is assumed to produce a 200:1 reduction in volume. The original
volume, before incineration, was estimated to be 18,473 M3. The facilities that will produce this
stream are CPP, TRA, NRF, TAN, ANL and a backlog of waste currently stored at WERF.

General physical form (see attached list) 2. Details on physical form(particularly confinement related)
bustibles (paper, cloth, wood, etc.) Ash from incineration of paper, wood, cloth, mop heads,
other (specify) cardboard, plastic, etc.

Chemical form:
lulose and carbonates.

4. Inner packaging: [ ] plastic bag [ ] plastic liner
[ ] metal liner [X] none [ ] other (specify)

Waste container type (see attached list) al barrel.

6. Other characteristics of interest:

Comments (specify number of pertinent question):

2. The waste, after incineration, will be buried as ash unless it fails to pass the toxicity
characterization leaching procedure test. If it fails this test, it will be stabilized with
Portland cement, which would increase the volume for storage by a factor of 2. Little, if any waste
is expected to require stabilization.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
None.										

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Fe-55	Sorbed on waste solids.	Probably oxides.	T .63000000000000	CI	1994	2003	Y	N			
Ni-63	Sorbed on waste solids.	Probably oxides.	T .10000000000000	CI	1994	2003	Y	N			
Co-60	Sorbed on waste solids.	Probably oxides.	T 50.100000000000	CI	1994	2003	Y	N			
Co-58	Sorbed on waste solids.	Probably oxides.	T .21000000000000	CI	1994	2003	Y	N			
Sr-90	Sorbed on waste solids.	Probably oxides.	T 48.940000000000	CI	1994	2003	Y	N			
Y-90	Sorbed on waste solids.	Probably oxides.	T 48.940000000000	CI	1994	2003	Y	N			
Ru-106	Sorbed on waste solids.	Probably oxides.	T .22000000000000	CI	1994	2003	Y	N			
Rh-106	Sorbed on waste solids.	Probably oxides.	T .22000000000000	CI	1994	2003	Y	N			
H-3	Sorbed on waste solids.	Probably oxides.	T .82000000000000	CI	1994	2003	Y	N	-50%	+50%	Professional judgment.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

Estimated curies for the radionuclides were reported by TRA, CPP, NRF, ANL and TAN. The amounts for each radionuclide were totaled and the total used to estimate the curies in the waste backlog at WERF by assuming that the number of curies was proportional to the volume of the waste. The values above represent the totals for all of the listed facilities including the WERF backlog.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-134	Sorbed on waste solids.	Probably oxides.	T 7.71000000000000	CI	1994	2003	Y	N			
Cs-137	Sorbed on waste solids.	Probably oxides.	T 91.94000000000000	CI	1994	2003	Y	N			
Ce-144	Sorbed on waste solids.	Probably oxides.	T 1.90000000000000	CI	1994	2003	Y	N			
Pr-144	Sorbed on waste solids.	Probably oxides.	T 1.90000000000000	CI	1994	2003	Y	N			
Sb-125	Sorbed on waste solids.	Probably oxides.	T .3400000000000000	CI	1994	2003	Y	N			
Ir-192	Sorbed on waste solids.	Probably oxides.	T 5.91000000000000	CI	1994	2003	Y	N			
Eu-154	Sorbed on waste solids.	Probably oxides.	T 6.50000000000000	CI	1994	2003	Y	N			
Eu-155	Sorbed on waste solids.	Probably oxides.	T .5000000000000000	CI	1994	2003	Y	N			
I-129	Sorbed on waste solids.	Probably oxides.	T .0040000000000000	CI	1994	2003	Y	N	-50%	+50%	Professional judgment.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The estimated curies for the radionuclides were reported by TRA, CPP, NRF, ANL and TAN. The amounts for each radionuclide were totaled and the total used to estimate the curies in the waste backlog at WERF by assuming that the number of curies was proportional to the volume of the waste. The values above represent the totals for all of the listed facilities including the WERF backlog.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-238	Sorbed on waste solids.	Probably oxides.	T .018000000000000	CI	1994	2003	Y	N	-50%	+50%	Professional judgment.
Mn-54	Sorbed on waste solids.	Probably oxides.	T .170000000000000	CI	1994	2003	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

Estimated curies for the radionuclides were reported by TRA, CPP, NRF, ANL and IAN. The amounts for each radionuclide were totaled and the total used to estimate the curies in the waste backlog at WERF by assuming that the number of curies was proportional to the volume of the waste. The values above represent the totals for all of the listed facilities including the WERF backlog.

1. Type of source of information:
(check box)

- ☐ RWMIS ☐ other database
☐ sample analysis data
☐ operating records ☒ interview
☐ expert judgment ☒ reports
☒ generator forecasts
☐ other

2. Do the estimates of contaminant
quantities in Part C and D represent:
☒ best estimate
☐ worst case
☐ other

3. Do the data conflict with RWMIS?
(Historical or Present Data Only)
☒ no
☐ yes

4. Major unknowns in inventories of
contaminants:
Uncertainty in future programs that will
produce the waste. Uncertainty relative to
startup of WERF.

2. Details concerning source (names, report no., dates, etc.)
Report, WERF SAR, Vol.1, WM-F1-81-026, Rev. 9, June 1993 -
Solid Radioactive Waste Forecast (RS1-018-93) prepared by
J.R. Hitz and approved by R.L. Skinner, 11/15/93.
Conversation with J.R. Hitz, a WINCO employee. See other
sources on continuation page.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
Assumed that the anticipated programs that will produce the
waste are valid. Assumed that WERF or the other facility
would begin incineration of this waste the first part of
1995. Disposal is assumed to begin in 1995.

Continuation of Part E _____ Column or Question Number or Title 2. _____

est Reactor Area (TRA) Radioactive Waste Forecasts, SJK-005-93, Nov. 17, 1993. Solid Radioactive
Waste Forecast, KAK-16-93, Nov. 15, 1993. NRF Forecasts for Waste sent to WERF,
1995-2003-PRL-15-94, Aug. 9, 1994. Solid Radioactive Waste Forecast for TAN prepared by Mat
anister, Nov. 18, 1993. Solid Radioactive Waste Forecast for TAN prepared by David Gibbon, Nov.
6, 1993. Data Input for RPDT for RWMC SDA, R.P. Grant, Sept. 30, 1994.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

RT A - GENERAL INFORMATION PDT - 308

Preparer: Rhodes, Donald W.2. Date prepared: 08/22/94Generator: WER4. Particular facility: MET
(building number - use code from attached list)

Area or contractor - use code from attached list)

Number of waste stream from this facility:
1P6. Waste stream:
This waste stream is metal in various forms that is
sent to WERF for size reduction by cutting to reduce
the space it requires for burial in the RWMC.

Type of radioactive waste (check box):

☐ TRU or suspect TRU☐ LLW☐ non-radioactive

Actual years disposed of at SDA:

Starting year 1994 Ending year 2003

9. Waste stream volume:

Amount 2522.0000 Units Cubic meters.Check box: ☐ annual or ☒ total over all yearsCheck box: ☒ container volume or ☐ waste volume

10. Comments (specify number of pertinent question):

9. This is the volume after size reduction. Prior to size reduction the volume was estimated to be
12637 M3. Size reduction is assumed to produce a 5:1 reduction in volume. The facilities that
produced the waste are CPP, TRA, NRF, TAN, ANL and a backlog of waste currently stored at WERF.

General physical form (see attached list) _____ her scrap metals. _____] other (specify) _____ _____ _____ Chemical form: _____ ainless steel, carbon steel, and _____ uminum. _____ Waste container type (see attached list) _____ oden box. _____ Comments (specify number of pertinent question): _____	2. Details on physical form(particularly confinement related) <u>Pipe, structural metals, metal tanks, and machinery.</u> _____ _____ _____ 4. Inner packaging: [ ] plastic bag [ ] plastic liner [ ] metal liner [X] none [ ] other (specify) _____ 6. Other characteristics of interest: _____

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
None.										

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Fe-55	Occluded in metal.	Metal.	T 2.88000000000000	CI	1994	2003	Y	N			
Ni-63	Occluded in metal.	Metal.	T .820000000000000	CI	1994	2003	Y	N			
Co-60	Occluded in metal.	Metal.	T 10.6000000000000	CI	1994	2003	Y	N			
Co-58	Occluded in metal.	Metal.	T .070000000000000	CI	1994	2003	Y	N			
Mn-54	Occluded in metal.	Metal.	T .090000000000000	CI	1994	2003	Y	N			
Sr-90	Sorbed on waste solids.	Probably oxides.	T 19.4700000000000	CI	1994	2003	Y	N			
Y-90	Sorbed on waste solids.	Probably oxides.	T 19.4700000000000	CI	1994	2003	Y	N			
Eu-154	Sorbed on waste solids.	Probably oxides.	T .130000000000000	CI	1994	2003	Y	N			
H-3	Sorbed on waste solids.	Probably oxides.	T .180000000000000	CI	1994	2003	Y	N	-50%	+50%	Professional judgment.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

Estimated curies for the radionuclides were reported by TRA, CPP, NRF, ANL and TAN. These amounts were totaled for each radionuclide and the total used to estimate curies in the waste backlog at WERF by assuming that the number of curies was proportional to the volume of the waste. This number was then added to the totals for each radionuclide for all the listed facilities to obtain the above values. No C-14 was reported.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ru-106	Sorbed on waste solids.	Probably oxides.	T .260000000000000	CI	1994	2003	Y	N			
Rh-106	Sorbed on waste solids.	Probably oxides.	T .260000000000000	CI	1994	2003	Y	N			
Eu-152	Sorbed on waste solids.	Probably oxides.	T .050000000000000	CI	1994	2003	Y	N			
Cs-134	Sorbed on waste solids.	Probably oxides.	T .750000000000000	CI	1994	2003	Y	N			
Cs-137	Sorbed on waste solids.	Probably oxides.	T 18.1300000000000	CI	1994	2003	Y	N			
Ce-144	Sorbed on waste solids.	Probably oxides.	T .700000000000000	CI	1994	2003	Y	N			
Pr-144	Sorbed on waste solids.	Probably oxides.	T .700000000000000	CI	1994	2003	Y	N			
Eu-155	Sorbed on waste solids.	Probably oxides.	T .170000000000000	CI	1994	2003	Y	N			
I-129	Sorbed on waste solids.	Probably oxides.	T .007000000000000	CI	1994	2003	Y	N	-50%	+50%	Professional judgment.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The estimated curies for the radionuclides were reported by TRA, CPP, NRF, ANL and TAN. These amounts were totaled for each radionuclide and the total used to estimate the curies in the waste backlog at WERF by assuming that the number of curies was proportional to the volume of the waste. This number was then added to the totals for each radionuclide for all the listed facilities to obtain the above values. No C-14 was reported.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore- cast	Samp- les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sb-125	Sorbed on waste solids.	Probably oxides.	T .001000000000000	CI	1994	2003	Y	N			
Cr-51	Sorbed on waste solids.	Probably oxides.	T .050000000000000	CI	1994	2003	Y	N			

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.

Additional information or explanations (indicate pertinent contaminant)

The estimated curies for the radionuclides were reported by TRA, CPP, NRF, ANL and TAN. These amounts were totaled for each radionuclide and the total used to estimate the curies in the waste backlog at WERF by assuming that the number of curies was proportional to the volume of the waste. This number was then added to the totals for each radionuclide for all the listed facilities to obtain the above values. No C-14 was reported.

Type of source of information:
(check box)

- ☐ RWMIS ☐ other database
- ☐ sample analysis data
- ☐ operating records ☐ interview
- ☐ expert judgment ☒ reports
- ☐ generator forecasts
- ☐ other

Do the estimates of contaminant
quantities in Part C and D represent:
☒ best estimate
☐ worst case
☐ other

Do the data conflict with RWMIS?
(Historical or Present Data Only)
☒ no
☐ yes

Major unknowns in inventories of
contaminants:
Uncertain about future programs that will
produce the waste. Uncertain about startup
rate for WERF.

2. Details concerning source (names, report no., dates, etc.)
Report WERF SAR, Vol.1, WM-F1-81-026, Rev.9, June 1993 -
Solid Radioactive Waste Forecast (RST-018-93) prepared by
J.R. Hitz and approved by R.L. Skinner, 11/15/93.
Conversation with J.L. Butler. See other sources on
continuation page.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
Assumed that the anticipated programs that will produce the
waste are valid. Assumed that WERF size reduction will
begin operating the early part of 1995. Disposal assumed to
begin in 1995.

Continuation of Part E	Column or Question Number or Title 2.
West Reactor Area (TRA) Radioactive Waste Forecasts - SJK-005-93, Nov. 17, 1993. Solid Radioactive Waste Forecasts KAK-16-93, Nov. 15, 1993. NRF Forecasts for Waste sent to WERF, 1995-2003-PRL-15-94, Aug. 9, 1994. Solid Radioactive Waste Forecast for TAN, prepared by Mat Banister, Nov. 18, 1993. Solid Radioactive Waste Forecast for TAN prepared by David Gibbon, Nov. 16, 1993. Data Input for DT for RWMC SDA, R.P. Grant, Sept. 30, 1994.	

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 259

1. Preparer: Rhodes, Donald W.2. Date prepared: 07/05/943. Generator: WMC

[ ] area or contractor - use code from attached list)

4. Particular facility: WMC

(building number - use code from attached list)

5. Number of waste stream from this facility:

2R

6. Waste stream:

7. Type of radioactive waste (check box):

[ ] TRU or suspect TRU

[X] LLW

[ ] non-radioactive

7. The radionuclides are transuranic elements, normally in concentrations <10 nCi/g. A few shipments (approximately 14) had concentrations between 10 and 100 nCi/g, and one shipment slightly exceeded 100 nCi/g. All of this waste was produced at the Rocky Flats Operation and shipped to the INEL for disposal.

8. Actual years disposed of at SDA:

Starting year 1984 Ending year 1990

9. Waste stream volume:

Amount 246.5000 Units Cubic meters.

Check box: [ ] annual or [X] total over all years

Check box: [X] container volume or [ ] waste volume

10. Comments (specify number of pertinent question):

General physical form (see attached list) 2. Details on physical form(particularly confinement related)
her scrap metals.

[ ] other (specify)

Chemical form:

4. Inner packaging: [ ] plastic bag [ ] plastic liner
[ ] metal liner [X] none [ ] other (specify)

Waste container type (see attached list)
tal barrel.

6. Other characteristics of interest:

Comments (specify number of pertinent question):

each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed over the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Am-241	Absorbed on waste solids.	Probably oxide.	T .12300000000000	CI	1984	1990	N	-50%	+50%	Professional judgment.
Cs-137	Absorbed on waste solids.	Probably oxide.	T .10500000000000	CI	1984	1990	N			
Pu-239	Absorbed on waste solids.	Probably oxide.	T .00300000000000	CI	1984	1990	N	-50%	+50%	Professional judgment.
Co-60	Absorbed on waste solids.	Probably oxide.	T .10500000000000	CI	1984	1990	N	-50%	+50%	

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value. Additional information or explanations (indicate pertinent contaminant)

1. Type of source of information:
(check box)

- ☒ RWMIS ☒ other database
☐ sample analysis data
☐ operating records ☐ interview
☐ expert judgment ☐ reports
☐ other

2. Do the estimates of contaminant
quantities in Part C and D represent:

- ☒ best estimate
☐ worst case
☐ other

3. Do the data conflict with RWMIS?
(Historical or Present Data Only)

- ☒ no
☐ yes

4. Major unknowns in inventories of
contaminants:

all waste is in solid form.

2. Details concerning source (names, report no., dates, etc.)
Curie content is determined from isotopic analysis of smear
samples. The data is used to develop an mR/hr to curie
content conversion factor. The +/- 25% uncertainty is due
to measurements with G-M instruments. * These totals
include 7 backlog cargo container waste only.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 292

1. Preparer: Rhodes, Donald W.2. Date prepared: 08/02/943. Generator: WMC
(area or contractor - use code from attached list)4. Particular facility: ALL
(building number - use code from attached list)5. Number of waste stream from this facility:
1P6. Waste stream:
Miscellaneous waste, including cleanup materials,
resulting from operations conducted at the
Radioactive Waste Management Complex.7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive8. Actual years disposed of at SDA:
Starting year 1994 Ending year 20039. Waste stream volume:
Amount 161.1000 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume

10. Comments (specify number of pertinent question):

4. This stream includes waste from all of the buildings and other structures at the RWMC.

General physical form (see attached list) 2. Details on physical form (particularly confinement related)
her scrap metals. Waste will be placed in containers for disposal without any
] other (specify) special treatment to inhibit leachability, because the
radionuclide content is expected to be very low.

Chemical form: 4. Inner packaging: [ ] plastic bag [X] plastic liner
tal (carbon and stainless steels,) [ ] metal liner [ ] none [ ] other (specify)
llulose (wood and paper), plastic,
uminosilicates (soil), and silica
lass).

Waste container type (see attached list) 6. Other characteristics of interest:
oden box.

Comments (specify number of pertinent question):

1. Also 21, 41, 42, 43, and 44.

5. Also BXC and DMP.

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Contaminant & CAS Registry Number	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
None.										

* If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column.
If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

For each contaminant, complete at least one line on the following table. If any entries for that contaminant vary by year, fill out additional lines as needed to cover the varying entries for different years. For example, if the annual quantity disposed was x kg for 1952-56 and y kg for 1956-84, use two lines to handle this situation.

Radionuclide	Physical Form	Chemical Form	(A)nnual/(T)otal Quantity	Unit	Begin Year	End Year	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Sorbed on waste solids.	Probably oxides.	T .260000000000000	CI	1994	2003	Y	N			
Fe-55	Sorbed on waste solids.	Probably oxides.	T .070000000000000	CI	1994	2003	Y	N			
Ni-63	Sorbed on waste solids.	Probably oxides.	T .020000000000000	CI	1994	2003	Y	N			
Ru-106	Sorbed on waste solids.	Probably oxides.	T .001000000000000	CI	1994	2003	Y	N			
Pu-239	Sorbed on waste solids.	Probably oxides.	T .000800000000000	CI	1994	2003	Y	N	-50%	+50%	Professional judgment.
Am-241	Sorbed on waste solids.	Probably oxides.	T .000300000000000	CI	1994	2003	Y	N	-50%	+50%	Professional judgment.

If sample data are available, mark Y in the column titled "Samples?" and provide number of samples in the next column and standard deviation in the next column. If not, mark N and give the minimum value and maximum value.
Additional information or explanations (indicate pertinent contaminant)

1. Type of source of information:
(check box)

- ☐ RWMIS ☐ other database
☐ sample analysis data
☐ operating records ☐ interview
☐ expert judgment ☐ reports
☒ generator forecasts
☐ other

3. Do the estimates of contaminant
quantities in Part C and D represent:

- ☒ best estimate
☐ worst case
☐ other

5. Do the data conflict with RWMIS?
(Historical or Present Data Only)

- ☒ no
☐ yes

7. Major unknowns in inventories of
contaminants:
Chemical and physical forms not identified.

2. Details concerning source (names, report no., dates, etc.)
Solid Radioactive Waste Forecast prepared by D.M. Miley,
Oct. 18, 1993 and approved by J.R. Bishoff.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
Assumed that chemical and physical forms would be similar to
waste produced in the past.